



Tribal Habitat Conservation Plan

AUGUST 2010

Prepared for:



5401 Dinah Shore Drive
Palm Springs, California 92264

Tribal Habitat Conservation Plan

AUGUST 2010

Prepared for:



5401 Dinah Shore Drive
Palm Springs, California 92264

Prepared by:



7578 El Cajon Boulevard, Suite 200
La Mesa, California 91942

**Agua Caliente Band of Cahuilla Indians
Tribal Habitat Conservation Plan**

TABLE OF CONTENTS

<u>Title</u>	<u>Page</u>
EXECUTIVE SUMMARY	ES-1
INTRODUCTION.....	ES-1
TRIBAL GOVERNMENT AUTHORITY TO ADOPT AND IMPLEMENT THIS PLAN.....	ES-2
ENVIRONMENTAL SETTING.....	ES-3
PLAN AREA.....	ES-4
COVERED SPECIES.....	ES-5
COVERED ACTIVITIES	ES-5
CONSERVATION PROGRAM.....	ES-7
Habitat Preserve.....	ES-7
Mountains and Canyons Conservation Area	ES-7
Valley Floor Conservation Area.....	ES-8
Minimization and Mitigation Requirements for Covered Activities	ES-9
Tribal Funding and Assurances for Plan Implementation	ES-10
ALTERNATIVES	ES-10
CHAPTER 1 INTRODUCTORY PROVISIONS	1-1
1.1 BACKGROUND.....	1-1
1.2 PURPOSES OF THE TRIBAL HCP	1-2
1.3 GOALS.....	1-4
1.4 SCOPE OF THIS PLAN	1-5
1.5 PLANNING CONTEXT	1-8
1.6 JURISDICTIONAL FRAMEWORK/REGULATORY CONTEXT OF THIS PLAN.....	1-8
1.6.1 Overview of Jurisdictional Framework Applicable in Indian Country	1-9
1.6.1.1 Inherent Sovereign Authority of Tribal Government.....	1-9
1.6.1.2 Authority of the Federal Government; Authorization to Delegate Authority to Tribal Governments.....	1-9
1.6.1.3 Limited Authority of State and Local Government	1-10
1.6.2 Establishment of the Agua Caliente Indian Reservation; Tribal Government Structure, Regulatory, and Planning Activities.....	1-10
1.6.3 Federal Regulatory and Management Authority	1-13
1.6.3.1 Application of the Endangered Species Act within the Agua Caliente Indian Reservation	1-13
1.6.3.2 Summary of Relevant Provisions of the Federal Endangered Species Act	1-14
1.6.3.3 Roles of the USFWS and Tribe Under the Federal Endangered Species Act	1-17
1.6.3.4 Other Relevant Federal Agency Authority and Activity; Intent Regarding Consultation	1-21
1.6.4 State and Local Authority.....	1-23
1.6.4.1 Federal Delegation of Authority to State of California under PL-280.....	1-23
1.6.4.2 Tribal Delegation of Authority to State and Local Governments	1-24
1.6.4.3 Tribal Role in the Coachella Valley Association of Governments	1-26
1.6.4.4 Tribal Intent Regarding Relationship Between this Tribal HCP and State and Local Activities	1-26
1.7 OTHER PLANS AND PROGRAMS RELEVANT TO THE TRIBAL HCP	1-27

TABLE OF CONTENTS (cont.)

<u>Title</u>	<u>Page</u>
CHAPTER 2 EXISTING TRIBAL AND REGIONAL CONSERVATION PROGRAMS	2-1
2.1 EXISTING TRIBAL CONSERVATION PROGRAMS	2-1
2.1.1 Mountains and Canyons Conservation Area	2-1
2.1.1.1 Indian Canyons Heritage Park	2-2
2.1.1.2 Tahquitz Canyon	2-5
2.1.1.3 Trails Management Program	2-6
2.1.1.4 Wetlands Conservation Program	2-7
2.1.2 Valley Floor Planning Area	2-8
2.2 EXISTING CONSERVATION EFFORTS ON PUBLIC LANDS	2-8
2.2.1 Santa Rosa and San Jacinto Mountains	2-9
2.2.1.1 Santa Rosa and San Jacinto Mountains National Monument	2-9
2.2.1.2 San Bernardino National Forest: San Jacinto Wilderness	2-12
2.2.1.3 Mount San Jacinto State Park	2-13
2.2.1.4 Santa Rosa Mountains Wildlife Management Area	2-13
2.2.1.5 Santa Rosa Mountains State Game Refuge	2-14
2.2.1.6 San Bernardino National Forest: Santa Rosa Wilderness	2-14
2.2.1.7 Coachella Valley Mountains Conservancy	2-15
2.2.1.8 Magnesia Canyon Ecological Reserve	2-15
2.2.1.9 Boyd Deep Canyon Desert Research Center	2-15
2.2.2 Valley Floor Conservation Areas	2-16
2.2.2.1 Coachella Valley Preserve System	2-16
2.2.2.2 Joshua Tree National Park	2-17
2.3 PRIVATE LANDS MANAGEMENT	2-17
2.3.1 The Living Desert	2-17
2.3.2 The Bighorn Institute	2-18
2.4 COACHELLA VALLEY MULTIPLE SPECIES HABITAT CONSERVATION PLAN	2-18
 CHAPTER 3 NATURAL RESOURCES OF THE ACTION AREA	 3-1
3.1 SOURCES OF BIOLOGICAL DATA	3-2
3.2 NATURAL PLANT COMMUNITIES OCCURRING WITHIN THE ACTION AREA	3-2
3.2.1 Natural Plant Communities Occurring in the Mountains and Canyons	3-3
3.2.1.1 Sonoran Creosote Bush Scrub	3-5
3.2.1.2 Sonoran Mixed Woody and Succulent Scrub	3-5
3.2.1.3 Desert Fan Palm Oasis Woodland	3-5
3.2.1.4 Black Oak Forest	3-6
3.2.1.5 Interior Live Oak Chaparral	3-6
3.2.1.6 Peninsular Juniper Woodland and Scrub	3-6
3.2.1.7 Red Shank Chaparral	3-7
3.2.1.8 Sonoran Cottonwood-Willow Riparian Forest	3-7
3.2.1.9 Southern Sycamore-Alder Riparian Woodland	3-7
3.2.2 Natural Plant Communities Occurring on the Valley Floor	3-7
3.2.2.1 Active Sand Fields	3-8
3.2.2.2 Stabilized and Partially Stabilized Shielded Sand Fields	3-9
3.2.2.3 Ephemeral Sand Fields	3-9
3.2.2.4 Desert Dry Wash Woodland	3-9
3.2.2.5 Mesquite Hummocks	3-10
3.2.2.6 Desert Saltbush Scrub	3-10

TABLE OF CONTENTS (cont.)

<u>Title</u>	<u>Page</u>
CHAPTER 3 NATURAL RESOURCES OF THE ACTION AREA (cont.)	
3.3 SENSITIVE PLANT AND WILDLIFE SPECIES THAT OCCUR OR HAVE THE POTENTIAL TO OCCUR WITHIN THE ACTION AREA	3-10
3.3.1 Covered Species Potentially Occurring in the Mountains and Canyons Conservation Area	3-14
3.3.1.1 Peninsular Bighorn Sheep (<i>Ovis canadensis nelsoni</i>).....	3-14
3.3.1.2 Least Bell’s Vireo (<i>Vireo bellii pusillus</i>)	3-23
3.3.1.3 Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>).....	3-25
3.3.1.4 Summer Tanager (<i>Piranga rubra cooperi</i>).....	3-26
3.3.1.5 Yellow-breasted Chat (<i>Icteria virens</i>).....	3-26
3.3.1.6 Yellow Warbler (<i>Dendroica petechia brewstri</i>)	3-27
3.3.1.7 Mountain Yellow-legged Frog (<i>Rana muscosa</i>).....	3-27
3.3.1.8 Southern Yellow Bat (<i>Lasiurus ega [xanthinus]</i>).....	3-29
3.3.1.9 Triple-ribbed Milk-vetch (<i>Astragalus tricarinatus</i>).....	3-30
3.3.1.10 Desert Tortoise (<i>Xerobates</i> or <i>Gopherus agassizii</i>).....	3-30
3.3.1.11 Burrowing Owl (<i>Athene cunicularia</i>)	3-32
3.3.1.12 Gray Vireo (<i>Vireo vicinior</i>)	3-33
3.3.2 Covered Species Potentially Occurring on the Valley Floor.....	3-34
3.3.2.1 Coachella Valley Fringe-toed Lizard (<i>Uma inornata</i>).....	3-35
3.3.2.2 Coachella Giant Sand-treader Cricket (<i>Macrobaenetes valgum</i>).....	3-36
3.3.2.3 Flat-tailed Horned Lizard (<i>Phrynosoma mcalli</i>)	3-37
3.3.2.4 Palm Springs Pocket Mouse (<i>Perognathus longimembris bangsi</i>).....	3-48
3.3.2.5 Palm Springs (Coachella Valley Round-tailed) Ground Squirrel (<i>Spermophilus tereticaudus</i> var. <i>coachellae</i>).....	3-39
3.3.2.6 Coachella Valley Jerusalem Cricket (<i>Stenopelmatus cahuilaensis</i>)	3-40
3.3.2.7 Coachella Valley Milk-vetch (<i>Astragalus lentiginosus coachellae</i>).....	3-41
3.3.2.8 Le Conte’s Thrasher (<i>Toxostoma lecontei</i>).....	3-42
3.3.2.9 Crissal Thrasher (<i>Toxostoma crissale</i>).....	3-43
3.3.2.10 Little San Bernardino Mountains Gilia (<i>Linanthus maculatus</i>).....	3-43
CHAPTER 4 CONSERVATION PROGRAM	4-1
4.1 COMPLIANCE WITH ESA REQUIREMENTS.....	4-1
4.2 COVERED ACTIVITIES	4-2
4.3 CONSERVATION NEEDS AND BIOLOGICAL GOALS AND OBJECTIVES FOR COVERED SPECIES	4-8
4.3.1 Overall Biological Goals and Objectives	4-9
4.3.2 Species-specific Conservation Needs/Strategy, Biological Goals, and Objectives/Conditions	4-12
4.3.2.1 Peninsular Bighorn Sheep	4-12
4.3.2.2 Avian Riparian Species (Least Bell’s Vireo, Southwestern Willow Flycatcher, Summer Tanager, Yellow-breasted Chat, and Yellow Warbler)	4-15
4.3.2.3 Mountain Yellow-legged Frog	4-20

TABLE OF CONTENTS (cont.)

<u>Title</u>	<u>Page</u>
CHAPTER 4 CONSERVATION PROGRAM (cont.)	
4.3 CONSERVATION NEEDS AND BIOLOGICAL GOALS AND OBJECTIVES FOR COVERED SPECIES (cont.)	
4.3.2 Species-specific Conservation Needs/Strategy, Biological Goals, and Objectives/Conditions (cont.)	
4.3.2.4 Southern Yellow Bat	4-21
4.3.2.5 Triple-ribbed Milk-vetch	4-23
4.3.2.6 Desert Tortoise	4-23
4.3.2.7 Burrowing Owl.....	4-24
4.3.2.8 Gray Vireo.....	4-25
4.3.2.9 Blow Sand-dependent Species	4-25
4.3.2.10 Active and Stabilized Sand-dependent Species.....	4-27
4.3.2.11 Other Valley Floor Species	4-33
4.4 IMPACTS TO COVERED SPECIES	4-35
4.4.1 Peninsular Bighorn Sheep	4-59
4.4.2 Avian Riparian Species (Least Bell’s Vireo, Southwestern Willow Flycatcher, Summer Tanager, Yellow-breasted Chat, and Yellow Warbler).....	4-60
4.4.3 Mountain Yellow-legged Frog	4-61
4.4.4 Southern Yellow Bat	4-62
4.4.5 Triple-ribbed Milk-vetch	4-63
4.4.6 Desert Tortoise	4-64
4.4.7 Burrowing Owl.....	4-64
4.4.8 Gray Vireo.....	4-65
4.4.9 Blow Sand-dependent Species.....	4-64
4.4.10 Blow Sand and Stabilized Sand-dependent Species.....	4-68
4.4.11 Other Valley Floor Species.....	4-68
4.4.12 Summary of Impact Restrictions	4-70
4.5 HABITAT PRESERVE.....	4-71
4.5.1 Habitat Preserve Assembly by Covered Activities.....	4-71
4.5.2 Habitat Preserve Assembly by Acquisitions.....	4-73
4.5.2.1 Acquisition.....	4-73
4.5.2.2 Advance Habitat Preserve Acquisitions.....	4-74
4.5.3 Conservation Banking	4-74
4.5.4 Density Transfers, Density Bonus Program, and Development Clustering.....	4-75
4.6 CREATION OF CONSERVATION AREAS	4-75
4.7 GENERAL DESIGN AND MITIGATION REQUIREMENTS FOR COVERED ACTIVITIES	4-76
4.8 MCCA OVERLAY ZONE.....	4-77
4.8.1 Permitting Process for Covered Activities in the MCCA.....	4-78
4.8.1.1 Pre-application	4-78
4.8.1.2 Application.....	4-78
4.8.1.3 Conditional Use Permit Conditions	4-79
4.8.2 Density Categories and Slope/Density Ratios	4-79

TABLE OF CONTENTS (cont.)

<u>Title</u>	<u>Page</u>
CHAPTER 4 CONSERVATION PROGRAM (cont.)	
4.8 MCCA OVERLAY ZONE (cont.)	
4.8.3 MCCA Covered Activity Design and Mitigation Standards	4-80
4.8.4 Impact Avoidance and Mitigation Measures	4-81
4.8.4.1 Area-specific Conservation Requirements.....	4-82
4.8.4.2 Species-specific Avoidance and Minimization Measures.....	4-86
4.8.4.3 Planning Avoidance and Minimization Measures (Adjacency Measures) ..	4-90
4.8.4.4 Disturbance Period Avoidance and Minimization Measures	4-93
4.9 VALLEY FLOOR PLANNING AREA (VFPA)	4-96
4.9.1 Conservation Areas on the Valley Floor	4-96
4.9.2 Permitting Process for Covered Activities in the VFPA	4-103
4.9.2.1 Pre-application	4-103
4.9.2.2 Application.....	4-104
4.9.2.3 Conditional Use Permit Conditions	4-104
4.9.3 VFPA Covered Activity Design and Mitigation Standards.....	4-104
4.9.3.1 Covered Activities within or adjacent to Section 6 Target Acquisition Area	4-104
4.9.3.2 Covered Activities within Peninsular Bighorn Sheep-Sensitive VFPA Areas	4-108
4.9.3.3 Covered Activities within Indian Canyons Heritage Park and Tribal Reserve	4-108
4.9.3.4 All VFPA Covered Activities	4-109
4.10 MITIGATION THROUGH ENHANCEMENT OR RESTORATION	4-110
4.11 MANAGEMENT OF THE HABITAT PRESERVE	4-111
4.11.1 Goals and Approaches	4-112
4.11.2 Proposed Management Activities	4-113
4.11.2.1 General Management Measures.....	4-113
4.11.2.2 Trails Management	4-117
4.11.2.3 Species-specific Management Measures	4-118
4.11.3 Annual Work Plans.....	4-120
4.12 BIOLOGICAL MONITORING PROGRAM	4-121
4.12.1 Initial Assessment, Inventory, and Monitoring	4-122
4.12.1.1 Vegetation Communities/Habitats	4-123
4.12.1.2 Peninsular Bighorn Sheep.....	4-124
4.12.1.3 Riparian Areas	4-125
4.12.1.4 Southern Yellow Bat.....	4-128
4.12.1.5 Triple-ribbed Milk-vetch	4-128
4.12.1.6 Desert Tortoise.....	4-129
4.12.1.7 Burrowing Owl	4-129
4.12.1.8 Valley Floor Species	4-129
4.12.2 Long-term Monitoring in Habitat Preserve	4-129
4.12.2.1 Vegetation Communities/Habitats	4-130
4.12.2.2 Species-specific Monitoring	4-130
4.13 ADAPTIVE MANAGEMENT PROGRAM.....	4-132
4.13.1 Approach	4-132
4.13.2 Management Responsibilities.....	4-134

TABLE OF CONTENTS (cont.)

<u>Title</u>	<u>Page</u>
CHAPTER 4 CONSERVATION PROGRAM (cont.)	
4.14 RESPONSES TO CHANGED CIRCUMSTANCES	4-136
4.14.1 Wildland Fire	4-137
4.14.1.1 Risk Assessment	4-138
4.14.1.2 Preventive Measures	4-138
4.14.1.3 Planned Responses.....	4-139
4.14.2 Flood.....	4-140
4.14.2.1 Risk Assessment	4-140
4.14.2.2 Preventive Measures	4-140
4.14.2.3 Planned Responses.....	4-141
4.14.3 Drought.....	4-141
4.14.3.1 Risk Assessment	4-141
4.14.3.2 Preventive Measures	4-142
4.14.3.3 Planned Responses.....	4-142
4.14.4 Lowering of the Water Table.....	4-143
4.14.4.1 Risk Assessment	4-143
4.14.4.2 Preventive Measures	4-143
4.14.4.3 Planned Responses.....	4-144
4.14.5 Invasion by New Exotic Species	4-144
4.14.5.1 Risk Assessment	4-144
4.14.5.2 Preventive Measures	4-145
4.14.5.3 Planned Responses.....	4-145
4.14.6 New Listings of Species not Covered by the Tribal HCP	4-146
4.14.7 Changed Circumstances Not Provided for in the Tribal HCP	4-146
4.15 TRIBAL FUNDING AND ASSURANCES FOR PLAN IMPLEMENTATION	4-148
4.15.1 Tribal HCP Obligations	4-149
4.15.1.1 Administration/Plan Implementation Obligations	4-149
4.15.1.2 Habitat Preserve Assembly Obligations	4-150
4.15.1.3 Habitat Preserve Adaptive Management Obligations	4-150
4.15.1.4 No Further Obligations	4-150
4.15.2 Tribal HCP Costs.....	4-150
4.15.2.1 Cost Background.....	4-151
4.15.2.2 Administration/Plan Implementation Costs	4-152
4.15.2.3 Habitat Preserve Assembly Costs	4-152
4.15.2.4 Habitat Preserve Adaptive Management Costs.....	4-154
4.15.2.5 Endowment Fund Deposits	4-155
4.15.3 Habitat Preserve Funding	4-155
4.15.3.1 THCP Mitigation Fee.....	4-155
4.15.3.2 Tribal Funding	4-157
4.15.3.3 Endowment Earnings	4-157
4.15.3.4 Covered Project Administration Reimbursements.....	4-157
4.15.4 Tribal HCP Funding Assurances	4-158
4.15.4.1 General Funding Assurances	4-158
4.15.4.2 Habitat Preserve Funding Assurances.....	4-158
4.15.4.3 MCCA Specific Funding Assurances	4-159
4.15.4.4 VFPA Specific Funding Assurances.....	4-159

TABLE OF CONTENTS (cont.)

<u>Title</u>	<u>Page</u>
CHAPTER 4 CONSERVATION PROGRAM (cont.)	
4.15 TRIBAL FUNDING AND ASSURANCES FOR PLAN IMPLEMENTATION (cont.)	
4.15.5 Plan Implementation.....	4-160
4.15.5.1 Record-keeping and Monitoring.....	4-160
4.15.5.2 Annual Reports.....	4-161
4.15.5.3 Periodic Comprehensive Reviews.....	4-162
4.16 USFWS AUTHORIZATIONS AND ASSURANCES.....	4-162
4.16.1 Incidental Take of Covered Wildlife Species.....	4-162
4.16.2 Critical Habitat Designations.....	4-162
4.16.3 Annexations, Land Exchanges, and Changed Boundaries.....	4-163
4.16.4 Changed and Unforeseen Circumstances.....	4-163
4.17 PLAN AMENDMENT PROCESS.....	4-164
4.17.1 Modifications.....	4-165
4.17.1.1 Clerical Changes.....	4-165
4.17.1.2 Adaptive Management Changes.....	4-165
4.17.2 Minor Amendments.....	4-165
4.17.2.1 Minor Amendments Not Requiring USFWS Concurrence.....	4-166
4.17.2.2 Minor Amendments Requiring USFWS Concurrence.....	4-166
4.17.3 Major Amendments.....	4-168
CHAPTER 5 ALTERNATIVES CONSIDERED.....	5-1
5.1 ALTERNATIVE 1: NO PROJECT ALTERNATIVE.....	5-1
5.2 ALTERNATIVE 2: OTHER INCIDENTAL TAKE PERMIT ALTERNATIVES.....	5-2
5.2.1 Participation in the Coachella Valley MSHCP.....	5-2
5.2.2 Programmatic Section 7 Consultation Alternative.....	5-3
5.3 ALTERNATIVE 3: INCREASED CONSERVATION ALTERNATIVE.....	5-4
5.3.1 Increased MCCA Conservation.....	5-4
5.3.2 Increased On-Reservation VFPA Conservation.....	5-5
5.3.3 Increased THCP Mitigation Fee.....	5-6
CHAPTER 6 BIBLIOGRAPHY.....	6-1
CHAPTER 7 GLOSSARY.....	7-1

LIST OF APPENDICES

<u>Letter</u>	<u>Title</u>
A	Tribal Ordinance 5
B	Indian Canyons Master Plan
C	Tahquitz Canyon Wetland Conservation Plan
D	Trails Management Plan
E	Existing Land Use and Land Use Designations
F	Target Acquisition Areas
G	Draft Tribal Fire Management Plan
H	Projected Cash Flow with Expected Buildout
I	Projected Cash Flow with Maximum Buildout

LIST OF FIGURES

<u>No.</u>	<u>Title</u>	<u>Follows Page</u>
1	Regional Map.....	1-2
2	Location Map.....	1-2
3	Topography of the Agua Caliente Indian Reservation.....	1-6
4	Conservation Overlay Zones.....	2-2
5	BLM Land Exchange Proposal.....	2-2
6	Conservation Areas and Programs in the Vicinity of the Agua Caliente Indian Reservation.....	2-2
7	Indian Canyons Master Plan.....	2-2
8	South Palm Canyon Drive.....	2-6
9a	Trail Map – North.....	2-6
9b	Trail Map – South.....	2-6
10	Natural Plant Communities.....	3-4
11	Peninsular Bighorn Sheep Habitat.....	3-16
12	Riparian Habitat.....	3-24
13	Mountain Yellow-legged Frog Habitat.....	3-28
14	Southern Yellow Bat Habitat.....	3-30
15	Triple-ribbed Milk-vetch Habitat.....	3-30
16	Desert Tortoise Habitat.....	3-32
17	Burrowing Owl Habitat.....	3-34
18	Gray Vireo Habitat.....	3-34
19	Coachella Valley Fringe-toed Lizard and Coachella Giant Sand-treader Cricket Habitat.....	3-36
20	Flat-tailed Horned Lizard Habitat.....	3-38
21	Palm Springs Pocket Mouse Habitat.....	3-38
22	Palm Springs Ground Squirrel Habitat.....	3-40
23	Coachella Valley Jerusalem Cricket Habitat.....	3-40
24	Coachella Valley Milk-vetch Habitat.....	3-42
25	Le Conte’s Thrasher Habitat.....	3-42
26	Crissal Thrasher Habitat.....	3-44
27	Little San Bernardino Mountains Gilia Habitat.....	3-44
28	Planned Public Roadways and Maintenance Activities.....	4-4
29	Planned Land Use.....	4-76
30	Permit Review Process – Tribal Trust and Tribal Fee Land.....	4-76
31	Permit Review Process – Allotted Trust Land.....	4-76
32	Permit Review Process – Reservation Fee Land.....	4-76
33	Percent Slope in the MCCA.....	4-80
34	Conservation Requirements.....	4-80
35	Target Acquisition Areas.....	4-84
36	Section 6 Target Acquisition Area.....	4-106
F-1	Target Acquisition Areas.....	Appendix F
F-2	Target Acquisition Areas.....	Appendix F
F-3	Target Acquisition Areas – West.....	Appendix F
F-4	Target Acquisition Areas – Central.....	Appendix F
F-5	Target Acquisition Areas – East.....	Appendix F

LIST OF TABLES

<u>No.</u>	<u>Title</u>	<u>Page</u>
ES-1	Summary of Plan Area and Action Area	ES-4
ES-2	Summary of Mitigation Measures for Covered Species	ES-6
1-1	Covered Species.....	1-3
2-1	Regional Conservation Efforts.....	2-9
2-2	Summary of BLM Land Exchange Effects on Impacts/Conservation.....	2-11
3-1	Natural Plant Communities Distribution in the Action Area.....	3-4
3-2	Status of Covered Species in the Action Area	3-12
3-3	Ewe Population Estimates for the San Jacinto Mountains from 1993 to 2005.....	3-21
4-1	Conservation Objectives for Mountains and Canyons Covered Species	4-10
4-2	Stabilized Sand Field Patch Size Analysis.....	4-28
4-3	Species Conservation Summary.....	4-37
4-4	Prohibited Invasive Ornamental Plants.....	4-91
4-5	Summary of VFPA Impacts and Conservation.....	4-99
4-6	Target Acquisition Areas	4-101
4-7	Factors to be Considered in Management Responses to Disturbance Regimes	4-115
4-8	Tribal HCP Costs	4-149
4-9	Administration/Plan Implementation Costs	4-152
4-10	Total VFPA Acquisition Requirements	4-153
4-11	Acquisition Cost Estimate for VFPA Land Acquisition.....	4-154
4-12	Summary of Funding Sources.....	4-155
4-13	Mitigation Fee Revenue	4-156

ACRONYMS

°F	Degrees Fahrenheit
ACEC	Area of Critical Environmental Concern
AMSL	Above mean sea level
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CA	Conservation Agreement
CC&Rs	Covenants, conditions and restrictions
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
CVAG	Coachella Valley Association of Governments
DL	Determination Letter
DP	Distinct population segment
EO	Executive Order
ESA	Federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FR	Federal Register
GIS	Geographic Information System
GPS	Global positioning system
HCP	Habitat Conservation Plan
HOA	Homeowner's Association
I-10	Interstate Highway 10
IA	Implementing Agreement
MBTA	Migratory Bird Treaty Act
MCCA	Mountains and Canyons Conservation Area
MSHCP	Multiple Species Habitat Conservation Plan

NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
OHV	Off-highway vehicle
PL	Public Law
TEPA	Tribal Environmental Policy Act
UCR	University of California, Riverside
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VFPA	Valley Floor Conservation Area

ABBREVIATIONS

Baja	Baja California, Mexico
County	County of Riverside
Department	Tribe's Planning and Development Department
Interim HCP	Interim Habitat Conservation and Management Plan
National Monument	Santa Rosa and San Jacinto Mountains National Monument
Plan	Tribal Habitat Conservation Plan
Reservation	Agua Caliente Indian Reservation
Tribal Council	Tribal Council of the Agua Caliente Band of Cahuilla Indians
Tribal HCP	Tribal Habitat Conservation Plan
Tribe	Agua Caliente Band of Cahuilla Indians

THIS PAGE LEFT BLANK INTENTIONALLY

EXECUTIVE SUMMARY

INTRODUCTION

The Agua Caliente Indian Reservation (Reservation), home of the Agua Caliente Band of Cahuilla Indians (Tribe), consists of approximately 31,500 acres of land in Riverside County, California (see Figures 1 and 2). The Reservation lies within the geographical boundaries of three cities (Palm Springs, Cathedral City and Rancho Mirage) and the County of Riverside (County), and is composed of a checkerboard pattern of landholdings, including Tribal trust land, allotted trust land, and fee land. The Reservation contains a wealth of valuable natural resources and habitat, including mountains, foothills, canyons, wetlands, alluvial fans, and sandy areas that provide homes for many species of plants and animals deemed by the U.S. Fish and Wildlife Service (USFWS) as well as the Tribe to require protection. As a sovereign Indian nation, the Tribe has protected and managed the areas and resources within its jurisdictional territory for hundreds of years, and intends to continue to do so.

The Tribe's purposes in adopting this Tribal Habitat Conservation Plan (Tribal HCP or Plan) are to (1) continue to exercise its long-standing tradition as a land use manager and steward of the natural resources in and around the Reservation by assuming a role as the primary manager of such resources and the land uses that impact them, a role that is recognized as appropriate by the U.S. Department of the Interior in Joint Secretarial Order 3206 and the USFWS Native American Policy, among other authorities; and (2) to establish consistency and streamline permitting requirements with respect to protected species for itself, Tribal members, and third parties developing the Reservation and other Tribal Lands by establishing one process that the Tribe oversees and implements.

The Plan provides the means to protect and contribute to the conservation of Federally listed species or those deemed by the Tribe and USFWS to be sensitive and potentially in need of listing in the future (collectively Covered Species). It provides mechanisms to permit and guide development, and serves as an adaptive tool to allow the Tribe to update and/or revise baseline biological resource information, manage conservation goals and priorities, and complement other existing and planned conservation efforts in the region. The general approach and specific measures set forth in the Plan reflect the Tribe's demonstrated successful traditional strategies for managing land use and natural resources within its jurisdictional territory.

Incorporating and building upon the Tribe's existing conservation programs, the primary conservation mechanism provided by this Plan is the protection of significant areas of Covered Species' habitat through adoption of new development standards and creation of a Habitat Preserve to be managed by the Tribe or its designee(s). Habitat Preserve assembly will be accomplished through: (1) authorization of certain activities, including development, subject to land conservation requirements and other general and species-specific guidelines, standards, and mitigation measures; and (2) payment by project proponents of a mitigation fee that will be used to acquire and manage Habitat Preserve lands.

On the basis of the conservation program embodied in this Plan, the Tribe seeks to enter an Implementing Agreement with, and obtain a Section 10(a) Permit from, USFWS that will authorize the incidental take of Covered Species of wildlife in connection with certain activities undertaken by the Tribe, Tribal members, and in some cases, third parties (see discussion of Covered Activities below). This will enable the Tribe to assist the USFWS in its mission to conserve sensitive species and their habitats, while maintaining appropriate sovereign authority over activities taking place within the Tribe's jurisdiction and protecting unique Tribal values. The Plan provides significant advantages vis-à-vis piecemeal compliance with the Federal Endangered Species Act (ESA) on a project-by-project basis because it provides for comprehensive Reservation-wide conservation.

TRIBAL GOVERNMENT AUTHORITY TO ADOPT AND IMPLEMENT THIS PLAN

The Tribe's authority to enforce its obligations under the THCP on all lands of the Agua Caliente Indian Reservation, including non-Indian controlled fee land, flows from its inherent sovereign authority supplemented by delegated federal authority. The Agua Caliente Band of Cahuilla Indians' Constitution and by-laws, approved by the Commissioner of Indian Affairs on April 18, 1957, delegated to the Tribe specific federal powers and authority over all lands of the Reservation. Specifically, Article V. vests with the Tribal Council the power to "protect and preserve Tribal property, including wildlife and natural resources." The extent of the Tribe's territory over which the Tribe may exercise the above-described jurisdiction is designated in Article II of the Constitution, which "shall extend to the territory within the boundaries of the Agua Caliente Indian Reservation as heretofore designated and to any other lands which may hereafter be added." Accordingly, the approval of the Tribe's Constitution by the United States Department of the Interior's representative delegated to the Tribe a degree of federal authority to manage natural resources on all of the Agua Caliente Indian Reservation, which includes non-Indian controlled fee land. In addition to the above-described delegated authority over fee lands, the Tribe has inherent authority to exercise jurisdiction over non-Indians on fee land within the bounds of its Reservation when such non-Indian activity threatens the Tribe's interest in self-government. Further, this inherent sovereign authority is supplemented by the delegation of authority granted by the federal government under the ESA's Section 10(a) permit process. Granting a Tribe Section 10(a) permitting authority must necessarily include authority over all lands within the bounds of the reservation, including fee lands, to avoid a checkerboard enforcement system over a unitized resource.

The Tribe will work with USFWS in a coordinated fashion in the context of government-to-government consultation. This will ensure maximum protection of the trust resources of the Tribe and its members; and will allow for an approach that acknowledges the duty and authority of USFWS with respect to the ESA, while preserving Tribal sovereignty and honoring traditional Tribal land management practices. This approach is embodied in this Tribal HCP. Based on the Tribe's inherent sovereign authority to manage and regulate land use and resources within the Reservation, and pursuant to Joint Secretarial

Order No. 3206 and the USFWS Native American Policy, among other authorities described in section 1.6.3, USFWS must give deference to and support Tribal resource management policies and implementation activities such as those set forth in this Plan.

ENVIRONMENTAL SETTING

The Action Area contains a wide variety of physical features, and is topographically diverse, ranging from the floor of the Coachella Valley to peaks in the San Jacinto and Santa Rosa mountains (Figure 3). The northeastern portions of the Action Area lie on the floor of the Coachella Valley, with a low elevation of approximately sea level. The southern and western portions of the Action Area contain foothills, canyons, slopes and peaks of the San Jacinto and Santa Rosa Mountains. The highest peak in the San Jacinto Mountains reaches 10,804 feet above mean sea level (AMSL); in the Plan Area, the highest elevation is approximately 6,600 feet AMSL. Changes in elevation and topography, with accompanying differences in temperature, precipitation, and other environmental variables, are significant factors underlying the Action Area's high biological diversity.

Contributing to the biological diversity of the Coachella Valley floor are the strong winds that funnel through the San Geronio Pass. Sand is carried by streams and rivers (fluvial transport) out of surrounding mountains by occasional storms and deposited in valley floodplains, later picked up by prevailing winds (aeolian transport) from the west and carried down the valley to deposition areas. Historically, this dune system occupied much of the valley center. Although most sand fields on the Reservation are shielded from receiving blowsand by structures associated with relatively recent human development, portions of the Action Area (including the northeastern corner of the Reservation) provide sufficient native habitats and are subject to intact ecological and physical processes such that, if protected from further degradation, they will continue to sustain these ecosystems, plant communities, and their associated wildlife species in the long term. Many of these plants and wildlife are unique to the valley floor and blowsand ecosystem, which is characteristic of the Coachella Valley. However, urbanization predominates, removing native vegetation and its inherent wildlife habitat value. Landscaping associated with development consists primarily of non-native species. Many of these plant species not only have little or no habitat value for native wildlife, but also are invasive species and compete with native plants for nutrients and water in undeveloped areas.

At the base of the San Jacinto and Santa Rosa mountains along the edges of the Coachella Valley are canyon and floodplain areas consisting of alluvial fans, bajadas, and canyon washes. Within the Reservation, these include the alluvial fans of Palm, Wentworth, Murray, Andreas, Tahquitz, and Chino canyons characterized by intermittent surface flows, with permanent pools, seeps, and other waters in their upper reaches. The alluvial fans of these canyons support riparian areas typical of a desert environment, including many palm oases. Where water drains into the sands, desert dry wash woodland results.

At the lower elevations of the mountains above the top end of the alluvial fans are slopes composed of granitic boulders and talus. Although many annual plants grow here during “wet” years, few perennial plants occur, except for scattered creosote bush, brittlebush, and occasionally indigo bush and small barrel cacti. Higher elevations are characterized by steep slopes and narrow ridges, and contain areas of interior live oak chaparral, red shank chaparral and, to a lesser extent, black oak forest, Peninsular juniper woodland and scrub, and Sonoran cottonwood-willow riparian forest.

Although there is some overlap, sensitive species occurring in the Action Area are typically associated with either features on the valley floor (particularly sand habitats) or features of the mountains and canyons. For purposes of this Plan, therefore, the Action Area is divided into a Mountains and Canyons Conservation Area (MCCA) and a Valley Floor Planning Area (VFPA). The MCCA includes all portions of the San Jacinto and Santa Rosa Mountains within the Action Area, generally above the 800-foot elevation contour. The VFPA consists of the balance of the Plan Area, generally including the portions of the Plan Area lying below 800 feet AMSL and on the floor of the Coachella Valley. Finally, several off-Reservation Target Acquisition Areas are identified to the north and east of the VFPA. Together with the VFPA, these areas are referred to as the Valley Floor.

PLAN AREA

The geographic region covered by the Plan (the Plan Area) includes (1) the non-federally owned portions of the Reservation and (2) off-Reservation lands owned by or held in trust for the Tribe. The Action Area for this Tribal HCP includes the Plan Area, along with certain other lands over which the Tribe may have authority during the permit period: (1) off-Reservation lands in Target Acquisition Areas on the valley floor that may be acquired by the Tribe for conservation purposes during the term of the Plan and (2) lands that may be acquired through exchange with the Bureau of Land Management (BLM). The acreage of the Plan Area and Action Area are summarized in Table ES-1 and illustrated on Figure 4.

**Table ES-1
Summary of Plan Area and Action Area**

Land Type	Action Area	Current Plan Area	Potential Future Plan Area*
Reservation†	30,655	30,655	30,655
Off-Reservation Tribal Lands	5,400	5,400	3,930
Off-Reservation Target Acquisition Areas	46,404	0	931
Off-Reservation BLM Exchange Areas	5,799	0	5,799
TOTAL	88,258	36,055	41,315

*The size of the potential future Plan Area assumes that the maximum amount of lands are acquired from off-Reservation Target Acquisition Areas, and that the maximum amount of potential BLM exchange occurs and is processed through the minor amendment process (see section 1.4 for details).

†Excludes federally owned lands within the boundaries of the Reservation.

COVERED SPECIES

The Tribe has identified 19 sensitive wildlife species and 3 sensitive plant species that occur or have potential to occur within the Plan Area and are thus covered by this Tribal HCP. Eight of these species are listed as threatened or endangered under the ESA. The mitigation measures required by the Plan for the protection of Covered Species are summarized in Table ES-2.

COVERED ACTIVITIES

The Tribal HCP provides conservation, minimization, and mitigation for impacts to Covered Species from several types of activities, provided that such activities are consistent with the provisions of the Plan, including (1) Covered Projects, including construction and development projects undertaken by the Tribe within the Plan Area or Third Party Participant within the Reservation (including on non-Indian fee land to the extent authorized by law or provided for in an agreement between the Tribe and landowner) under a development permit issued by or under Tribal discretion; (2) Covered Maintenance Activities undertaken by or at Tribal discretion in the Plan Area, including operation, use, and maintenance of existing public and private facilities within current disturbance footprints; operation, use, and maintenance of public and private facilities developed in the future approved subject to the requirements of the Plan, within the approved Development Envelope; and temporary maintenance activities outside of such areas that will allow recovery of native habitats in the near term; and (3) Covered Conservation Activities, including management and monitoring of the Habitat Preserve and management of Existing Tribal Conservation Programs, undertaken by agents or employees of the Tribe, or any person acting under Tribal direct guidance or authority.

**Table ES-2
Summary of Mitigation Measures for Covered Species**

Species	Habitat conservation primarily in the Plan Area	Habitat conservation primarily in Target Acquisition Areas	Use Area and linkage area protection	Avoidance of occupied habitat to the maximum extent practicable	Minimization of indirect impacts	Relocation of individuals	Planning avoidance and minimization measures	Construction avoidance and minimization measures	Habitat enhancement/restoration	Habitat management
MOUNTAINS AND CANYONS SPECIES										
Peninsular bighorn sheep	X		X		X		X	X	X	X
Least Bell's vireo				X	X		X	X	X	X
Southwestern willow flycatcher	X			X	X		X	X	X	X
Summer tanager	X				X		X	X	X	X
Yellow-breasted chat	X				X		X	X	X	X
Yellow warbler	X				X		X	X	X	X
Mountain yellow-legged frog	X			X	X		X	X	X	X
Southern yellow bat	X				X		X	X	X	X
Triple-ribbed milk-vetch	X			X	X	X	X	X	X	X
Desert tortoise	X			X*	X	X	X	X		X
Burrowing owl		X		X*	X	X	X	X		X
Gray vireo	X				X		X	X		X
VALLEY FLOOR SPECIES										
Coachella Valley fringe-toed lizard		X			X		X*	X*		X
Coachella giant sand-treader cricket		X			X		X*	X*		X
Flat-tailed horned lizard		X			X		X*	X*		X
Palm Springs pocket mouse		X			X		X*	X*		X
Palm Springs (Coachella Valley round-tailed) ground squirrel		X			X		X*	X*		X
Coachella Valley Jerusalem cricket		X			X		X*	X*		X
Coachella Valley milk-vetch		X		X*	X		X*	X*		X
Crissal thrasher		X			X		X	X*	X	X
Le Conte's thrasher		X			X		X*	X*		X
Little San Bernardino Mountains gilia		X		X	X	X	X	X*	X	X

*Requirement applies only within the Section 6 Target Acquisition Area.

CONSERVATION PROGRAM

Among other things, the conservation program includes avoidance, minimization, and mitigation measures; assurances for establishment of the Habitat Preserve, adaptive management, monitoring, implementation, and funding; and conditions for and responses to Changed Circumstances and Unforeseen Circumstances.

Habitat Preserve

A key component of the Tribal HCP is creation of a Habitat Preserve. Habitat Preserve assembly will primarily occur through land dedications, payment of the mitigation fee, restrictions, or conditions on Covered Projects. Should the Plan Area become developed to the full extent allowed by this Plan, the Habitat Preserve will include all lands dedicated for conservation in perpetuity as a result of mitigation measures implemented by this Tribal HCP and all lands acquired by the Tribe from funds generated through the fee applied to Covered Activities. In such event, the Habitat Preserve would include an estimated 18,870 total acres comprising approximately one half of the entire Reservation, including 16,367 acres of upland habitat in the MCCA and 1,048 acres of riparian habitat, as well as up to 1,455 acres of valley floor species habitat on and off the Reservation.

The Habitat Preserve will provide protection in perpetuity for Covered Species, enabling the Tribe to obtain a Section 10(a) Permit and authorize or undertake Covered Activities that satisfy the criteria required by the Plan. Management of the Habitat Preserve will be the responsibility of the Department under the guidance of the Tribal Council. While day-to-day management activities may be carried out by other parties through a contractual arrangement, the Tribe would provide funding and oversight and would retain the ultimate responsibility for implementation of the management program.

Mountains and Canyons Conservation Area

The MCCA is located in the western and southern regions of the Action Area and includes portions of the San Jacinto and Santa Rosa mountain ranges. The Tribe has already established conservation programs for Indian Canyons Heritage Park and Tahquitz Canyon within the MCCA. Under the Tribal HCP, a maximum of 15 percent (subject to additional requirements) of the habitat of Covered Species found in the MCCA may be subject to ground disturbance associated with Covered Projects, resulting in an overall minimum of 85 percent (a 5.67:1 ratio) of such habitat being conserved and dedicated to the Habitat Preserve. No disturbance shall be allowed within a use area or defined linkage for Peninsular bighorn sheep (*Ovis canadensis nelsoni*) and certain lands adjacent to those areas would require specified levels of conservation. Covered Projects must be sited to avoid to the Maximum Extent Practicable impacts to wetlands or riparian areas, mesquite hummocks and thickets associated with riparian habitat, and habitat determined to be occupied by least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Epidonax traillii extimus*), mountain yellow-legged frog (*Rana muscosa*), triple-ribbed milk-vetch

(*Astragalus tricarinatus*); must comply with the conditions of any required Clean Water Act permits; and may collectively be allowed to disturb a maximum of 10 percent of existing riparian habitat (including a maximum of 10 percent of naturally occurring palm oases) in the Plan Area. The Tribe will require mitigation measures for a Covered Project to ensure no net loss of habitat suitable to support riparian Covered Species within the Plan Area and provide for a net gain in functions of the riparian habitat by non-native species removal. Unavoidable impacts to mesquite hummocks and thickets associated with riparian habitat would require mitigation at a minimum 2:1 ratio. Any unavoidable impacts to triple-ribbed milk vetch would require mitigation at a 3:1 ratio. Impacts to burrowing owl (*Speotyto cunicularia*) and desert tortoise (*Xerobates* or *Gopherus agassizii*) individuals must be minimized through the use of appropriate relocation techniques. If the entire MCCA should maximize development potential to the extent allowed by this Plan and therefore contribute as much to the Habitat Preserve as possible, the Habitat Preserve in the MCCA will include up to approximately 17,403 acres, including 14,070 acres of the total estimated 16,269 acres of Peninsular bighorn sheep habitat and 1,036 acres of currently extant riparian habitat.

Valley Floor Conservation Area

Portions of the VFPA currently provide habitat for sand-dependent species; however, with the exception of Section 6 (Township 4 South, Range 5 East), which contains active and ephemeral sand fields, the VFPA generally is determined not to be viable habitat for these species over the long term due to their isolation and fragmentation. In particular, the viability of the sand dune habitats immediately adjacent to both sides of Interstate 10 has been severely reduced because of habitat fragmentation caused by roads and development and the loss of a permanent sand source. Most other portions of the valley floor still supporting native vegetation are fragmented and largely surrounded by existing development, and no longer receive a consistent natural source of sand. Therefore, with the exception of the viable habitat remaining in the Section 6 Target Acquisition Area, in which on-site avoidance, minimization, and mitigation measures will be imposed, on-site mitigation measures will not be required of Covered Projects in the VFPA for the benefit of sand-dependent species; instead, Covered Project Proponents will be required to pay a mitigation fee that will fund Tribal acquisition and management of replacement habitat. Certain areas, both within and outside the Reservation, have been identified by the Tribe, in consultation with USFWS and the Coachella Valley Association of Governments (CVAG), as either core habitat for the valley floor Covered Species (i.e., desert sand field habitats), areas that support ecological processes necessary to sustain these areas (i.e., sand source areas), or areas that provide linkage between core habitat areas. These areas are defined in this Plan as Target Acquisition Areas, from which up to 1,455 acres of valley floor species habitat will be acquired and dedicated to the Habitat Preserve.

In addition to the Target Acquisition Areas intended to benefit primarily sand-dependent species, some limited portions of the VFPA near the base of the mountains would be conserved. Indian Canyons Heritage Park would be authorized for a maximum of 5 percent development, consisting only of park-related uses. The remaining 95 percent of this area would be required for conservation.

Within portions of the VFPA that are within 500 feet of Peninsular bighorn sheep habitat, Covered Activities would be subject to conservation restrictions for the benefit of this species. Impacts to habitats occupied (as determined by surveys conducted and/or required by the Tribe) by crissal thrasher (*Toxostoma crissali*) and Little San Bernardino Mountains gilia (*Linanthus maculatus*) must be avoided to the Maximum Extent Practicable, with any impacts to habitat occupied by these species mitigated at a 2:1 or 3:1 ratio, respectively.

Similar to the requirements in the MCCA, impacts to riparian areas shall be avoided to the Maximum Extent Practicable. Any unavoidable impacts shall be mitigated such that no net loss of habitats suitable to support riparian Covered Species occurs in the Plan Area, and provide for a net gain in functions of the riparian habitat by removal of non-native species. In addition, Covered Activities must avoid impacts to habitat occupied by burrowing owl and desert tortoise in the Section 6 Target Acquisition Area to the Maximum Extent Practicable, as well as minimize impacts to individuals throughout the VFPA through use of appropriate relocation techniques.

Minimization and Mitigation Requirements for Covered Activities

Minimization and mitigation requirements shall be imposed upon Covered Activities by the Tribal HCP and Tribal implementing regulations to facilitate assembly of the Habitat Preserve and to assure minimization of and mitigation for impacts to Covered Species. These measures include:

- Existing land use restrictions;
- Dedication requirements;
- Species-specific avoidance and minimization measures;
- Planning avoidance and minimization measures;
- Disturbance period avoidance and minimization measures; and
- Funding for acquisition, management, and monitoring of the Habitat Preserve.

Table ES-2 summarizes the mitigation requirements required by the Tribal HCP for the protection of Covered Species. Because Covered Conservation Activities will be designed with the specific purpose of creating a net biological benefit relative to any associated impacts, such activities would not be subject to acreage limits or mitigation requirements, but would be required to comply with applicable minimization requirements. Similarly, because they would be limited to the areas that have been disturbed prior to adoption of this Plan or are approved for disturbance pursuant to the provisions of the Plan, Covered Maintenance Activities would not be subject to take authorization acreage limits, dedication requirements, or siting criteria. They would, however, be subject to construction and operation avoidance/minimization requirements.

Tribal Funding and Assurances for Plan Implementation

The Tribe is providing assurances that adequate funding will be made available for implementation of the Tribal HCP and that the conservation, mitigation, and management measures will be carried out as proposed. The Tribe would be responsible for providing adequate funding to implement the Tribal HCP for the duration of the Section 10(a) Permit. The Tribe shall provide administrative support to accomplish the management responsibilities of the Tribal Council and Department, as well as funding to support the Tribe's baseline assessment, inventory, and monitoring efforts defined in the Plan. Acquisition and management of the Habitat Preserve shall be funded primarily through obligations of Covered Projects. An endowment fund would be established to provide funding for the Tribe's ongoing costs to administer, manage, and monitor the Habitat Preserve in perpetuity.

ALTERNATIVES

The Tribe considered three alternative courses of action prior to adopting this Tribal HCP: (1) a "no project" alternative; (2) other incidental take authorization alternatives (including participation in the Coachella Valley MSHCP and completion of a programmatic section 7 consultation); and (3) "increased conservation" alternatives (including increased MCCA conservation, increased on-Reservation VFPA conservation, and increased THCP Mitigation Fee). These categories and specific alternatives cover the full spectrum of alternatives that are practical or feasible. The Tribe determined that adoption of this Tribal HCP represented the best course of action to achieve the Tribe's purposes and goals described above.

Specifically, the "no project" alternative would have resulted in (1) the absence of comprehensive biological assessment that is being conducted in connection with this Tribal HCP; (2) continued case-by-case permitting by a variety of jurisdictional authorities resulting in the lack of comprehensive planning and potentially isolated and fragmented preserve areas with lower benefit to species than the comprehensive Habitat Preserve system to be created under this Plan; (3) minimal, if any, protection of unlisted species and listed plant species, and habitats not occupied by listed species, rather than the heightened level of protection the Plan provides to such species and habitats; and (4) lack of assurances that Tribal governance objectives would be taken into account in conservation planning and regulation on the Reservation.

Alternative means, including participation in the proposed Coachella Valley MSHCP and completion of a programmatic Section 7 consultation, are available to the Tribe to seek incidental take authorization. Tribal participation in the proposed CVAG MSHCP would have provided a comprehensive approach to habitat conservation planning within and beyond the Reservation; however, it is unlikely that levels of take authorized under that plan would have been appreciably different from those authorized under implementation of the Tribal HCP. In any event, the CVAG MSHCP's implementing parties do not have jurisdiction over many aspects of the Reservation and other Tribal Lands, do not hold the position of trust and government-to-government relationship that the Federal Government has with the Tribe, and are not in a position to address important Tribal governance requirements and uniquely Tribal values. Therefore, the Tribe determined that this alternative would not serve important Tribal purposes and goals in the way

this Tribal HCP will. The benefits of comprehensive planning that would be achieved by this alternative would be largely or entirely realized through the provisions regarding coordination contained in the Tribal HCP.

Another approach under the “other incidental take permit alternatives” would consist of the Tribe requesting a programmatic Section 7 consultation between USFWS and Bureau of Indian Affairs (BIA) to establish the standards, guidelines, and governing criteria for further actions. Species that are not Federally listed, proposed, or candidate species could not be addressed through the Section 7 programmatic consultation process. In addition, this approach would not meet other Tribal purposes in preparing the Tribal HCP because it would not streamline compliance with the ESA to the extent of an HCP.

Finally, the Tribe considered increasing certain conservation measures within the Plan under the “increased conservation” alternative. The Tribe would reduce the allowable upland habitats impact limit and riparian habitats impact limit to below the 15 percent and 10 percent, respectively, that the Plan currently provides for the MCCA; and/or it could have increased the mitigation fee and/or on-Reservation conservation requirements beyond those identified in the Plan for impacts in the VFPA. However, the Tribe believes that any of these contemplated increases in conservation measures would have placed a disproportionate conservation burden on the Tribe and its members, in violation of the mandates and policies set forth in Joint Secretarial Order 3206, among other authorities. Additionally, the Tribe believes that conservation as proposed under the current draft Tribal HCP meets the Tribe’s conservation obligations under the ESA.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 1 INTRODUCTORY PROVISIONS

1.1 BACKGROUND

The Agua Caliente Indian Reservation (Reservation), home of the Agua Caliente Band of Cahuilla Indians (Tribe), consists of approximately 31,420 acres of land in the Coachella Valley, Riverside County, California. Specifically, the Reservation is situated in a checkerboard pattern on 51 of the 108 sections¹ of land within Township 4 South, Range 4 East; Township 4 South, Range 5 East; and Township 5 South, Range 4 East. The Reservation landholdings include Tribal trust land, allotted trust land, and fee land. Individual sections of Reservation land are interspersed with public lands owned or under the control of various federal and state agencies, and privately owned land under the jurisdiction of the County of Riverside (County) and/or one of three municipalities (City of Palm Springs, City of Cathedral City, and City of Rancho Mirage; Figures 1 and 2).

The interdependence between the Agua Caliente Band of Cahuilla Indians and natural resources is integral to the Tribe's heritage and culture. Natural resources have been a means of sustenance for the Tribe and its members for the entire history of the Tribe's existence, and the Tribe has a demonstrated successful tradition of managing land and resources within its jurisdictional territory in a way that balances land use and development needs with resource conservation measures. As development and human population expand throughout the Coachella Valley, the Tribe continues to recognize the need for managing the remaining natural resources on the Reservation and on surrounding Tribally-owned lands. This Tribal Habitat Conservation Plan (Tribal HCP or Plan) was developed to formally document the Tribe's traditional strategies for managing land and natural resources within its jurisdictional territory and provide a conservation plan for a future term in a way that serves to support the statutory mission of the U.S. Fish and Wildlife Service (USFWS) to protect sensitive species and habitat, meet the requirements for issuance of a Section 10(a) Permit to the Tribe to enhance the Tribe's primacy in the regulation and management of land uses within the Reservation, and coordinate the Tribe's wildlife conservation efforts with the administration of other Tribal affairs (such as management and control of fire, water quality, trails, cultural resources, reforestation, and hazardous materials).

This Plan describes the natural setting of the approximately 88,258-acre Action Area² (including the 36,055-acre Plan Area and delineated in section 1.4); provides a complete description of the activities sought to be authorized [50 Code of Federal Regulations (CFR) 17.22(b)(1)(i)]; identifies sensitive resources, including federally listed species potentially occurring within the Action Area; sets forth Tribal goals and objectives for conservation; establishes processes for implementing the Tribe's conservation

¹A section typically presents approximately one square mile.

²The Action Area encompasses land both within and outside of the Plan Area that may be impacted by either direct or indirect effects from the Covered Activities. The Plan Area is a subset of the Action Area and includes only those lands that the Tribal HCP and associated Section 10(a)(1)(B) permit covers, including the Reservation (encompassing Tribal trust land, allotted trust land, and fee land) and off-Reservation land owned by or held in trust for the Tribe.

measures in connection with the authorization of development and other activities within the Action Area, which will accomplish these goals and objectives; and documents operating policies for ongoing natural resource protection. The Plan includes a conservation plan that specifies: (1) the impacts that will likely result from the activities sought to be authorized under the proposed USFWS Section 10(a) Permit; (2) the steps the Tribe will take to monitor, minimize, and mitigate such impacts; (3) the funding that will be made available by the Tribe to implement such steps; (4) the procedures the Tribe will use to address changed circumstances; and (5) alternative actions to those sought for authorization that the Tribe considered and the reasons why such alternatives were not proposed [50 CFR 17.22(b)(1)(iii)]. This Tribal HCP is designed to function as an adaptive tool, allowing the Tribe to update and revise baseline information, refine its conservation goals and management priorities, contribute to the conservation of the species proposed for coverage, and complement other conservation efforts occurring outside the Plan Area in the region.

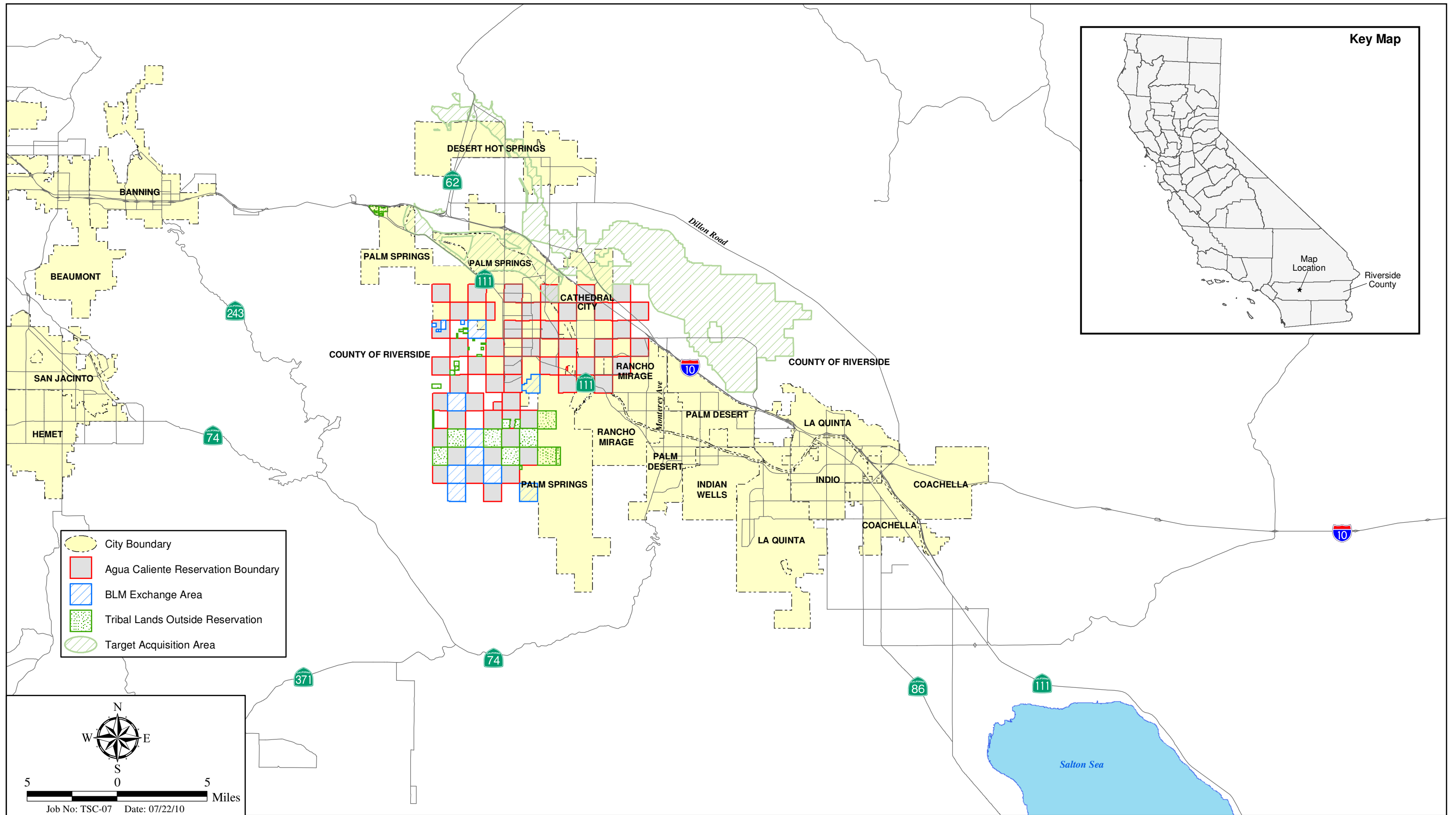
1.2 PURPOSES OF THE TRIBAL HCP

Lands and natural resources within the Reservation and on other Tribal Lands within the Plan Area (as defined in section 1.4) provide the means for spiritual and physical sustenance, as well as economic self-sufficiency, for the Tribe and its members. These lands also provide open space and habitats for a number of federally listed and Tribally identified sensitive species. This Tribal HCP serves four main purposes: (1) it establishes and implements a program for protecting and managing biological resources important to Covered Species; (2) it manages economic development within the Reservation and other Tribal Lands of the Plan Area; (3) it provides a conservation plan that streamlines compliance with the Federal Endangered Species Act (ESA), in a comprehensive approach for all lands within the Plan Area, pursuant to the application requirements [50 CFR 13.21, 17.22(b)(1), and 17.32(b)(1)] and issuance criteria [50 CFR 17.22(b)(2) and 17.32(b)(2)] for an incidental take permit under Section 10 of ESA; and (4) it formalizes the Tribe's traditional sovereign land and resource management policies and practices in a conservation plan.

Authorized under Section 10(a) of the ESA, habitat conservation plans (HCPs) are developed to enhance the habitats of listed (and unlisted) species and increase the survivability of such species [50 CFR 17.22(b)(4)], and to permit the "incidental take" of wildlife associated with non-federal actions when the "taking" is incidental to and not the purpose of an otherwise lawful activity. Individuals, corporations, tribes, and state or local agencies may apply to the USFWS for a Section 10(a) incidental take permit. Generally, an incidental take permit allows the incidental taking of individuals or habitat so long as the impacts of the taking are minimized and mitigated to the maximum extent practicable, the applicant ensures that adequate funding for the conservation plan will be provided, and the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

The Tribe intends that this Plan will:

- Provide a conservation plan with avoidance, minimization, and mitigation measures consistent with the requirements of ESA Section 10(a)(1)(B) that enhances the habitats and survivability of Covered

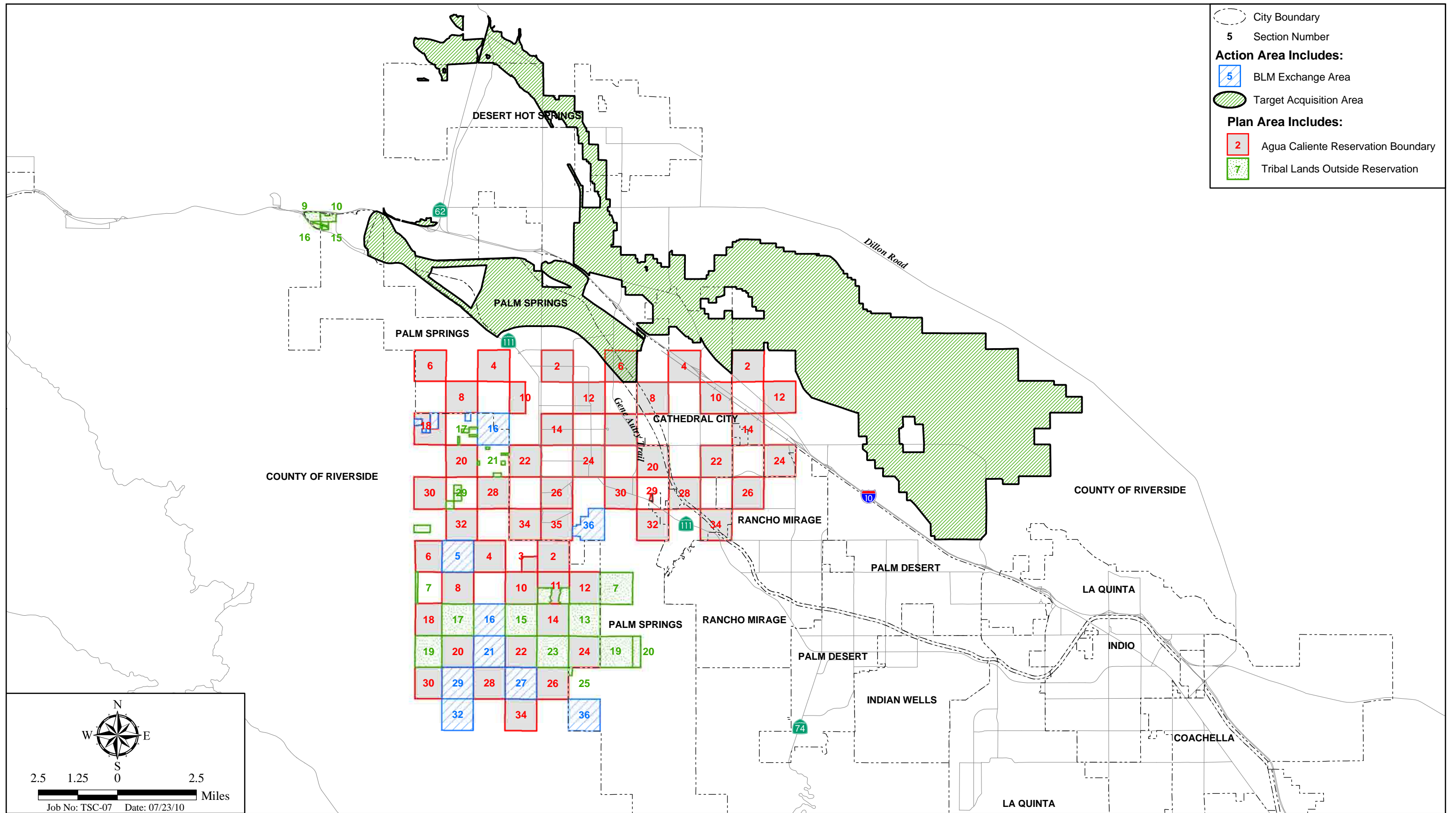


F:\ArcGIS\TSC-07 AguaCaliente\Map\THCP\Fig1_LocationMap.mxd -EV

Regional Map

AGUA CALIENTE THCP

Figure 1



City Boundary

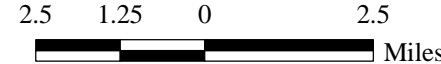
5 Section Number

Action Area Includes:

- 5 BLM Exchange Area
- Target Acquisition Area

Plan Area Includes:

- 2 Agua Caliente Reservation Boundary
- 7 Tribal Lands Outside Reservation



Job No: TSC-07 Date: 07/23/10

F:\ArcGIS\TSC-07 AguaCaliente\Map\THCP\Fig2_LocationMap.mxd -EV

Location Map

AGUA CALIENTE THCP

Figure 2

Species, which include species that are currently listed as threatened or endangered, are candidates for listing, or are expected by the USFWS and/or the Tribe to have a high probability of being proposed for listing in the future if not protected (Table 1-1).

- Fulfill the application requirements and issuance criteria of ESA Section 10(a)(1)(B) so that the USFWS will provide an incidental take permit for the Covered Activities described in the Plan.
- Appropriately contribute to the conservation of listed and sensitive Covered Species and the ecosystems upon which they depend.
- Minimize disruption of economic development activities within the Plan Area.

**Table 1-1
Covered Species**

Common Name	Scientific Name	Federal Status ¹	Presence/Absence in Plan Area ²
MOUNTAINS AND CANYONS SPECIES			
Peninsular bighorn sheep	<i>Ovis canadensis nelsoni</i>	FE	Present
Least Bell's vireo	<i>Vireo bellii pusillus</i>	FE	Present
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE	Present
Summer tanager	<i>Piranga rubra cooperi</i>	None	Present
Yellow-breasted chat	<i>Icteria virens</i>	None	Present
Yellow warbler	<i>Dendroica petechia brewstri</i>	None	Present
Mountain yellow-legged frog	<i>Rana muscosa</i>	FE	Historical records only
Southern yellow bat	<i>Lasiurus ega (xanthinus)</i>	None	Present
Desert tortoise ³	<i>Xerobates</i> or <i>Gopherus agassizii</i>	FT	Present
Burrowing owl ³	<i>Athene cunicularia</i>	BCC	Present
Gray vireo	<i>Vireo vicinior</i>	BCC	Not observed
Triple-ribbed milk-vetch	<i>Astragalus tricarlinatus</i>	FE	Not observed
VALLEY FLOOR SPECIES			
Coachella Valley fringe-toed lizard	<i>Uma inornata</i>	FT	Present
Flat-tailed horned lizard	<i>Phrynosoma mcalli</i>	FPT	Present
Palm Springs (Coachella Valley round-tailed) ground squirrel ⁴	<i>Spermophilus tereticaudus</i> var. <i>coachellae</i>	FC	Present
Palm Springs pocket mouse ⁴	<i>Perognathus longimembris bangsi</i>	None	Present
Crissal thrasher	<i>Toxostoma crissali</i>	BCC	Not observed
Le Conte's thrasher ⁴	<i>Toxostoma lecontei</i>	BCC	Present
Coachella giant sand-treader cricket	<i>Macrobaenetes valgum</i>	None	Not observed
Coachella Valley Jerusalem cricket	<i>Stenopelmatus calhouni</i>	None	Not observed
Coachella Valley milk-vetch ⁴	<i>Astragalus lentiginosus coachellae</i>	FE	Present
Little San Bernardino Mountains gilia	<i>Linanthus maculatus</i>	None	Not observed

¹Status abbreviations and acronyms: FE=federally listed endangered; FT=federally listed threatened; FPT=federally proposed threatened; FC=candidate for federal listing; BCC=bird of conservation concern; None=no formal federal status.

²Species that have not been observed are included in the list of Covered Species because they have potential to occur within the Plan Area; all Covered Species have modeled habitat within the Action Area.

³These species also have potential to occur on the valley floor.

⁴These species primarily occur on the valley floor but also may occur in lower mountain and canyon elevations.

The intentions of the Plan will be accomplished as follows:

1. For species occurring or potentially occurring within the Action Area that are currently listed as threatened or endangered, the Tribal HCP will be the basis for the issuance of a Section 10(a) Permit from the USFWS for Covered Activities. For Covered Species occurring or potentially occurring

within the Action Area that are not currently listed, the Tribal HCP will provide the basis for issuance of a Section 10(a) Permit for Covered Activities, which would take effect upon the listing of such species should it occur during the Permit term.

2. For the ecosystems within the Action Area that the above species depend upon, provide a conservation plan that perpetually protects and manages lands and ecological processes important to the conservation of these species, commensurate with the context of the Action Area within the surrounding region, expected future impacts, and the future range-wide needs of these species.

It should be recognized that the Tribal HCP is intended to address only the requirements of ESA and the Migratory Bird Treaty Act (MBTA) with respect to Covered Activities (defined in Chapter 4), and does not address or resolve compliance with any other applicable law, such as the Clean Water Act, etc.

1.3 GOALS

The Tribe is the ultimate authority on land use matters and conservation measures within the Reservation. With this in mind, the Tribal HCP addresses current and future land use as well as conservation measures within the Plan Area while adhering to the following general concepts:

- Tribal Lands will be used for spiritual and physical sustenance as well as self-sufficiency.
- The Tribe will balance the need for economic development and self-sufficiency with the needs of wildlife and plant species, with special emphasis on federally protected and/or Tribal sensitive species.
- The Tribe has a demonstrated successful tradition of land and resource management within its jurisdictional territory, and it already has in place management plans and interagency agreements regarding several conservation programs for areas within and around the Reservation. The Tribe will continue to coordinate Tribal conservation programs and land use practices with other resource planning efforts in the area.
- Tribal Lands designated for preservation by the Tribe will continue to provide open space and wildlife habitats for a number of federally protected and Tribal sensitive species.
- The Tribe will assist and encourage the recovery of listed species and will proactively implement conservation measures for those species not yet listed to contribute to their conservation, enhance their habitats and survivability, and provide or implement measures that help to avoid the need for future listings.
- This Tribal HCP will serve as a comprehensive biological assessment of which lands are important for long-term conservation of Covered Species and which can be developed or otherwise utilized with mitigation without significant impairment of long-term conservation value for those species.
- The Tribe will continue to comply with all applicable federal laws, such as the Clean Water Act and MBTA.

The Plan will result in the establishment and management of a Habitat Preserve within portions of the Mountains and Canyons Conservation Area, Valley Floor Planning Area, and Valley Floor Target

Acquisition Areas. Pursuant to the USFWS's Five-Point Policy (Federal Register [FR] 64:11485-11490) regarding issuance of Section 10(a)(1)(B) permits, overall biological goals of the Plan are as follows (specific biological goals and objectives for each Covered Species are set forth in Chapter 4):

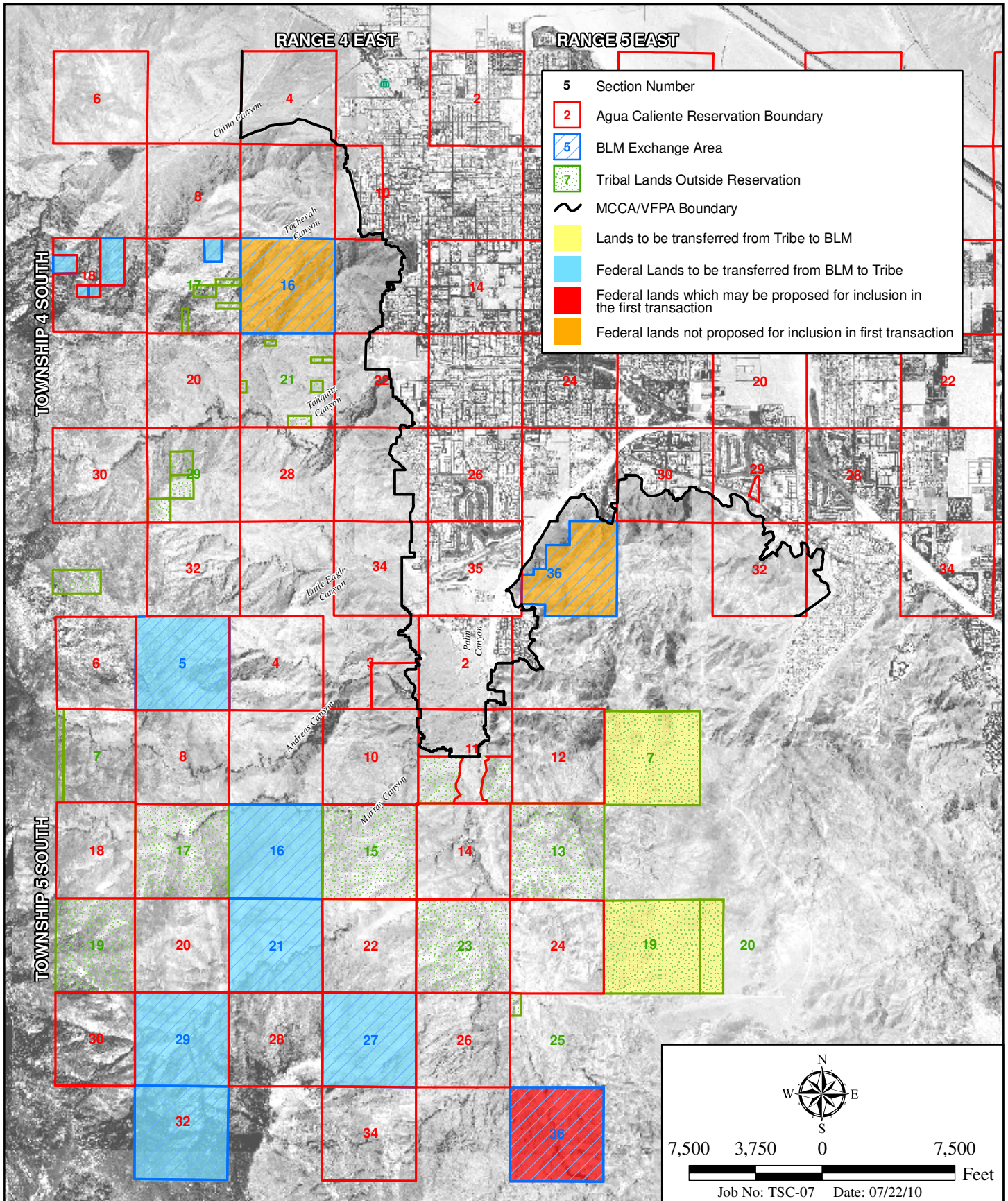
1. Represent native ecosystem types or natural communities across their natural range of variation in a system of conserved areas.
2. Protect and manage a comprehensive Habitat Preserve system of connected ecologically functional preserves having high long-term benefit to Covered Species.
3. Coordinate Tribal conservation efforts with those of the Coachella Valley Association of Governments (CVAG) Multiple Species Habitat Conservation Plan (MSHCP).
4. Support the maintenance or restoration of self-sustaining populations or metapopulations of the Covered Species included in the Plan to ensure their permanent conservation so that take authorization can be obtained for currently listed wildlife species, and non-listed wildlife species can be covered in case they are listed in the future.
5. Sustain the ecological and evolutionary processes necessary to maintain the biological integrity and functionality of the conserved natural communities and habitats utilized by the species included in the Plan.
6. Maximize connectivity among populations and minimize habitat fragmentation within the Habitat Preserve to conserve biological diversity, ecological balance, and connected populations of Covered Species.
7. Minimize adverse impacts from off-highway vehicle (OHV) use, illegal dumping, edge effects, exotic species, and other disturbances in accordance with the management and monitoring programs.
8. Manage the Habitat Preserve adaptively to be responsive to short-term and long-term environmental change and new science.
9. Utilize the Tribe's existing legal authorities to assure the Habitat Preserve is protected and managed in perpetuity.

1.4 SCOPE OF THIS PLAN

The Reservation includes land held by the United States (U.S.) in trust for the Tribe (Tribal trust land), land held by the U.S. in trust for individual Tribal members or their successors (allotted trust land), and land held in fee simple or other non-trust status by the Tribe, Tribal members, or non-Indians (fee land). Approximately 765 acres of lands within the boundaries of the Reservation currently are owned by the Bureau of Land Management (BLM). Because these lands are federally owned, they are outside of the jurisdiction of the Tribe and are excluded from the Plan Area. Outside of the Reservation, several additional properties totaling approximately 5,400 acres are owned by or held in trust for the Tribe. Together with the non-federally owned portions of the Reservation, these lands comprise the approximately 36,055-acre Plan Area (refer to Figure 2).

The Action Area for this Tribal HCP includes the Plan Area, along with certain other lands over which the Tribe may have authority during the permit period, including off-Reservation Target Acquisition Areas and land to be acquired through exchange with BLM. The Tribe anticipates acquiring off-Reservation land for conservation and mitigation purposes from one or more of the Target Acquisition Areas discussed in section 4.9.1 and Appendix F. Lands conserved by the Tribe within the Target Acquisition Areas will be mitigation lands legally protected and managed in perpetuity for the benefit of Covered Species. These lands will include up to a maximum of 1,541 acres. The potential variability in this acreage is a result of the potential variability in the amount of development occurring within the Plan Area. There is a linear relationship (a 1:4 ratio) between the acreage of development within the Valley Floor Planning Area and the concomitant acreage of mitigation required under the Plan. Thus, if no development occurs, no impacts would occur and therefore, no conservation would be needed. Parcels within the off-Reservation Target Acquisition Areas would become part of the Plan Area if they are acquired by the Tribe as mitigation lands as part of Tribal HCP implementation. The only incidental take authorized in the off-Reservation Target Acquisition Areas will be for Covered Conservation Activities (see section 4.2) undertaken after Tribal acquisition. If lands in excess of the required 1,541 acres are acquired by the Tribe (e.g., as a condition of sale for a parcel), such lands could be resold for conservation uses, or used for development, subject to the conditions of the CVAG MSHCP. No incidental take will be provided for any development activities on parcels within the off-Reservation Target Acquisition Areas acquired by the Tribe, and the management of properties acquired in these areas will be coordinated with that of adjacent conserved properties (refer to section 4.11).

The Tribe also expects to grant certain of its lands (up to a maximum of 1,470 of the 5,400 acres of off-Reservation Tribal Lands) to the BLM as part of the exchange program discussed in section 2.2.1.1 and outlined in Figure 3. After such exchange, any parcels granted to BLM would become BLM lands with no further Tribal control and would no longer be subject to the provisions of this Plan. Prior to any grant to BLM (or if any parcels are not granted to BLM), these lands would remain Tribal Lands and would be subject to the provisions of this Plan. As part of this potential exchange, the Tribe also expects to acquire from BLM some lands in certain defined areas (BLM Exchange Areas) within the Reservation, as well as lands outside the Reservation and outside Target Acquisition Areas. Up to a maximum of 5,725 acres of existing BLM lands could be transferred to the Tribe under this program. The exchange would be based on the monetary value of the land exchanged, rather than on acreage. Prior to any exchange (or if no exchange occurs), the BLM parcels would remain under BLM control and not be subject to the provisions of this Plan. These BLM parcels would become Tribal Lands only if transferred to the Tribe and following any such transfer would become subject to the provisions of this Plan and would no longer be under BLM control.



E:\ArcGIS\TSC-07 AguaCaliente\Map\THCP\Fig3_LandExchange.mxd -EV

BLM Land Exchange Proposal

AGUA CALIENTE THCP

Figure 3

Given this context, the geographic scope addressed for the purposes of analysis in this Plan (the Action Area) includes the following:

1. The 30,655 acres of the Reservation outside of Federal ownership plus 5,400 acres of off-Reservation lands owned by or held in trust for the Tribe, for a total of 36,055 acres, known as the Plan Area;
2. BLM lands within the BLM Exchange Areas on and off the Reservation (5,799 acres); and
3. Off-Reservation lands within the Target Acquisition Areas (these off-Reservation Target Acquisition Areas total 46,404 acres, of which a maximum of 931 acres could be acquired).

The Action Area, including the non-federally owned portions of the Reservation and other Tribal Lands, the BLM Exchange Areas, and the off-Reservation Target Acquisition Areas, is depicted on Figure 2 and totals 88,258 acres. Within this Action Area, a minimum of 36,055 acres and a maximum of 41,315 acres would be subject to the Plan at any time (30,655 acres of non-federally owned Reservation, 3,930 acres of off-Reservation Tribal Lands not proposed for exchange, up to 5,799 acres within the BLM Exchange Areas, and up to 931 acres of off-Reservation Target Acquisition Area parcels), under the current terms of the Plan, or through the minor amendment process (see section 4.17.2.1). Other increases in the Plan Area that are not solely for conservation purposes would require a major amendment (see section 4.17.4).

The Tribe has (or will have, to the extent that additional lands are acquired, as described above) authority over all lands within the Plan Area and will fully implement the Plan throughout this area. The Section 10(a) Permit and Plan would cover specified Tribal activities as well as certain third-party activities authorized by or under the direct control of the Tribe within the Plan Area, as described in section 4.2 (Covered Activities); for these activities, the Tribe will authorize issuance of a permit or similar approval (e.g., a grading permit) through which the Tribe will include compliance with the Section 10(a) Permit as a condition of its permitting/approval action and will expressly grant (transfer to the third party) the take authorization in the issued permit/approval.

Some Covered Activity boundaries may be situated partially on the Reservation and partially off the Reservation. In these instances, the Tribe may choose to defer to the Coachella Valley MSHCP and allow the requirements of that HCP to be imposed on the on-Reservation portion of the Covered Project. This determination by the Tribe (to assume or defer permitting authority) will depend upon such factors as the status of the activity at the time this Plan is approved, and the extent of on-Reservation, as opposed to off-Reservation land, subject to or impacted by the proposed Covered Activity. Such actions would require inter-plan coordination and tracking of take to ensure that all plan requirements are maintained.

The Tribe has entered into Land Use Agreements with the cities of Cathedral City, Palm Springs, and Rancho Mirage as well as with the County (see section 1.6.4.2, below). These Agreements allow each of those jurisdictions to act as the land use regulatory agent for the Tribe but require each jurisdiction to consult with the Tribe prior to issuing permits that may affect lands of the Reservation. It is through this

established entitlement process that the Section 10(a) Permit and Plan requirements will be imposed. Even if it does not assume direct land use permitting authority, the Tribe will retain the responsibility of making the required consistency determinations, working with the local land use jurisdictions to ensure the appropriate conditions are placed on any Conditional Use Permits, conferring take authorization to the applicant, monitoring compliance with the Plan, and ensuring that all activities in the Plan Area under direct or indirect control of the Tribe are compliant with the Plan, pay all appropriate fees, and provide the required conservation measures. Through this process, the Tribe will ensure that no disturbance is authorized within the Plan Area that is inconsistent with the terms of this Tribal HCP. Legal disturbance/development activities occurring within the Plan Area will be counted towards the acreage totals of “take” impacts of the Plan, to the extent described in section 4.2.

The Tribe is requesting that the Section 10(a) Permit be issued for a period of 75 years. This timeframe is considered reasonable because of the Tribe’s demonstrated tradition of resource management, the commitments within the Plan to legally protect and manage perpetually (including adaptive management and specified responses to Changed Circumstances, where appropriate) significant conservation areas essential to the Covered Species, and the management of economic development of the Plan Area provided by the Tribal HCP.

1.5 PLANNING CONTEXT

The checkerboard land ownership pattern of the Reservation and some of the other lands in the Action Area complicates land management and requires cooperation among neighboring landowners and jurisdictions to achieve large-scale integrated resource and land use planning. To ensure its success, this Tribal HCP complements existing and expected conservation efforts on adjacent lands outside of the Plan Area. The implementation of this Plan will therefore be coordinated with other resource planning efforts in the Coachella Valley to mesh Tribal conservation programs and land use practices with those other efforts. To that end, the Tribe has consulted with other resource agencies, organizations, and land managers in the development of this Plan to optimize the compatibility of the Tribal HCP with other conservation and land use management plans and activities, consistent with the goals of the Tribe. Other existing and planned conservation efforts in the vicinity of the Action Area are described in sections 2.2 through 2.4.

1.6 JURISDICTIONAL FRAMEWORK/REGULATORY CONTEXT OF THIS PLAN

There are many layers of regulatory acts and authorities applicable and/or operating within and around the Action Area that play a role in the management and conservation of listed and sensitive species and their habitats. These merit identification and discussion not only to define the Tribe’s authority to adopt and implement this Plan but also because of the Tribe’s intent that (1) the development and implementation of this Plan and related activities be undertaken in coordination and in a manner consistent with those acts and authorities; and (2) the Tribe be given due deference in accordance with these authorities.

This section describes the regulatory and management authority of the Tribe and how such authority has been implemented to date. It also describes the applicability of ESA, the USFWS's authority there under, and the trust obligations of the USFWS in dealing with federally recognized Indian nations as well as to a limited extent the authority of other federal agencies under legislation applicable within the Reservation and Plan Area and the roles of state and local regulators and land managers in and around the Reservation. The conservation activities of federal, state, and private land managers in the region are discussed in more detail in Chapter 2.

1.6.1 Overview of Jurisdictional Framework Applicable in Indian Country

1.6.1.1 Inherent Sovereign Authority of Tribal Government

Tribal governments have broad regulatory and management authority within their jurisdictional territories. The inherent sovereign authority of tribal governments to manage and regulate their people, lands, and resources is supported by an extensive body of treaties, federal legislation and regulations, executive orders and policies, and case law. This authority includes the ability to regulate and manage activities of members and non-members on both Tribal and allotted trust land. It may also apply to non-Indians engaging in activities on fee land within the boundaries of an Indian reservation in certain circumstances determinable on a case-by-case basis, such as where the non-Indian has entered a consensual relationship with the Tribe; where the regulated activity has a direct effect on the political integrity, the economic security, or the health, safety and welfare of the Tribe; or where the Tribe has been delegated such authority by the U.S. Congress. Because development and conservation directly affect the health, safety and welfare of the Tribe, the provisions of this Plan will be applicable on fee land within the Reservation. The Tribe's federally approved Constitution confirms that the Tribe's land use jurisdiction extends to all land within the exterior boundaries of the Agua Caliente Indian Reservation.

1.6.1.2 Authority of the Federal Government; Authorization to Delegate Authority to Tribal Governments

Based on the plenary powers doctrine, the federal government has jurisdiction to enact, implement, and enforce law that applies within Indian reservations, and federal law of general applicability will usually apply there as well. This authority is concurrent with inherent tribal authority, and does not supersede it unless expressly provided by the U.S. Congress.

Recognizing the inherent sovereign regulatory and management authority of tribal governments and the significant role tribal governments may play in implementing and enforcing environmental protection measures, several federal environmental laws also provide for federal implementing agencies to delegate their authority to tribal governments, in a manner similar to delegation of authority to states. For example,

under the Clean Water Act, a tribal government may receive delegated authority from the Administrator of the U.S. Environmental Protection Agency (USEPA) to implement water quality standards, total maximum daily loads, and National Pollutant Discharge Elimination System (NPDES) programs, and dredge and fill permits. Other federal statutes that expressly authorize delegation of program or permitting authority include the Clean Air Act; the Safe Drinking Water Act; the Federal Insecticide, Fungicide, and Rodenticide Act; and the Comprehensive Environmental Response, Compensation, and Liability Act.

Such delegated authority is in addition to and not in lieu of a tribe's inherent regulatory and management authority. In cases where the U.S. Congress has made federal law applicable within Indian reservations, tribal governments can regulate more strictly under either inherent or delegated authority but must meet minimum federal law requirements.

1.6.1.3 Limited Authority of State and Local Government

Based on principles of sovereignty and federal preemption, state and local laws generally do not apply within Indian reservations absent an express grant of such authority by a tribal government or the U.S. Congress. Such an express grant of authority has been given by the U.S. Congress to certain states, including California, under a statute commonly referenced as Public Law 280 (PL-280), as further described in section 1.6.4. As described in section 1.6.4.2, the Tribe has entered into Land Use Agreements with each of the local land use jurisdictions whose territories overlap the Reservation. Through these agreements, the Tribe has chosen to adopt relevant land use laws of the state, cities, and County as its own on allotted trust lands within the Reservation.

1.6.2 Establishment of the Agua Caliente Indian Reservation; Tribal Government Structure, Regulatory, and Planning Activities

The Tribe is composed of several small groups of Cahuilla Indians whose ancestors at least 350 to 500 years ago occupied the Tahquitz alluvial fan and nearby hot springs as well as Andreas, Murray, Palm, Snowcreek, and Whitewater Canyons. The Cahuilla historically had clear, self-governing political and social structures, a complex and extensive trade network, and a rich ceremonial life integrally tied to the natural world around them. They sustained themselves through hunting, gathering, and irrigated agriculture and constructed and maintained trails connecting their villages to one another and to their hunting and gathering areas. After non-Indian populations began to encroach upon the Tribe's traditional territory in the early- to mid-1800s, the Agua Caliente Indian Reservation was created by Executive Order (EO) on May 15, 1876 and was supplemented by additional EOs and other actions taken pursuant to the Mission Indian Relief Act to ensure the protection of a portion of the Tribe's historic homeland for the sole use and benefit of the Tribe.

The Tribe's authority to enforce its obligations under the Tribal HCP on all lands of the Agua Caliente Indian Reservation, including non-Indian controlled fee land, flows from its inherent sovereign authority supplemented by delegated federal authority.

The Agua Caliente Band of Cahuilla Indians' Constitution and by-laws, approved by the Commissioner of Indian Affairs on April 18, 1957, delegated to the Tribe specific federal powers and authority over all lands of the Reservation. Specifically, Article V. a vests with the Tribal Council the power to "protect and preserve Tribal property, including wildlife and natural resources." Article V. h. grants the authority for the Tribal Council "[t]o confer with and advise the Secretary of the Interior with regard to . . . the development of resources." Last, the Tribal Council is empowered by the federal government through Article V. i. "[t]o promulgate and enforce assessments or permit fees upon non-members doing business and obtaining special privileges on the Agua Caliente Reservation, including the privilege of fishing"

The extent of the Tribe's territory over which the Tribe may exercise the above-described jurisdiction is designated in Article II of the Constitution, which "shall extend to the territory within the boundaries of the Agua Caliente Indian Reservation as heretofore designated and to any other lands which may hereafter be added."

Accordingly, the approval of the Tribe's Constitution by the United States Department of the Interior's representative delegated to the Tribe a degree of federal authority to manage natural resources on all of the Agua Caliente Indian Reservation, which includes non-Indian controlled fee land.

In addition to the above-described delegated authority over fee lands, the Tribe has inherent authority, as described in the *Montana* line of cases, to exercise jurisdiction over non-Indians on fee land within the bounds of its Reservation when such non-Indian activity threatens the Tribe's interest in self-government. Specifically, if the Tribe does not have authority to manage and control resources on its entire Reservation, as provided by its Constitution, the Tribe's interest in and ability to exercise governmental control within this area is frustrated.

The Tribal Council is the Tribe's representative in all dealings with outside governments and is the ultimate authority on land use matters within the Reservation. The Tribe's Planning and Development Department (Department) serves as the lead agency in matters of environmental concern and development on the Reservation.

The Tribe has a tradition of managing land and natural resources within its jurisdictional territory. In more modern times, the Tribe has exercised its inherent environmental protection, natural resources, and land use management authority through the adoption and implementation of numerous ordinances, plans, and intergovernmental agreements that serve to protect and regulate activities affecting the Reservation environment. These include the following:

- *Ordinance 1* – Establishes the Indian Planning Commission.
- *Ordinance 2* – Tribal Possessory Interest Tax funds to protect and preserve Tribal property and protect the safety and general welfare of Tribe and members.
- *Ordinance 4* – Adopts certain laws, ordinances, codes, regulations, and rules of the State and the City of Palm Springs governing the use and development of certain Reservation land within the jurisdictional boundaries of the City of Palm Springs and grants authority to the City to enforce.
- *Ordinance 5* – Land Use Appeals Ordinance, gives Tribal Council authority to receive and consider land use appeals, in order to affirm, modify, or reverse decisions made by Planning Commissions of Palm Springs, Cathedral City, and the County regarding land use within the exterior boundaries of the Reservation (attached as Appendix A to this Tribal HCP).
- *Ordinance 7* – Restricts Reservation for use by public utility projects to ensure the quality of the environment and the health and safety of members.
- *Ordinance 10* – Adopts certain laws, ordinances, codes, regulations, and rules of the State and City of Cathedral City governing the use and development of certain Reservation land within the jurisdictional boundaries of the City of Cathedral City, and grants authority to the City to enforce.
- *Ordinance 12* – Adopts certain laws, ordinances, codes, regulations, and rules of the State and County governing the use and development of certain Reservation land within unincorporated areas of the County, and grants authority to County to enforce.
- *Ordinance 14* – Prohibits use of Reservation land for disposal, storage, or treatment of hazardous and certain non-hazardous wastes.
- *Ordinance 16* – Regulates uses of Indian Canyons and prohibits activity with potential to harm environment and natural resources within the Canyons.
- *Ordinance 17* – Establishes “Property Maintenance Standards” for removal of graffiti, trash, debris, and any other hazards from Tribal trust property that are visually offensive, deter development, diminish the value of the property, and create a hazard to the environment and/or the health, safety, and well-being of the Tribe, its members and the public.
- *Ordinance 21* – Establishes Floodplain Management Standards to ensure public health and safety, and to minimize threat of flood damage.
- *Ordinance 24* – Prohibits discharge of pollutants into the waters of the Reservation and implements a fine up to \$5,000 per day for every day the discharge of pollution occurs.
- *Ordinance 26* – Establishes standards for safeguarding human health, safety, well-being, and property by regulating and controlling design, construction, quality of materials, use, occupancy, location, and maintenance of all buildings constructed on Tribal trust land.
- *Ordinance 28* – Tribal Environmental Policy Act (TEPA) ensures protection of natural resources and the environment while promoting the highest and best use and development of Tribal property by establishing standards for the review and consideration of environmental impacts associated with proposed major Tribal actions, including certain development within the Reservation.
- Interim Habitat Conservation and Management Plan.
- Indian Canyons Management Agreement.

- Indian Canyons Master Plan Study.
- Indian Canyons Park Final Cooperative Management Plan.
- Tribal Quality Assurance Protection Plan.
- Tribal Trails Management Plan.
- Tahquitz Canyon Wetland Conservation Plan.
- Section 14 Master Plan.
- Tribal Pesticides Management Plan.
- Land Use Agreement with City of Palm Springs.
- Land Use Agreement with Cathedral City.
- Land Use Agreement with the County of Riverside.
- Land Use Agreement with the City of Rancho Mirage.
- Cooperative Agreement regarding management of National Monument.
- Tribal Fire Management Plan.

These ordinances, plans, and agreements reflect the fundamental policies and traditional approach of the Tribe as an active and cooperative land and resource manager to protect and preserve the Reservation environment while promoting the highest and best use and development of Reservation lands and resources.

1.6.3 Federal Regulatory and Management Authority

1.6.3.1 Application of the Endangered Species Act within the Agua Caliente Indian Reservation

The application of ESA within Indian Reservations and, in particular, the role of tribal governments and the applicability of Section 10 is an open question not addressed expressly in the statute or by any interpretive decisions of the U.S. Supreme Court or lower courts whose decisions are applicable on the Reservation.

Despite this uncertainty, the Tribe is determined to work with the USFWS in a coordinated fashion in the context of government-to-government consultation. This will ensure maximum protection of the trust resources of the Tribe and its members and will allow for an approach that honors the duty and authority of the USFWS with respect to ESA while preserving Tribal sovereignty and honoring traditional Tribal land management practices. Because the Tribe is seeking an incidental take permit from the USFWS, the Tribe has developed a Habitat Conservation Plan that meets the application requirements [50 CFR 13.21 and 17.22(b)(1)] and issuance criteria [50 CFR 17.22(b)(2)] for a take permit under Section 10(a)(1)(B) of ESA and its implementing regulations. The Tribe elected to pursue incidental take authorization through ESA Section 10 rather than Section 7 because it believes that only a Tribal HCP would provide comprehensive consideration of the Plan Area, enhance the Tribe's land use primacy, and provide long-term assurances of implementation to both parties.

1.6.3.2 Summary of Relevant Provisions of the Federal Endangered Species Act

The purpose of ESA is to “provide a means whereby the ecosystems upon which endangered species depend may be conserved [and] to provide a program for the conservation of such endangered species.” ESA establishes a program that:

- Defines a broad class of plants and animals qualifying for ESA protections;
- Sets out prohibited acts designed to protect such species, and provisions for enforcement;
- Provides for issuance of permits to take species in certain circumstances;
- Imposes broad duties on federal agencies to promote the survival and recovery of protected species in the wild; and
- Requires the preparation of plans for accomplishing recovery of species protected according to ESA.

Endangered species are defined as “any species which is in danger of extinction throughout all or a significant portion of its range.” A threatened species is one that is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” “Species” is defined to include “any subspecies of . . . wildlife or plants, and any distinct population segment of any species of . . . wildlife which interbreeds when mature.” Thus, many protected “species” are actually subspecies or distinct populations.

Once a species is listed as endangered, Section 4 of ESA requires, to the maximum extent prudent and determinable, the designation of critical habitat (that is, habitat essential to the conservation of the species) and mandates the development of a recovery plan, if such action will promote conservation of the species. Pursuant to Section 7 of ESA, before authorizing, funding, or carrying out a federal project, the responsible agency must determine whether any listed species are present in the project area. If a threatened or endangered species or its critical habitat is present, the agency must analyze the proposed action to determine whether the activity is likely to adversely affect the species or designated critical habitat. If the activity “may affect but is not likely to adversely affect” a listed species or critical habitat, the federal agency must informally consult with the USFWS. If an activity is determined likely to adversely affect a species or critical habitat, the federal agency must formally consult with the USFWS. Formal consultation is concluded by the USFWS issuing a Biological Opinion that analyzes whether the activity would jeopardize the continued existence of the species or adversely modify critical habitat. The biological opinion often includes an incidental take statement that exempts the “incidental take” of fish or wildlife species in certain circumstances in connection with federal activities.

In certain circumstances, ESA also authorizes the incidental take of species in connection with otherwise lawful activities by non-federal entities. Section 10(a) of ESA provides for the preparation by non-federal parties and approval of an HCP as the basis for issuance of an incidental take permit (Section 10(a) Permit) from the USFWS. An HCP must address biological and economic factors. If the proposed HCP

is approved by the USFWS, a Section 10(a) Permit is issued, which authorizes take of Covered Species incidental to otherwise lawful activities. For the taking to be incidental and the permit to be valid, additional authorizations from other agencies (e.g., grading permits) may be required. An HCP can be prepared to support the issuance of a Section 10 permit for activities ranging from a single development project to numerous projects taking place in a multi-jurisdictional area. The legislative history of Section 10(a)(1) indicates that Congress also intended the USFWS to approve HCPs that protect unlisted species as if they were listed under ESA, and that in so doing, the USFWS would provide Section 10(a)(1) assurances for such unlisted species (H.R. Rep. No. 97-835, 975h Cong., 2d Sess. 30-31, 1982; Conference Report on 1982 Amendments to ESA). This legislative intent was codified in the USFWS's Habitat Conservation Plan Assurances ("No Surprises") Rule [50 CFR 17.22(b)(5), 17.32(b)(5) and 222.307(g); 63 FR 8859, February 23, 1998]. For HCPs, the USFWS uses the conservation standard identified in the Habitat Conservation Planning Handbook (USFWS and National Marine Fisheries Service 1996) for unlisted species; the Handbook states that an unlisted species is "adequately covered" in an HCP only if it is treated as if it were listed pursuant to Section 4 of the ESA and if the HCP meets the permit issuance criteria in Section 10(a)(2)(B) of the ESA with respect to the species. The USFWS routinely approves HCPs that address both listed and unlisted species.

At a minimum, Section 10(a) requires a HCP to specify:

- Impacts likely to result from the proposed taking of the species for which the permit coverage is requested;
- Measures the applicant will undertake to monitor, minimize, and mitigate such impacts;
- Measures the applicant will take to ensure adequate funding for the plan will be provided;
- Procedures to be used to deal with Unforeseen Circumstances;
- Alternative actions to the taking of the species that the applicant considered and the reasons why such alternatives were not proposed to be utilized; and
- Additional measures the USFWS may require as necessary or appropriate for purposes of the plan.

In addition, the implementing regulations (50 CFR 13 and 17) pertaining to HCPs require that an application for an incidental take permit include:

- A complete description of the activity sought to be authorized; and
- The common and scientific names of the species sought to be covered by the permit, as well as the number, age, and sex of such species, if known.

The implementing regulations (50 CFR 17.22) require that the USFWS decide whether or not a permit should be issued based on the following issuance criteria:

- The taking will be incidental;
- The applicant will minimize and mitigate the impacts of such takings to the maximum extent practicable;
- The applicant will ensure that adequate funding for the conservation plan and procedures to deal with unforeseen circumstances will be provided;
- The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild;
- The additional measures the USFWS may require as necessary or appropriate for purposes of the plan, if any, will be met; and
- The USFWS has received such other assurances as the USFWS may require that the plan will be implemented.

In making the decision of whether to issue the permit, the USFWS also considers the anticipated duration and geographic scope of the applicant's planned activities, including the extent of listed species habitats that are involved and the degree to which listed species and their habitats are affected [50 CFR 17.22(b)(2)].

In addition, the Habitat Conservation Plan Assurances Policy (August 11, 1994), as codified by the No Surprises Rule [50 CFR 17.22(b)(5), 17.32(b)(5) and 222.307(g); 63 FR 8859, February 23, 1998], provides that as long as an HCP is being properly implemented, USFWS will not require additional lands, water, or money from a permittee in the event of Unforeseen Circumstances, and that additional measures to mitigate reasonably foreseeable Changed Circumstances will be limited to those specifically addressed in the HCP (and only to the extent of the mitigation specified). These No Surprises assurances are provided to an applicant in return for adequate planning within an HCP for the conservation needs of the Covered Species for the duration of the permit, including procedures the applicant would implement to deal with Changed Circumstances that can be planned for and could adversely affect the status of the Covered Species.

Finally, guidance for approval of HCPs set forth in the *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* (USFWS and National Marine Fisheries Service 1996), as amended to include the 5 Point Policy Guidance (see 65 FR 35242, June 1, 2000), calls for the following additional items to be included in an HCP:

- Statement of the HCP's biological goals and objectives;
- Adaptive management strategies, where appropriate, as determined by the HCP proponent and USFWS;
- A monitoring program to evaluate compliance, determine if biological goals and objectives are being met, and provide feedback information for any adaptive management strategies being utilized; and
- Definition of Section 10(a) Permit duration.

1.6.3.3 Roles of the USFWS and Tribe Under the Federal Endangered Species Act

Under authority delegated by the Secretary of the Interior, the USFWS is responsible for implementing ESA with respect to terrestrial plant and animal species, and a selection of non-marine species (the remainder of which are addressed by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service). This implementation responsibility includes, among other things, the proposal and periodic review of listings of species as threatened or endangered; the designation of critical habitat; the development and implementation of recovery plans; consultation with federal agencies on federal actions that may adversely affect listed species; and the review of and action on applications for Section 10(a) Permits and HCPs.

The ESA does not expressly authorize the administering agencies to delegate their authority to tribal governments, nor does it otherwise expressly acknowledge the role of tribal governments in managing wildlife and habitat or regulating activities that may impact wildlife and habitat. Clarification and guidance for implementation of ESA on tribal lands have been provided by the President's Memorandum on Relations with Tribal Governments (April 29, 1994); the USFWS Native American Policy (June 28, 1994); Joint Secretarial Order No. 3206 issued by the Secretary of the Interior and the Secretary of Commerce (June 5, 1997); and EOs on Consultation and Coordination with Indian Tribal Governments (EO 13084 [May 14, 1998], revoked and superseded by EO 13175 [November 6, 2000]). These authorities, as well as other policies and directives to agencies of the federal government, recognize and reiterate the unique duty of trust owed by the federal government to Indian tribes. These include honoring tribal sovereignty and assisting tribal governments in the protection of tribal members, cultures, resources, and fundamental interests. The authorities also mandate that tribal governments be consulted on a government-to-government basis prior to federal decision-making or other action that may affect tribal interests. The applicable provisions of each of these authorities are summarized below.

President's Memorandum on Relations with Tribal Governments

Through this Memorandum issued in 1994, President Clinton called upon all executive departments and agencies to ensure maintenance and enhancement of the government-to-government relationship between the Federal Government and Indian tribes. This Memorandum confirms that federal activities affecting Native American tribal rights and trust resources "should be implemented in a knowledgeable, sensitive manner respectful of tribal sovereignty." Among other things, it instructs executive departments and agencies "to design solutions and tailor Federal programs, in appropriate circumstances, to address specific or unique needs of tribal communities."

U.S. Fish & Wildlife Service Native American Policy

The Policy is intended to be "consistent with Federal policy supporting Native American government self-determination" and recognizes the USFWS's "trust responsibilities to assist Native Americans in

protecting, conserving and utilizing their reserved, treaty guaranteed, or statutorily identified trust assets.” Applicable provisions in the Policy include the following:

- Directs the USFWS, in addition to its own legislative mandates, to observe its “trust responsibilities and respect for Native American cultural values when planning and implementing programs.”
- Recognizes “the authority that Native American governments have for making fish and wildlife resource management policy and for managing fish and wildlife resources on trust lands [and certain nonmember lands] within their reservations.”
- Confirms that the USFWS supports “the missions and objectives of Native American governments in assuming program management roles and responsibilities . . . and the rights of Native Americans to be self-governing, and to manage fish and wildlife resources.”
- Commits to assisting tribal governments in identifying funding sources that are available to them for fish and wildlife resource management activities.

Joint Secretarial Order 3206

The Secretarial Order provides that the Interior and Commerce Departments, including the USFWS, shall carry out their responsibilities under ESA in a manner that harmonizes federal trust responsibility to tribes and tribal sovereignty with the USFWS’s statutory mission, and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species. The Secretarial Order addresses American Indian tribal rights, the trust relationship, and the ESA generally. The USFWS has applied the Order in the context of Section 7 in the past. Its application in the context of Section 10 is also warranted.

The Secretarial Order also addresses the following:

- The special federal trust responsibility, involving the legal responsibilities and obligations of the U.S. toward Indian tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights, which are defined as “those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decision, executive order or agreement, and which give rise to legally enforceable remedies.”
- The importance of tribal self-governance and the protocols of a government-to-government relationship with the Tribes as well as long-standing congressional and administrative policies promoting tribal self-government, self-sufficiency, and self-determination, recognizing and endorsing the fundamental rights of tribes to set their own priorities and make decisions affecting their resources and distinctive ways of life.
- Sovereign tribal authority to make and enforce laws, administer justice, manage and control Indian lands, exercise tribal rights, and protect tribal trust resources, whereby Indian lands are managed by tribal governments in accordance with tribal goals and objectives.

The basic tenets of this Order are applicable to this Plan in that Section 10 of the ESA, 16 U.S. Code (USC) §1539(a)(2)(A) allows the Secretary to issue incidental take permits to “applicants,” such as the Tribe, that submit an HCP to USFWS for approval. There is no restriction or definition of “applicant” that precludes the Tribe from receiving such permits; therefore, the Secretarial Order and its applicability are interpreted to serve this Tribal HCP.

In particular, Principle 3(B) provides:

The Departments shall recognize that Indian tribes are appropriate governmental entities to manage their lands and tribal trust resources. . . . Accordingly, the Departments shall give deference to tribal conservation and management plans for tribal trust resources that (a) govern activities on Indian lands, including . . . tribally-owned fee lands, and (b) address the conservation needs of listed species.

Principle 3(C) provides:

The Departments, as trustees, shall support tribal measures that preclude the need for conservation restrictions. . . . In cases involving an activity that could raise the potential issue of an incidental take under [ESA], [any conservation restriction the USFWS seeks to impose must be based on] an analysis and determination that all of the following conservation standards have been met: (i) the restriction is reasonable and necessary for conservation of the species at issue; (ii) the conservation purpose of the restriction cannot be achieved by reasonable regulation of non-Indian activities; (3) the measure is the least restrictive alternative available to achieve the required conservation purpose; (4) the restriction does not discriminate against Indian activities, either as stated or as applied; and (5) voluntary tribal measures are not adequate to achieve the necessary conservation purpose.

Building upon the guidelines set forth in the Native American Policy, the Appendix provides more specific direction to the USFWS in particular, including the following provisions:

- Section 2(E) directs the USFWS, upon the request of an Indian tribe, to cooperatively review and assess tribal conservation measures for sensitive species that may be included in tribal resource management plans, and to consult on a government-to-government basis with the affected tribe to determine and provide appropriate assurances that would otherwise be provided to a non-Indian.
- In connection with habitat conservation planning, Section 3(D) instructs the USFWS to utilize the expertise of affected tribal governments in habitat conservation planning that may affect tribal trust resources or the exercise of tribal rights, and to be cognizant of the impacts of measures incorporated into HCPs on tribal trust resources and the tribal ability to utilize such resources.

- With respect to critical habitat designations, Section 3(B) requires the following:
 - That the USFWS recognize the contribution to be made by affected Indian tribes, in considering proposals to designate critical habitat, and in evaluating the economic impacts of such proposals with implications for tribal trust resources or the exercise of tribal rights;
 - That the USFWS solicit information from affected Indian tribes regarding cultural values, tribal rights, and economic development issues for use in the preparation of economic analysis, in the preparation of “balancing tests” to determine appropriate exclusions, and in the review of comments or petitions concerning critical habitat that may adversely affect the rights or resources of Indian tribes;
 - That the USFWS, in keeping with its trust responsibility, consult with affected Indian tribes when considering designation of critical habitat in an area that may impact tribal trust resources, tribally owned fee lands, or the exercise of tribal rights; and
 - That the USFWS not designate critical habitat on such lands unless determined essential to conserve a listed species, and document the extent to which conservation needs of listed species can be achieved by limiting the designation to other lands.

Executive Orders 13084 and 13175

After the promulgation of the USFWS Native American Policy and Joint Secretarial Order 3206, President Clinton issued two EOs of note. The first was EO 13084 (May 19, 1998), the stated purposes of which included “to reduce the imposition of unfunded mandates upon Indian tribal governments; and to streamline the application process for and increase the availability of waivers to Indian tribal governments.” More recently, EO 13175, while revoking 13084, incorporated and expanded its provisions. Additional language in EO 13175 provides that any regulation, legislative comment or proposed legislation, any other policy statements or actions that have substantial direct effects on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between them are subject to certain fundamental principles: (1) the unique legal relationship between the Federal Government, on the one hand, and Indian tribes as protected domestic dependent nations, on the other hand, and the resulting federal trust responsibility; (2) the recognized tribal right of self-government, and the need to work with tribes on a government-to-government basis regarding issues concerning tribal self-government, trust resources, and treaty and other rights; and (3) support of tribal sovereignty and self-determination.

Additionally, EO 13175 requires that, “with respect to Federal statutes and regulations administered by Indian tribal governments, the Federal Government shall grant Indian tribal governments the maximum administrative discretion possible.” Finally, all executive agencies must:

- (1) encourage Indian tribes to develop their own policies to achieve program objectives;
- (2) defer to Indian tribes to establish standards; and

- (3) in determining whether to establish Federal standards, consult with tribal officials as to the need for Federal standards and any alternatives that would limit the scope of Federal standards or otherwise preserve the prerogatives and authority of Indian tribes.

Summary

These authorities collectively require the Secretary to give deference the Tribe's HCP and Implementing Agreement (IA) when processing these documents and issuing a Section 10(a) Permit. It is within this context that the Tribe has developed and intends to implement this Plan, which manifests its sovereign authority, embodies its traditional land use and resource management approach, and reflects uniquely Tribal values, with the formal support and cooperation of the USFWS.

1.6.3.4 Other Relevant Federal Agency Authority and Activity; Intent Regarding Consultation

The Tribe recognizes that several other federal laws and agency actions relevant to land use, environmental protection, and natural resource management are applicable within the Action Area, and that such authority and action often triggers a need for consultation regarding the environmental impacts of certain activities proposed to take place within the Plan Area.

1.6.3.4(a) Migratory Bird Treaty Act

The original 1918 federal MBTA implemented the 1916 Convention between the U.S. and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties with Mexico, Japan and the Soviet Union (now Russia). The MBTA established a federal prohibition, unless permitted by regulations, to “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird” (16 USC 703).

The Tribe is requesting that the Section 10(a) Permit also constitute a Special Purpose Permit under 50 CFR section 21.27 for the take of Covered Species listed under ESA which are also listed under the MBTA, as amended (16 USC §§ 703-712), in the amount and/or number specified in the Tribal HCP, subject to the terms and conditions specified in the Section 10(a) Permit. Any such Take would not be in violation of the MBTA. The MBTA Special Purpose Permit would extend to Covered Species listed under ESA and under the MBTA after the effective date of the Section 10(a) Permit. There are two species currently listed under both the ESA and the MBTA, which are Covered Species: least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*). Additionally, the

other avian Covered Species (i.e., summer tanager [*Piranga rubra cooperi*], yellow-breasted chat [*Icteria virens*], yellow warbler [*Dendroica petechia brewstri*], gray vireo [*Vireo vicinior*], crissal thrasher [*Toxostoma crissali*], and Le Conte's thrasher [*Toxostoma lecontei*]) are also covered by the MBTA. Actions conducted under the Tribal HCP would be conditioned by the Permit to comply with the provisions of the MBTA, with strict avoidance measures for actions affecting MBTA-covered species. This Special Purpose Permit would be valid for a period of three years from its Effective Date, provided the Section 10(a) Permit remains in effect for such period. The Special Purpose Permit will be renewed pursuant to the requirements of the MBTA, provided the Tribe submits a request for renewal and remains in compliance with the terms of the IA and the Section 10(a) Permit. Each such renewal shall be valid for a period of three years, provided that the Section 10(a) Permit remains in effect for such period.

1.6.3.4 (b) Water Quality and Wetlands Protection

Under the Clean Water Act, until such time as the Tribe elects to assume program and permitting authorization, the U.S. Army Corps of Engineers (USACE) maintains responsibility for water quality certifications pursuant to Section 401 and NPDES permits under Section 402 for discharges into waters that flow through the Reservation. Similarly, the USACE maintains responsibility for administering Section 404 of the Clean Water Act on the Reservation (with USEPA acting in a reviewing capacity). Section 404 establishes a permit system that regulates discharges of dredge or fill material into Waters of the U.S. and certain disturbances of wetlands. Impacts to wetlands must be avoided to the maximum extent practicable, which means "available and capable of being done after taking into consideration cost, existing technology, and logistics in the light of overall project purposes." Permits can be denied if a proposed activity, including any dredging, channelization, or development in a wetland, will result in "significant degradation" of the wetland. "Significant degradation" can include diminished recreational or aesthetic values as well as damage to aquatic systems. In addition, permits for such activities can be issued with conditions requiring mitigation of wetlands loss by restoring or enhancing existing wetlands or creating new wetland areas. Nothing in this Plan is intended to supersede or otherwise affect the application of any relevant provision of the Clean Water Act to any activities taking place within the Plan Area.

1.6.3.4(c) Environmental Impacts Consultation

The National Environmental Policy Act (NEPA) applies to actions undertaken, sponsored and, in some cases, permitted or funded by agencies of the federal government. For instance, on Tribal and allotted trust lands, the Bureau of Indian Affairs (BIA), among many other responsibilities, maintains review and approval authority of leasing, rights-of-way, permits and licenses, and other real estate transactions. The BIA, USEPA, and several other federal agencies, such as the Department of Housing and Urban Development, also provide grant or contract funding for tribal projects that may trigger environmental review and the requirement of ESA Section 7 consultation with USFWS regarding impacts to federally

listed species. The BIA generally serves as the lead or co-lead agency for compliance with the NEPA in connection with activities taking place on Tribal or allotted trust lands.

NEPA is primarily a procedural mandate that requires all federal agencies to conduct an evaluation of any action that may be defined as a “major federal action” that may involve a “significant impact on the natural environment.” While judicial interpretations of this threshold definition vary with the circumstances, NEPA generally imposes a requirement that the agency at least consider all environmental impacts of a given action, as well as the alternative actions and measures that may mitigate such impacts. Although NEPA does not effect an outright prohibition even on those federal projects that do involve adverse environmental impacts, it does operate to provide information about the potential adverse impacts of such projects and opens them to public scrutiny. Among those factors that must be considered is the effect of the proposed project on sensitive species and their habitat.

Through adoption of this Tribal HCP, it is the intent of the Tribe that whenever any federal agency action within or impacting the Plan Area requires consultation regarding species or habitat, through NEPA under Section 7 of ESA or otherwise, the Tribe be directly consulted regarding the proposed activity’s potential impacts to sensitive species and habitat on such lands, and this Plan be given deference (when applicable) as mandated by the authorities discussed above.

1.6.4 State and Local Authority

As mentioned previously, absent an express grant of authority from a tribal government or the U.S. Congress, state and local governments generally have no regulatory authority on Tribal or allotted trust land, and have regulatory authority only in certain circumstances, determinable on a case-by-case basis, on non-Indian fee land within an Indian reservation. In 2002, the U.S. Court of Appeals for the nine western states concluded that a county does not have land use jurisdiction over the use and development of fee lands on a reservation. The following discussion provides more information about the relationship of the Tribe to State and local governments as well as CVAG.

1.6.4.1 Federal Delegation of Authority to State of California under PL-280

As previously discussed, through the enactment of PL-280, the U.S. Congress has granted to the State of California (and its political subdivisions) general criminal jurisdiction on Indian reservations; and the State courts have jurisdiction over civil cases arising on a reservation and/or involving tribal members. This grant of jurisdiction by Congress, however, does not provide the State with general regulatory authority; thus, State laws such as California’s endangered species law do not apply on Tribal or allotted trust land, and agencies such as the California Department of Fish and Game (CDFG) have no jurisdiction or authority on the Reservation, except to the extent the Tribe has delegated or otherwise authorized such authority.

Separate from the application of PL-280, state and local regulatory law may apply in certain circumstances on fee lands within the Reservation, such as where authorized by the U.S. Congress.

1.6.4.2 Tribal Delegation of Authority to State and Local Governments

In the interests of administrative efficiency, and consistency and clarity of land use regulation within and around the Reservation, the Tribe has chosen to enter Land Use Agreements with the three cities (Palm Springs, Rancho Mirage, and Cathedral City) and the County, the jurisdictions of which overlap the Reservation. With each of these Agreements, the Tribe has chosen to adopt relevant land use laws of the state, cities, and county as its own, and to delegate to the cities and county, as the Tribe's agents, the authority to enforce those laws on certain lands within the Reservation. The Agreements generally make state and local land use and environmental protection laws applicable on allotted trust lands (but *not* Tribal trust lands) within the Reservation.

Undeveloped fee land on the Reservation comprises 3,843 acres (13 percent) of all undeveloped land on the Reservation. Those lands include vacant hillsides in the MCCA and vacant lots in urbanized areas. It is the intent of the Plan to provide coverage for all fee land within the boundaries of the Reservation. The joint Coachella Valley MSHCP for the cities of Palm Springs, Cathedral City, and Rancho Mirage, and the County of Riverside, does not cover any lands within those jurisdictions that are also on the Reservation. Therefore, if the USFWS also approves the Tribe's HCP, all land in the area will be covered, without overlap or gap, by the two approved HCPs. One will start where the other ends.

Tribal processes to ensure the enforcement of the provisions of the Tribal HCP will vary by type of land, whether unallotted Tribal trust land, allotted trust land, or fee land.

Unallotted Tribal Trust Land

Enforcement is direct by the Tribe itself on unallotted Tribal trust land, in that compliance with the Tribal HCP will be incorporated into any project that the Tribe undertakes or approves on such land.

Allotted Trust Land

On allotted trust land, the Tribe can enforce the provisions of the Tribal HCP as a matter of Tribal law through the leasing process. When a potential lessee of such allotted trust land is negotiating a lease, that lease must include many standard provisions in order to receive the required approval of the BIA. There is already general language in the standard form lease requiring the lessee to comply with all applicable federal, state, and local laws, ordinances, and regulations. This is how, for example, local zoning ordinances are enforced. If a lease calls for a use prohibited by the applicable zoning, the lease cannot be approved. Similarly, if a lessee goes to the local city or county (with which the Tribe already has a land

use contract) and applies for a building permit or similar entitlement, that lessee must comply with all of that jurisdiction's normal procedures and requirements to obtain that permit or similar entitlement.

All such requirements are actually Tribal in nature and origin because the Tribe has adopted an ordinance in the case of each such city and county as part of the relevant land use contract, by which the Tribe adopts all of that local jurisdiction's land use measures, plus relevant state law, as the Tribe's own. For example, in the case of allotted trust land within the unincorporated areas of the County of Riverside, Tribal Ordinance No. 12, adopted in 1989, provides that:

All of the laws, ordinances, codes, rules, regulations, or other similar enactments of the State of California and of the County of Riverside, as they now exist and as they may exist in the future, except as provided below, which govern, regulate, limit, zone, or otherwise control the use and/or development of all of the lands which are held in trust for individual Indians by the United States and which are located within the present or future unincorporated areas of the County of Riverside which included within the area covered by the Western Coachella Valley Community Plan are adopted as the Band's own such measures and are made applicable to the said lands as the Band's own said measures.

The same ordinance goes on to designate the County of Riverside as the Tribe's agent to enforce such Tribal measures, and gives a non-exhaustive list of examples of such adopted measures as follows:

- A. General plan, Western Coachella Valley Community Plan, and specific plans;
- B. Zoning;
- C. Variances;
- D. Conditional use permits and other similar permits;
- E. Subdivisions;
- F. Building and utility codes, permits and standards;
- G. Enforcement of building and utility codes;
- H. Environmental review;
- I. Matters directly related to the above, except as noted in this Chapter.

In this way, *all* such state and local land use and directly related measures, from the California Environmental Quality Act to the California Endangered Species Act (California Fish and Game Code Section 2050 et seq.) are already part of Tribal law and are already being implemented by the local jurisdictions on allotted trust land within those jurisdictions.

Since those four local non-Indian jurisdictions already incorporate the Coachella Valley MSHCP into this process, incorporating the Tribal HCP into the same process should be no great burden. Any landowner or developer who seeks to develop will have to apply for all the normal entitlements to that local non-Indian

jurisdiction, including initial compliance with the Tribal HCP or the Coachella Valley MSHCP. If that landowner or developer does not so apply, the entitlement will not be issued and the development will not proceed. Any such amendment regarding allotted trust land will specify that, upon application, the local non-Indian jurisdiction will initiate the process for issuance of an incidental take permit, to the extent that one is needed for any particular project, with the Tribe being the ultimate source of that entitlement under the provisions of its approved Tribal HCP. In this way, the development of allotted trust land will be fully subject to all the normal state law measures regarding the use and development of land, plus the additional requirements of the Tribal HCP.

The Tribe has also signed an agreement with the California Department of Parks and Recreation recognizing the Tribe's management of Indians Canyons Heritage Park (discussed in more detail in section 2.1.1.1) as an "ecological entity" and "prime cultural resource area." It is the primary objective of that agreement that both governmental agencies recognize that the Park, with the Tribe's management, will provide long-term preservation of the major natural and cultural resources of the area. It is further recognized by the State that the Tribe will preserve the unique palm oases under its control and prevent negative impacts on the cultural/ecological continuity of the area or on the pristine esthetics of the viewshed.

1.6.4.3 Tribal Role in the Coachella Valley Association of Governments

In 1995, CVAG began planning efforts to develop a MSHCP for the Coachella Valley (discussed in more detail in section 2.4). Agencies participating in development of the MSHCP include cities within the Coachella Valley, County, USFWS, BLM, National Park Service (NPS), U.S. Forest Service (USFS) and CDFG. The area addressed by the MSHCP encompasses approximately 1.2 million acres in the Coachella Valley and surrounding mountains.

The MSHCP by its terms excludes local Indian reservations, unless a tribal government chooses to opt into the plan. The Tribe has been an active participant in the planning process but has chosen not to have the Reservation or other Tribal Lands covered by the MSHCP because the Tribe believes that only a Tribal HCP is broad enough to provide the foundation for both resources conservation and land use planning efforts on lands within its jurisdiction (as further described in section 1.2). Instead, Tribal participation has focused on coordinating Tribal conservation planning efforts with those being developed for the Coachella Valley by CVAG. The treatment of lands addressed by both documents is described in section 2.4.

1.6.4.4 Tribal Intent Regarding Relationship Between this Tribal HCP and State and Local Activities

The State of California and its political subdivisions have no direct regulatory or management authority over lands covered by the Tribe's Plan, other than those delegated to them in an agency capacity by the

Tribe. However, the Tribe recognizes the desirability of administrative efficiency and consistency with respect to land use regulations and management plans in and around the Reservation. Therefore, while the Tribe intends that this Plan supersede any other species/habitat management law administered and enforced by any non-tribal governmental entity as an agent of the Tribe and intends to assume and maintain responsibility for the Plan's implementation and enforcement pursuant to its inherent sovereign authority, the Tribe also intends that this Plan be coordinated with the law and actions of neighboring authorities to the extent practical.

Some Covered Activity boundaries may be situated partially in the Plan Area and partially outside the Plan Area. In these instances, the Tribe may choose to defer to the Coachella Valley MSHCP and allow the requirements of that HCP to be imposed on the portion of the Covered Project in the Tribal HCP Plan Area. This determination by the Tribe (to assume or defer permitting authority) will depend upon such factors as the status of the activity at the time this Plan is approved, and the relative extents of land inside and outside the Plan Area, subject to or impacted by the proposed Covered Activity. Such actions would require inter-plan coordination and tracking of take to ensure that all plan requirements are maintained.

1.7 OTHER PLANS AND PROGRAMS RELEVANT TO THE TRIBAL HCP

Other plans and programs relevant to this Tribal HCP include the adopted general plans of surrounding jurisdictions (County, Palm Springs, Cathedral City, and Rancho Mirage); various land use management plans governing state and federal lands located adjacent to or in the region of the Reservation; species management plans approved by state and/or federal agencies; and HCPs in adjoining or overlapping areas.

Relevant plans considered in the preparation of the Tribal HCP are listed below.

Bureau of Land Management

- California Desert Conservation Area Plan
- Willow Hole/Edom Hill Area of Critical Environmental Concern (ACEC) Management Plan
- Whitewater Canyon ACEC Management Plan

U.S. Forest Service

- San Bernardino National Forest Land and Resources Management Plan

National Park Service

- Land Protection Plan for Joshua Tree National Park
- Joshua Tree National Park General Management Plan
- Backcountry and Wilderness Management Plan

U.S. Fish and Wildlife Service

- Desert Tortoise Recovery Plan
- Peninsular Bighorn Sheep Recovery Plan
- Southwestern Willow Flycatcher Recovery Plan
- Least Bell's Vireo Recovery Plan

California Department of Fish and Game

- Carrizo Canyon Ecological Reserve Management Plan
- Hidden Palms Ecological Reserve Management Plan
- Magnesia Spring Ecological Reserve Management Plan

California Department of Parks and Recreation

- Mount San Jacinto State Park Management Plan

Multiple Agency Plans

- Coachella Valley Preserve System Management Plan
- Santa Rosa Mountains Wildlife Habitat Management Plan
- Santa Rosa and San Jacinto Mountains National Monument Management Plan

Coachella Valley Association of Governments

- Multiple Species Habitat Conservation Plan

CHAPTER 2

EXISTING TRIBAL AND REGIONAL CONSERVATION PROGRAMS

The Action Area contains a wide variety of physical features, ranging from valley floor to mountain peaks in the San Jacinto and Santa Rosa mountains (Figure 4). The extreme eastern end of the Action Area drops to approximately sea level. Found along the western edge of the Plan Area, the San Jacinto Mountains range in elevation from approximately 800 feet up to 10,804 feet above mean sea level (AMSL), with the maximum elevation in the Plan Area being 6,600 feet AMSL. This change in elevation and topography and accompanying differences in temperature, precipitation, and other environmental variables are significant factors contributing to the Action Area's high biological diversity.

Although there is some overlap, sensitive species occurring in the Action Area are typically associated with either features on the valley floor (particularly sand habitats) or features of the mountains and canyons. For the purposes of this Plan, therefore, the Action Area is divided into a Mountains and Canyons Conservation Area (MCCA) and a Valley Floor Planning Area (VFPA) as illustrated on Figure 5. The MCCA is located in the western and southern regions of the Action Area and includes all portions of the San Jacinto and Santa Rosa Mountain Ranges within the Action Area, generally above the 800-foot elevation contour. The VFPA consists of the balance of the Plan Area and BLM Exchange Areas in the Action Area, generally including the northern and eastern portions of the Action Area on the floor of the Coachella Valley. Finally, several off-Reservation Target Acquisition Areas are identified to the north and east of the VFPA. Together with the VFPA, these areas are referred to as the Valley Floor.

The conservation that will be achieved by this Tribal HCP will build upon an existing matrix of conservation both within and adjacent to the Reservation, including Indian Canyons Heritage Park, San Jacinto Wilderness, Mount San Jacinto State Park, San Bernardino National Forest, BLM lands, and preserves established by the Coachella Valley Fringe-toed Lizard HCP and draft Coachella Valley MSHCP, among others. The existing and proposed conservation areas and programs, including the Coachella Valley MSHCP, are described in this Chapter and for the most part are illustrated in Figure 6.

2.1 EXISTING TRIBAL CONSERVATION PROGRAMS

2.1.1 Mountains and Canyons Conservation Area

Existing Tribal conservation programs for Indian Canyons Heritage Park and Tahquitz Canyon (collectively Existing Tribal Conservation Areas) reflect the importance of natural resources to the Tribe and the Tribe's intent and ability to manage these resources. Several of the Covered Species and Natural Plant Communities protected under this Plan can be found in these Existing Tribal Conservation Areas. The established conservation programs for these two areas as well as the Tribe's trails management and wetlands conservation program (discussed below and collectively referenced as Existing Tribal

Conservation Programs) provide over 2,600 acres of protection to Covered Species. In addition, by managing human access to the mountainous portions of the Action Area through the methods described below, these programs provide conservation benefits to approximately 18,600 acres of more remote land located to the south and west. The current management practices of the Existing Conservation Areas and the Existing Conservation Programs would, to the extent that they are compatible with the Tribal HCP requirements, continue for the duration of the Plan in a fashion similar to that discussed below. However, such ongoing management activities could be modified for the benefit of Covered Species, based upon the results of the monitoring and adaptive management program described in sections 4.11 through 4.13 of this document. As such, the documents discussed below are incorporated by reference as features of this Tribal HCP.

2.1.1.1 Indian Canyons Heritage Park

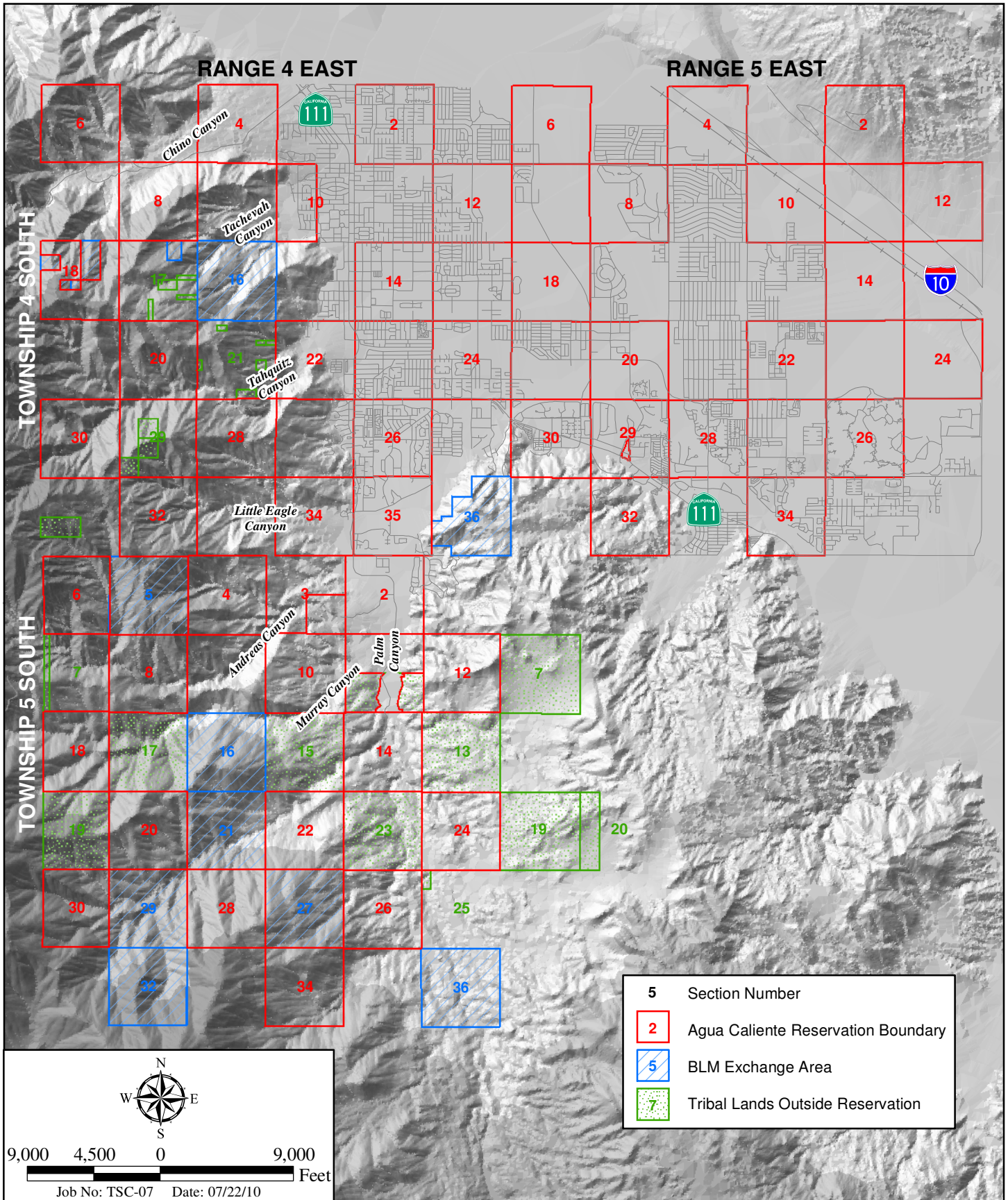
Indian Canyons Heritage Park (Figure 7) represents a site of profound ancestral heritage to the Tribe. Many traces of prehistoric villages exist within this Park.

The significance of cultural landscapes among native people is a blend of the physical environment with the spiritual realms. The stories that are associated with the landscape tell of people's origins, where they have lived, their customs, and beliefs. Places on the landscape serve as reminders of tribal heritage and traditions; they bring the past to the present (Gulliford 2000). Archaeological remains of native people, including their burials, also contribute to the cultural significance of the landscape. It is no different for the Agua Caliente Band of Cahuilla Indians.

The Indian Canyons Master Plan area contains multiple archaeological and historical resources, including two National Register Districts. These two districts best represent the prehistory and history of the Cahuilla Indians in the Palm Springs vicinity. The archaeology, including rock art, provides a remarkable record of precontact settlement and subsistence systems and the eventual contact with non-Indian peoples. In addition, trails crisscross the mountains and valley floors, connecting ancient villages and giving access to their resources in varying ecological zones.

The natural resources found in the Indian Canyons, Tahquitz Canyon, the Coachella Valley, and the surrounding mountains were exploited for subsistence and for domestic purposes, such as clothing, tools, and houses (Patencio 1943). Baskets were made of local materials and are highly prized today. Animals such as the bighorn sheep were an important food source. The Cahuilla were so close to their environment that they often gave their children names associated with plants and animals (Bean 1972).

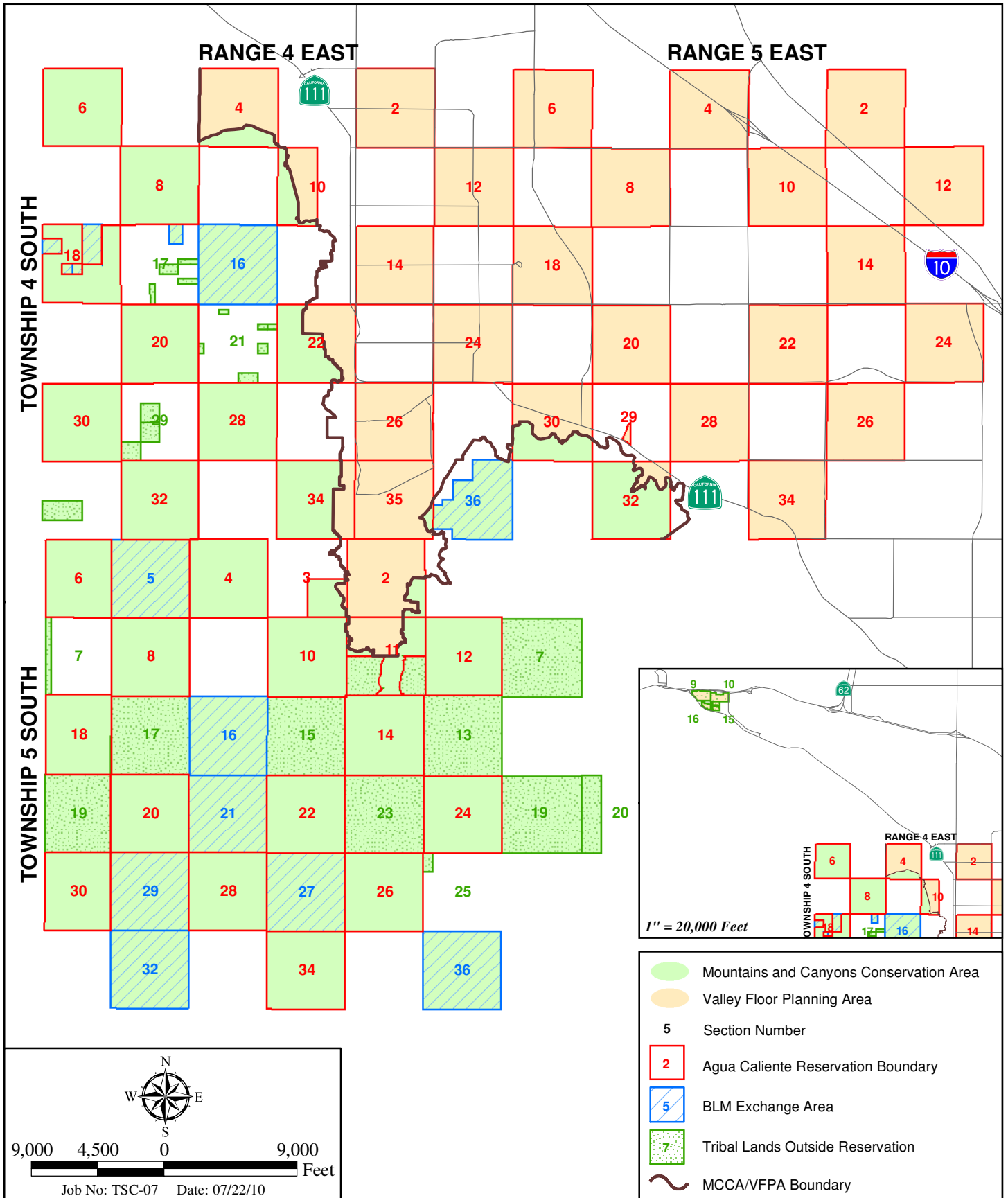
The Cahuilla landscape communicates the story of their migrations. Each named place has a role in the origins of the Cahuilla people. Every place on the landscape is a potential home of Cahuilla Supernaturals. For instance, Tahquitz Canyon is where the (at times malicious) spirit of Tahquitz lives,



Topography of the Agua Caliente Indian Reservation

AGUA CALIENTE THCP

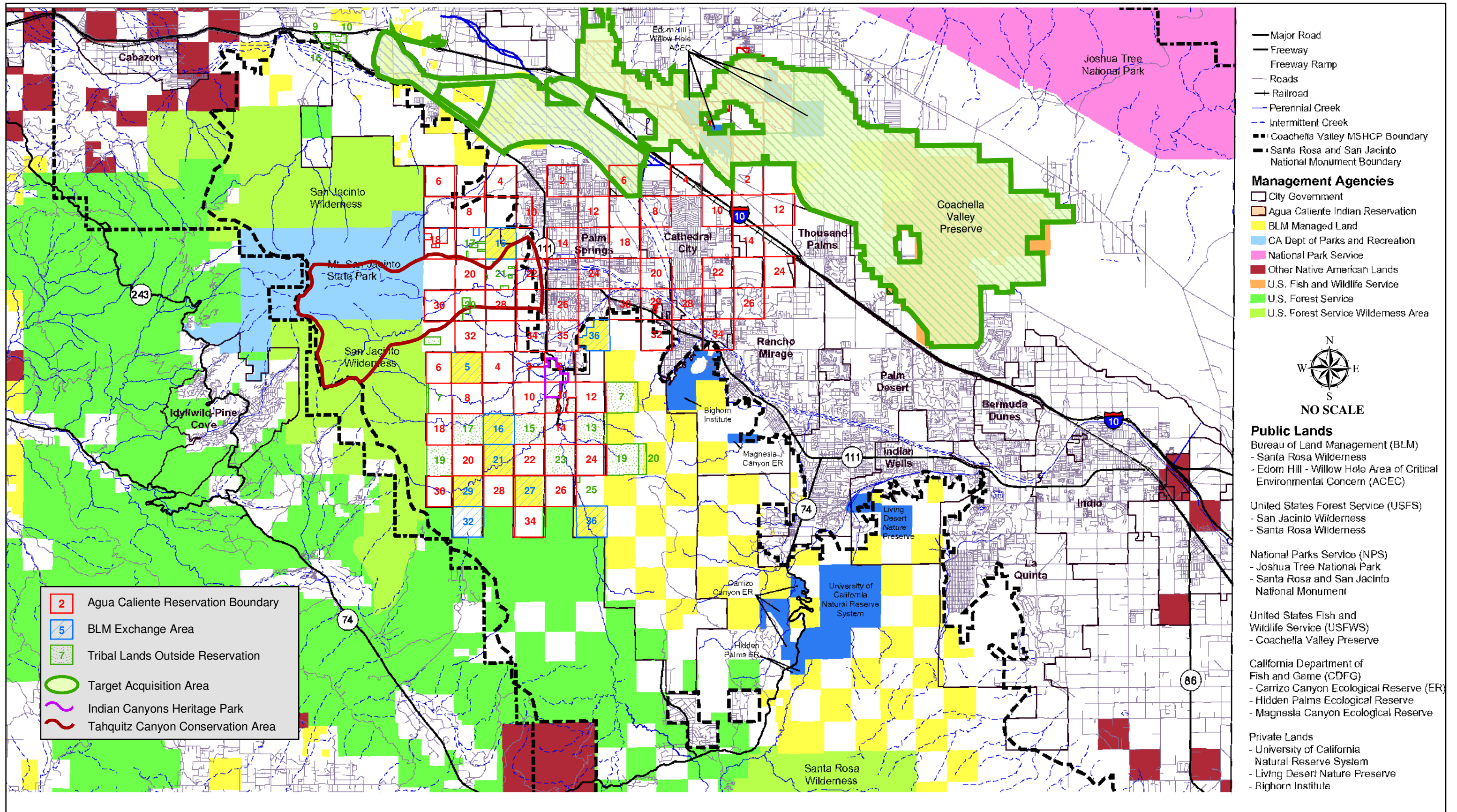
Figure 4



Tribal HCP Planning Areas

AGUA CALIENTE THCP

Figure 5

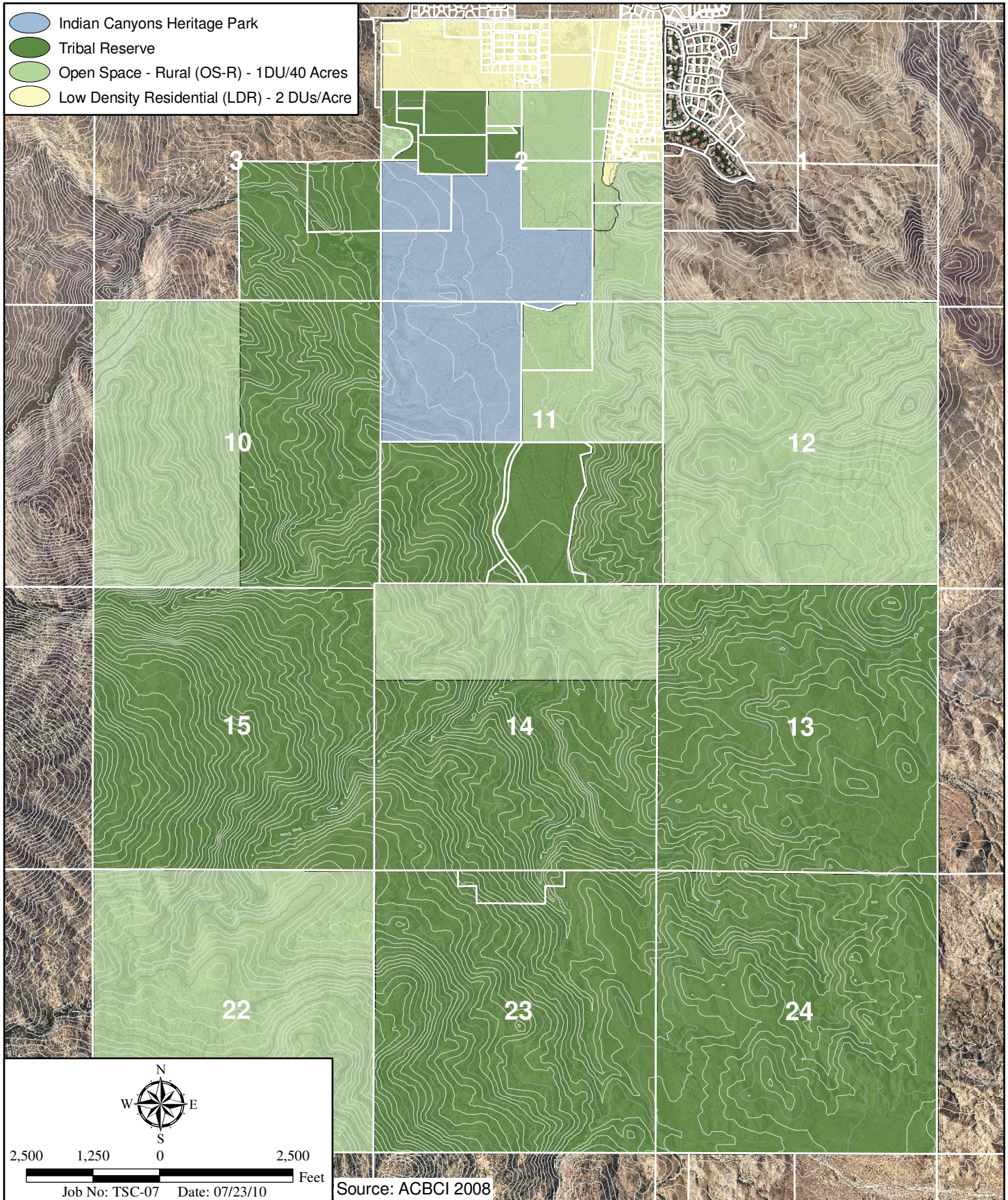


F:\ArcGIS\VTSC-07_AguaCaliente\Map\THCP\Fig6_ExConservationAreas.mxd -EV

Conservation Areas and Programs in the Vicinity of the Agua Caliente Indian Reservation

AGUA CALIENTE THCP

Figure 6



Indian Canyons Master Plan

AGUA CALIENTE THCP

Figure 7

F:\ArcGIS\TSC-07 AguaCaliente\Map\THCP\Fig7_IndianCanyonMasterPlan.mxd -EV

and it is the place of “Aunt Rock” (Patencio 1943). Bird songs are another important source of information about the significance of the landscape and traditions. The songs are about the migrations of the Cahuilla, and they often tell about places on the landscape (Dozier 1998). Special occasions such as fiestas or other gatherings would be a cause for singing traditional bird songs.

The land—the mountains, valleys, and canyons—gave the Cahuilla food and shelter, and so they respect it. This sacred landscape still provides for the Cahuilla today. Stories about the people and the land are shared among the Cahuilla through oral traditions, much as Chief Patencio described in 1943:

They would put plenty of blankets on the floor for the children, and tell them stories about the sun and the moon and the stars, the air, the wind, the water, the sky, the world, and the people, and the animals and fish upon it. (Patencio 1943)

The Canyons are an iconic symbol of the Agua Caliente people. They have provided food, clothing, housing, and spiritual power and relief for many generations and will continue to do so. They are sacred places. It is for these reasons that substantial development is not anticipated in these areas.

The mouths of the three canyons within Indian Canyons Heritage Park (Palm, Andreas, and Murray canyons) are recognized by their listing on the National Register of Historical Places. The palm oases located in Palm, Andreas, and Murray canyons are known to contain the most numerous, second most numerous, and fourth most numerous naturally occurring stands of California fan palm (*Washingtonia filifera*) in the Americas, respectively. Indian Canyons Heritage Park provides occupied or potential habitat for Peninsular bighorn sheep (*Ovis canadensis*), southern yellow bat (*Lasiurus ega [xanthinus]*), yellow-breasted chat, summer tanager, least Bell’s vireo, southwestern willow flycatcher, yellow warbler, burrowing owl (*Athene cunicularia*), desert tortoise (*Xerobates* or *Gopherus agassizii*), Palm Springs pocket mouse (*Perognathus longimembris bangsi*), Palm Springs (Coachella Valley round-tailed) ground squirrel (*Spermophilus tereticaudus* var. *chlorus*), and Coachella Valley milk-vetch (*Astragalus lentiginosus coachellae*).

The Tribe takes great pride in the fact that Indian Canyons Heritage Park remains intact and available for controlled public access and enjoyment. The primary objective of Indian Canyons Heritage Park is to provide long-term preservation of major natural and cultural resources. Secondary objectives are to preserve the ecological setting for the unique palm oases; preclude any development in the Park that would have negative impacts on the cultural/ecological continuity of the greater area or the pristine aesthetics of the viewshed; and delineate a logical management framework to ensure long-term resource preservation and subsequent public enjoyment. Other objectives are to restore the palm oases to pristine ecological condition; allow public access in a manner that the oases may be preserved and interpreted for public education; provide adequate interpretation of cultural resources so the uniqueness of the culture

may be understood and appreciated by the public; and provide adequate vehicular, pedestrian, and equestrian access to the area without further affecting the ecology.

The management plan developed for Indian Canyons Heritage Park (Appendix B: *Indian Canyons Master Plan*, May 2008) emphasizes the preservation of the following key habitats:

- Wetland and riparian habitats found in Indian Canyons. (Such areas need to be considered not only for preservation, but also restoration needs, including removal of tamarisk [*Tamarix* sp.] and other invasive exotic species);
- Desert scrub communities at the mouth of Palm Canyon in the northern reaches of the Indian Canyons Heritage Park boundaries; and
- The Peninsular bighorn sheep habitat linkage that runs east-west between the San Jacinto and Santa Rosa Mountains.

Tribal staff maintains trails (as described in section 2.1.1.3) and regularly cleans picnic areas. The following restrictions currently apply to users of Indian Canyons:

- Admission fees: \$8.00 adults, \$4.00 children, \$10.00 equestrians
- Hours of operation: 8am to 5pm
- Open daily October 1 to July 1; Friday through Sunday only July 2 to September 30
- No fires of any kind
- No smoking
- No loud music or noise
- No alcoholic beverages
- No dogs or other pets
- Hiking on designated trails only (no cross-country travel)
- No rock climbing
- No bicycles or motorized vehicles on trails
- No roadside parking
- No firearms, explosives, or fireworks
- No overnight camping

These restrictions are enforced through regular ranger patrols and canyon worker monitoring.

Potential future uses in the Indian Canyons may include; a reconstructed Indian village; interpretive exhibits, trailhead signage; and limited improvements to the Trading Post ; The Tribe had previously planned to realign South Palm Canyon Drive as the primary entrance to Indian Canyons. The project was reviewed under TEPA and approved in 2002. The first portion of the road was constructed from Acanto

Drive to the existing roadway into the Canyons. The second phase is proposed for abandonment if the Tribe can acquire easements for access and utilities as needed to secure permanent use of the existing paved road (refer to Figure 8). Easements would include adequate space for a new tollbooth. The road would be “rural” in character, consisting of a 40-foot wide right-of-way to accommodate the existing two-lane road and minor modifications needed for safety, such as minor grading and resurfacing of the road. The Tribe does not currently have any plans to extend South Palm Canyon Drive past the Trading Post; however, allottees potentially could be authorized to construct access roads from this roadway to their allotments.

2.1.1.2 Tahquitz Canyon

Tahquitz Canyon is located in the San Jacinto Mountains north of Indian Canyons Heritage Park. Upstream from the mouth of the canyon, Tahquitz Creek generally flows year-round. Winter rains and the runoff from melting snow in the spring allow the creek to flow far to the east across the alluvial fan. As it spreads out over the fan, much of the water in Tahquitz Creek seeps into the ground. During summer months, the creek carries only enough water to extend to the mouth of Tahquitz Canyon.

Prior to 1990 when the Tribe took action to restore this area, domestic animal grazing, tree cutting, and the erosion caused by water diversion (all of which activities have since ceased) contributed to a decline in the quality of the Tahquitz Creek riparian habitats. In many areas of the Canyon, exotic plants had supplanted native vegetation and years of uncontrolled human intrusion had taken their toll. Litter, vandalism, and other impacts on the ecosystem contributed greatly to the degradation of Tahquitz Creek.

In the 1990s, the Tribe commissioned a program aimed at the restoration of Tahquitz Creek. Litter and other debris were removed, the effects of vandalism were mitigated, and human access to the area was controlled by gating the entrance to the canyon and implementing regular patrols by Tribal Rangers. To ensure the continued protection and restoration of the Tahquitz Canyon area, the Tribal Council has adopted and thereby committed to implement a wetland conservation plan that formalizes its goals for the maintenance and biological monitoring of Tahquitz Canyon (Appendix C: *Agua Caliente Band of Cahuilla Indians Tahquitz Canyon Wetland Conservation Plan*, 2000).

In Tahquitz Canyon, three exotic plants (fountain grass [*Pennisetum setaceum*], umbrella flat sedge [*Cyperus* sp.], and tamarisk) are considered of primary concern because of their extremely invasive characteristics. The Tribe utilizes various measures to control this influx of exotics. Control techniques are largely physical, relying for the most part on pulling clumps of the plants by hand and frequently checking for renewed growth. When necessary, the removal of persistent exotics may require the minimal and carefully monitored application of herbicides. (Such applications are considered compatible uses under this Tribal HCP, but no incidental take coverage under the requested permit is contemplated for chemical application such as the use of herbicides.)

Tahquitz Canyon is gated, and is open to public access from 8am to 5pm daily, October 1 through July 1, and Friday through Sunday between July 2 and September 30, on a loop trail along the canyon bottom to the base of the waterfall. Admission fees are \$12.50 for adults and \$6.00 for children. An interpretive center has been constructed and ranger-led hikes are provided four times a day. The Tribe maintains as a high priority the protection of the sensitive biological resources present or potentially present within the canyon, including Peninsular bighorn sheep, least Bell's vireo, southwestern willow flycatcher, yellow-breasted chat, yellow warbler, summer tanager, mountain yellow-legged frog (*Rana muscosa*), desert tortoise, Palm Springs pocket mouse, and Le Conte's thrasher.

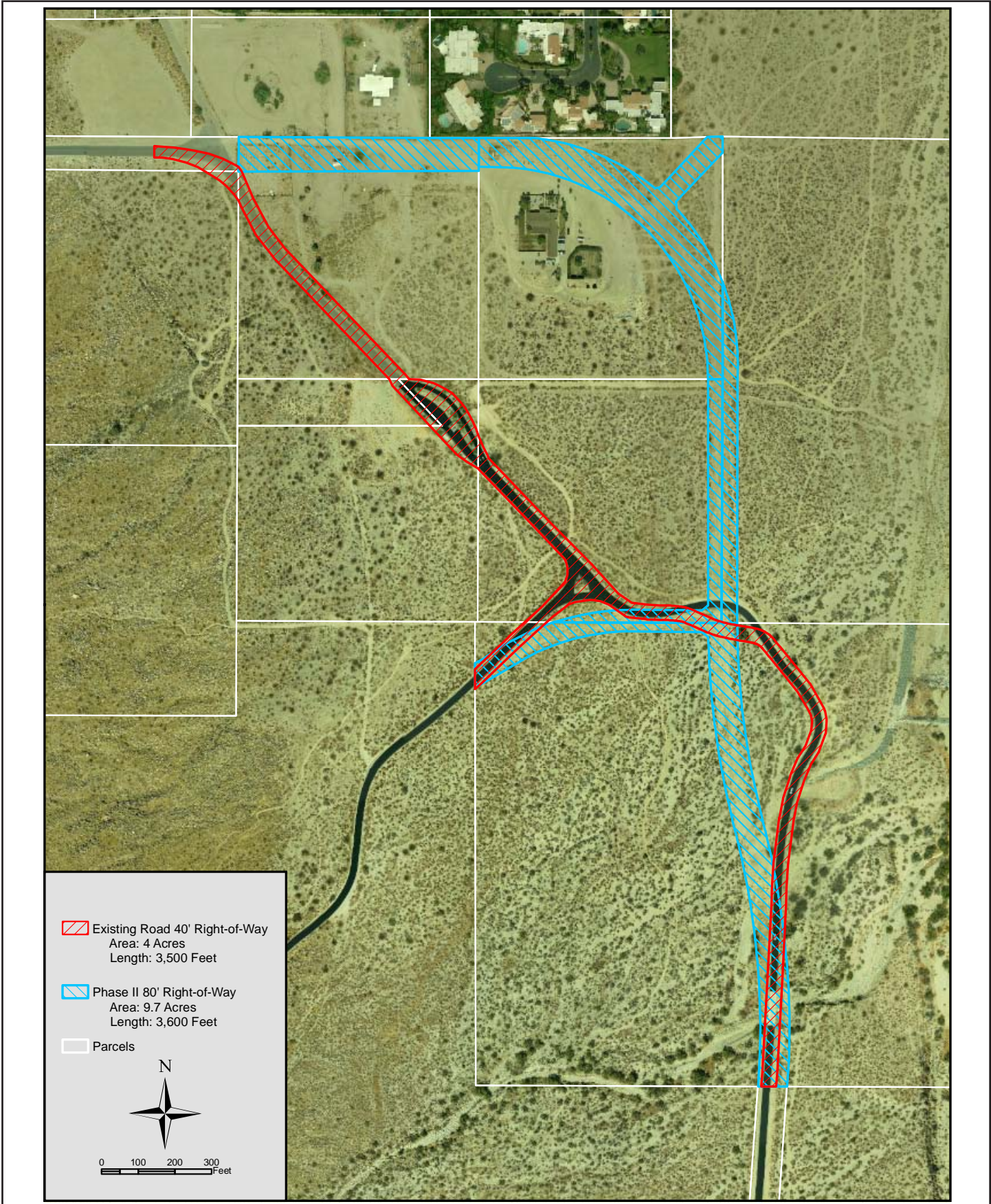
Additional future uses in Tahquitz Canyon are expected to be limited to picnicking facilities at the interpretive center and a reconstructed Indian village. Lighting may be installed only adjacent to the interpretive center. Equestrian uses envisioned in the wetland conservation plan are no longer proposed by the Tribe. As mentioned above, upon approval of the Tribal HCP, the Tahquitz Canyon Wetland Conservation Plan will be updated to ensure consistency between documents.

2.1.1.3 Trails Management Program

Numerous hiking and equestrian trails are found throughout the San Jacinto Mountains (Figures 9a and 9b). The primary trails occur within or provide access across Indian Canyons Heritage Park. The Tribe has final authority over the planning, management, use, and operation of all trails on Tribal property. Other authority is sanctioned through executed agreements between the Tribe and federal, state, and local governmental agencies. The Tribe's mission with regard to trails is, in partnership with local and governmental agencies, to maintain and manage trails and cause minimum impact upon the environment; protect scenic, cultural, and historic values; conserve resources; and provide a safe and adequate trail for the user.

Both Tribal rangers and canyon workers manage the trails in a manner that allows for minimal disturbance to the adjacent flora and fauna. Indian Canyons Heritage Park and Tahquitz Canyon are the only areas within the San Jacinto Mountains where hours of operation and access are controlled (no overnight camping is allowed). The Tribe does not encourage or support unauthorized trails. The Tribe has installed ample signage to help hikers stay on established trails and strongly discourages visitors to the Indian Canyons and Tahquitz Canyon from hiking off of legal, established, and marked trails. Tribal rangers and Tribal maintenance crews routinely patrol/monitor the trails and warn users who they find off-trail that off-trail use is not permitted and is considered trespassing under federal law.

The pattern of trail usage is such that most visitors stay within one to two miles of the canyon floor. Both Indian Canyons and Tahquitz Canyon are closed between July and October (except Fridays through Sundays). Therefore, summer months, which coincide with the period when water availability may be more limited for the Peninsular bighorn sheep, show significantly lower usage by visiting hikers.

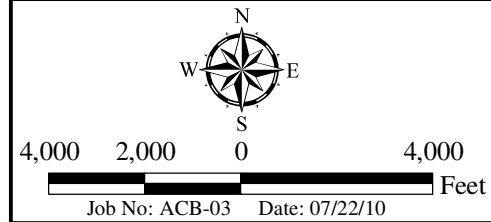
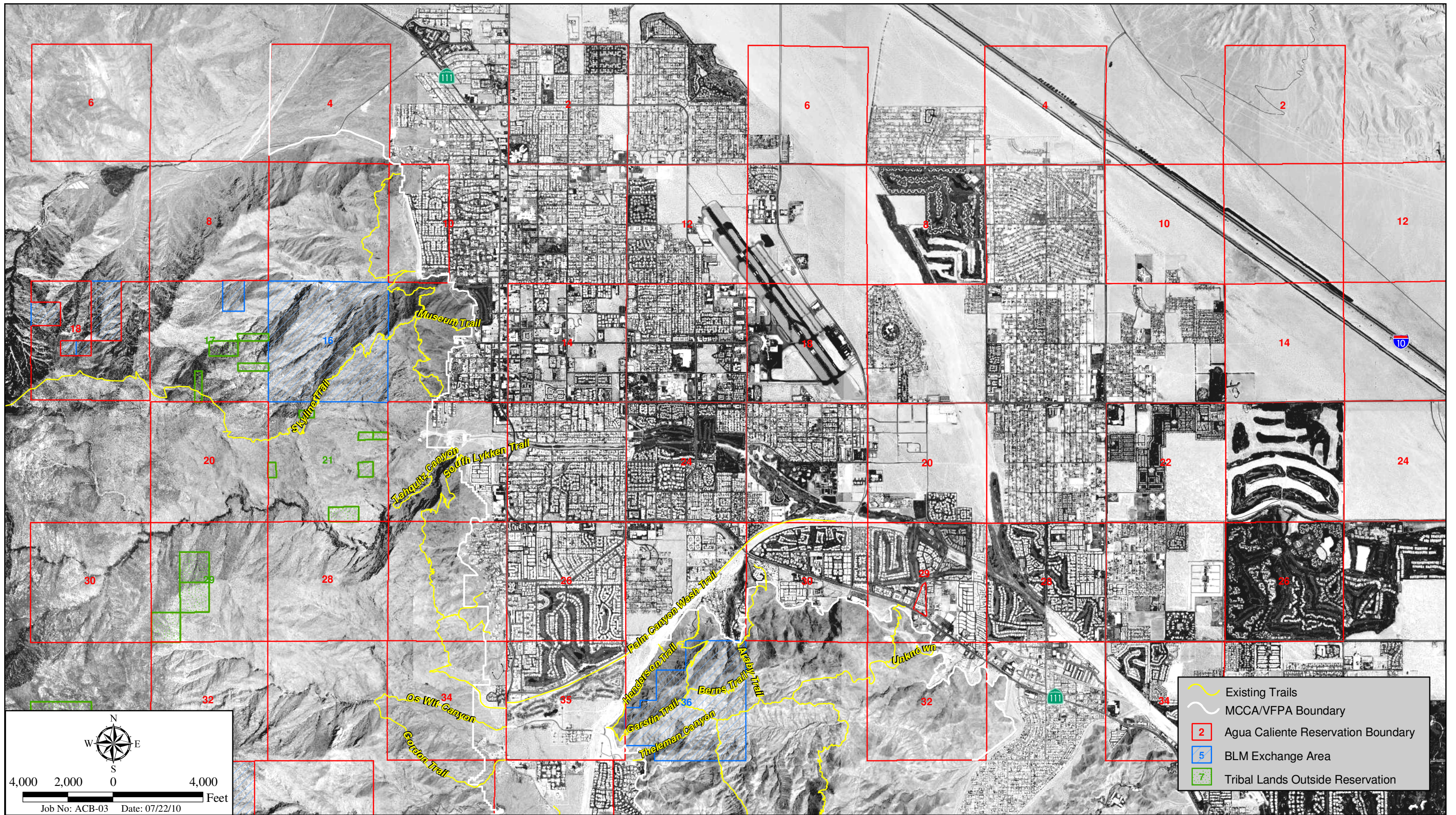


E:\ArcGIS\T\TSC-07 AguaCaliente\Map\THCP\Fig8_SouthPalmCanDrive.indd -EV

South Palm Canyon Drive

AGUA CALIENTE THCP

Figure 8



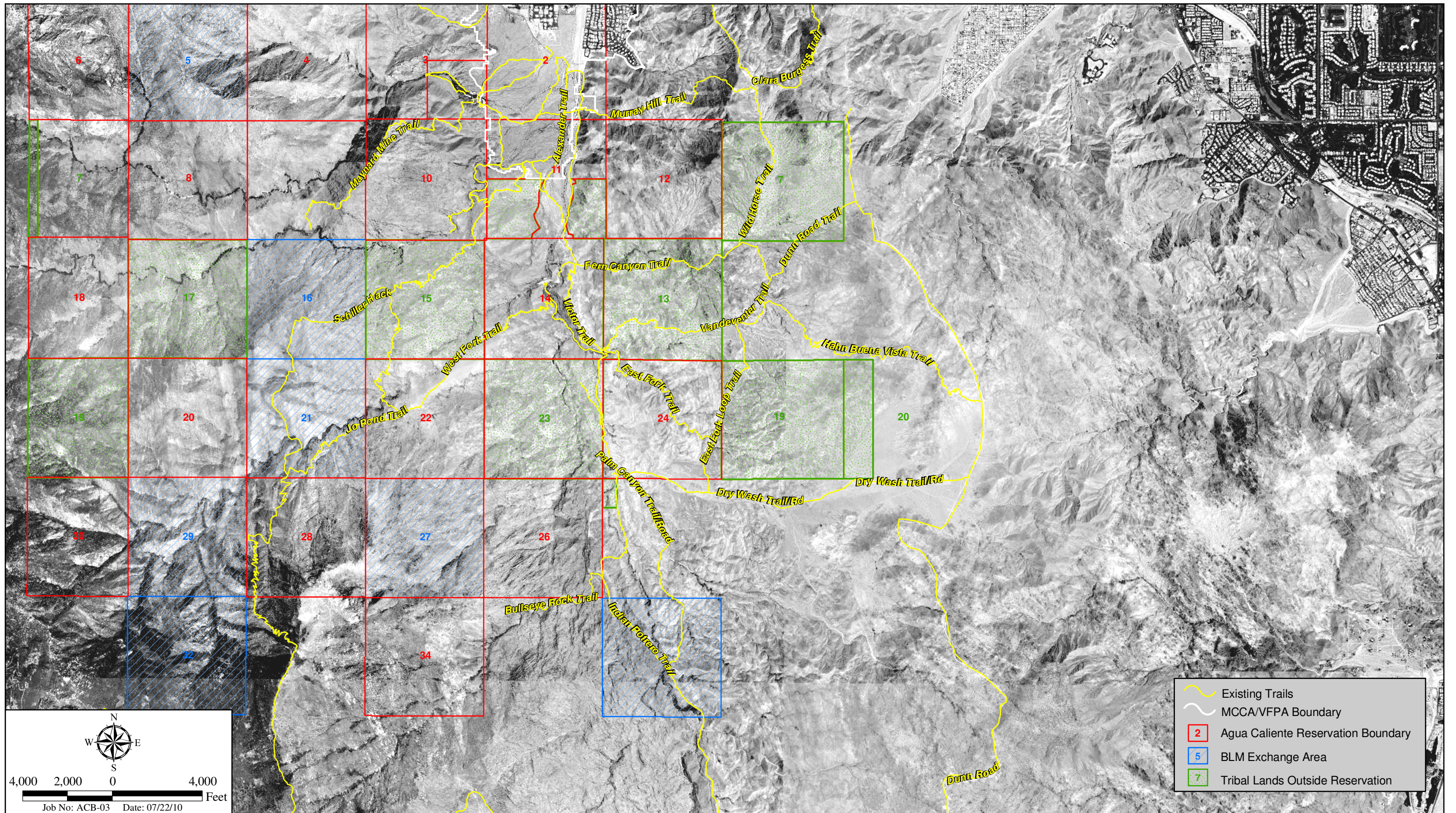
- Existing Trails
- MCCA/VFPA Boundary
- Agua Caliente Reservation Boundary
- BLM Exchange Area
- Tribal Lands Outside Reservation

Trail Map - North

AGUA CALIENTE THCP

Figure 9a

FArcGIS\TSC-07 AguaCalienteMap\THCP\Fig8A_TrailMap.mxd -EV



Current activities undertaken by Tribal staff in the canyons are complementary to the survival of Peninsular bighorn sheep. In addition to discouraging off-trail use, activities include prohibition of dogs, tamarisk removal, fountain grass removal, and maintenance of creeks and springs as well as educating the visiting public on the significance and behavior of Peninsular bighorn sheep. Exotics currently are cleared from a 10-foot radius around springs and a 50-foot radius adjacent to streams.

Routine trail maintenance activities include installing water bar diverters made out of rock to stop erosion; trimming branches to create a four-foot clear width on trails; posting “Stay on the Trail” signs; and removing exotics for a distance of up to 50 feet from the trail. Such activities generally involve the use of hand tools, including chainsaws, picks, shovels, mcclouds, wheelbarrows, and prybars. Where accessible, small equipment such as a trail machine (which is smaller than a bobcat) is used. In addition, chippers are used in picnic areas and adjacent to vehicular access roads.

Trails under the management of the Tribe will be kept open and managed under the provisions of the Tribe’s Trails Management Plan (Appendix D), Indian Canyons Master Plan, the Cooperative Agreement with the BLM (see section 2.2.1.1, below), and this Tribal HCP (see sections 4.2 and 4.11.2.2). The Tribe is committed to continuing to enforce the current policies and regulations described in these documents and Chapter 2 of this Tribal HCP, including maintenance of current staffing levels for rangers (eight full-time positions) and canyon workers (seven full-time positions). Furthermore, the Tribe will continue to cooperate with adjoining resource agencies to monitor the activities and behavior of Peninsular bighorn sheep throughout the habitat and revisit management practices from time to time for the benefit of Covered Species as part of its adaptive management program.

Construction of new trails is not a Covered Activity under this Tribal HCP. Minor trail re-routing may in some cases be necessary to address the effects of erosion or other issues. In the cases where this is necessary, the old trail would be restored with native habitat, such that no increase in the amount of permanent disturbance associated with trails is anticipated. Should unauthorized trails become a problem, the Tribe would take appropriate actions to remove/decommission the unauthorized trails such as installing more signs, raking out the trail, and/or replanting native vegetation.

2.1.1.4 Wetlands Conservation Program

Most of the Reservation’s wetlands¹ are found in the San Jacinto Mountains canyons, including those in Existing Tribal Conservation Areas. These wetlands and riparian ecosystems are already provided some protection by the Existing Tribal Conservation Programs, discussed above, as well as the Clean Water

¹By this reference to “wetlands” and otherwise, the Tribe does not imply that all watercourses or drainages of every type and location of the Agua Caliente Indian Reservation are subject to regulation under the Clean Water Act. Such regulation is permissible only if a significant hydrologic nexus exists between the watercourse or drainage in question and the “Waters of the United States.”

Act. The Tribe is continuing its efforts to preserve these vital natural and cultural resources for the future. Future efforts (which will be determined based on future needs and evaluated using a sound scientific approach) may include but not be limited to activities such as:

- Removal of invasive exotic vegetation such as tamarisk and fountain grass;
- Redesign of the trail systems for lower impacts;
- Restriction of recreational activities that adversely impact wetlands and riparian areas; and
- Restoration of disturbed wetlands and riparian areas.

2.1.2 Valley Floor Planning Area

In 1985, after the County and the cities of Desert Hot Springs, Palm Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells, La Quinta, Indio, and Coachella adopted the Coachella Valley Fringe-toed Lizard Habitat Conservation Plan, the Tribe adopted its own Interim Habitat Conservation and Management Plan (Interim HCP) to coordinate conservation efforts for that species in the Coachella Valley. The Interim HCP imposed a mitigation fee of \$600 per acre on development within the portions of the Reservation deemed habitat for the Coachella Valley fringe-toed lizard (*Uma inornata*) and identified several uses of fees collected by the Tribe to assist in Valley-wide conservation activities. The Interim HCP was amended in December 2001 to expand the list of species and geographic scope covered and increase the required mitigation fee to \$800 per acre. Although no Section 10(a) permits were issued for the Interim HCP, it is the Tribe's intent that payment of fees related to project approvals satisfy any and all mitigation requirements related to protection of the Coachella Valley fringe-toed lizard. As discussed in more detail in Chapter 4, the provisions of the Interim HCP as amended are incorporated into this Plan. Upon approval by the Tribe and permitting by the USFWS, this Tribal HCP will supersede the Interim HCP.

2.2 EXISTING CONSERVATION EFFORTS ON PUBLIC LANDS

One of the goals of the Tribal HCP, reflecting the Tribe's traditional approach to land and resource management, is to coordinate Tribal conservation programs and land use practices with other conservation efforts occurring in the Coachella Valley. This section, therefore, provides an overview of the conservation and land management efforts currently in effect on lands within and surrounding the Action Area. These existing conservation areas are described in terms of their geographic location and are summarized in Table 2-1.

**Table 2-1
Regional Conservation Efforts**

Title	Organization	Location	Area (acres)	Covered Species* Potentially Occurring
Santa Rosa and San Jacinto Mountains National Monument	BLM and USFS	Santa Rosa and San Jacinto Mountains, including Reservation lands	272,000	PBS, LBV, SWF, YBC, YW, ST, GV, MYLF, DT, SYB, BO, LT, PSPM, PSGS
San Bernardino National Forest: San Jacinto Wilderness	USFS	San Jacinto Mountains west of the Reservation	32,850	PBS, GV, DT, BO
Mount San Jacinto State Park	California Department of Parks and Recreation	San Jacinto Mountains west of the Reservation	13,502	PBS, GV
Santa Rosa Mountains Wildlife Management Area (including Carrizo Canyon Ecological Reserve and Hidden Palms Ecological Reserve)	CDFG	Santa Rosa Mountains including Reservation lands	87,760	PBS, DT, SYB, BO, PSPM, PSGS
Santa Rosa Mountains State Game Refuge	CDFG	Santa Rosa Mountains south of Palm Desert	24,880	PBS, GV, DT, SYB
Santa Rosa Wilderness	BLM	10 miles south of the Reservation	20,160	PBS, GV, DT
Magnesia Canyon Ecological Reserve	CDFG	Santa Rosa Mountains south of Rancho Mirage	114	PBS, DT, BO, PSPM
Boyd Deep Canyon Desert Research Center	UC Riverside	San Jacinto Mountains east of the Reservation	16,301	PBS, DT, BO, LT, PSPM, PSGS
Coachella Valley Preserve System (Coachella Valley Preserve, Edom Hill/Willow Hole Reserve, Whitewater Floodplain Reserve)	Multiple Agencies†	Valley floor northeast of the Reservation	16,674	SYB, PSPM, BO, CT, LT, CVMV, CVFTL, FTFL, PSGS, CGSC, CVJC
Joshua Tree National Park	NPS	Northeast of the Reservation	793,600	GV, DT, BO

*Species: PBS=Peninsular bighorn sheep, LBV=Least Bell's vireo, SWF=Southwestern willow flycatcher, ST=Summer tanager, YBC=Yellow-breasted chat, YW=Yellow warbler, GV=Gray vireo, MYLF=Mountain yellow-legged frog, DT=Desert tortoise, SYB=Southern yellow bat, TRMV=Triple-ribbed milk-vetch, PSPM=Palm Springs pocket mouse, CT=Crissal thrasher, LT=Le Conte's thrasher, BO=Burrowing owl, CVMV=Coachella Valley milk-vetch, CVFTL=Coachella Valley fringe-toed lizard, FTFL=Coachella Valley flat-tailed horned lizard, PSGS=Palm Springs ground squirrel, CGSC=Coachella Valley giant sand-treader cricket, CVJC=Coachella Valley Jerusalem cricket, LSBMG=Little San Bernardino Mountains gilia.

†Multiple agencies include USFWS, BLM, CDFG, California Department of Parks and Recreation, Coachella Valley Water District, and Center for Natural Lands Management.

2.2.1 Santa Rosa and San Jacinto Mountains

2.2.1.1 Santa Rosa and San Jacinto Mountains National Monument

The Santa Rosa and San Jacinto Mountains National Monument (National Monument), created by legislation (HR 3676) signed into law on October 24, 2000, encompasses more than 272,000 acres in the Santa Rosa and San Jacinto Mountains. The Monument is unique among all other National Monuments

for its diversity of land ownership pattern and management approach. Included in the legislation are instructions for the management of the National Monument, including the directive that the BLM and USFS work cooperatively to co-manage the National Monument. Specifically, the law requires that “[n]ot later than 3 years after the date of the enactment of this Act, the Secretary of the Interior and the Secretary of Agriculture shall complete a management plan for the conservation and protection of the National Monument.” The legislation also provides that “nothing in the establishment of the National Monument shall affect any property rights of any Indian Reservation, any individually held trust lands, or any other Indian allotments.”

In contemplation of creation of the National Monument, the Tribe and BLM entered into a Cooperative Agreement in 1999 to facilitate coordination and cooperation in the management of federal lands within the then-proposed National Monument that are also in and around the Reservation. This Agreement provides the mechanism to coordinate land use planning, budget priorities, cooperative allocation of resources, and development of long-term resource management and programmatic goals between the signatories.

The Cooperative Agreement also provided the foundation for a separate Memorandum of Understanding entered into between the Tribe and BLM in 1999 to facilitate acquisition and exchange of both federal and non-trust lands in and around the Reservation. Any exchange will be based on the monetary value of the lands, rather than on an acre-for-acre basis. As a result, the precise lands to be exchanged have not yet been determined. The application of this Tribal HCP to potential exchange lands before and after any exchange is described in section 1.4.

Lands contemplated for transfer from the Tribe to the BLM include approximately 1,470 acres located to the southeast, adjacent to the Reservation (Figure 3). These lands include Township 5 South, Range 5 East, Sections 7, 19, and a portion of 20. Up to a total of approximately 5,799 acres of BLM lands within the exterior boundaries of the Reservation could be transferred to the Tribe over the life of the Plan. BLM lands proposed for inclusion in the first transaction include Township 5 South, Range 4 East, Sections 5, 16, 21, 27, 29, and 32, along with portions of two sections in Township 4 South, Range 4 East, Sections 17 and 18. If necessary to balance the monetary value of the lands to be exchanged, Township 5 South, Range 4 East, Section 36 also could be transferred from the BLM to the Tribe as part of the first exchange. BLM lands that currently are not proposed for inclusion in the first transaction include Township 4 South, Range 4 East, Section 16 and a portion of Section 36. The BLM lands that could at some point be transferred to the Tribe are referred to in this document as BLM Exchange Areas.

For Tribal HCP analysis purposes only, it is assumed that the 1,470 acres held by the Tribe will be exchanged for the maximum 5,799 acres held by the BLM during the life of the Plan. The CDCA Plan Amendment for the Coachella Valley (BLM 2002) specifically commits BLM to conserving at least 99 percent of vegetation community types on the lands it administers in the MSHCP Reserve System. Thus, under existing ownership, potential impacts could occur on a maximum of 58 acres (1 percent) of the

5,799 acres of BLM Lands. The 1,470 acres proposed for exchange from the Tribe to the BLM are designated for 85 percent conservation under the terms of the Tribal HCP, thus allowing potential development on 221 acres (15 percent). As a condition of the exchange, the Tribe would reserve 221 acres of development potential on a maximum of 5,799 acres of land (4 percent). The BLM would acquire 1,470 acres, of which 99 percent would be conserved, allowing for a maximum of 15 acres of disturbance. Thus, the net result of the exchange is that the total development potential would be reduced 43 acres, from 279 acres before the exchange to 236 acres after the exchange. Conversely, the amount of land conserved would increase from 6,990 to 7,033 acres (refer to Table 2-2).

**Table 2-2
Summary of BLM Land Exchange Effects on Impacts/Conservation**

Current Land Ownership	Before Exchange		After Exchange	
	Impact	Conservation	Impact	Conservation
Tribal	221	1,249	15	1,455
BLM	58	5,741	221	5,578
Total	279	6,990	236	7,033

Covered Activities occurring within the BLM Exchange Areas once they are transferred to the Tribe would be subject to all permit conditions, design and mitigation standards, and conservation measures of this Plan, as outlined in sections 4.8 and 4.9. To ensure that the BLM Exchange Areas are appropriately treated after any future exchange to the Tribe, the specific conservation requirements for these lands are illustrated on Figure 34. Some particularly sensitive lands (i.e., Peninsular bighorn sheep lambing areas) are identified as 100 percent conservation. Other Covered Species with potential to occur within the 100 percent conservation areas include least Bell’s vireo, southwestern willow flycatcher, summer tanager, yellow-breasted chat, yellow warbler, and desert tortoise.

As all of the Tribal Lands to be transferred to the BLM are within Sonoran mixed woody and succulent scrub, this community is expected to receive the greatest benefit from the potential exchange. Impacts to chaparral, black oak forest and Peninsular juniper woodland, could increase slightly over what would be authorized in the absence of the land exchange. The greatest potential increase in impacts is anticipated to be approximately 65 acres of interior live oak chaparral, which represents a less than two percent change over what would otherwise be authorized. Differences in biological values to the various habitats affected by the exchange are not substantial. None of these habitats are unique or would support a unique suite of species beyond what occurs elsewhere within the Plan Area. The Tribe has committed to disturbing no more riparian habitat than would be allowed under current ownership (3 acres). Any potential impacts to desert fan palm oasis woodland and southern sycamore-alder riparian forest would need to be avoided to the Maximum Extent Practicable and mitigated through creation/restoration at a minimum 1:1 ratio to ensure no net loss of habitat functions and values for Covered Species.

Because all of the Tribal Lands identified for potential transfer to the BLM are within Peninsular bighorn sheep habitat, it is anticipated that conservation of habitat for this species would increase by a minimum of 27 acres (with an increase of 80 acres considered more likely²) following the exchange. Conservation of desert tortoise habitat would increase by a minimum of 11 acres (with an increase of 129 acres considered more likely). This increase in conservation also may benefit other upland species including the gray vireo.

As a result of the considerations described above, the potential land exchange would result in a net increase in conservation of biological functions and values, including functions and values for Covered Species, through an increase in acres conserved, preservation of the highest priority habitat areas, and assurances of long-term management of the exchanged lands. Thus, a minor amendment not subject to USFWS concurrence (as described in section 4.17.2.1) is anticipated, should the land exchange occur as discussed. Detailed analysis of the environmental impacts of any exchange would be undertaken by the BLM in accordance with the requirements of NEPA prior to authorization of the exchange.

Elevation within the National Monument varies from a few feet below mean sea level in the Coachella Valley to 10,802 feet AMSL at the peak of San Jacinto Mountain. Biological and cultural resources are abundant within the National Monument. More than 500 plant and animal species make their home within its boundaries. Species known or with potential to occur include Peninsular bighorn sheep, least Bell's vireo, southwestern willow flycatcher, yellow-breasted chat, yellow warbler, summer tanager, gray vireo, mountain yellow-legged frog, desert tortoise, southern yellow bat, burrowing owl, Le Conte's thrasher, Palm Springs pocket mouse, and Palm Springs ground squirrel. Cultural resources found within the National Monument contain various archaeological sites, including ancient villages and trails as well as sites still considered sacred by the Cahuilla people.

2.2.1.2 San Bernardino National Forest: San Jacinto Wilderness

The San Bernardino National Forest is located to the south and west of the Reservation. The USFS manages lands within the Forest in accordance with the San Bernardino National Forest Land and Resources Management Plan, prepared pursuant to the Forest and Rangeland Renewable Resources Planning Act as amended by the National Forest Management Act. The Forest includes two designated wilderness areas: the San Jacinto Wilderness described here, and the Santa Rosa Wilderness described in section 2.2.1.6.

² The minimum conservation increase reflects the maximum allowable disturbance that would be allowed in accordance with the Tribal HCP. It is relatively unlikely that the full amount of future disturbance would occur. Even if the full allowable acreage were to be developed, it is unlikely that the maximum amount of theoretical impact to each modeled habitat type would actually occur. As there is no area that appears to exhibit substantial development potential, it is more likely that any future impacts would occur in small increments, spread evenly (3.8 percent) throughout the various modeled habitats. Such a development pattern would result in the 'more likely' increase in conservation).

The 32,850-acre San Jacinto Wilderness is located in the San Jacinto Mountains to the west of the Reservation and is managed by USFS. The USFS manages public lands in national forests and grasslands for multiple uses and benefits and for the sustained yield of renewable resources, such as water, forage, wildlife, wood, and recreation. The San Jacinto Wilderness is split into two units, one north and one south of Mount San Jacinto State Park. The northern unit is made up largely of the escarpment of San Jacinto Peak, some of the steepest and most rugged terrain in the nation. The southern unit includes the rugged headwaters of Andreas and Murray canyons and other desert canyons emanating from the ridgeline of the San Jacinto Mountains that feed into the Reservation. The ridgeline is known as the Desert Divide. The Pacific Crest Trail follows the ridgeline through much of the Wilderness, eventually descending in the Snow Creek area to cross under Interstate Highway 10 (I-10) to the San Bernardino Mountains.

2.2.1.3 Mount San Jacinto State Park

Managed by the California Department of Parks and Recreation, the Mount San Jacinto State Park lies in the high elevations of the San Jacinto Mountains west of the Reservation. Both north and south of the Park is the federal San Jacinto Wilderness managed by the USFS. The Park includes the high peaks of the San Jacinto Mountains, including 10,804-foot San Jacinto Peak. The northern escarpment plunges nearly two miles in steep cliffs and ridges to the San Geronio Pass below. Natural communities found within the Park include westside ponderosa pine forest, southern California subalpine forest, Sierran mixed coniferous forest, black oak forest, interior live oak chaparral, and southern sycamore-alder riparian woodland. The Peninsular bighorn sheep may occasionally utilize the lower portions of the Park. There also is potential for the gray vireo to occur in the Park. The Park is among the most frequently visited wilderness areas in the nation because of its accessibility by the Palm Springs Aerial Tram and via hiking trails from the Idyllwild area.

2.2.1.4 Santa Rosa Mountains Wildlife Management Area

The Santa Rosa Mountains Wildlife Habitat Management Plan was adopted in 1980 by the CDFG and BLM to set management guidelines to preserve wildlife resources and their habitats in the Santa Rosa Mountains. At the time of the Habitat Management Plan's adoption, the area included approximately 77,760 acres of BLM land, 25,600 acres of CDFG land, 9,600 acres of USFS land, 5,504 acres of University of California Natural Reserve System land, 1,920 acres of the Reservation, and 75,520 acres of private land. In the ensuing years, an estimated 10,000 acres of the private lands within this area have been acquired by state or federal agencies. The Habitat Management Plan focuses on protection of habitat for the Peninsular bighorn sheep with the intent of providing for public use in a manner tailored to ensure minimal permanent impacts to the sheep and/or its habitat. Other species with the potential to occur in the Wildlife Management Area include desert tortoise, southern yellow bat, burrowing owl, Palm Springs pocket mouse, and Palm Springs

ground squirrel. CDFG operates two ecological reserves within the Wildlife Management Area: Carrizo Canyon and Hidden Palms.

2.2.1.4(a) Carrizo Canyon Ecological Reserve

This CDFG Ecological Reserve is located in the Santa Rosa Mountains adjacent to Highway 74 just south of the Reservation within the Santa Rosa Mountains Wildlife Management Area. It consists of approximately 1,040 acres, all in state ownership. It was established by the California Fish and Game Commission following the listing of the Peninsular bighorn sheep as a rare species in 1972. The primary purpose of the Reserve is to protect vital Peninsular bighorn sheep water sources and a lambing area. Other species with the potential to occur in this Reserve include the desert tortoise, southern yellow bat, burrowing owl, Palm Springs pocket mouse, and Palm Springs ground squirrel.

2.2.1.4(b) Hidden Palms Ecological Reserve

This CDFG Ecological Reserve is located within the Santa Rosa Mountains Wildlife Management Area, adjacent to Highway 74 and east of the Reservation. It consists of approximately 160 acres, all of which are in state ownership. It was established by the California Fish and Game Commission in 1974 to protect the only confirmed habitat of the desert slender salamander (*Batrachoseps aridus*), a federally and state listed endangered species. Secondly, the Reserve provides habitat for the Peninsular bighorn sheep as well as potential habitat for desert tortoise and southern yellow bat. The management objectives articulated for the Reserve include ensuring the long-term stability of water supply and water quality in Hidden Palms Canyon.

2.2.1.5 Santa Rosa Mountains State Game Refuge

The CDFG manages approximately 24,880 acres of other state lands in the Santa Rosa Mountains as part of the Santa Rosa Mountains State Game Refuge. The Game Refuge was established by the state legislature primarily for the protection of Peninsular bighorn sheep but also provides potential habitat for the gray vireo, desert tortoise, and southern yellow bat. It is illegal to take or possess any bird, mammal, or reptile or to be in possession of firearms, bow and arrows, or other weapons within the refuge.

2.2.1.6 San Bernardino National Forest: Santa Rosa Wilderness

The Santa Rosa Wilderness lies in the Santa Rosa Mountains approximately 10 miles southeast of the Reservation. The Wilderness is a total of 84,500 acres in size, with 20,160 acres managed by USFS and 64,340 acres managed by the BLM.

Biological resources include diverse natural communities such as creosote scrub, palm oasis woodland, Sonoran mixed woody and succulent scrub, Peninsular juniper woodland and scrub, juniper-pinyon

woodland, mixed conifer forest, Jeffrey pine forest, and numerous riparian/canyon areas. This area provides known or potential habitat for Peninsular bighorn sheep as well as gray vireo and desert tortoise. The Wilderness also includes the upper portion of the Deep Canyon watershed.

2.2.1.7 Coachella Valley Mountains Conservancy

The Coachella Valley Mountains Conservancy is a state agency whose mission is to acquire and protect mountainous lands surrounding the Coachella Valley to protect their natural and cultural resource values and to provide for the public's enjoyment of those lands in ways that are compatible with resource protection. The Conservancy owns 2,443 acres and has a conservation easement on an additional 1,138 acres. The majority of these lands are in the San Jacinto and Santa Rosa Mountains; the balance is in the Little San Bernardino Mountains and the Willow Hole area.

2.2.1.8 Magnesia Canyon Ecological Reserve

The CDFG Magnesia Canyon Ecological Reserve is located within the City of Rancho Mirage approximately five miles to the east of the Reservation and includes portions of Magnesia Springs Canyon. This Reserve is managed by CDFG primarily to ensure protection of a water source critical to Peninsular bighorn sheep in the hot summer months. A variety of other sensitive species also rely on this water source during the summer months. Recreational use of the area is regulated to avoid impacts to Peninsular bighorn sheep, and during the summer months, admission into the Magnesia Springs area is restricted to prevent disturbance of individuals accessing the water source.

2.2.1.9 Boyd Deep Canyon Desert Research Center

University of California, Riverside (UCR) conducts research at the Boyd Deep Canyon Desert Research Center located approximately seven miles to the east of the Reservation. The Boyd Deep Canyon Desert Research Center is a 16,301-acre reserve that is part of the University of California Natural Reserve System. Deep Canyon contains a major portion of an entire drainage system on the north side of the Santa Rosa plateau south of the cities of Palm Desert and Indian Wells. Biological resources include riparian woodland, desert dry wash woodland, Sonoran mixed woody and succulent scrub, pinyon-juniper forest, and known or potential habitat for Peninsular bighorn sheep, desert tortoise, burrowing owl, Le Conte's thrasher, Palm Springs pocket mouse, and Palm Springs ground squirrel.

2.2.2 Valley Floor Conservation Areas

2.2.2.1 Coachella Valley Preserve System

The Coachella Valley Preserve System was established by the Coachella Valley Fringe-toed Lizard HCP (The Nature Conservancy 1985) and consists of three preserves: the Coachella Valley Preserve, the Edom Hill/Willow Hole Reserve, and the Whitewater Floodplain Reserve.

2.2.2.1(a) Coachella Valley Preserve

The Coachella Valley Preserve is situated in the western Coachella Valley in and immediately south of the central portion of the Indio Hills, within the Tribe's off-Reservation Target Acquisition Area. It consists of 13,030 acres of lands managed by the BLM, USFWS, CDFG, California Department of Parks and Recreation, and Center for Natural Lands Management. In addition to the Coachella Valley fringe-toed lizard, this preserve provides Core Habitat for the Coachella Valley milk-vetch, Coachella giant sand-treader cricket (*Macrobaenetes valgum*), flat-tailed horned lizard (*Phrynosoma mcalli*), Palm Springs ground squirrel, and Palm Springs pocket mouse. Le Conte's thrashers and burrowing owls also occur, and potential habitat exists for southern yellow bat and crissal thrasher.

2.2.2.1(b) Edom Hill/Willow Hole Reserve

The Edom Hill/Willow Hole Reserve (a large portion of which is a BLM Area of Critical Environmental Concern [ACEC] of the same name) is located at the west end of Indio Hills adjacent to the northeast corner of the Reservation, within the Tribe's off-Reservation Target Acquisition Area. It is 2,469 acres in size, including approximately 2,163 acres of BLM land (including the 1,766-acre ACEC), 90 acres of Coachella Valley Mountains Conservancy land, and 216 acres of private land.

The Edom Hill/Willow Hole ACEC was established by the BLM because of its sensitive biological resources and consists of two distinct areas, Edom Hill and Willow Hole, which are two to three miles apart. Biological resources include mesquite hummocks, a fan palm oasis, and known/potential habitat for the Coachella Valley fringe-toed lizard, Coachella Valley milk-vetch, Palm Springs ground squirrel, Palm Springs pocket mouse, burrowing owl, crissal thrasher, Le Conte's thrasher, and the Coachella Valley giant sand-treader cricket.

2.2.2.1(c) Whitewater Floodplain Reserve

At 1,175 acres, the Whitewater Floodplain Reserve is the smallest of the three preserves making up the Coachella Valley Preserve System. Approximately 98 percent is owned by the Coachella Valley Water District. The Whitewater Floodplain Reserve is within the Tribe's off-Reservation Target Acquisition

Area and is bounded by Indian Avenue to the west, the Southern Pacific railroad to the north, Palm Drive to the east, and the edge of the Whitewater river channel to the south. The Whitewater Floodplain Reserve is entirely managed by the BLM and The Nature Conservancy with oversight from USFWS to compensate for habitat loss resulting from development of percolation ponds built on BLM land by the Coachella Valley Water District in the Whitewater River floodplain.

This reserve is managed to protect and enhance the habitat of the endangered Coachella Valley fringe-toed lizard. Other species that are known or likely to occur in the reserve include the Palm Springs ground squirrel, Palm Springs pocket mouse, flat-tailed horned lizard, burrowing owl, Coachella Valley Jerusalem cricket (*Stenopelmatus calhouni*), and Coachella Valley milk-vetch. Primary management actions are control of exotic species and limiting public access to compatible scientific, educational, and recreational uses.

2.2.2.2 Joshua Tree National Park

The NPS manages Joshua Tree National Park, which is located approximately eight miles northeast of the Reservation and spans the transition between the Mojave and Colorado deserts of Southern California. Proclaimed a National Monument in 1936 and a Biosphere Reserve in 1984, the 1,240-square-mile area was designated a National Park in 1994. The higher, moister, and slightly cooler Mojave Desert is the habitat of the Joshua tree (*Yucca brevifolia*), and Joshua tree forests occur in the western half of the park. In addition, five fan palm oases dot the park. NPS was created to promote and regulate the use of National Parks. The purpose of the National Park system is to conserve scenery, natural and historic objects, and wildlife, as well as to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

The Park contains diverse natural communities such as Mojave mixed woody scrub, blackbrush scrub, Mojavean pinyon and juniper woodland, desert dry wash woodland, and desert fan palm oasis woodland. The area provides known or potential habitat for gray vireo, desert tortoise, and burrowing owl.

2.3 PRIVATE LANDS MANAGEMENT

Within and in addition to the public conservation areas mentioned previously, various private lands have been set aside for conservation and preservation. Private lands and conservation programs in the vicinity of the Plan Area are described below.

2.3.1 The Living Desert

Located in the City of Indian Wells and six miles east of the Reservation, The Living Desert is a zoological and botanical park that was established in 1970 as a non-profit education and conservation

center. Within its 1,200 acres, nearly 400 desert animals represent over 130 species, including coyote, Peninsular bighorn sheep, oryx, zebras, cheetahs, and meerkats. The Living Desert has set aside 1,000 acres of natural desert biotic communities for conservation (The Living Desert 2004).

2.3.2 The Bighorn Institute

The Bighorn Institute is a non-profit organization that was formed in 1982 to investigate the causes of bighorn sheep (particularly Peninsular bighorn sheep) declines. The Bighorn Institute is located in Riverside County, to the southeast of the Reservation. Its facilities, which include an office, laboratory, staff residence, and pens for a captive breeding herd of Peninsular bighorn sheep, are located on 297 acres of land at the base of the Santa Rosa Mountains.

2.4 COACHELLA VALLEY MULTIPLE SPECIES HABITAT CONSERVATION PLAN

In 2008, CVAG approved and adopted the Coachella Valley MSHCP and has received take authorization from the USFWS and CDFG, under both the Federal ESA and the California Natural Communities Conservation Planning Act. The Tribe was an active participant in the planning process, but chose not to have its lands included in the Coachella Valley MSHCP because the Tribe believes that only a Tribal HCP is broad enough to provide the foundation for both resources conservation and land use planning efforts in the Plan Area (see section 5.2.1 for additional discussion).

The area covered by the Coachella Valley MSHCP encompasses approximately 1.2 million acres in the Coachella Valley and the surrounding mountains. The document addresses 27 species, including 10 species that are listed as threatened or endangered under the ESA, and other sensitive species that could be listed in the future, absent the implementation of conservation measures. Additionally, the document addresses the conservation of 27 Natural Plant Communities that occur in the Coachella Valley and surrounding mountains.

There are certain Tribally owned parcels that are located outside the boundaries of the Reservation (shown in green stipple on Figure 2). Activities on Tribal Lands outside the Reservation would be subject only to the Tribal HCP, as long as those lands are owned by or held in trust for the Tribe. Should these lands be sold to a non-Indian third party, any project processing would instead be subject only to the provisions of the Coachella Valley MSHCP. If and when Tribal Lands outside of the Reservation are exchanged to the BLM, the BLM would be responsible for managing those lands in accordance with the requirements of the Northern and Eastern Colorado Desert Management Plan (BLM 2002) or subsequent approved amendments prepared in accordance with the Federal Land Policy and Management Act of 1976; lands acquired by the Tribe in the exchange would become subject to the provisions of this Tribal HCP. The provisions for updating this Tribal HCP in the event of such an exchange are described in

section 4.17.2.1. Under any scenario, each parcel within the Action Area would be subject to the provisions of either this Tribal HCP or the Coachella Valley MSHCP. Take authorization for any one parcel would only be granted once (i.e., through one plan and not through both). CVAG will be responsible for ensuring that all transfers of jurisdiction and associated conservation measures are handled appropriately during the transition process and for resolving any potential conflicts arising from the identified areas of overlap (Wohlmuth, pers. comm. 2006). Such actions would require inter-plan coordination and tracking of take to ensure that all plan requirements are maintained.

The identified off-Reservation Tribal Acquisition Areas are within the Plan Area of the Coachella Valley MSHCP. As described in section 1.4, no incidental take would be provided for any development activities on parcels within the off-Reservation Target Acquisition Areas acquired by the Tribe; incidental take authorization for management activities would be provided under the auspices of the Tribal HCP.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 3

NATURAL RESOURCES OF THE ACTION AREA

Most of the Action Area lies within the Colorado Desert, a subdivision of the much larger Sonoran Desert. On the floor of the Coachella Valley, annual rainfall averages approximately six inches, with peaks occurring in both the winter and summer months. Winter temperatures are generally mild, with average temperatures reaching approximately 70 degrees Fahrenheit (°F) during the day and approximately 50°F at night. With summer daytime highs averaging 108°F, the month of July brings the hottest temperatures. Variation from these general climatic conditions occurs in the San Jacinto Mountains, where temperatures are cooler and precipitation is greater. In the higher elevations of the Action Area, freezing temperatures and snow can be expected during winter.

As described in Chapter 2, the Action Area contains a wide variation in elevation and physical features, ranging from the valley floor to mountain peaks in the San Jacinto and Santa Rosa mountains. These changes in elevation and topography with accompanying differences in temperature, precipitation, and other environmental variables are significant factors contributing to the Action Area's high biological diversity.

Many canyons in the San Jacinto and Santa Rosa mountains support riparian areas not typical of a desert environment. Streams and seeps support many palm oases. Where the water drains into the sands, desert dry wash woodland results. The alluvial fans associated with the canyon mouths provide still another distinctive biological community. Additionally contributing to the biological diversity are the strong winds that funnel through the San Gorgonio Pass from the west, which pick up sand in areas of river-deposited sand from the San Gorgonio and Whitewater rivers and transport it downwind, thus creating an aeolian (wind-deposited) dune system. In the past, this dune system occupied much of the center of the valley; much of this area is now developed and the aeolian sand supply to the remnant portions of the dune system is largely cut off by intervening development.

Historically, the Cahuilla people utilized naturally occurring flora and fauna for a wide variety of uses, particularly for survival. Pronghorn sheep (antelope), bighorn sheep, and mule deer were the common large animals hunted for sustenance.

This Chapter describes the Natural Plant Communities and the sensitive plant and animal species that occur or potentially occur in the Action Area. These natural resources are the focus of this Plan.

3.1 SOURCES OF BIOLOGICAL DATA

Biological data for the Tribal HCP were obtained from a variety of sources, including the following:

- **Known location information for sensitive plant and wildlife species and Natural Plant Communities.** These data are maintained on Geographic Information System (GIS) maps by the Tribe and have been made available to the Tribe from the Coachella Valley Mountain Conservancy and CVAG. In addition, the Tribe conducted several field surveys for vegetation and habitat mapping as well as presence or absence surveys for sensitive species between 1999 and 2006. Results of these surveys were used to update the Tribe's GIS data layers.
- **Species information summaries prepared in connection with CVAG's conservation planning efforts.** These summaries, prepared by members of the Scientific Advisory Committee or Coachella Valley Mountains Conservancy staff, give general status, habitat, and life history information for each species, including general descriptions of the habitat and known distribution of each species within the Action Area.

3.2 NATURAL PLANT COMMUNITIES OCCURRING WITHIN THE ACTION AREA

The following is a list of 15 Natural Plant Communities located within the Action Area that may provide habitats for federally listed and Tribal sensitive species.

- Sonoran Creosote Bush Scrub
- Sonoran Mixed Woody and Succulent Scrub
- Desert Fan Palm Oasis Woodland
- Black Oak Forest
- Interior Live Oak Chaparral
- Peninsular Juniper Woodland and Scrub
- Red Shank Chaparral
- Sonoran Cottonwood-Willow Riparian Forest
- Southern Sycamore-Alder Riparian Woodland
- Active Sand Fields
- Stabilized and Partially Stabilized Shielded Sand Fields
- Ephemeral Sand Fields
- Desert Dry Wash Woodland
- Mesquite Hummocks
- Desert Saltbush Scrub

Figure 10 shows the location of the Natural Plant Communities in the Action Area. Table 3-1 lists the acreage for each of these communities by region. The plant communities and sensitive plant and animal species potentially occurring in the Action Area are discussed below as they relate to the VFPA and MCCA. The baseline for extent of development within the Plan Area is August 2007, when the Tribal HCP was circulated for public review.

3.2.1 Natural Plant Communities Occurring in the Mountains and Canyons

Just above the edge of the Coachella Valley are floodplain areas consisting of alluvial fans, bajadas, and canyon washes. Within the Reservation, these include the alluvial fans of the Palm, Wentworth, Murray, Andreas, Tahquitz, and Chino canyons. The various canyons found on the Reservation, off-Reservation Tribal Lands, and in the BLM Exchange Areas are characterized by intermittent surface flows with permanent pools, seeps, and other waters in their upper reaches.

Beyond the top end of the alluvial fans, the slopes between 400 and 1,200 feet AMSL are largely composed of granitic boulders and talus. Although many annual plants grow here during “wet” years, few perennial plants do except for scattered creosote bushes, brittlebushes, and occasionally indigo bush and small barrel cactus.

Approximately 61 acres of urban development occur within the MCCA, all of which are on the Reservation.

Plant communities and associated dominant plant species found primarily in the MCCA (some of which also extend into the VFPA) are described in the following paragraphs.

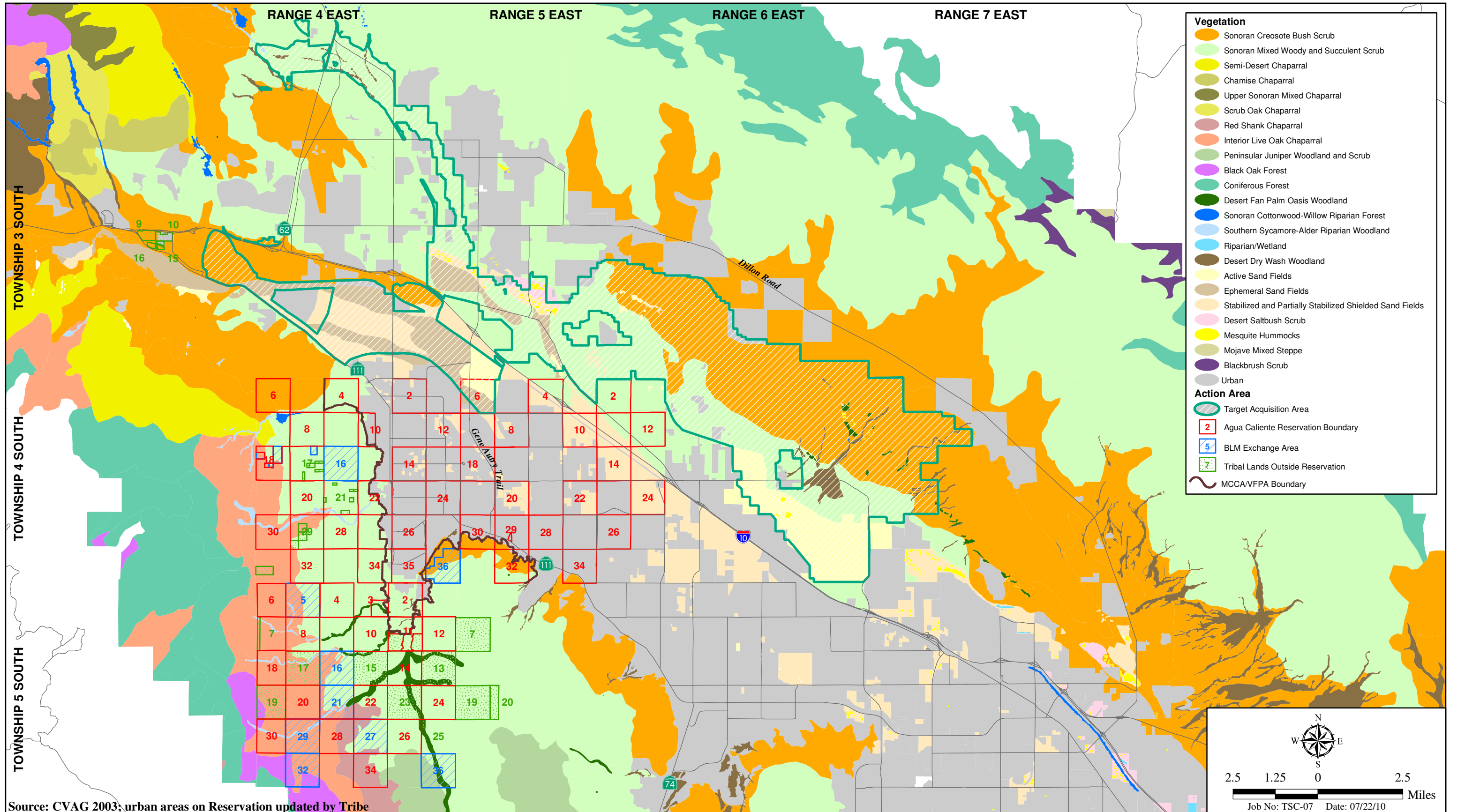
**Table 3-1
Natural Plant Communities Distribution in the Action Area (acres)**

Natural Plant Community	MCCA on Reservation ¹	MCCA Other Tribal Lands	VFPA on Reservation	VFPA Other Tribal Lands	Subtotal: Plan Area	BLM Exchange Areas	Off-Reservation Target Acquisition Areas ²	Subtotal: Lands Outside Plan Area	Action Area Total
Sonoran Creosote Bush Scrub	1,127	0	148	144	1,419	214	17,732	17,946	19,365
Sonoran Mixed Woody and Succulent Scrub	8,587	3,514	2,910	0	15,011	2,894	14,858	17,752	32,763
Desert Fan Palm Oasis Woodland	467	390	12	0	869	148	138	266	1,135
Black Oak Forest	32	79	0	0	111	266	0	268	379
Interior Live Oak Chaparral	3,823	1,161	0	0	4,984	1,719	0	1,719	6,703
Peninsular Juniper Woodland and Scrub	89	0	0	0	89	229	0	229	318
Red Shank Chaparral	889	0	0	0	889	223	0	223	1,112
Sonoran Cottonwood-Willow Riparian Forest	9	0	0	0	9	0	4	4	13
Southern Sycamore-Alder Riparian Woodland	245	41	0	0	286	104	15	119	405
Active Sand Fields	0	0	227	0	227	0	4,547	4,547	4,774
Stabilized and Partially Stabilized Shielded Sand Fields	0	0	2,971	0	2,971	0	2,854	2,854	5,825
Ephemeral Sand Fields	0	0	344	0	344	0	4,121	4,112	4,465
Desert Dry Wash Woodland	25	0	35	0	60	0	9001	901	961
Mesquite Hummocks	0	0	0	0	0	0	184	184	184
Desert Saltbush Scrub	0	0	0	0	0	0	170	170	170
Urban Development	63	0	8,654	71	8,786	2	880	882	9,668
TOTAL	15,354	5,185	15,301	215	35,055	5,799	46,404	52,180	88,240

Notes: Of the total approximately 30,655 acres of Reservation land outside of Federal ownership, about 8,715 acres currently contain urban development.

¹Does not include BLM Exchange Areas that are within the Reservation boundaries.

²Does not include Target Acquisition Areas in the Plan Area.



Natural Plant Communities

AGUA CALIENTE THCP

Figure 10

3.2.1.1 Sonoran Creosote Bush Scrub

Sonoran creosote bush scrub is the most widespread vegetation type in the Colorado Desert. It is dominated by creosote (*Larrea* sp.). It characterizes the vast intermountain bajadas, reaching greatest development on coarse, well-drained soil with a total salinity of less than 0.02 percent. The structure of the creosote bush scrub community is simple because of low species diversity and the broad spacing of the shrubs, usually with bare ground between and limited structural diversity (approximately 5 to 10 feet tall). The co-dominant species in the community is white bursage (*Ambrosia dumosa*), a much shorter shrub varying from 8 to 24 inches in height. Many species of ephemeral herbs may flower in late winter/early spring if winter rains are sufficient. There are approximately 1,419 acres of Sonoran creosote bush scrub within the Plan Area: 1,127 acres within the northwestern corner of the Reservation in the MCCA and 292 acres in the VFPA near the central portion of the Reservation and on other Tribal Lands to the northwest. In addition, 214 acres of this plant community occur in BLM Exchange Areas (all of which are in the MCCA) and 17,732 acres occur within the off-Reservation Target Acquisition Areas, for a total of 19,365 acres in the Action Area.

3.2.1.2 Sonoran Mixed Woody and Succulent Scrub

This is the only Sonoran desert community with substantial dominance of cacti and other succulents. It is similar to Sonoran creosote bush scrub but is more varied and usually denser with shrubs standing 5 to 10 feet tall. It includes species from Sonoran creosote bush scrub and desert dry wash woodland, with no single species clearly dominating. Most stands have desert agave (*Agave deserti*), brittlebush (*Encelia* sp.), ocotillo (*Fouquieria splendens*), pygmy-cedar (*Peucephyllum schottii*), and Mohave yucca (*Yucca schidigera*) in varying proportions. It is found on rocky, well-drained slopes and alluvial fans of the San Jacinto Mountains to the south/southwest and Indio Hills to the northeast. It is the most abundant plant community in the Plan Area, comprising 15,011 acres. Approximately 12,101 acres are found throughout the eastern portion of the MCCA, with an additional 2,910 acres in the VFPA in Indian Canyons and the northeastern corner of the Reservation. Outside of the Plan Area, 2,894 acres occur within the BLM Exchange Areas (all of which are in the MCCA) and 14,858 acres occur in the off-Reservation Target Acquisition Areas, for a total of 32,763 acres in the Action Area.

3.2.1.3 Desert Fan Palm Oasis Woodland

This community is composed of open to dense groves dominated by fan palms from 75 to 100 feet tall. The understory is sparse in dense groves where the ground is mulched by fallen fronds. More open or favorable sites may have a dense understory of riparian shrubs. This community is restricted to areas with available water and high summer temperatures, mild winters, and little rain. The largest groves are found in steep-sided canyons with permanent streams or adjacent to large springs. Smaller groves occur in canyon bottoms with intermittent surface water, moist canyon sides, or seeps. Oases often have alkaline soils due to high evaporation. This community merges (often abruptly) with desert dry wash woodland or Sonoran creosote bush scrub.

The palms are fire tolerant, whereas understory species are not. Fire opens the understory, allowing seedlings to establish. Fire also increases the water supply to the fire-tolerant palm by removing competition. Within the Plan Area, desert fan palm oasis woodlands located in Palm, Murray, and Andreas canyons comprise approximately 869 acres, including 857 acres within the MCCA and 12 acres in the VFPA. An additional 148 acres occur within the BLM Exchange Areas and 138 acres occur in the off-Reservation Target Acquisition Areas, for a total of 1,135 acres in the Action Area. Desert fan palm oasis woodlands have particular cultural significance to the Tribe.

3.2.1.4 Black Oak Forest

This is a persistent sub-climax forest dominated by black oak (*Quercus kelloggii*) with scattered ponderosa pine (*Pinus ponderosa*) or Jeffrey pine (*P. jeffreyi*). Most stands are even-aged, reflecting past disturbances, primarily fire. This community occurs on mountain slopes, benches and coves, and upper foothill slopes. Approximately 111 acres of black oak forest occur in the Plan Area in the San Jacinto Mountains in the extreme southwestern corner of the MCCA, with an additional 266 acres in the BLM Exchange Areas, for a total of 379 acres in the Action Area.

3.2.1.5 Interior Live Oak Chaparral

This community is a dense, tall (to 20 feet) chaparral dominated by interior live oak (*Quercus wislizenii*) and scrub oak (*Q. berberidifolia*). Interior live oak stumps sprout readily following fire. Persistent leaf litter and dense canopy preclude a substantial understory. Approximately 4,984 acres of interior live oak chaparral can be found in the Plan Area along the western boundary of the MCCA. An additional 1,719 acres occur within the BLM Exchange Areas, for a total of 6,703 acres in the Action Area.

3.2.1.6 Peninsular Juniper Woodland and Scrub

This community is fairly dense woodland dominated by California juniper (*Juniperus californica*). Other species include turbinella oak (*Quercus turbinella*), Mojave yucca, bear grass or nolina (*Nolina* sp.), four-leaf pinyon (*Pinus quadrifolia*), and Great Basin sagebrush (*Artemisia tridentata*). This community occurs on the desert slopes of the San Jacinto Mountains at elevations between 3,500 and 5,500 feet AMSL. A total of approximately 318 acres of Peninsular juniper woodland and scrub occur within the Action Area, including approximately 89 acres within the Plan Area in the extreme southeastern portion of the MCCA and 229 acres in the BLM Exchange Areas.

3.2.1.7 Red Shank Chaparral

This community is typically 6 to 12 feet tall and often forms nearly pure stands of red shank (*Adenostoma sparsifolium*). Red shank itself is an open shrub or small tree with multiple branches from the base

covered with rust-red, shaggy bark. Red shank chaparral is often adjacent to and may intergrade with chamise chaparral. It is abundant in the San Jacinto and Santa Rosa mountains. Small, remnant populations occur in Ventura, Santa Barbara, and San Luis Obispo counties. It ranges in elevation from 300 to 6,000 feet AMSL across its range. Approximately 1,112 acres of red shank chaparral occur in the Action Area, including 889 acres within the Plan Area in the extreme southern portion of the MCCA and 223 acres in the BLM Exchange Areas.

3.2.1.8 Sonoran Cottonwood-Willow Riparian Forest

This community consists of a winter-deciduous, broad-leaved streamside forest to about 60 feet tall, dominated by Fremont cottonwood (*Populus fremontii*) with dense understories of willow (*Salix* sp.) species. Approximately 9 acres of Sonoran cottonwood-willow riparian forest can be found in the Plan Area in the northwestern corner of the MCCA in the San Jacinto Mountains, with an additional 4 acres occurring in the off-Reservation Target Acquisition Areas, for a total of 13 acres in the Action Area.

3.2.1.9 Southern Sycamore-Alder Riparian Woodland

This community consists of a tall, open, broad-leaved, winter-deciduous streamside woodland dominated by sycamore (*Platanus* sp.) and often white alder (*Alnus rhombifolia*). It occurs along rocky streambeds subject to occasional high-intensity flooding. Alder increases in abundance on more perennial streams, while sycamore favors more intermittent water flow. Within the Plan Area, there are approximately 286 acres of this community, located in Tahquitz Canyon, Andreas Canyon, and the west fork of Palm Canyon within the MCCA. Approximately an additional 104 acres occur within the BLM Exchange Areas and 15 acres occur in the off-Reservation Target Acquisition Areas, for a total of 405 acres in the Action Area.

3.2.2 Natural Plant Communities Occurring on the Valley Floor

The Target Acquisition Areas and the majority of the northeastern half of the Reservation (VFPA) comprise the Valley Floor. The Valley Floor supports several Natural Plant Communities along with a large section of urban development. Urbanization typically clears the land, removing native vegetation and its inherent wildlife habitat value. Landscaping within urbanized areas consists primarily of non-native plants. These plant species have little or no habitat value for native wildlife, and many are invasive species that compete with native plants for nutrients and water in undeveloped areas. There are approximately 8,654 acres of urban development within the VFPA on the Reservation, 71 acres within the Plan Area in the VFPA off the Reservation, 2 acres in the BLM Exchange Areas, and 1,808 acres in the off-Reservation Target Acquisition Areas. (Please note: the Tribe would not cause the acquisition of developed areas as part of mitigation measures for Covered Activities, but these developed areas are included within the identified Target Acquisition Area, which will largely remain outside Tribal and Plan control.)

For those undeveloped areas on the Valley Floor, Sonoran creosote bush scrub and Sonoran mixed woody and succulent scrub are the dominant plant communities at 18,024 acres and 17,768 acres, respectively. These communities comprise approximately 68 percent of the total undeveloped area on the valley floor of the Action Area.

The Coachella Valley is subjected to high winds funneling through San Gorgonio Pass. Sand is carried by streams and rivers (fluvial transport) out of the surrounding mountains by occasional storms and deposited in valley floodplains. This sand is later picked up by prevailing winds (aeolian transport) and carried down the valley to deposition areas. These aeolian deposition areas include active sand fields, stabilized and partially stabilized shielded sand fields, and ephemeral sand fields. Although most sand fields on the Reservation are shielded from receiving blowsand by structures and non-native vegetation associated with relatively recent human development, portions of the Action Area (including the northeast corner of the Reservation) provide sufficient native habitats and are subject to intact ecological and physical processes such that, if protected from further degradation, they will continue to sustain these ecosystems, plant communities and their associated wildlife species in the long term. Many of these plants and wildlife are unique to the Valley Floor and the blowsand ecosystem, which is characteristic of the Coachella Valley. The following describes those native plant communities and associated dominant species found primarily on the Valley Floor.

3.2.2.1 Active Sand Fields

Active sand fields are areas of active sand movement with little or no vegetation where accumulated sand is not of sufficient depth to form classic formations that characterize dune systems. Sand fields may intergrade with active dunes, mesquite hummocks, and stabilized and partially stabilized dunes and sand fields. Many of these sand fields were probably historic dune formations prior to development of portions of the valley.

Active sand fields occur in what is known as the active blowsand environment. Within these same areas, mesquite hummocks occur in areas of higher soil moisture content (i.e., groundwater relatively close to the ground surface). Wind movement and deposition of sand (aeolian erosion, transport, and deposition) occurs as a natural geologic process in the Coachella Valley. The environment associated with this aeolian process system, and particularly the sand deposits themselves, represent the sole habitats of several endemic sensitive species (see section 3.3.2). The entire region of major aeolian sand transport activity in the Coachella Valley covers approximately 130 square miles, extending some 35 miles from near Cabazon to south of Indio. The region lies primarily between the San Jacinto Mountains and the Whitewater River channel, extending to the San Bernardino Mountains and the Indio Hills and exhibiting a maximum width of about 11 miles. This blowsand corridor passes through the northeastern corner of the Reservation on both sides of the I-10 freeway. Approximately 227 acres of this community occur

within a creosote bush scrub matrix in the VFPA on the Reservation, while approximately 4,547 acres occur in the off-Reservation Target Acquisition Areas, for a total of approximately 4,774 acres in the Action Area.

3.2.2.2 Stabilized and Partially Stabilized Shielded Sand Fields

This community consists of desert sand accumulations that lack dune formations stabilized by vegetation and where important aeolian sand transport processes are interrupted by barriers such as roads, buildings, and landscaping. This community occurs most extensively north of Highway 111 from Windy Point to approximately Indian Avenue. It also occurs west of Windy Point and at the east end of the Indio Hills as well as throughout areas where development has interrupted sand transport. Creosote bush scrub matrix dominates this community.

On the Reservation, stabilized and partially stabilized shielded sand fields occur in patches along I-10 and scattered locations within the urbanized areas in the VFPA, totaling approximately 2,971 acres. An additional 2,854 acres occur within the off-Reservation Target Acquisition Areas, for a total of approximately 5,825 acres in the Action Area.

3.2.2.3 Ephemeral Sand Fields

Ephemeral sand fields are desert sand accumulations that lack dune formations and are characterized by irregular deposition of sand materials such that sand accumulations may be blown off site and not replaced by additional sand except after major flood events or other movement processes. This community occurs within a Sonoran creosote bush scrub matrix and is most abundant in the upper portions of the Coachella Valley. Approximately 4,465 acres of ephemeral desert sand fields occur in the Action Area, including approximately 344 acres in the north-central portion of the Reservation and approximately 4,121 acres in the off-Reservation Target Acquisition Areas.

3.2.2.4 Desert Dry Wash Woodland

The desert dry wash woodland community is an open to dense, drought-deciduous, riparian woodland with trees 8 to 20 feet tall dominated by such species as palo verde (*Cercidium* sp.) and smoketree (*Psoralea argemone*). This woodland occurs in sandy or gravelly washes and arroyos associated with canyon mouths and alluvial fans, largely in frost-free areas. Approximately 60 acres of desert dry wash woodland can be found in the central portion of the Reservation within and north of Palm Canyon. Approximately 35 acres of desert dry wash woodlands occur in the VFPA on the Reservation; the remaining 25 acres are located at low elevations in Palm Canyon within the MCCA, also on the Reservation. An additional 901 acres occur in the off-Reservation Target Acquisition Areas, for a total of approximately 961 acres in the Action Area.

3.2.2.5 Mesquite Hummocks

Mesquite hummocks are large clumps of low-growing honey mesquite (*Prosopis glandulosa*) shrubs. These shrubs may form hummocks over sand dunes, such as at Willow Hole and the Thousand Palms Preserve, or may occur on level terrain at the margins of palm oases or in the area south and east of Indio to the north end of the Salton Sea. Within the Coachella Valley, they are typically associated with high soil moisture, often associated with fault areas (where the fault act like a dam to groundwater) or springs. This community type does not occur in the Plan Area in sufficiently large units to warrant mapping at a Plan-level scale. A total of approximately 184 acres of mesquite hummocks occur in the off-Reservation Target Acquisition Areas.

3.2.2.6 Desert Saltbush Scrub

The desert saltbush scrub community can include various species of saltbush (*Atriplex* sp.) in a nearly uniform stand of shrubs about three feet tall, forming a more complete cover than in creosote bush scrub. It occupies areas where generally moist, fine-textured, poorly drained sandy loam soils with high salinity (in the range of 0.2 to 0.7 percent) and/or alkalinity occur. Four-wing saltbush (*Atriplex canescens* var. *linearis*) shows greater dominance in drier, coarser soils and occurs throughout the desert saltbush scrub community. Screwbean mesquite (*Prosopis glandulosa* var. *torreyana*) is a common associate that reaches greater development in lower-elevation areas with a shallow water table or capillary fringe. In the Action Area, this community occupies approximately 170 acres in the off-Reservation Target Acquisition Areas.

3.3 SENSITIVE PLANT AND WILDLIFE SPECIES THAT OCCUR OR HAVE THE POTENTIAL TO OCCUR WITHIN THE ACTION AREA

Nineteen sensitive wildlife species and three sensitive plant species that occur or have potential to occur in the Plan Area will be protected by the conservation measures in the Tribal HCP. Several of these species are listed as threatened or endangered under the ESA. Others are Tribal sensitive species that could be federally listed in the future, absent conservation measures. Several of these species have adapted to and are essentially restricted to habitats within these regions; many are endemic to the Coachella Valley. These species constitute those that the Tribe is seeking to have covered under a Section 10(a) Permit, enabling it to authorize or engage in activities that may result in incidental take of such species (collectively Covered Species; see Table 3-2). Conservation measures included in the Tribal HCP, therefore, are tailored to these species and their habitats.

With the exception of Peninsular bighorn sheep, riparian species, and burrowing owl, the distributions of the Covered Species presented in this section are based on modeling developed by CVAG as part of its

MSHCP planning process. CVAG based its models (which are somewhat generalized by necessity) on such habitat parameters as Natural Plant Community associations, soils, sand source associations, landform associations, topographic characteristics, elevation limits, and known occurrences based on field observations. This information was prepared by CVAG's Scientific Advisory Committee, which is comprised of recognized biological experts, and reviewed by the USFWS. All species models were updated based on September 2005 aerial photography to reflect areas that have been developed since the models were created.

Information on the Peninsular bighorn sheep was gathered directly from the Recovery Plan for the Bighorn Sheep in the Peninsular Ranges (USFWS 2000). The Tribal HCP model for Peninsular bighorn sheep is based on the Recovery Plan's essential habitat boundary at the upper elevational limits and has been modified primarily by using the 800-foot elevation contour as the lower limit for Peninsular bighorn sheep habitat. Section 4 (Township 4 South Range 4 East) and Sections 2 and 11 (Township 5 South Range 4 East) were also modified because of existing take authorizations and/or existing conservation programs already in place in these locations. The modeled habitat was expanded in Section 10 (Township 4 South Range 4 East) because of recent evidence of Peninsular bighorn sheep use in this area. This lower elevational limit was used because it captured nearly all recent Peninsular bighorn sheep locational data points while avoiding potential land use conflicts in areas not considered critical for Peninsular bighorn sheep conservation.

The CVAG modeling for avian riparian species was modified to remove desert dry wash woodland on the Reservation from the potential habitat modeling because the Tribe does not believe it is likely to provide appropriate habitat for the subject species (least Bell's vireo, southwestern willow flycatcher, summer tanager, yellow-breasted chat, and yellow warbler). Modeling for mountain yellow-legged frog was based on habitat assessments conducted for the Tribe by qualified biologists. Because modeling was not available from CVAG for burrowing owl, the Tribe developed estimates of acreage potentially supporting this species based on known habitat associations.

**Table 3-2
Status of Covered Species in the Action Area**

Common Name	Scientific Name	Status ¹	Habitat ²	Presence/ Absence	Reservation Lands (acres)	Other Tribal Lands	BLM Exchange Lands	Off-Reservation Target Acquisition Areas	Total (acres)
MOUNTAINS AND CANYONS SPECIES									
Peninsular bighorn sheep	<i>Ovis canadensis nelsoni</i>	FE	~700-4,000 ft AMSL	Present	11,965	4,384	4,178	0	20,527
Least Bell's vireo	<i>Vireo bellii pusillus</i>	FE	R	Present	732	431	251	1,433	2,847
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE	R	Present	732	431	251	1,433	2,847
Summer tanager	<i>Piranga rubra cooperi</i>	None	R	Present	732	431	251	1,433	2,847
Yellow-breasted chat	<i>Icteria virens</i>	None	R	Present	732	431	251	1,433	2,847
Yellow warbler	<i>Dendroica petechia brewstri</i>	None	R	Present	732	431	251	1,433	2,847
Mountain yellow-legged frog	<i>Rana muscosa</i>	FE	R	Historical records only	136	56	18	0	210
Southern yellow bat	<i>Lasiurus ega (xanthinus)</i>	None	PO	Present	479	390	148	159	1,176
Triple-ribbed milk-vetch	<i>Astragalus tricarinatus</i>	FE	DW	Not observed	0	0	0	1,105	1,105
Desert tortoise ³	<i>Gopherus agassizii</i>	FT	SCBS, SMWSS	Present	9,714	3,549	2,564	5,022	20,849
Burrowing owl ³	<i>Athene cunicularia</i>	BCC	SF, SCBS, DW	Present	4,283	144	214	21,574	26,215
Gray vireo	<i>Vireo vicinior</i>	BCC	CHP, PJ	Not observed	978	0	451	0	1,429

**Table 3-2 (cont.)
Status of Covered Species in the Action Area**

Common Name	Scientific Name	Status ¹	Habitat ²	Presence/ Absence	Reservation Lands (acres)	Other Tribal Lands	BLM Exchange Lands	Off-Reservation Target Acquisition Areas	Total (acres)
VALLEY FLOOR SPECIES⁴									
Coachella Valley fringe-toed lizard	<i>Uma inornata</i>	FT	SF	Present	3,391	0	0	11,647	15,038
Coachella giant sand-treader cricket	<i>Macrobaenetes valgum</i>	None	SF	Present	3,391	0	0	11,647	15,038
Flat-tailed horned lizard	<i>Phrynosoma mcalli</i>	FPT	SF, SCBS, SMWSS	Present	3,392	0	0	12,182	15,574
Palm Springs pocket mouse	<i>Perognathus longimembris bangsi</i>	None	DW, SF, SCBS, SMWSS	Present	6,517	149	0	42,021	48,687
Palm Springs (Coachella Valley round-tailed) ground squirrel	<i>Spermophilus tereticaudus</i> var. <i>coachellae</i>	FC	SF, DW, MS, SCBS, SMWSS	Present	5,430	149	0	25,260	30,839
Coachella Valley Jerusalem cricket	<i>Stenopelmatus cahuilaensis</i>	None	SF, SMWSS	Not observed	3,507	112	0	10,077	13,696
Coachella Valley milk-vetch	<i>Astragalus lentiginosus coachellae</i>	FE	SF, DW, SCBS, SMWSS	Present	4,696	116	0	18,376	23,188
Le Conte's thrasher	<i>Toxostoma lecontei</i>	BCC	SF, DW, SCBS, SMWSS	Present	5,281	144	0	27,275	32,700
Crissal thrasher	<i>Toxostoma crissali</i>	BCC	DW, MS	Not observed	0	0	0	354	354
Little San Bernardino Mountains gilia	<i>Linanthus maculatus</i>	None	SF, SCBS, SMWSS	Not observed	0	0	0	2,449	2,449

¹FE=federally listed endangered; FT=federally listed threatened; FPT=federally proposed threatened; FC=candidate for federal listing; BCC=birds of conservation concern; None=no formal federal listing status.

²AMSL=above mean sea level; SF=sand fields; R=riparian; SCBS=Sonoran creosote bush shrub; PO=palm oases; DW=dry wash; MS=mesquite scrub; CHP=chaparral; PJ=pinyon-juniper woodland and scrub; SMWSS=Sonoran mixed woody and succulent scrub.

³Desert tortoise and burrowing owl also have potential to occur on the valley floor.

⁴Some species that primarily occur in the VFPA also may occur in lower elevations of the MCCA.

3.3.1 Covered Species Potentially Occurring in the Mountains and Canyons Conservation Area

The MCCA is located in the western and southern portions of the Action Area and includes all portions of the San Jacinto and Santa Rosa mountain ranges within the Action Area, including all lands above the 800-foot elevation contour as well as some lower-elevation areas. This region consists of steep, rugged slopes incised with deep canyons. The changes in elevation and topography as well as accompanying differences in temperature, precipitation, and other environmental variables are significant factors contributing to the diversity of species and Natural Plant Communities found in this region. The Covered Species described below are typically restricted to habitats found in these environments, although some also have potential to occur on the valley floor (i.e., desert tortoise and burrowing owl). Several other species may occur in the lower elevations of the MCCA but are more likely to be found in the VFPA and so are discussed in that section.

3.3.1.1 Peninsular Bighorn Sheep (*Ovis canadensis nelsoni*) Federal Endangered

The Peninsular bighorn sheep is limited to the Peninsular Ranges of southern California and Baja California, Mexico (Baja) and was listed as a distinct population segment (DPS) within the U.S. as an endangered species on March 18, 1998. A Recovery Plan was approved in October 2000, and critical habitat was designated in February 2001. The critical habitat designation was challenged by the Tribe and other parties. A consent decree issued on August 3, 2006, removed approximately 29,924 acres of critical habitat from the 844,897 acres originally designated, leaving approximately 814,973 acres of critical habitat.

In the underlying action, plaintiff and plaintiff-intervenors challenged the USFWS's February 1, 2001, final rule designating critical habitat for the Peninsular bighorn sheep because, *inter alia*, the USFWS failed to analyze the economic impacts properly of designating critical habitat pursuant to Section 4 of the ESA 16 USC § 1533(b)(2). Plaintiff and plaintiff-intervenors also challenged the final rule on other grounds, claiming, for example, that it failed to identify the physical or biological features essential to the conservation of the species, failed to identify the specific areas where the essential physical or biological features are found, failed to identify the specific areas that may require special management considerations or protections, failed to identify the geographic areas occupied by the species, failed to consider the best scientific and commercial data available, failed to conduct a mandatory exclusion analysis, failed to provide adequate public notice, failed to adequately respond to public comments, and failed to describe specifically the actual areas of critical habitat.

During litigation, the Federal defendants informed the District Court that they did not intend to contest liability in the matter and would request that the court remand the final rule to the USFWS for reconsideration.

In the consent decree, the signatories agreed that the USFWS would remand the final rule to reconsider the critical habitat designation in light of the plaintiff's and plaintiff-intervenors' allegations, and that the

USFWS would conduct a revised economic impacts analysis pursuant to Section 4(b)(2) of the ESA, and in particular, the rejection of the “baseline” analysis of economic impacts that the USFWS had employed in promulgating the final critical habitat rule for the Peninsular bighorn sheep given the holdings in *New Mexico Cattle Growers Association v. U.S. Fish & Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001) and *Home Builders Association of Northern California v. U.S. Fish & Wildlife Service*, 268 F.Supp.2d 1197 (E.D. Cal. 2003) rejecting the use of the baseline analysis of economic impacts under Section 4(b)(2).

As part of the settlement, the signatories agreed on partial vacatur of the final rule during remand to the USFWS. Thus, the majority of the final rule remained in effect during remand, except for certain lands specifically removed from critical habitat. Included in this “carve out” were certain mining lands in Coyote and Jacumba Mountains and Fish Canyon areas, private lands used by the Desert Riders, and lands within the exterior boundaries of the Agua Caliente Indian Reservation.

The U.S. District Court approved the consent decree in an amended order entered on August 3, 2006. Pursuant to the consent decree, a proposed Revised Rule was scheduled to be published in the Federal Register by September 30, 2007, with a final Revised Rule due to be published by September 30, 2008. A Revised Analysis of Economic Impacts was required to be circulated for public review for at least 30 days, concurrently with the initial public comment period for the proposed Revised Rule, or with any subsequent reopening of the comment period.

The USFWS published the proposed Revised Rule on October 10, 2007 (72 FR 57740). The rule proposed to designate 384,410 acres as critical habitat for Peninsular bighorn sheep. The proposed rule would reduce the amount of land designated as critical habitat by more than 460,000 acres, or more than 50 percent, relative to the 2001 final rule. The proposed rule indicated that the USFWS was evaluating private lands that were included in the proposal because those lands are in the Plan Area for the Coachella Valley MSHCP, as well as the USFWS’s inclination to exclude Reservation lands that were included in the proposal in consideration of the authorities described in Section 1.8.3.3 and the proposed Tribal HCP. The Final Rule was published on April 14, 2009 (74 FR 17287). The rule designated approximately 376,938 acres as critical habitat for Peninsular bighorn sheep. Lands within the Plan Area of the Coachella Valley MSHCP and Reservation lands were excluded from designation under the Final Rule.

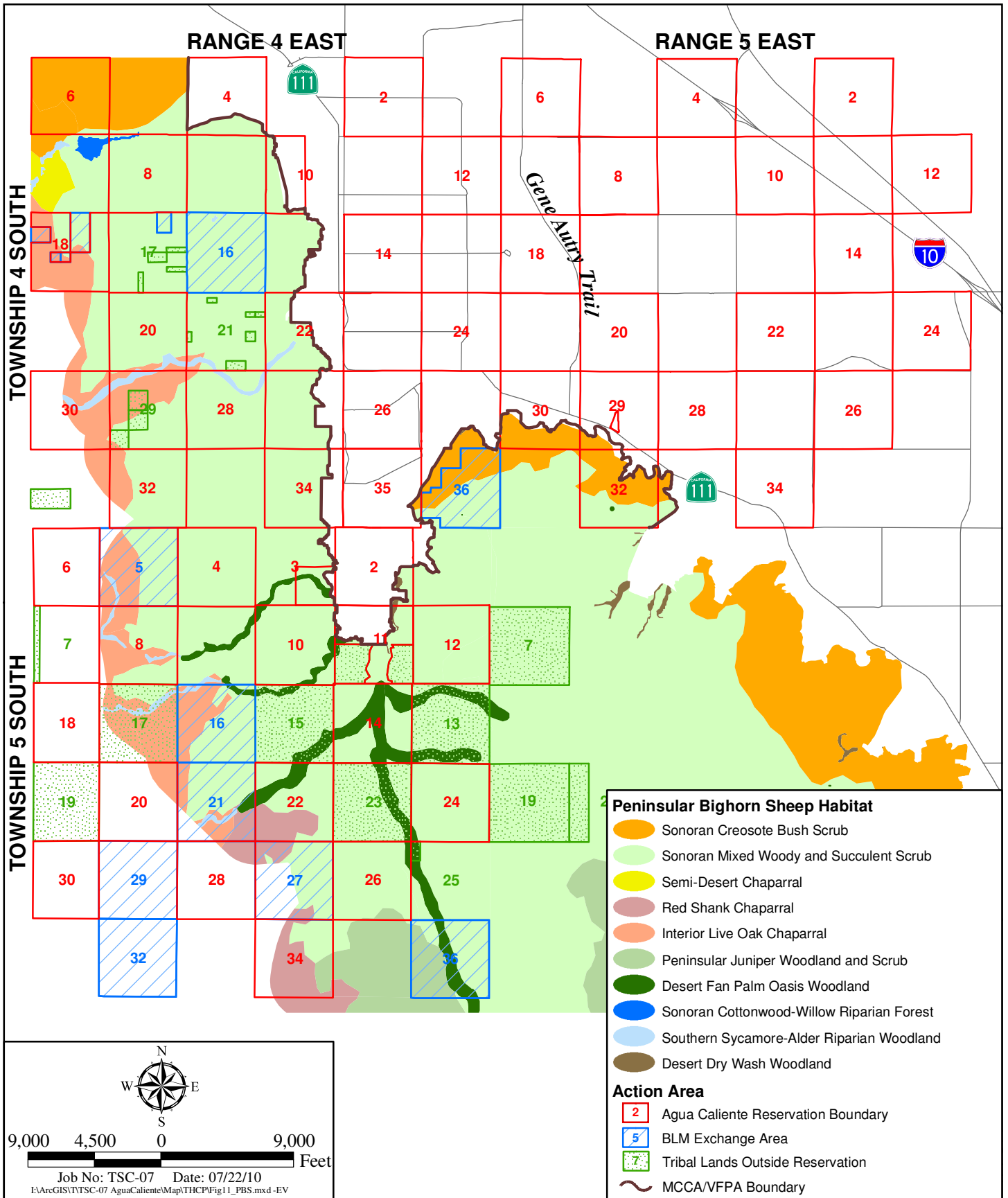
The Peninsular bighorn sheep is restricted to the east-facing, lower-elevation slopes (below 4,600 feet AMSL) of the Peninsular Ranges in the Sonoran Desert life zone (Jorgensen and Turner 1975). Peninsular bighorn sheep avoid higher elevations, likely because of decreased visibility (and therefore an increased predation risk) associated with the denser vegetation found at higher elevations (Risenhoover and Bailey 1985; Etchberger et al. 1989). The elevational patterns of vegetation associations, in combination with this predator avoidance behavior, has resulted in habitat use that is restricted to lower elevations than most other bighorn sheep populations. At the lowest elevation of their range, Peninsular bighorn sheep movement onto the valley floor is limited because of their typical hesitancy to venture far

from escape terrain. The available habitat of Peninsular bighorn sheep can, therefore, be visualized as a long, narrow band that runs north-south along the lower elevations of the San Jacinto and Santa Rosa mountains. This habitat includes canyon bottoms, alluvial fans, and mountain slopes.

Peninsular bighorn sheep habitat within the Action Area totals approximately 20,527 acres, including approximately 11,965 acres on the Reservation in the MCCA; on Tribal lands outside the Reservation, 4,384 acres in the MCCA; and in the BLM Exchange Areas 4,178 acres in the MCCA (Figure 11).

In the Peninsular Ranges, Peninsular bighorn sheep use a wide variety of plant species as food sources. Turner (1973) recorded the use of at least 43 species, with browse being the food category most frequently consumed (Turner 1976; Scott 1986). Cunningham and Ohmart (1986) determined that the Peninsular bighorn sheep diet consisted of 57 percent shrubs, 32 percent forbs, 8 percent cacti, and 2 percent grasses. Water is considered to be an important resource for Peninsular bighorn sheep (Jones et al. 1957; Blong and Pollard 1968; Leslie and Douglas 1979; Turner and Hansen 1980; Elenowitz 1984; Cunningham and Ohmart 1986). A number of studies have shown that Peninsular bighorn sheep will concentrate around water sources in the summer, with most animals found within a two- to three-mile radius of water (Jones et al. 1957; Leslie and Douglas 1979; Cunningham and Ohmart 1986). Lactating ewes and lambs often are more dependent on water and thus may be found closer to water (Blong and Pollard 1968; Leslie and Douglas 1979; Bleich et al. 1997). Water sources are most valuable to Peninsular bighorn sheep if they occur in proximity to adequate escape terrain with good visibility. The Peninsular bighorn sheep have been observed to use areas without known perennial water during some months, including the lambing season (Rubin, pers. comm. 2000).

Peninsular bighorn sheep are primarily active during the day (Krausman et al. 1985) but may be active at any time of day or night (Miller et al. 1984). Their daily activity pattern includes feeding and resting periods that are not synchronous either within or between groups. The Peninsular bighorn sheep relies on vigilance to detect predators, and it benefits from gregariousness and group alertness (Geist 1971; Berger 1978). In the Peninsular Ranges, movement of radio-collared ewes between ewe groups is rare. Genetic and observational data suggest, however, that ram movements among ewe groups are common (Boyce et al. 1997; Deforge et al. 1997; Rubin et al. 1998; Bighorn Institute 1998, 1999). Peninsular bighorn sheep response to human activity is highly variable and depends on many factors, including but not limited to the type of activity, the animal's previous experience with humans, size or composition of the Peninsular bighorn sheep group, location of Peninsular bighorn sheep relative to the elevation of the activity, distance to escape terrain, and distance to the activity (Weaver 1973; McQuivey 1978; Hicks and Elder 1979; MacArthur et al. 1979, 1982; Wehausen 1980; Hamilton et al. 1982; Whitacker and Knight 1998; Papouchis et al. 1999). Though the effect of human activity in bighorn habitat is not always obvious, human presence or activity in many cases has been found to detrimentally alter normal behavioral and habitat use patterns.



Source: USFWS 2000 as modified by Tribe

Peninsular Bighorn Sheep Habitat

AGUA CALIENTE THCP

Figure 11

The highest population estimate for the Peninsular bighorn sheep was 1,171 in 1974 (Weaver 1975). Surveys during the 1970s, 1980s, and 1990s indicate that declines have occurred in multiple ewe groups. The synergistic effects of exotic pathogens, mountain lion (*Felis concolor*) predation, and habitat loss appear to be the primary causes for the decline. The current population of approximately 793 animals (Torres 2007) is distributed in eight known ewe groups (subpopulations) from the San Jacinto Mountains south to the Mexican border.

In the Peninsular Ranges, ewes estimated to be between 2 and 16 years of age have been documented to produce lambs (Rubin et al. 2000; Ostermann et al. 2001). The breeding period, or rut, occurs in the late summer and fall months (USFWS 2000). As parturition approaches, ewes seek isolated sites with shelter and unobstructed views (Turner and Hansen 1980), and seclude themselves from other females while finding sites to bear their lambs (Etchberger and Krausman 1999). The lambing season in the Peninsular Ranges generally extends from January through August (DeForge et al. 1997; Bighorn Institute 1997, 1998; Rubin et al. 2000). In a four-year study of four different ewe groups, 87 percent of the lambs were born between February and April, and 55 percent of the lambs were born in March (Rubin et al. 2000). However, the Rubin et al. study did not include the San Jacinto Mountain ewe group. Lambing season was estimated to begin in February or March for 1992 through 1996 in the San Jacinto Mountains (DeForge et al. 1997) and in January for 1997 and 1998 (Bighorn Institute 1997 and 1998).

Pregnancy and lactation have well-documented behavioral and ecological effects on ungulates such as bighorn sheep (Festa-Bianchet 1988; Berger 1991). These effects include increased feeding rates and more selective diets to compensate for increased energetic demands (Clutton-Brock et al. 1982; Carl and Robbins 1988). The energetic cost of lactation for ewes is typically two to three times higher than the cost of gestation and may range from four to seven times the basal metabolic rate (Robbins 1993). Inadequate nutrition during pregnancy and lactation can result in poor survival of newborn ungulates (Robinson and Forbes 1968; Thorne et al. 1976; Berger 1991). Both Festa-Bianchet (1988) and Berger (1991) found that seasonal habitat selection by bighorn sheep was influenced by a combination of nutritional and antipredator constraints. Plant phenology is predictable in deserts, with growth proceeding from the valley floors (in late winter) to mountain tops (in summer), creating habitats that vary in nutritional quality and predation risk (Wehausen and Hansen 1988). Bighorn sheep in the Great Basin and Sonoran deserts (Santa Rosa Mountains) were found to leave mountainous habitat during late winter to feed on alluvial fans where emergent new grasses were highest in protein (Berger 1991). Berger (1991) provided evidence of the importance of alluvial fans to ewes by demonstrating that ewes tolerated heightened predation risk in order to obtain the nutritious forage available on alluvial fans.

Lambs usually are weaned by six months of age (Hansen and Deming 1980; Wehausen 1980), although they remain with their mothers for the first year of life (Geist 1971). Bighorn sheep learn their habitat selection patterns from their mothers and are philopatric (faithful to natal home ranges). Gregarious and philopatric behaviors are thought to confer an adaptive advantage to prey species such as bighorn sheep

because home range familiarity (i.e., knowledge of the location of escape terrain and movement routes) and group alertness decrease the risk of predation (Festa-Bianchet 1986).

In the San Jacinto Mountains, low fall lamb-to-ewe ratios were documented from 1977 to 1983. This group exhibited variable recruitment thereafter, with relatively high (greater than or equal to 0.50) fall lamb-to-ewe ratios from 1994 to 1996 (DeForge et al. 1997).³ Most ewe groups in the Peninsular Ranges appear to have exhibited such pulses of high recruitment, but declining population trends suggest that they have not been sufficient to balance adult mortality over longer time periods (USFWS 2000).

Habitat loss is considered to be one of the greatest threats to continued Peninsular bighorn sheep existence (Burgman et al. 1993). As humans encroach into the habitat, resources and survival potential of a particular ewe group may be eliminated. Loss of any critical aspect of Peninsular bighorn sheep habitat, such as lambing and low-elevation feeding areas, escape terrain, and travel routes between these habitats as well as routes between isolated inhabited areas, could have impacts on populations. Such loss can impact ability to forage, reproduce, locate water, avoid predators, and move among important resource areas and between ewe groups. Habitat fragmentation is recognized as a major threat to the Peninsular bighorn sheep because of the dual effect of restricting animals to a smaller area and severing connections between ewe groups, thus creating genetic isolation. Roads and human use of an area can create habitat fragmentation. Habitat modification, such as constructing golf courses and residences that can attract Peninsular bighorn sheep, creates threats in the form of collisions with vehicles, poisoning by toxic landscape plants, entanglement in wire fences, harassment by dogs, and exposure to pathogens and chemicals such as herbicides and insecticides. The Peninsular bighorn sheep is extremely sensitive to disease. Numerous pathogens that are associated with livestock have been isolated or detected in the Peninsular bighorn sheep (USFWS 2000). Diseases (potentially transmitted by species such as goats, sheep, and cattle) that have been isolated from the Peninsular bighorn sheep and found in association with long-term low lamb recruitment include contagious ecthyma virus, blue tongue virus, *Pasteurella* bacteria, and parainfluenza virus (DeForge et al. 1982). Wild horses, burros, and livestock may compete with Peninsular bighorn sheep for limited water resources; therefore, all management aspects of these species must take into account their potential impacts on Peninsular bighorn sheep. There currently are no known populations of wild horses, burros, goats, sheep, or cattle on the Reservation, although some of these species have been present in the past. The stable (housing horses only) nearest to Peninsular bighorn sheep habitat in the Plan Area is approximately two miles from the Indian Canyons tollbooth.

Mountain lion predation is a demonstrated cause of Peninsular bighorn sheep mortality in the Peninsular Ranges (DeForge et al. 1997; Hayes et al. 2000) and may be a long-term limiting factor. The presence of tamarisk represents a serious threat to the Peninsular bighorn sheep because (1) it reduces or eliminates standing water on which Peninsular bighorn sheep depend; (2) it outcompetes plant species on which

³Fall lamb-to-ewe ratios are used because they count lambs that have survived their first summer.

Peninsular bighorn sheep feed; and (3) it blocks access of Peninsular bighorn sheep to water sources and provides cover for predators (USFWS 2000).

3.3.1.1 (a) *Peninsular Bighorn Sheep in the San Jacinto Mountains*

As described in the Peninsular bighorn sheep Recovery Plan, the conservation needs for the sheep include the following:

- Isolation from potential sources of domestic livestock disease, especially those transmitted from domestic sheep and goats;
- Steep, rugged topography isolated from human disturbance for lambing and rearing habitat, which allows Peninsular bighorn sheep to avoid predation;
- Steep escape terrain of adequate area and forage that minimize predation risk;
- Open vegetation with good visibility to allow Peninsular bighorn sheep to detect predators visually;
- Access to permanent water sources;
- Potential habitat linkages to other subpopulations for the purpose of maintaining genetic diversity;
- Alluvial fans and washes that have forage critical to Peninsular bighorn sheep nutrition, especially during times of drought; and
- Large blocks of undisturbed land that allow for the current small population to expand numerically and spatially in order to establish a large, self-sustaining, healthy population. Bighorn sheep are wide-ranging mammals; each individual Peninsular bighorn sheep uses approximately 20 to 25 square kilometers of habitat (DeForge et al. 1997), although their ranges usually overlap.

The San Jacinto Mountains support the northernmost subpopulation of the Peninsular bighorn sheep and represent one of nine Peninsular bighorn sheep recovery regions designated in the Peninsular bighorn sheep Recovery Plan (USFWS 2000). Results from helicopter surveys and a five-year study of radio-collared Peninsular bighorn sheep in the San Jacinto Mountains found that Peninsular bighorn sheep in this range were restricted to a narrow band of habitat generally between 700 and 3,400 feet AMSL. In the Palm Springs area, virtually all of the gentler terrain spreading out from the toe-of-slope is developed. The only alluvial fans or bajadas that remain in a relatively natural state include Chino, Tachevah, Tahquitz, and Little Eagle canyons.⁴ This population is now isolated from other desert bighorn sheep populations farther north, in the San Bernardino Mountains, by I-10 and valley floor development.

According to a USFWS GIS analysis of bighorn sheep habitat in the San Jacinto Mountains, there are 36,080 acres of essential bighorn sheep habitat in this mountain range (USFWS 2007). Annual helicopter surveys between 1983 and 1988 recorded Peninsular bighorn sheep in Hurricane, Blaisdell, Chino, and

⁴A Biological Opinion issued March 14, 2007 (USFWS 2007) authorized development of a portion of Chino Canyon.

Tachevah canyons (DeForge et al. 1997). With the exception of a ram released north of Chino Canyon and later euthanized, surveys since 1990 have not recorded Peninsular bighorn sheep in Hurricane or Blaisdell canyons. Such surveys have recorded the species in Chino, Tachevah, and the canyons further south: Tahquitz, Eagle, and Andreas (DeForge et al. 1997).

Approximately 41 percent of bighorn sheep habitat in the San Jacinto Mountains (from southern Andreas Canyon to the southern side of Chino Canyon) is currently occupied by bighorn sheep and has been regularly occupied since monitoring of radio-collared bighorn sheep in this range began in 1992 (DeForge et al. 1997). The USFWS refers to this area as the southern San Jacinto Mountains.

Approximately 33 percent of Peninsular bighorn sheep habitat in the San Jacinto Mountains is located between Chino Canyon and Snow Creek. This portion of the Peninsular bighorn sheep's range historically was recognized as a permanent and high-use bighorn sheep area by Weaver and Mensch (1970) but is not known to sustain any part of the population at the present time or within the last 15 years. Though rams may still occasionally range north of Chino Canyon (near the northern end of the Reservation), no ewe home ranges have existed north of Chino since 1988 (DeForge et al. 1997). This area is referred to as the central San Jacinto Mountains.

Fifty-five percent of historic ewe habitat in the San Jacinto Mountains is located south of Chino Canyon and is currently inhabited by 100 percent of the current ewe group population. The remaining 45 percent of historical ewe habitat is north of Chino Canyon in the central San Jacinto Mountains; three rams were released in this area in 2006, but it was unsuccessful.

Waterhole counts in 1973 estimated over 200 sheep inhabited the San Jacinto Mountains. The population subsequently declined rapidly, and no sheep were counted at waterholes in 1982. Bighorn sheep in the San Jacinto Mountains have been radiocollared and monitored on a regular basis since 1992. Since annual population estimates began in 1993, the number of ewes in this population has fluctuated between 4 and 13 adults (DeForge et al. 1997, Bighorn Institute annual reports from 1998 to 2005). The Peninsular bighorn sheep population estimate for the San Jacinto Mountains as of 2007 was 22 adults (12 males, 10 females), of which 7 females were captive-reared and released from the Bighorn Institute. Table 3-3 shows Peninsular bighorn sheep population estimates for the San Jacinto Mountains between 1993 and 2005. The San Jacinto Mountains population represents about 3 percent of the current rangewide population of the Peninsular bighorn sheep (22 out of 700+ individuals).

**Table 3-3
Ewe Population Estimates for the San Jacinto Mountains from 1993 to 2005**

Year	Number of Ewes (yearlings and adults)
1993	10
1994	7
1995	8
1996	7
1997	9
1998	8
1999	6
2000	6
2001	7
2002	4
2003	6
2004	12 (4 captive reared)
2005	11 (6 captive reared)

Source: DeForge et al. 1997; Bighorn Institute 1997, 1998, 1999, 2000, 2001, 2006; Ostermann, pers. comm. 2001

The cause of continuing low Peninsular bighorn sheep population numbers in the San Jacinto Mountains is not known with certainty. Adult survival rates have been low, averaging 0.81 for the 7 years of data available. Cause-specific mortality within this population has been monitored at varying intensities (due to field effort and the number of collared animals) since 1993. Mountain lion predation is the leading known cause of Peninsular bighorn sheep mortality (DeForge et al. 1997, Bighorn Institute annual reports) and accounted for 50 percent of the 16 documented mortalities of wild Peninsular bighorn sheep in the San Jacinto Mountains between December 1992 and June 2005. The challenges of determining cause-specific mortality of bighorn sheep include the difficulty of conducting fieldwork in extremely steep and rugged terrain, and the tagging of an adequate sample size of collared individual sheep. The relevant threats to sheep in this area include loss of habitat, predation, disease, urbanization, and human disturbance (USFWS 2000).

Between the years when the San Jacinto Mountains Peninsular bighorn sheep population declined from over 200 to 22 animals, their distribution contracted greatly. During annual helicopter surveys between 1983 and 1988, DeForge et al. (1997) found ewes distributed north and south of Chino Canyon. From 1989 to 2007, ewes have been found only south of Chino Canyon, except for one instance in 2005, when two yearling females were documented moving from Tachevah Canyon to Chino Canyon, and then north to Blaisdell Canyon and back to Tachevah Canyon within a two-week period. This range contraction north of Chino Canyon left approximately 45 percent of historical ewe habitat vacant at a time of a severe population decline in this ewe group. This area is the central San Jacinto Mountains area.

Due to the inability of this ewe group to naturally maintain itself, it has become the primary focus of augmentation and reintroduction efforts for the Peninsular bighorn sheep rangewide. Between 1997 and 2007, 16 captive-reared Peninsular bighorn sheep have been released into the population. Augmentation with captive-reared yearlings on an annual basis began in 2002 when the wild ewe population dropped to four adults. The Recovery Plan recognizes augmentation and reintroduction as valuable recovery tools, but also states that they are only one set of tools, and that they are meant to play supportive roles to other measures that protect bighorn sheep, such as habitat management and protection (USFWS 2000).

Chino Canyon

The Peninsular bighorn sheep was once relatively numerous in the Chino Canyon area in the northwesternmost portion of the Reservation prior to the 1980s (DeForge et al. 1997). A movement corridor has been confirmed by sightings of Peninsular bighorn sheep north of Chino Canyon in the relatively recent past (a yearling ram, tracks, and fecal pellets documented in 1995). Although the typical route across the corridor remains unknown, historic and recent Peninsular bighorn sheep sightings indicate that Chino Canyon provides a linkage to large amounts of Peninsular bighorn sheep habitat that was regularly occupied as recently as 1988. This movement corridor utilized by Peninsular bighorn sheep to cross Chino Canyon must remain intact for the ewe group to recolonize this habitat.

Sheep have used Chino Canyon in historical times, but this use has diminished dramatically over the past few decades. Occasional sightings have been made in the Chino Canyon area currently proposed for development by the City of Palm Springs, but sheep appear to be currently transient in this area. The decline in sheep numbers within this ewe group and the paved road to the tram station are the probable causes of this decline in use (Cornett 1992).

In the last 10 years, observations of Peninsular bighorn sheep in Chino Canyon have been infrequent. With the ewe population unable to sustain stable population levels since 1989, future survival of the ewe group is questionable unless the factors responsible for this condition are adequately addressed. The area to the north of Chino Canyon (central San Jacinto Mountains) has been abandoned by the Peninsular bighorn sheep and the recolonizing of this area without population supplementation is unlikely due to currently low population numbers and lack of water sources.

Tachevah Canyon

Tachevah Canyon is located immediately south of Chino Canyon in the San Jacinto Mountains in the northwestern portion of the Reservation. It is isolated from urban development by a 40-foot tall dam. The canyon contains all of the necessary habitat components required by the Peninsular bighorn sheep, as demonstrated by its current and historic use of Tachevah Canyon for foraging, watering, bedding, movement, and lambing (DeForge, pers. comm. 2003). The juxtaposition and quantity of required habitat

components makes Tachevah Canyon very important to the continued existence and recovery of the Peninsular bighorn sheep in the San Jacinto Mountains. The canyon is one of the last strongholds for the Peninsular bighorn sheep in the mountain range. Peninsular bighorn sheep regularly use the bajada at the mouth of the canyon for foraging, and there is reliable evidence of use below 800 feet ASML (e.g., tracks, sightings, photographs, and fecal pellets).

Even with the limited availability of data, Peninsular bighorn sheep use has clearly been documented within the lower elevations of Tachevah Canyon, and many ewe and lamb sightings have been documented within direct view of potential development sites located west of Tachevah Dam.

Tahquitz Canyon

Tahquitz Canyon is located immediately south of Tachevah Canyon in the San Jacinto Mountains in the central portion of the Reservation. There are limited park-related uses in the lower portion of the canyon. Similar to Tachevah, the canyon contains all of the necessary habitat components required by Peninsular bighorn sheep. The area between Tahquitz and Tachevah canyons has the highest number of sheep sightings over the past 15 years within the MCCA. The juxtaposition and quantity of required habitat components makes Tahquitz Canyon very important to the continued existence and recovery of the Peninsular bighorn sheep in the San Jacinto Mountains.

Little Eagle Canyon

Limited historic Peninsular bighorn sheep use of this area has been documented and current use is transient. There is no documented permanent use of the area. Based on observations by a Tribal Environmental Technician, Little Eagle Canyon lacks permanent water. In addition, it provides a very limited amount of escape terrain (less than 0.2 square mile). Although adjacent Eagle Canyon is a well-documented, high-use Peninsular bighorn sheep area that includes lambing habitat, Little Eagle Canyon receives transient use, lacking these two physical features to make it attractive to permanent or regular Peninsular bighorn sheep use. Nonetheless, it may still provide valuable resources and a buffer from urbanization.

3.3.1.2 Least Bell's Vireo (*Vireo bellii pusillus*) Federal Endangered

The least Bell's vireo is federally listed endangered; Critical Habitat and Recovery Units (pursuant to the species' Recovery Plan) designated for this species do not extend into the Action Area. The species is a migratory songbird inhabiting riparian woodlands with a dense understory along riverine systems. Vireos typically arrive in southern California to breed from mid-March to early April and remain until late September. Nests are constructed in dense thickets of willow or mule fat (*Baccharis salicifolia*) three to six feet from the ground. These vireos may also make their nests in other riparian tree and shrub species.

This vireo species occurs at sites with a generally dense, stratified tree and shrub cover with very little open area. Typical habitat will have an overstory of cottonwoods with a dense willow and mule fat understory; in desert areas, arrowweed (*Pleurocoronis* sp.) and wild grape (*Vitis* sp.) may be dominant species in these riparian woodlands. Least Bell's vireo also may occur in desert fan palm oasis woodland.

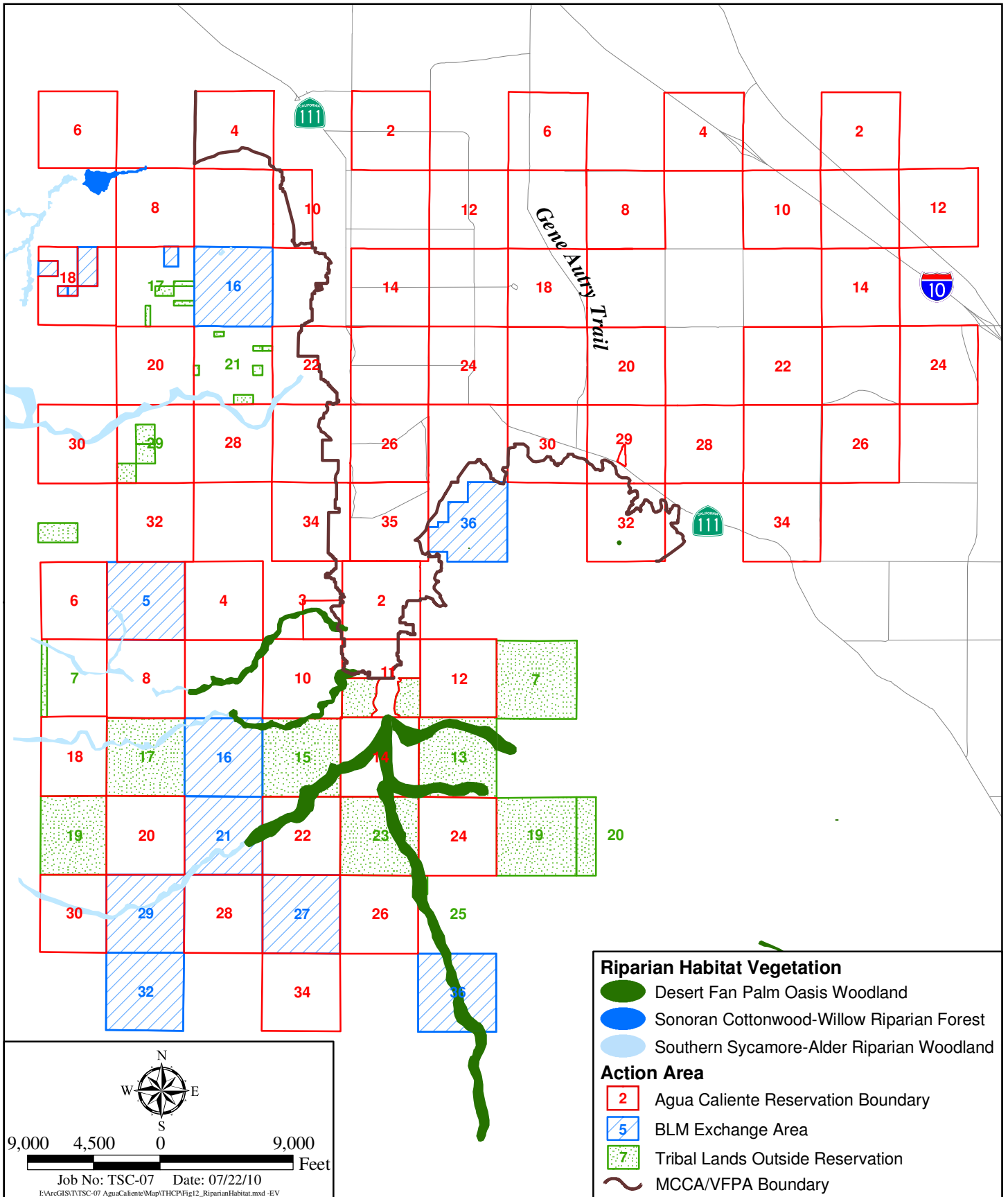
The least Bell's vireo was once common in California, ranging from southern California north throughout the Central Valley to Tehama County. The largest populations are present along coastal drainages in San Diego County and the Prado Basin in western Riverside County. The vireo also occurs in numerous drainages within Anza Borrego State Park to the south.

The least Bell's vireo is known to breed in Chino, Palm, Murray, and Andreas canyons on the Reservation. It was observed in Murray (Tierra Environmental Consultants 2003) and Andreas (UCR 2003) Canyons in 2003. In 2005, two pair of vireo bred in Andreas Canyon and one pair bred at Pelton Crossing along the west fork of Palm Canyon. One solitary male and one additional pair also were observed in Andreas Canyon early in the breeding season, but did not persist in the area. A solitary male was found during one survey of Palm Canyon (Haas and Nordby 2006). Figure 12 depicts riparian areas within the Action Area potentially supporting habitat for this bird species. The Action Area includes approximately 2,847 acres of potential habitat for this species, including, on the Reservation, approximately 720 acres in the MCCA and 12 acres in the VFPA; 431 acres of Tribal Lands outside the Reservation in the MCCA; 251 acres in the BLM Exchange Areas in the MCCA; and 1,433 acres in the off-Reservation Target Acquisition Areas. Suitable breeding habitat may also occur in Millard and Whitewater Canyons; Mission Creek; Oasis de Los Osos; in the Willow Hole-Edom Hill Reserve/ACEC; along the Whitewater River near the Salton Sea; and at Dos Palmas outside of the Reservation.

Brown-headed cowbird (*Molothrus ater*) parasitism has been described as a primary cause for the decline of least Bell's vireos in central and northern California as well as southern California. Parasitized vireo pairs either desert the nest or raise the young cowbird at the expense of their own young. In San Diego County, a significant population increase of the least Bell's vireo in the period from 1986 to 1996 is primarily due to management of local brown-headed cowbird populations (USFWS 1998a).

Other potential threats to the least Bell's vireo in the Action Area are destruction of habitat as a result of certain development activities, invasion of non-native plants in riparian habitats, and degradation of habitat as a result of edge effects related to human activities. Human activities, including golf courses and agriculture, attract cowbirds, thereby increasing the threat to least Bell's vireos.

Because the vireo occurs in riparian habitat, some protection is afforded through the need to obtain Clean Water Act Section 404 permits prior to impacting habitats that are determined to be USACE



Source: CVAG 2003; revised on Reservation by Tribe

Riparian Habitat

AGUA CALIENTE THCP

Figure 12

jurisdictional. Additionally, many of the areas where appropriate habitat occurs in the Coachella Valley are located in steep canyons, limiting development pressure.

3.3.1.3 Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Federal Endangered

The southwestern willow flycatcher is a federally listed endangered species (USFWS 1993, 1995). This bird is an insectivore, foraging within and above dense riparian vegetation, sometimes adjacent to nest sites. The birds begin to arrive in southern California to breed late in the spring, generally from May 15 on through the summer months until August. Males establish and defend territories beginning shortly after arrival in mid-May. They virtually always nest near surface water or saturated soil. They have not been found nesting in habitats where the riparian zone is very narrow or where distances between willow patches and individual shrubs are great. This species of flycatcher occurs at sites where dense growth of willows, mule fat, arrowweed, or other plants form dense thickets that are often associated with a scattered overstory of cottonwood and other riparian trees. The southwestern willow flycatcher is restricted to dense riparian woodlands and forests along the river and stream systems of southern California, primarily in Kern, San Diego, San Bernardino, and Riverside counties. Their breeding range also includes southern Nevada, Arizona, New Mexico, Utah, western Texas, and possibly southwestern Colorado. The Recovery Units designated for this species in the August 2002 Final Recovery Plan (USFWS 2002a) and designated critical habitat (70 Federal Register 60885) do not extend into the Action Area.

The breeding status of the southwestern willow flycatcher within the Coachella Valley is not well known. Of the known locations at which this species has been observed, only one pair located in Mission Creek was confirmed as breeding. A southwestern willow flycatcher was observed in Palm Canyon in 2003 (Jones & Stokes 2003). A willow flycatcher was observed in Murray Canyon in June 2003, but the subspecies was not confirmed (UCR 2003). Figure 12 depicts riparian areas in the Action Area potentially supporting migration habitat for this bird species; however, no suitable breeding habitat for the species occurs within the Plan Area (Haas and Nordby 2006). The Plan Area includes approximately 2,847 acres of potential migration (non-breeding) habitat for this species, as described above for least Bell's vireo.

The most significant threats to the southwestern willow flycatcher are destruction and alteration of riparian habitats upon which they depend and nest parasitism by the brown-headed cowbird. Other factors that have contributed to their decline include disturbance of riparian habitat by cattle, fragmentation of breeding areas, flood control activities, invasion of non-native plants in riparian habitats, degradation of habitat as a result of edge effects related to urbanization and other human activities, and sand/gravel mining. Human activities, including golf courses and agriculture, attract cowbirds, thereby increasing the threat to southwestern willow flycatchers.

3.3.1.4 Summer Tanager (*Piranga rubra cooperi*) No Official Status

The summer tanager breeds across the southern U.S. from California (as far north as the Kern River Valley) to Florida. The species' distribution extends throughout the southeastern half of the country. Tanagers typically arrive from wintering grounds between April and May, but individuals can be observed as early as late March. Nesting primarily occurs in May or June. Two subspecies of summer tanagers are recognized, *P.r. rubra* and *P.r. cooperi*.

The summer tanager (*P.r. cooperi*) breeds in the southwest from California to west Texas and northern Mexico. This subspecies generally inhabits riparian woodlands but will utilize woodlands dominated by mesquite and salt cedar at higher elevations. The summer tanager is migratory, wintering from central Mexico south through Central America to Bolivia and Brazil and in small numbers in southern California, southern Arizona, and southern Florida.

Summer tanagers nest in mature riparian groves dominated by willows and cottonwoods. The nest is usually built between 10 and 35 feet above the ground in a large tree, often a cottonwood. The species generally nests in areas with openings near water, where it can forage for insects.

This species has been observed by biologists from UCR in Andreas (2002), Palm (2002, 2005), and Tahquitz (2003, 2005) canyons on the Reservation; it also was observed on private land in Chino Canyon. The modeled habitat for this species is the same as described above for the least Bell's vireo (Figure 12).

The primary factors causing a decline in populations of the species are the destruction and alteration of riparian habitats and cowbird parasitism. Although tanager populations have remained stable throughout much of the species' range, the population has declined drastically in California, likely in response to the loss of riparian forests.

3.3.1.5 Yellow-breasted Chat (*Icteria virens*) No Official Status

The yellow-breasted chat is found throughout most of the U.S. and southern Canada during the breeding season. The bird spends the rest of the year in parts of Mexico south to Panama.

The yellow-breasted chat is most often found under cover in riparian areas with dense vegetation. The bird nests in dense thickets and brushy tangles, where it builds its nest low in bushes, vines, or briar. It usually occurs in the lower portions of foothill canyons and lowlands. It is primarily an insectivore but also eats wild berries and wild grapes, all of which occur more frequently near water. This species has been observed in Murray Canyon on the Reservation (Tierra Environmental Consultants 2003; Haas and Nordby 2006). The modeled habitat for this species is the same as described above for the least Bell's vireo (Figure 12).

Populations of chats are declining. The primary factors causing a decline in populations of this species are the destruction and alteration of riparian habitats and cowbird parasitism.

3.3.1.6 Yellow Warbler (*Dendroica petechia brewstri*) No Official Status

The yellow warbler inhabits riparian areas throughout the U.S., Alaska, Canada, and portions of Mexico. A subspecies of the yellow warbler occurs in Central and South America. The yellow warbler is migratory, spending the non-breeding season south of the U.S. from the Bahamas and Central America to Peru, Bolivia, and Brazil. Populations of yellow warblers appear to be fluctuating in North America. In California, the bird was once common in the Sacramento Valley, the San Joaquin Valley, San Francisco, and along the Colorado River, but little or no breeding now occurs in these locations. The yellow warbler has declined significantly as a breeding bird in the coastal lowlands of southern California.

The yellow warbler occurs in wetlands and mature riparian woodlands dominated by cottonwoods, alders, and willows, usually at elevations of less than 8,000 feet AMSL. The species tends to nest approximately 6 to 8 feet from the ground in vegetation of intermediate height and shrub density.

This species has been observed in Palm and Tahquitz canyons on the Reservation (Haas and Nordby 2006) and on private property in Chino Canyon (UCR 2003). Riparian habitat in the Action Area potentially supporting this bird species totals approximately 2,847 acres, as described above for the least Bell's vireo (Figure 12).

The primary factors causing a decline in populations of yellow warblers are the destruction and alteration of riparian habitats and cowbird parasitism.

3.3.1.7 Mountain Yellow-legged Frog (*Rana muscosa*) Federal Endangered

The mountain yellow-legged frog is a federally listed endangered species (USFWS 2002c). Designated Critical Habitat does not extend into the Action Area, and no Recovery Plan has been published. This near endemic to California is distributed more or less continuously in the Sierra Nevada from the vicinity of La Porte (southern Plumas County) southward to Taylor and French Joe Meadows (southern Tulare County; Zweifel 1955). Additional populations of the frog have been documented in isolated clusters in the San Gabriel, San Bernardino, and San Jacinto mountains (Zweifel 1955), and an isolated outpost occurs in Pauma Creek flowing through Doane Meadow on Mount Palomar in northern San Diego County (Klauber 1929). Its known elevation range extends from approximately 4,500 feet AMSL (San Antonio Creek, Calaveras County; Zweifel 1955) to greater than 12,000 feet AMSL near Desolation Lake (Fresno County; Mullally and Cunningham 1956) in the Sierra Nevada. In southern California, its

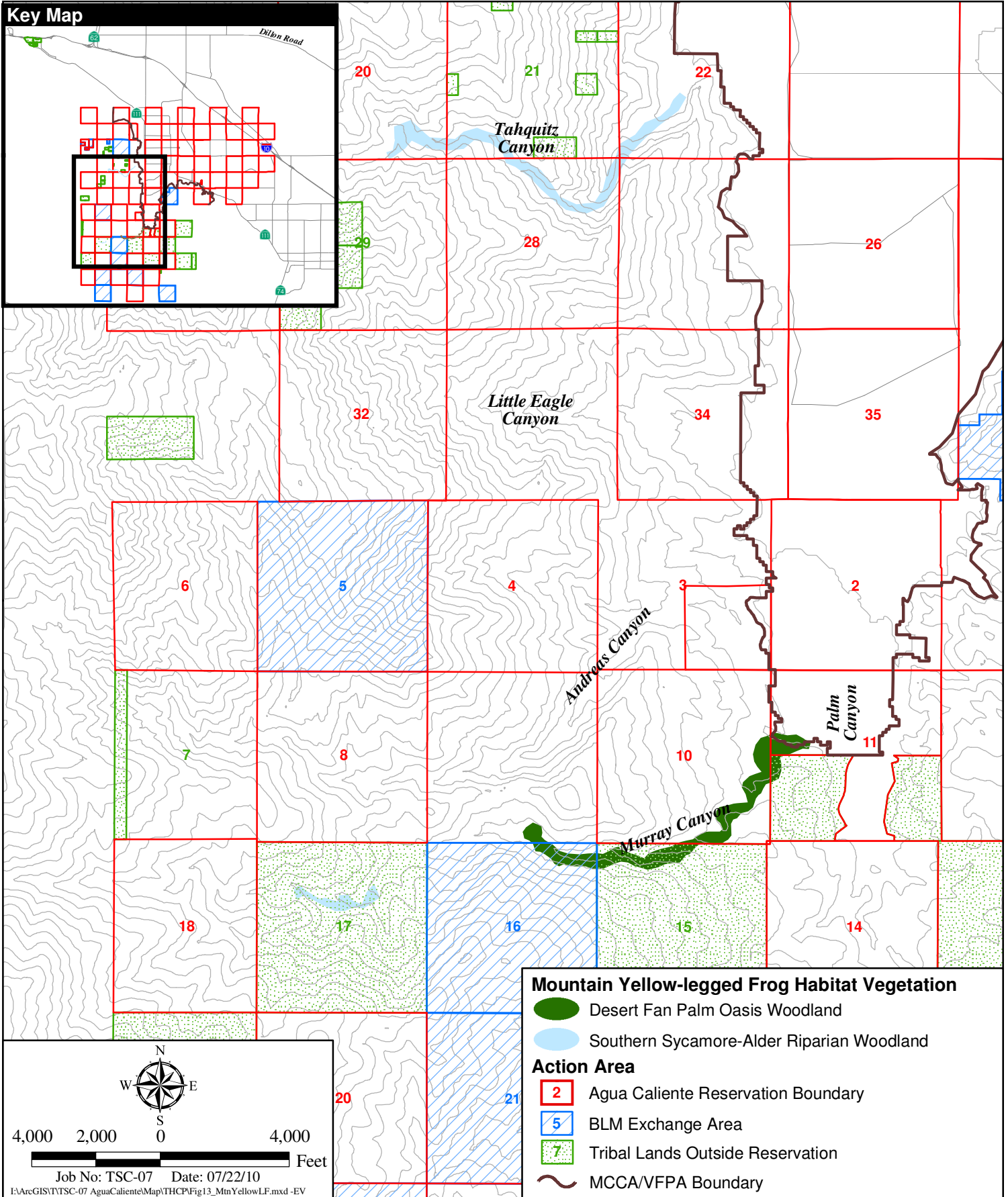
historical elevational range extended from 1,000 feet AMSL (Eaton Canyon, Los Angeles County) to greater than 7,500 feet AMSL near Bluff Lake (San Bernardino County; Zweifel 1955).

Mountain-yellow legged frogs were observed in two forks of Tahquitz Creek in 2009. These locations were approximately 4,000 and 13,000 feet west of the western Reservation boundary, respectively. Mountain yellow-legged frogs also are known to occur in four small tributaries of the upper reaches of the San Jacinto River system in the San Jacinto Mountains, four small streams in the San Gabriel Mountains, and one stream in the San Bernardino Mountains. Field surveys indicate that the entire remaining populations in these two mountain areas probably number less than 100 adult frogs. The nearest location other than Tahquitz Creek is in Dark Canyon, approximately five miles west of the Reservation (Backlin et al. 2001 and USFS 2002, as cited in USFWS 2002; USGS 2002a). The USFS's Angeles, San Bernardino, and Cleveland National forests manage lands containing all known locations of the mountain yellow-legged frog in southern California.

Figure 12 depicts all riparian areas in the Action Area with potential to support habitat for this amphibian species, totaling approximately 2,847 acres, as described above for the least Bell's vireo. A much more restricted amount of habitat, however, is believed to be currently suitable. The mountain yellow-legged frog historically was observed in Chino (1960), Tahquitz (1972), and Andreas (1979) canyons but has not recently been observed in the Plan Area (CDFG 2004a). Recent surveys of the Plan Area's canyons determined that suitable habitat was limited to lower and upper Tahquitz Canyon (Backlin et al. 2003), lower and upper Andreas Canyon, lower Chino Canyon (Gallegos et al. 2005), and Murray Canyon (Ervin and Merkel 2006) in the MCCA, totaling approximately 210 acres, including 136 acres on the Reservation, 56 acres of Tribal Land outside the Reservation, and 18 acres of BLM Exchange Areas (Figure 13).

The mountain yellow-legged frog inhabits ponds, dams, lakes, and streams at moderate to high elevations (Mullally and Cunningham 1956). It seems to be absent from the smallest creeks, probably because these have insufficient depth for adequate refuge and overwintering. It also appears to prefer open stream and lake margins that gently slope up to a depth of approximately two to three inches. The frog seems to be most successful where predatory fish are absent (Bradford 1989; Bradford et al. 1993). The coldest winter months are spent in hibernation, probably under water or in crevices in the bank. Mountain yellow-legged frogs emerge from overwintering sites in early spring, and breeding soon follows. Eggs are deposited in shallow water where the egg mass is attached to vegetation or the substrate.

Because the yellow-legged frog occurs in riparian habitat, further protection is afforded through the need to obtain Clean Water Act Section 404 permits prior to impacting habitats that are determined to be USACE jurisdictional. Additionally, many of the areas where appropriate habitat occurs in the Coachella Valley are located in steep canyons, limiting development pressure.



Sources: Backlin et al. 2003; Gallegos et al. 2005; Erwin and Merkel 2006

Mountain Yellow-legged Frog Habitat

AGUA CALIENTE THCP

Figure 13

3.3.1.8 Southern Yellow Bat (*Lasiurus ega [xanthinus]*) No Official Status

The southern yellow bat occurs in extreme southeastern California to southwestern Texas, and the northwestern portion of Mexico, including Baja (Burt and Grossenheider 1976). It roosts in trees (primarily palm trees) and appears to prefer the dead fronds of palms. Its range appears to be expanding due to the use of palm trees for landscaping. While very few surveys have been conducted for the species in the Coachella Valley, the bat is currently known to occur off the Reservation at the Coachella Valley Preserve, Dos Palmas Preserve/ACEC, and on the Applegarth Ranch in the Thermal area. They also were identified on the Reservation within Palm, Andreas, and Murray canyons using an ANABAT system, with significantly lower usage recorded at Murray Canyon than the other two canyons (Tierra Environmental Consultants 2003; Rahn 2006a).⁵ In addition, the bat is believed to occur throughout the Coachella Valley in the palm oases and in residential areas with untrimmed palm trees. The Coachella Valley is probably very important to this species, as it has a significant proportion of the native palm oases in southeastern California. Figure 14 depicts the distribution of desert fan palm oasis woodlands within the Action Area where the southern yellow bat may occur. The modeled potential habitat totals approximately 1,176 acres, including, on the Reservation, approximately 467 acres in the MCCA and 12 acres in the VFPA; 390 acres of Tribal lands outside the Reservation in the MCCA; 148 acres in the BLM Exchange Areas in the MCCA; and 159 acres in the off-Reservation Target Acquisition Areas.

The southern yellow bat feeds on flying insects such as beetles and true bugs. Foraging was thought to occur over ponds in streams (Findley et al. 1975). Monitoring on the Reservation, however, indicates that bats typically spent the first part of the evening foraging and flying around the palm canyons, then departed in the late evening, presumably to forage in the valley and open habitat areas (Rahn 2006a). This species is thought to be non-colonial, although aggregations of up to 15 have been found in the same roost site. Yellow bats probably do not hibernate; activity has been observed year-round in some locations but decreased from summer to winter during 2005 monitoring on the Reservation. There is very little information available on the life history of this species.

Because the southern yellow bat roosts occur in riparian habitat (palm oases), some protection is afforded through the need to obtain Clean Water Act Section 404 permits prior to impacting habitats that are determined to be USACE jurisdictional. Additionally, many of the areas where appropriate habitat occurs in the Coachella Valley are located in steep canyons, limiting development pressure. Threats to this species include vandalism (burning of native palms) and pruning of urban palms (AGFD 1988). These bats are often found in palms during pruning activities (Hoffmeister 1986). Nearly all fires that would affect these bats in the Action Area would be human-caused fires.

⁵The ANABAT system converts the ultrasonic echolocation signals of bats into audible electronic signals that can be recorded and processed to assist in identification of the species.

3.3.1.9 Triple-ribbed Milk-vetch (*Astragalus tricarinatus*) Federal Endangered

The triple-ribbed milk-vetch is a federally listed endangered species (USFWS 1998b). It is an endemic species that is found in a narrow range from the northwestern portion of the Coachella Valley from the vicinity of Whitewater Canyon (the type locality), in Mission Creek Canyon across Highway 62 to Dry Morongo Wash and Big Morongo Canyon (Michael Brandman Associates 2001a). In Mission Creek Canyon, the species was observed in 1998 growing along the rocky edge of the stream, in the middle of roads, in a rip-rap barrier above the USGS gauging station, in open soils in a recently burned willow thicket at the margins of the cienega, and on gravelly sandbars in the midst of the stream channel (Barrows, pers. observ. 2003). Other locations where the species has been reported are Agua Alta Canyon, a branch of Martinez Canyon in the Santa Rosa Mountains, the Orocopia Mountains, Big Morongo Canyon, Dry Morongo Canyon, and Joshua Tree National Park. Most of the populations of this species appear to be in the eastern end of the San Bernardino Mountains and at the western end of the Little San Bernardino Mountains. Much of the suitable habitat along the southern margin of these mountains is rugged and poorly explored by botanists. The Martinez Canyon location has led some to suggest that this species could occur in the rugged canyons of the Santa Rosa and San Jacinto mountains (CVAG 2003).

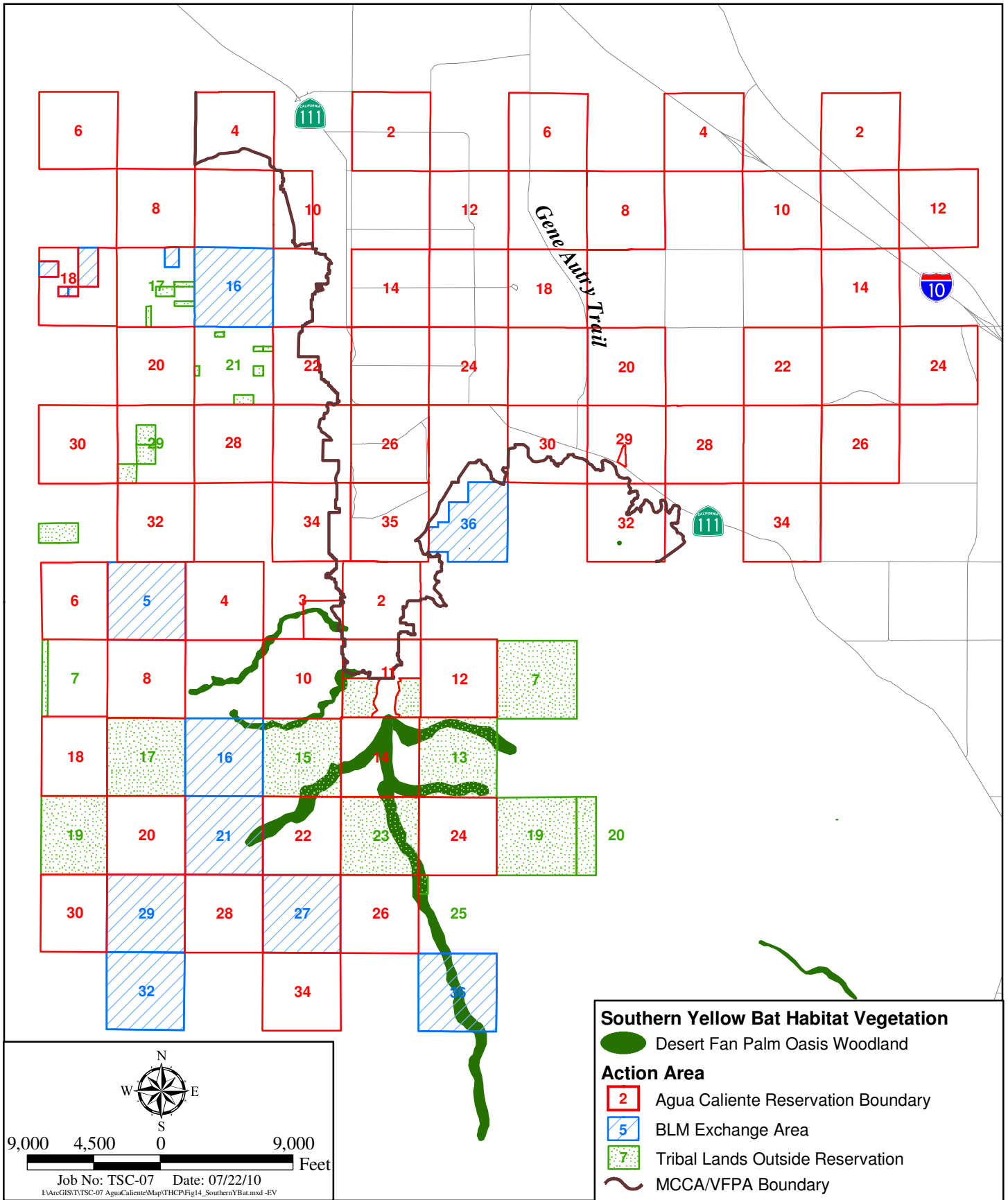
Modeling for the potential distribution of this species within the Coachella Valley does not indicate any potential habitat in the Plan Area or the BLM Exchange Areas (Figure 15). Despite this and the fact that there have been no sightings, this species could occur in the rugged Canyons of the San Jacinto and Santa Rosa mountains in the Plan Area. Approximately 1,105 acres of potential habitat occur within the off-Reservation Target Acquisition Areas.

Triple-ribbed milk-vetch is a perennial herb that blooms from February to May. Most aspects of the biology of this species are unknown including pollinators, germination requirements, longevity of seeds in the soil, and specific habitat requirements. Some research into aspects of the life history of this species will be carried out through a funding agreement under Section 6 of ESA between CDFG and UCR.

The known locations of this species occur where there are few human-caused threats. Most of the known locations (85 percent) occur on existing conservation lands in protected status, including those in Mission Creek on land owned by BLM or the Wildlands Conservancy, in Big Morongo Canyon on BLM land, or in Whitewater Canyon on BLM land. In the wash bottom habitat and along roads, this species may be subject to crushing by vehicles, but most of the known locations receive very limited vehicle traffic.

3.3.1.10 Desert Tortoise (*Xerobates* or *Gopherus agassizii*) Federal Threatened

The desert tortoise is widely distributed through an exceptionally broad array of habitats that span 680 miles from northern Sinaloa State, Mexico, where it occupies deciduous forest, across the Sonoran

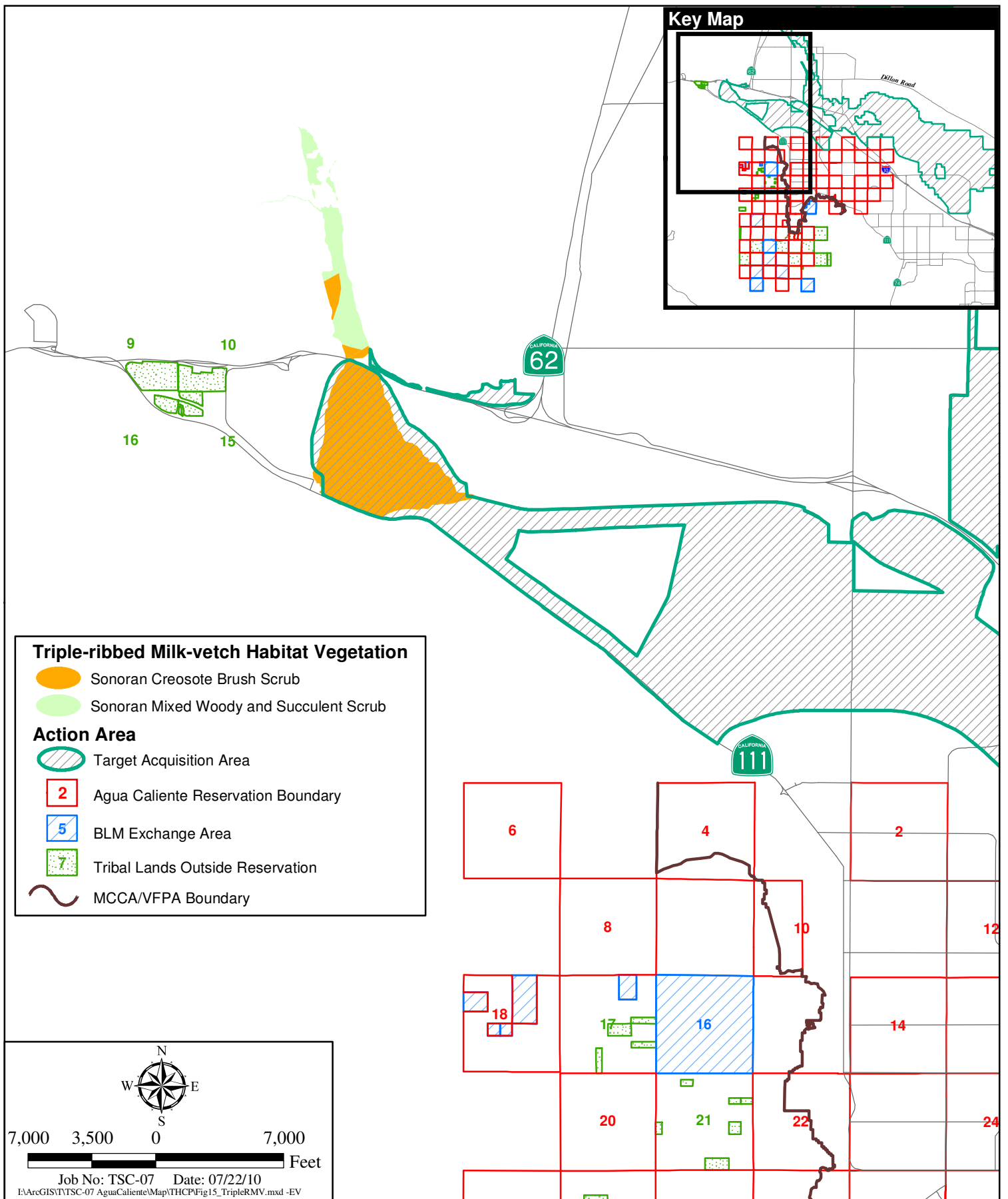


Source: CVAG 2003

Southern Yellow Bat Habitat

AGUA CALIENTE THCP

Figure 14



Source: CVAG 2003

Triple-ribbed Milk-vetch Habitat

AGUA CALIENTE THCP

Figure 15

(including the Colorado Desert subdivision in California) and Mojave deserts to the edge of the Colorado Plateau in arid southwestern Utah (Ernst et al. 1994; Germano et al. 1994). Tortoises are found naturally along the northern, eastern, and western rims of the Coachella Valley in the foothills of the Little San Bernardino Mountains, the Painted and Whitewater Hills, and the San Jacinto and northern Santa Rosa Mountains. Range-wide, occupied habitats include desert alluvial fans, washes, canyon bottoms, rocky hillsides, and other steep terrain. Recorded observations on the Reservation are limited to sightings in the vicinity of Chino and Little Eagle canyons (CVAG 2003).

The desert tortoise was formally listed by the USFWS as threatened in 1990. The USFWS has adopted a Recovery Plan and designated Critical Habitat for the species. Neither the Critical Habitat nor the designated Recovery Units, however, extend into the Plan Area.

The spatial distribution of desert tortoises in relation to plant communities is not random (Baxter 1988). High-diversity plant ecotones and communities (and possibly soil characteristics) are important features in determining desert tortoise densities (Wilson and Stager 1992). Desert tortoises frequently exhibit a contiguous distribution, with clusters of individuals in some areas and large intervening areas of what appears to be suitable habitat without tortoises. Home ranges of tortoises vary from approximately 1 to 642 acres.

The Coachella Valley generally supports a low desert tortoise density because of the high use and development of the area. The desert tortoise is most generally found in association with the Sonoran creosote bush scrub plant community. Desert tortoises are primarily associated with flats and bajadas with soils ranging from sand to sandy-gravel but firm enough for the tortoise to construct burrows. Figure 16 depicts the area within the Action Area potentially supporting habitat for this species. Modeled habitat in the Action Area totals 20,849 acres, including on the Reservation approximately 8,312 acres in the MCCA and 1,402 acres in the VFPA; in Tribal Lands outside the Reservation, 3,405 acres in the MCCA and 144 acres in the VFPA; on the BLM Exchange Areas, 2,564 acres in the MCCA ; and 5,022 acres in the off-Reservation Target Acquisition Areas.

The desert tortoise is active from mid-March or April to November and is dormant in underground burrows during the winter months. Desert tortoises will congregate in winter dens during colder weather, spread out to nearby areas during moderate weather in the spring and fall, and retreat into short individual burrows or under shrubs during more extreme heat in summer. Desert tortoises typically feed on a wide variety of herbaceous plants, particularly grasses and annual flowering plants.

Coyotes (*Canis latrans*), bobcats (*Lynx rufus*), ravens (*Corvus corax sinuatus*), golden eagles (*Aquila chrysaetos*), and Gila monsters (*Heloderma suspectum*; which do not occur within the Reservation) are known predators of either eggs, juveniles, or adults (Barrow 1979; Luckenbach 1982; Barrett and Humphrey 1986), and ring-tailed cats (*Bassariscus astutus*), badgers (*Taxidea taxus*), skunks (*Mephitis*

occidentalis), kit foxes (*Vulpes velox*), domestic dogs, large hawks, owls, roadrunners (*Geococcyx californianus*), bullsnakes (*Pituophis melanoleucus*), and coachwhip snakes (*Masticophis flagellum*) are suspected predators (Ernst and Barbour 1972; Luckenbach 1982). The presence of a high density of local ravens has a detrimental effect on populations of desert tortoise through predation on young tortoises (Boarman 1993).

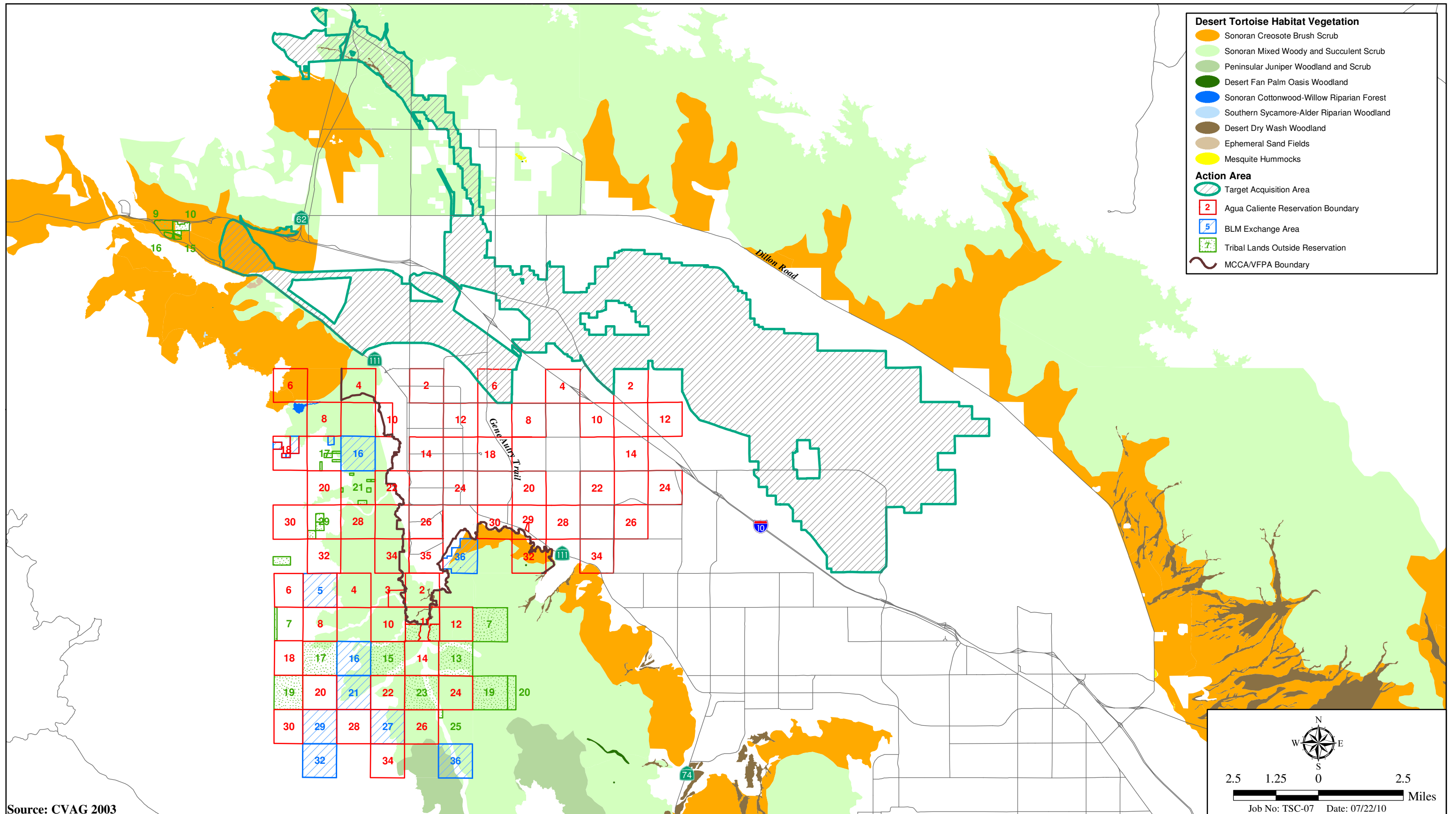
The desert tortoise is adversely impacted by urbanization and other human-related activities, including OHV use, overgrazing of domestic livestock, and construction of roads and utility corridors. Secondary contributions to degradation include the proliferation of exotic plant species and a higher frequency of anthropogenic fire. OHV use may contribute to declines of desert tortoise populations directly by crushing individuals (above or below ground) or by collapsing burrows. Vehicle activity also may destroy vegetation used by tortoises for food or cover, making habitat unsuitable for sustaining their populations.

Disease has contributed to declines of many desert tortoise populations. Wild and captive desert tortoises are afflicted with upper respiratory tract disease in many areas within the geographic range. Fire may be the biggest threat to the continued survival of tortoises in the western Coachella Valley. The proliferation of exotic annual grasses and forbs in the region has dramatically increased the frequency and extent of wildland fires in an ecosystem poorly adapted to perturbations of such periodicity or magnitude. Other than direct mortality, habitat conversion of desert scrub and semi-desert chaparral to exotic grasslands will diminish the prospects for long-term survival of viable tortoise populations.

This species is afforded significant protection in other parts of its range through efforts such as the Northern and Eastern Colorado Desert Coordinated Management Plan (BLM 2002) and Desert Tortoise Habitat Conservation Plan (Regional Environmental Consultants 1990) as well as conservation on the Desert, Cibola, Havasu, and Imperial National Wildlife Refuges (USFWS 1994).

3.3.1.11 Burrowing Owl (*Athene cunicularia*) Bird of Conservation Concern

The burrowing owl is a federal Bird of Conservation Concern. It has a broad distribution that includes open country throughout the midwestern and western U.S., Texas and southern Florida, parts of central Canada, and into Mexico and the drier regions of Central and South America. The burrowing owl is a gregarious owl that occupies a wide variety of open habitats, including most of the canyon bottoms and sandy habitats on the valley floor in the Coachella Valley. It can occur in the stabilized and partially stabilized sand fields found along the I-10 corridor in the northeastern portion of the Reservation as well as in the desert dry wash and Sonoran mixed woody and succulent scrub communities found on the canyon bottoms within Indian Canyons Heritage Park, Tahquitz Canyon, and Chino Canyon.



Desert Tortoise Habitat

AGUA CALIENTE THCP

Figure 16

On the Reservation, observations of this species have been recorded in the Whitewater River wash east of the Palm Springs Airport. It also has been observed in areas adjacent to existing development at the airport (CVAG 2003). Habitat types that may be suitable for burrowing owls in the Action Area include stabilized and partially stabilized sand fields, desert saltbush scrub, Sonoran creosote bush scrub and desert dry wash woodland. Based on the distribution of these habitat types, the Action Area supports a total of approximately 26,215 acres of potentially suitable habitat, including on the Reservation 1,152 acres in the MCCA and 3,131 acres in the VFPA; 144 acres of Tribal Lands outside the Reservation in the VFPA; in the BLM Exchange Areas, 214 acres in the MCCA ; and 21,574 acres in the off-Reservation Target Acquisition Areas (Figure 17).

The burrows selected by these owls are typically abandoned rodent burrows; however, they also commonly use old pipes, culverts, or other debris that simulates a hole in the ground. Breeding occurs between early March and late August. Pairs may stay together during an entire year. Clutches average about five young. After the breeding season, secondary burrows may be used for cover and roost sites. During winter, attachment to a particular burrow is reduced even more. Burrowing owls typically form small colonies and fly low to the ground (seldom above 25 feet). They follow a crepuscular habit, being most active during the early morning and evening hours. Their diet is predominantly large insects and small rodents, but they will also take small birds, reptiles, amphibians, fish, scorpions, and other available prey. They are often observed perched on fence posts or utility wires. They typically live eight years or more.

The most significant threat to the continued persistence of the burrowing owl is destruction of habitat. Their ground-nesting habitat leaves them susceptible to predation by domestic cats and dogs. Individuals may be killed on roadways while foraging at night. In agricultural areas, levees and irrigation dikes where rodent burrows are present can provide a suitable nest site; however, in these areas, burrowing owls may be threatened by maintenance activities and by poisoning from pesticide use or rodent poisoning campaigns. OHV activity is a threat to the habitat of this species, as burrows can be crushed and nest sites disturbed.

Protected known locations of this species in the Coachella Valley include the Snow Creek area, the Coachella Valley Preserve, the Whitewater Floodplain Reserve, the Edom Hill/Willow Hole Reserve, the Mission Creek area west of Highway 62, and significant portions of the Indio and Mecca Hills (CVAG 2003).

3.3.1.12 Gray Vireo (*Vireo vicinior*) Bird of Conservation Concern

The gray vireo is a federal Bird of Conservation Concern. It is a migratory bird, breeding in the southwestern U.S. and Baja. The summer range of the gray vireo includes New Mexico, southern Nevada, southern Utah, southern Colorado, western Texas, Arizona, and southeastern California. In California, breeding gray vireos are known from the northeastern slopes of the San Bernardino

Mountains, the San Jacinto and Santa Rosa Mountains, and on the southern slopes of the Laguna Mountains. The vireo is also known from the mountains of the eastern Mojave Desert. Historically, the breeding distribution was much broader, with species being observed in Kern County, Joshua Tree National Park, portions of the San Gabriel Mountains, and in the desert slopes of San Bernardino, Riverside, and San Diego counties. The vireo was also known as a migrant in Whitewater Canyon. This species spends winters primarily south of the Mexican border and in southwestern Arizona.

The gray vireo usually occurs in semi-arid, shrub-covered foothills and mesas in pinyon-juniper, juniper, and chamise-redshank chaparral habitat. Suitable habitat typically occurs from 2,000 to 6,500 feet AMSL. The species is most often found in areas with sparse to moderate vegetative cover and small scattered trees. Although junipers are the dominant tree in gray vireo habitat, oaks are also common.

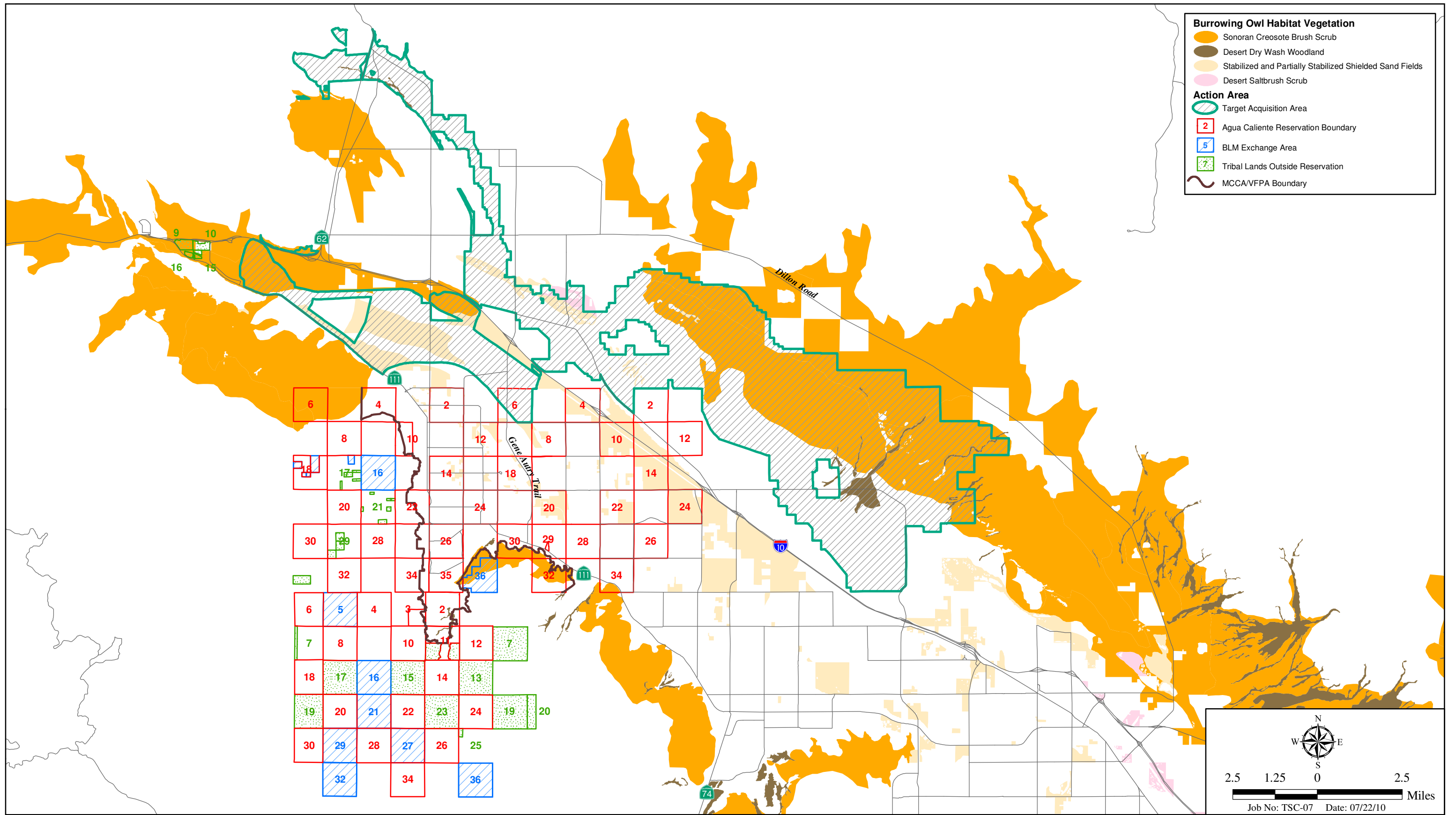
This species has the potential to occur in the higher elevations of the Action Area but has not been observed. The modeled potential habitat for this species extends over approximately 1,429 acres in the MCCA, including approximately 978 acres on the Reservation and 451 acres in the BLM Exchange Areas (Figure 18).

The cause of declines in gray vireo populations is not fully understood. A major factor in the decline of the species may be brood parasitism by the brown-headed cowbird, which occurs frequently near residential developments, golf courses, and agriculture. Another possible factor causing a decline in the species could be habitat changes to vegetation as a result of fire suppression activities.

Existing conserved habitat for this species includes public lands in the Santa Rosa and San Jacinto mountains, Joshua Tree National Park, Whitewater Canyon Conservation Area, and San Geronimo Wilderness (CVAG 2003).

3.3.2 Covered Species Potentially Occurring on the Valley Floor

More than half of the Plan Area within the VFPA is urbanized and no longer available for native wildlife species. There are approximately 8,654 acres of urban development on the valley floor within the Reservation. For those undeveloped areas in the VFPA (approximately 6,647 acres), stabilized and partially stabilized shielded sand fields and Sonoran mixed woody and succulent scrub are the dominant plant communities. Significant areas of active sand fields exist within the Target Acquisition Areas. Following is a discussion of Covered Species known or with potential to occur in the VFPA in the Plan Area and off-Reservation Target Acquisition Areas.

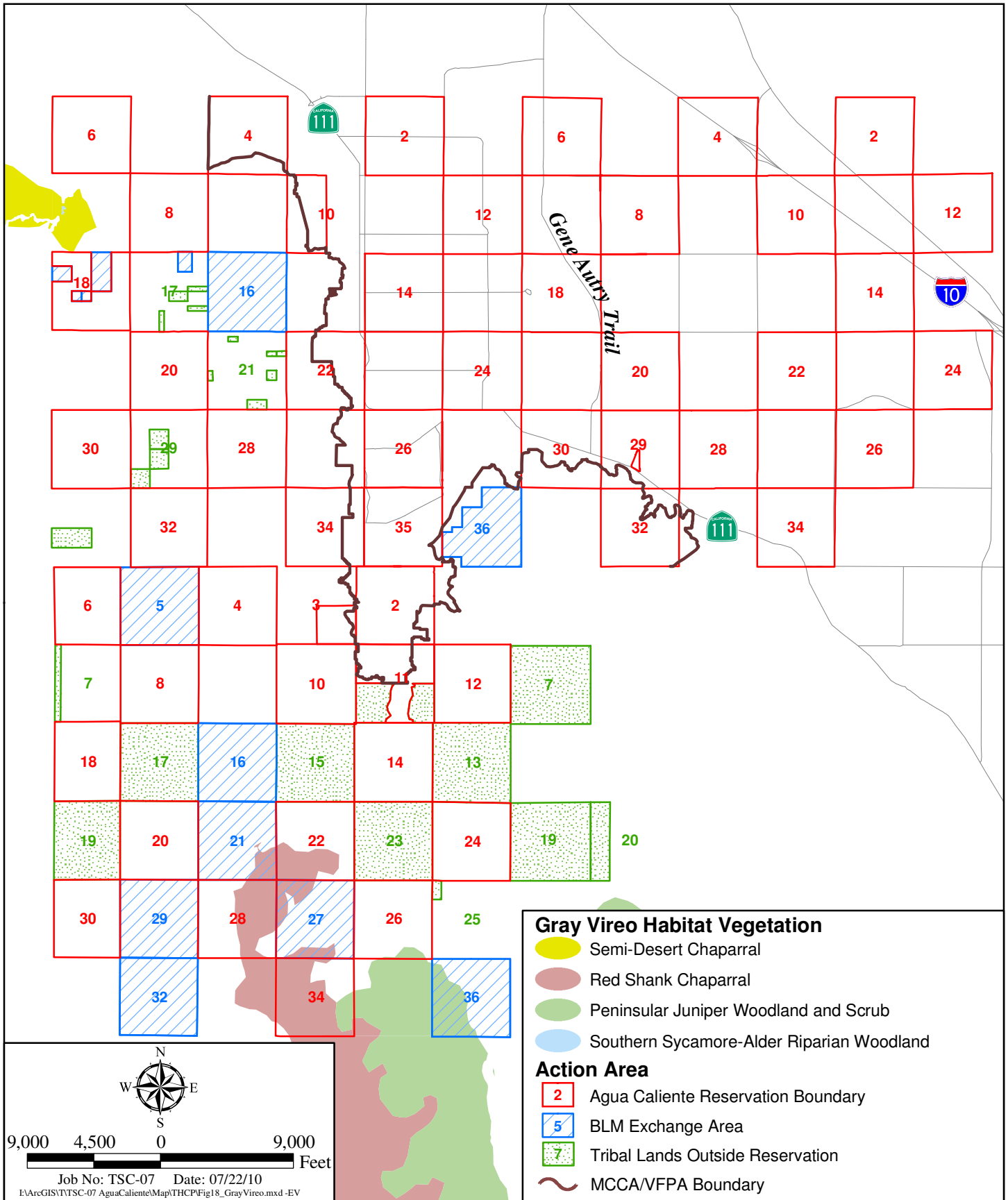


F:\ArcGIS\TSC-07 Agua Caliente\Map\THCP\Fig17_BurrowingOwl.mxd -EV

Burrowing Owl Habitat

AGUA CALIENTE THCP

Figure 17



Source: CVAG 2003

Gray Vireo Habitat

AGUA CALIENTE THCP

Figure 18

3.3.2.1 Coachella Valley Fringe-toed Lizard (*Uma inornata*) Federal Threatened

The Coachella Valley fringe-toed lizard was federally listed threatened, and a Recovery Plan was approved in 1993. This species is restricted to the Coachella Valley and was found historically from near Cabazon at the northwestern extreme to near Thermal at the southeastern extreme. It is associated with a substrate of aeolian (wind-blown) sands to which it has developed morphological and behavioral adaptations (Heifetz 1941; Stebbins 1944; Norris 1958), and it occurs wherever there are large patches of the appropriate substrate (England and Nelson 1976; La Pré and Cornett 1981; Turner et al. 1980; England 1983; Barrows 1997).

The Coachella Valley fringe-toed lizard is a medium-sized lizard that averages between six and nine inches in total length. Adaptations to living in sand include the ability to “swim” through the sand: run across the sand surface at high speed, dive into the sand, and move short distances below the sand surface. This activity is facilitated by the small, rounded scales on the lizard’s skin, which make the skin very smooth and reduce the friction of its body against the sand. Other adaptations for mobility in sand include the fringed toes for which the animal is given its common name. The toes have a row of enlarged scales (fringes) that the lizard uses to improve its traction when pushing against the sand as it moves. Other types of adaptations function to protect the lizard’s body from abrasion and to keep sand particles out of body openings. These include the nasal passages that allow it to breathe the air between sand grains when fully encased in the sand. The nose is wedge shaped rather than blunt, which is thought to spread the sand as the lizard dives. There is also a flap of skin covering the ears, preventing sand grains from entering the ears during sand swimming.

Primary threats are loss or degradation of habitat and the processes that create and maintain that habitat. Habitat is lost when urban, agricultural, and other types of development replace suitable with unsuitable habitat. Habitat is degraded by OHV abuse, illegal dumping, invasion by exotic weeds, and the like. The processes that drive the aeolian sand system cannot be disrupted if the habitat is to remain. Floodwaters transport sediment downstream from its source to where it is gradually sorted, and the sand is then transported by wind to form dunes. To maintain this habitat, floodwaters must not be blocked or redirected from the sorting area. There also must be no barriers blocking the movement of wind and its sand load between the sorting area and the habitat. Barriers impound sand and cause shielding effects, which will eventually extend to the downwind end of the region because of the unidirectional sand movement pattern.

The Coachella Valley fringe-toed lizard has suffered serious decline due to extensive habitat loss. Edge effects also are related to urban development adjacent to habitat. Roads, feral pets, human activity/interaction (including collection), and the like increase mortality of fringe-toed lizards, especially around the perimeter of a habitat patch. The larger the perimeter relative to the total area (perimeter to area ratio), the more area affected by adjacent development.

The Coachella Valley fringe-toed lizard HCP established three preserves (the Thousand Palms Preserve, the Whitewater Floodplain Reserve, and the Edom Hill/Willow Hole Reserve) that protect nearly 20,000 acres of habitat and blowsand sources. As described in Chapter 2, these preserves are within the off-Reservation Target Acquisition Areas.

Figure 19 depicts the modeled distribution of the species in the Action Area, which includes approximately 3,391 acres in the VFPA and 11,647 acres in the off-Reservation Target Acquisition Areas, for a total of approximately 15,038 acres. Designated critical habitat for the species encompasses approximately 10,334 acres of the off-Reservation Target Acquisition Areas. The only recorded sighting and only likely location for this species on the Reservation is in the Section 6 Target Acquisition Area.

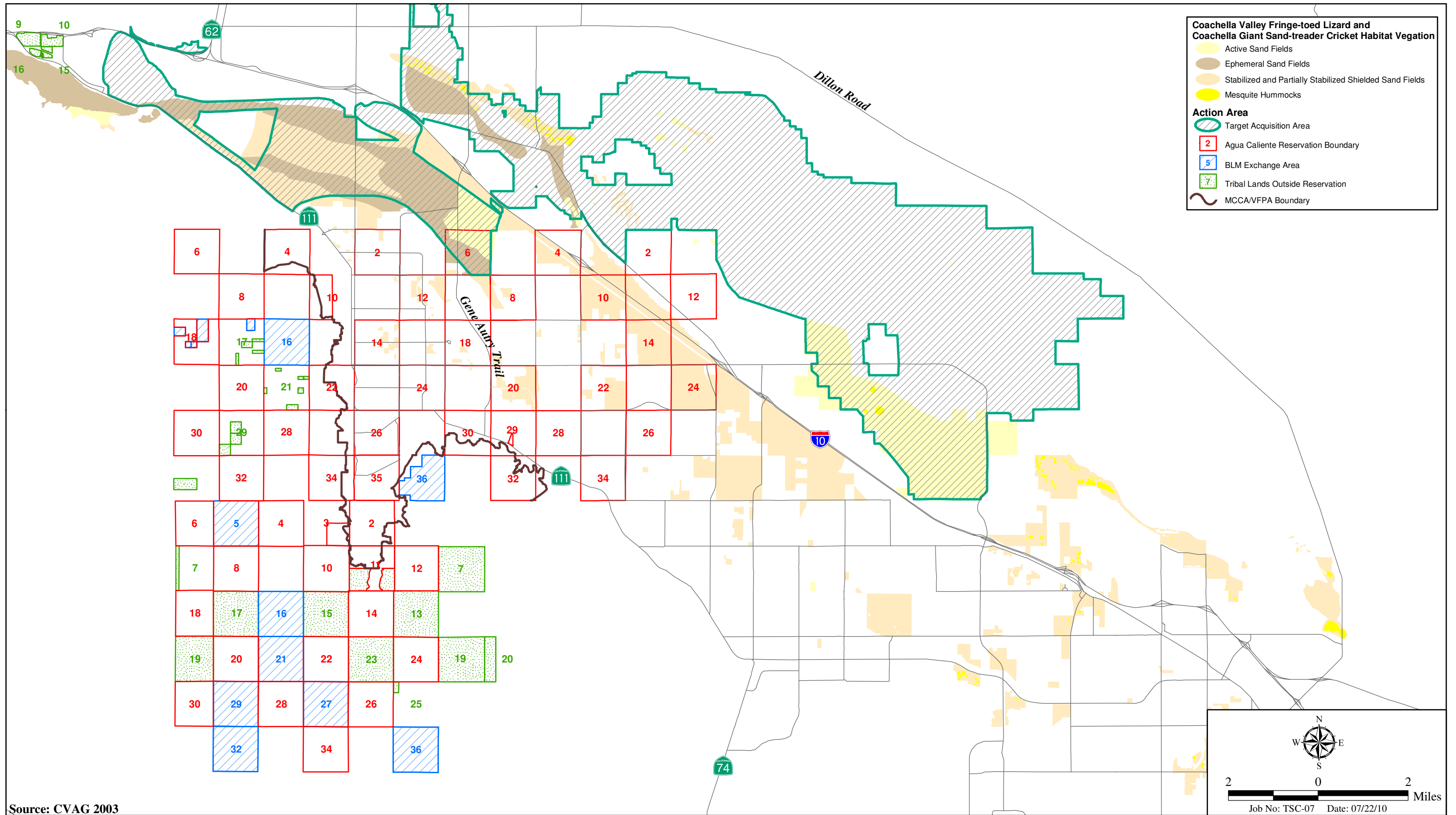
3.3.2.2 Coachella Giant Sand-treader Cricket (*Macrobaenetes valgum*) None

Coachella giant sand-treader cricket occurs exclusively in the Coachella Valley and is most abundant in the active sand dunes and ephemeral sand fields at the west end of the Coachella Valley, west of Palm Drive at least to Snow Creek Road, adjacent to the Whitewater River and San Gorgonio River washes. Perennial shrubs, including creosote bush, white bursage, honey mesquite, Mormon tea (*Ephedra trifurca*), desert willow (*Chilopsis linearis*), and sandpaper bush (*Petalonyx thurberi*) dominate their preferred habitat in windblown environments. Stabilized sand areas are avoided.

Figure 19 depicts the CVAG modeled distribution for this species on the valley floor. Modeled habitat includes approximately 3,391 acres in the VFPA on the Reservation and 11,647 acres in the off-Reservation Target Acquisition Areas, for a total of 15,038 acres in the Action Area. Core Habitat occurs within the off-Reservation Target Acquisition Areas. This species has not been the subject of extensive surveys in the Plan Area, and has not been recorded there.

The Coachella giant sand-treader cricket has its primary period of activity during the spring. They are nocturnal, coming to the surface to forage on detritus blown over the dunes or to look for mates. During the day, they conceal themselves in self-dug burrows. The life history of these insects is not well known.

The most significant limiting factor for this species is the availability of the aeolian sand ecosystem and the sand sources and corridors that maintain it. Threats to this species include cumulative habitat loss and degradation of the existing habitat as a result of development, particularly where sand transport processes are disturbed. OHV activity is a threat to the habitat of this species, as shallow burrows can be crushed and the sand compacted. Any human activity that results in sand stabilization also is a concern. Non-native species, including Russian thistle (*Salsola tragus*) and Saharan mustard (*Brassica tournefortii*), can significantly stabilize active sand habitats.



Coachella Valley Fringe-toed Lizard and Coachella Giant Sand-treader Cricket Habitat

AGUA CALIENTE THCP

Figure 19

This species also is being conserved through other conservation efforts elsewhere in the region. Specifically, the Coachella Valley Preserve, the Whitewater Floodplain Reserve, and the Edom Hill/Willow Hole Reserve, while not specifically designed to address this species, conserve nearly 20,000 acres of habitat and blowsand sources.

3.3.2.3 Flat-tailed Horned Lizard (*Phrynosoma mcalli*) Proposed Federal Threatened

The flat-tailed horned lizard is currently being considered for federally listing as threatened (USFWS 2010). The historic range of the flat-tailed horned lizard included suitable habitat in southeastern California, southwestern Arizona, northwestern Sonora, Mexico, and northeastern Baja. The Plan Area is near the northern- and westernmost limits of flat-tailed horned lizard geographic range. The populations in the Coachella Valley are isolated from all other flat-tailed horned lizard populations by agricultural and urban development and by the Salton Sea.

The flat-tailed horned lizard typically inhabits desert dry washes and desert flats (stabilized and partially stabilized sand fields) on the valley floor in the Coachella Valley, generally below approximately 800 feet AMSL (Figure 20). The only recorded observations on the Reservation are in Sections 14 and 24 (Township 4 South, Range 5 East). The modeled habitat for this species extends over approximately 15,574 acres of the Action Area, including within the Reservation, approximately 3 acres in the MCCA and 3,392 acres in the VFPA; and 12,182 acres in the off-Reservation Target Acquisition Areas. Most of the potential habitat for this species on the Reservation is found in the northeastern corner along the I-10 corridor.

This species prefers fine sand, into which it burrows to avoid extreme temperatures. This species also requires sparse vegetation coverage. It also occurs far from blowsand on concreted silt and gravel substrates (Beauchamp et al. 1998; Barrows, pers. comm. 2001; Muth and Fisher 1992). In their comparisons of habitat types, Turner et al. (1980) determined that the “best” habitat consisted of hard-packed sand or desert pavement overlain with fine blowsand. The most common perennial plants associated with habitat for this lizard are creosote bush and white bursage.

Like related species, flat-tailed horned lizards are anteaters, or myrmecophagous. Ants, especially harvester ants (*Pogonomyrmex* sp.), comprise about 98 percent of their diet. The flat-tailed horned lizard is relatively active for a desert lizard. A majority (over 50 percent) of the day is spent in some kind of activity, including feeding, digging burrows, and running. They eat ants they encounter while moving. They dig burrows to escape hot midday temperatures, and for winter hibernation. Most of the remaining activity involves attempting to locate food, suitable burrow sites, and mates. When approached by a potential predator, a flat-tailed horned lizard usually stops moving and flattens its body against the ground. It relies on cryptic coloration to avoid predation and will usually remain immobile until after the threat has passed. This behavior makes the species difficult to locate in the field.

Threats to the species include increased mortality and loss of habitat. Threats to habitat within the Coachella Valley include agricultural and urban development, expansion of the Salton Sea and utility corridors, and OHV use. Eighty-four percent of the historic habitat has been lost to urban and agricultural development (Nicol, pers. comm. 2004). This estimate is conservative because much of the remaining habitat is now discontinuous and fragmented. Roads are known to increase desert reptiles' (including flat-tailed horned lizard) mortality dramatically and may deplete the population for as much as one mile from the road edge. Another serious edge effect is predation by household pets that are allowed to wander into habitat from surrounding urban development.

This lizard is found in the Thousand Palms Preserve.

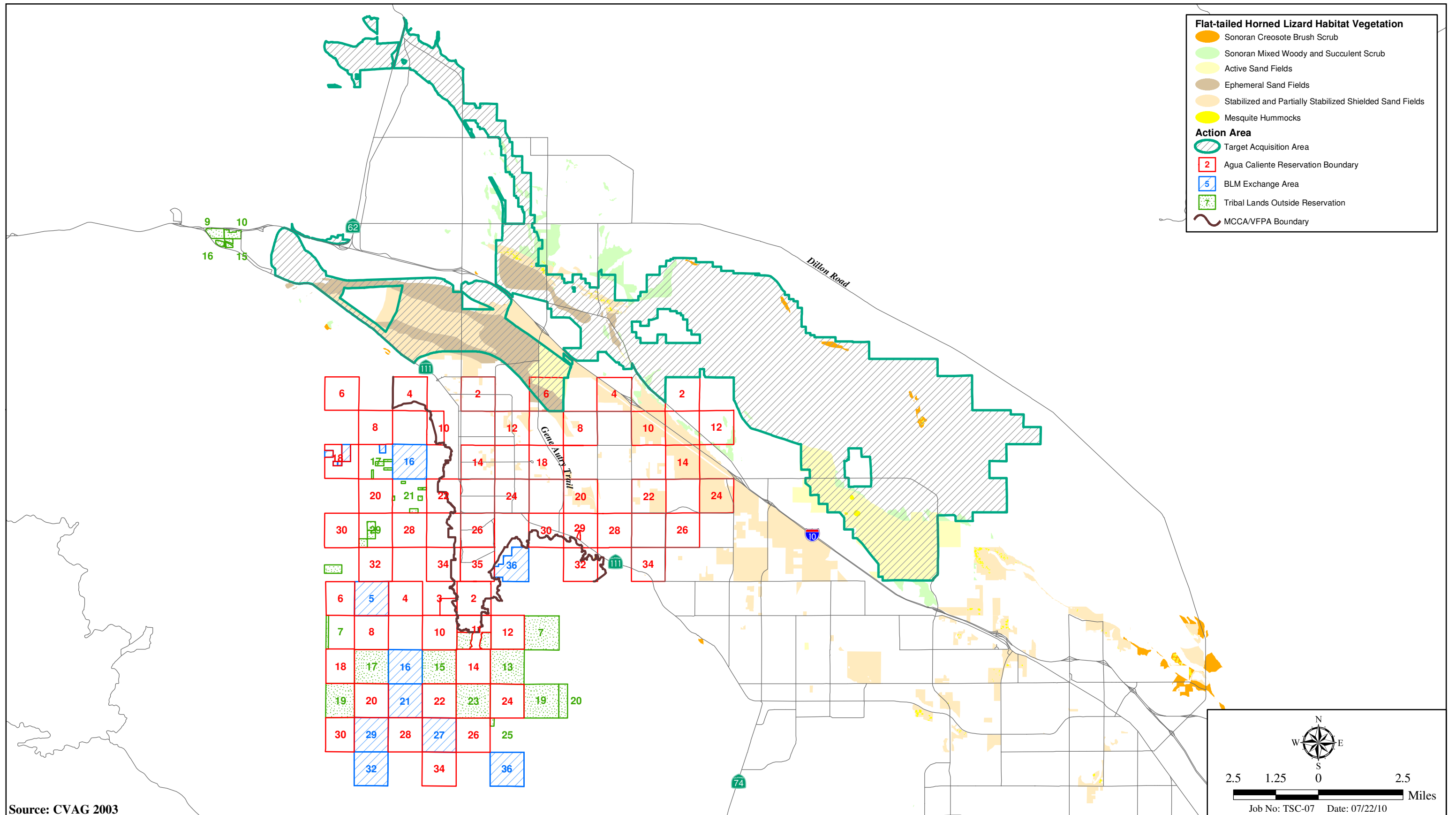
3.3.2.4 Palm Springs Pocket Mouse (*Perognathus longimembris bangsi*) None

The Palm Springs pocket mouse is found in sandy habitats on the valley floor of the Coachella Valley. This subspecies occurs in the lower Sonoran life zone from the San Geronio Pass area east to the Little San Bernardino Mountains and south along the eastern edge of the Peninsular Range to Borrego Valley and the east side of San Felipe Narrows (Hall 1981). Generally, its habitat is described as having level to gently sloping topography, sparse to moderate vegetative cover, and loosely packed or sandy soils. Figure 21 depicts the CVAG modeled distribution for this species on the valley floor. The species was found broadly distributed in the Coachella Valley on slopes ranging from 0 to approximately 15 percent.

The Palm Springs pocket mouse has been observed in Sections 4, 6, 10, 12, 14 and 24 (Township 4 South, Range 5 East) on the Reservation. Core Habitat occurs in the off-Reservation Target Acquisition Areas. The modeled distribution extends over approximately 48,687 acres of the Action Area, including, on the Reservation, 352 acres in the MCCA and 6,165 acres in the VFPA; on Tribal Lands outside the Reservation, 5 acres in the MCCA and 144 acres in the VCFA; and 42,021 acres in the off-Reservation Target Acquisition Areas.

Threats to this species and its habitat within the Coachella Valley include agricultural and urban development, construction of roads, railroads, airports and other structures, OHV use, illegal trash dumping, and domestic animal predators. This species is generally associated with sandy soils; thus, long-term viability of populations will require the continued functioning of the sand source and transport systems that sustain the habitat.

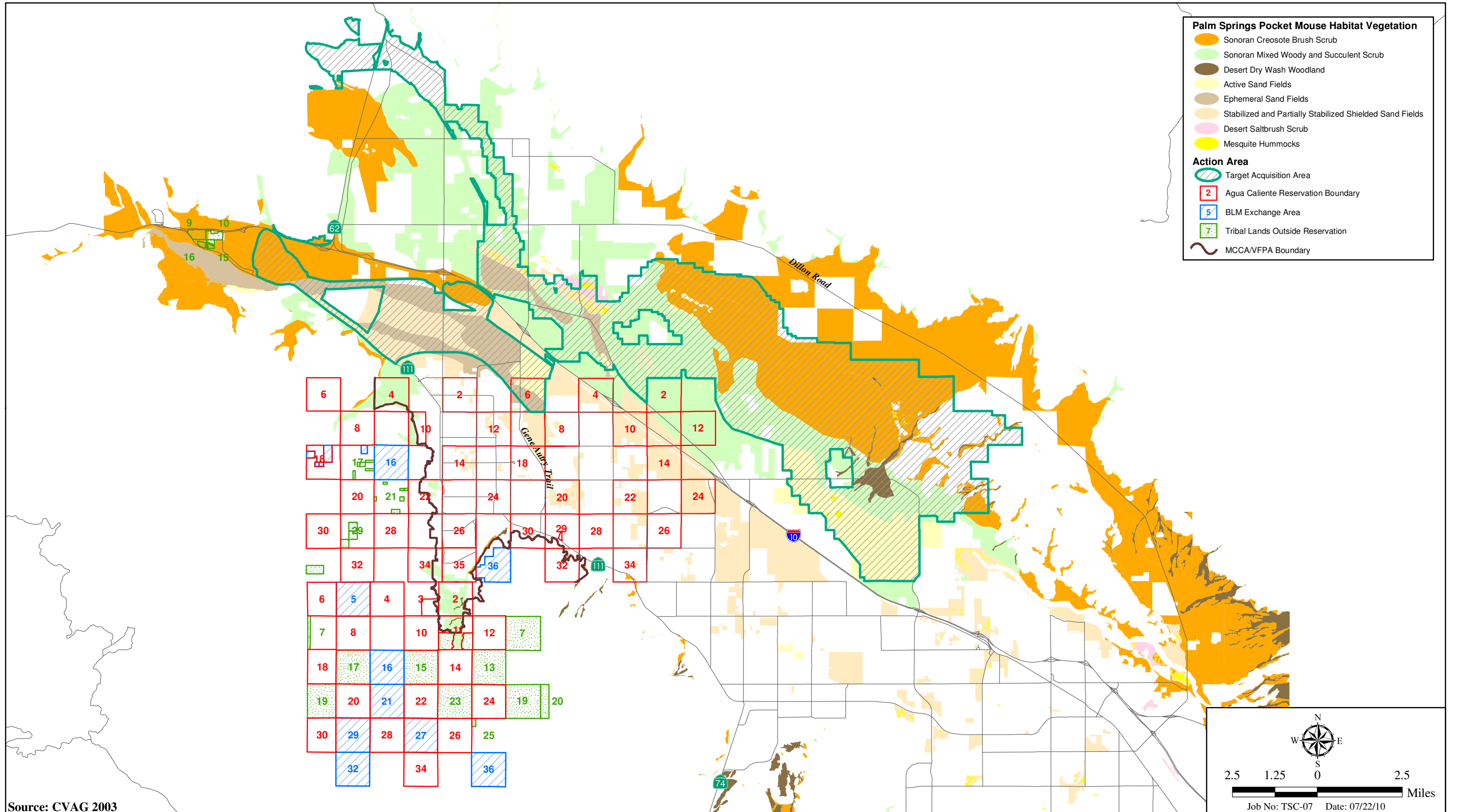
Significant populations exist in the Snow Creek and Mission Creek areas as well as three existing preserves: Coachella Valley Preserve, Whitewater Floodplain Reserve, and Edom Hill/Willow Hole Reserve. Considerable unprotected habitat also occurs adjacent to the Edom Hill/Willow Hole Reserve.



Flat-tailed Horned Lizard Habitat

AGUA CALIENTE THCP

Figure 20



Source: CVAG 2003

F:\ArcGIS\VTSC-07 AguaCaliente\Map\THCP\Fig21_PSPocketMouse.mxd -EV

Palm Springs Pocket Mouse Habitat

AGUA CALIENTE THCP

Figure 21

3.3.2.5 Palm Springs (Coachella Valley Round-tailed) Ground Squirrel (*Spermophilus tereticaudus var. coachellae*) Federal Candidate for Listing

The Palm Springs ground squirrel is a federal candidate for listing and is generally found throughout the Coachella Valley, including the Reservation. The current and historical distribution for the Palm Springs ground squirrel is from San Gorgonio Pass to the vicinity of the Salton Sea (Grinnel and Dixon 1918).

The Palm Springs ground squirrel is a subspecies of the round-tailed ground squirrel that occurs on the floor of the Coachella Valley in habitats associated with sandy substrates. It is typically associated with sand fields and dune formations, although it does not require active blow sand areas. This small ground squirrel seems to prefer areas where hummocks of sand accumulate at the base of large shrubs that provide burrow sites and adequate cover. They may also be found in areas where sandy substrates occur in Sonoran creosote bush scrub and desert saltbush or desert sink scrub that supports herbaceous growth. In addition to wind blown sand habitats, the squirrel may occur in areas of coarser sands associated with desert dry washes. They seem to prefer open areas with adequate visibility.

This squirrel occurs in sizable populations in the vicinity of Snow Creek from Fingal to Windy Point; it has also been observed further west near Cabazon. It occurs around the Whitewater River channel north and west of Palm Springs, including the Whitewater Floodplain Reserve. It has been observed along the Mission Creek wash and likely occurs in suitable habitat in the southern parts of Desert Hot Springs. Habitat, including mesquite hummocks and sandy dunes at the Willow Hole-Edom Hill Reserve/ACEC, has been described as high quality for this species (Dodero 1995), and many individuals were observed there during surveys. From the Willow Hole-Edom Hill Reserve/ACEC, it can be found in sandy habitats within the off-Reservation Target Acquisition Areas to the east. It also is common on the sand dunes at the east end of the Indio Hills.

Recorded locations on the Reservation include the northeastern corner of the Reservation (Sections 4, 10, 13, 14, 20 and 22 of Township 4 South, Range 5 East; Michael Brandman Associates 2001b) and the Palm Springs Airport (CVAG 2003). Figure 22 depicts the CVAG modeled distribution for this species in the Coachella Valley. Potential habitat extends over approximately 30,839 acres of the Action Area, including, on the Reservation, approximately 129 acres in the MCCA and 5,301 acres in the VFPA; on Tribal Lands outside the Reservation, 9 acres in the MCCA, and on Tribal Lands outside the Reservation, 140 acres in the VFPA, and 25,260 acres of the off-Reservation Target Acquisition Areas. Although the CVAG model includes extensive amounts of rocky and cobbly substrates, the Palm Springs ground squirrel is almost invariably associated with soft, deep sand accumulations amenable to burrowing, such as mesquite stands with pronounced hummocks.

Threats to the Palm Springs ground squirrel include loss of habitat as a result of urbanization and agricultural development, including the loss of mesquite hummocks due to lowered water tables and

related impacts. As ground dwelling small mammals, they are susceptible to impacts from OHVs and other surface disturbances that could crush their burrows. At the urban interface, impacts from domestic pets (i.e., cats and dogs) and small predator populations could pose a threat. As they seem to prefer open areas with adequate visibility, invasive exotic plants such as the Russian thistle and Saharan mustard may reduce habitat suitability.

3.3.2.6 Coachella Valley Jerusalem Cricket (*Stenopelmatus cahuilaensis*) No Official Status

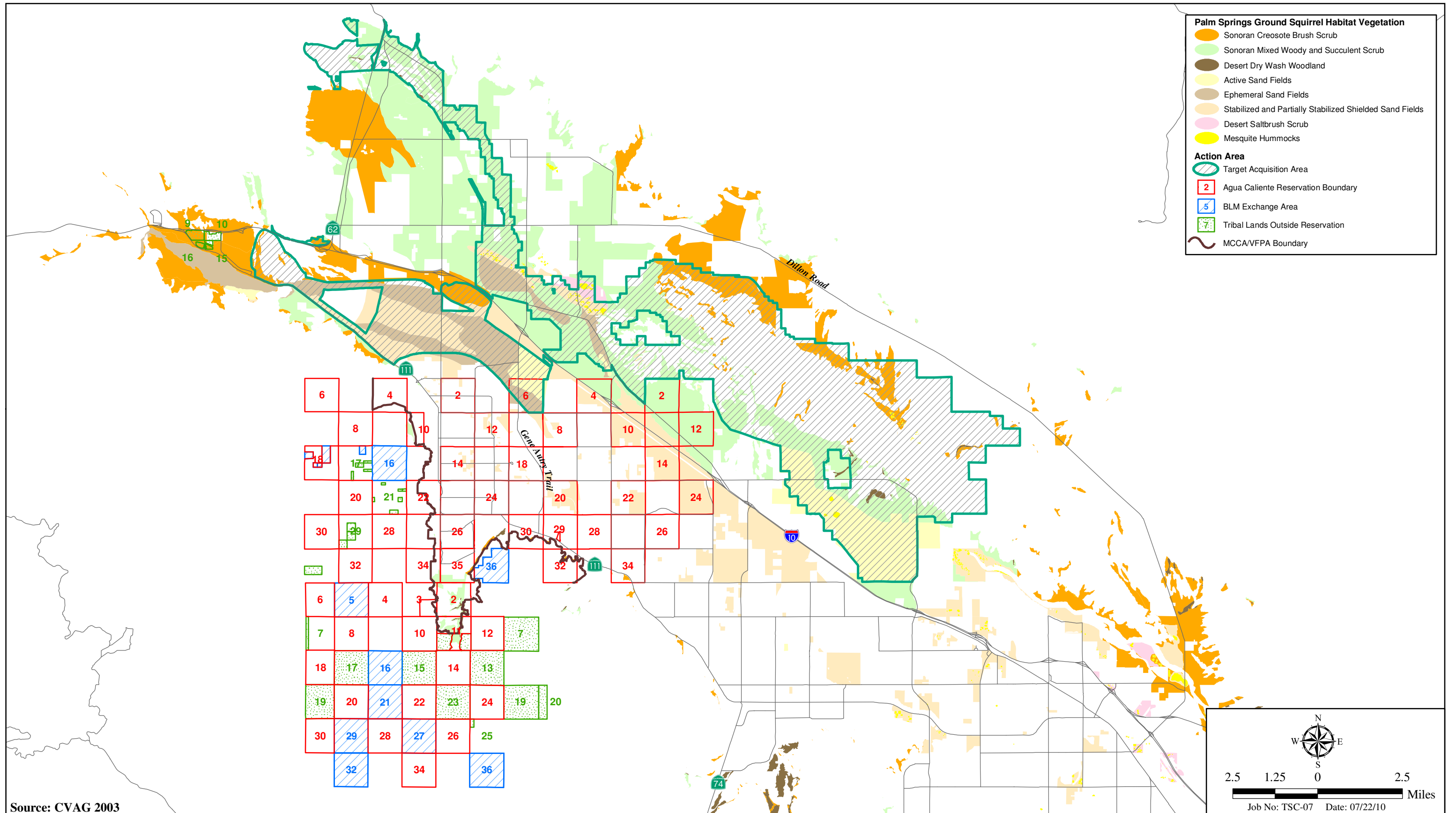
The Coachella Valley Jerusalem cricket inhabits windblown sand habitats on the floor of the Coachella Valley. It is known from the Snow Creek area east to Indian Avenue and within the remnants of sand dune habitat around the Palm Springs Airport. Although they normally occur in sandy to somewhat gravelly sandy soils, they do not necessarily require active blow sand habitat. This species is generally found in windblown active sandy areas with creosote bush, white bursage, Mormon tea, and sandpaper bush.

The Coachella Valley Jerusalem cricket requires high humidity and is most often encountered in the spring when the soil is damp after winter and spring rains. The species is most often located beneath surface debris during the cooler and wetter months of the year. During the summer months, they spend daylight hours in deep burrows in the ground; they may rarely be encountered at the surface during the night. The Coachella Valley Jerusalem cricket has been found associated with the roots of members of the sunflower family, including *Ambrosia* sp. and *Encelia* sp. The species feed at night on roots, tubers, and detritus; they also have been occasionally observed feeding on dead animals and may be cannibalistic.

This species is apparently limited to sand dunes and fields at the west end of the Coachella Valley, where the temperature/moisture gradients are within their tolerance levels. Figure 23 depicts the CVAG modeled distribution for this species in the Coachella Valley. Potential habitat extends over 3,507 acres of the VFPA within the Reservation, 112 acres of Tribal Lands outside the Reservation in the VFPA, and 10,077 acres of the off-Reservation Target Acquisition Areas, for a total of approximately 13,696 acres.

The most significant threats to the Coachella Valley Jerusalem cricket are habitat fragmentation and OHV use within their habitat. OHVs damage their habitat by crushing underground burrows and eliminating native vegetation. Conversely, clean up and removal of surface debris may not benefit this species, as the species uses debris piles.

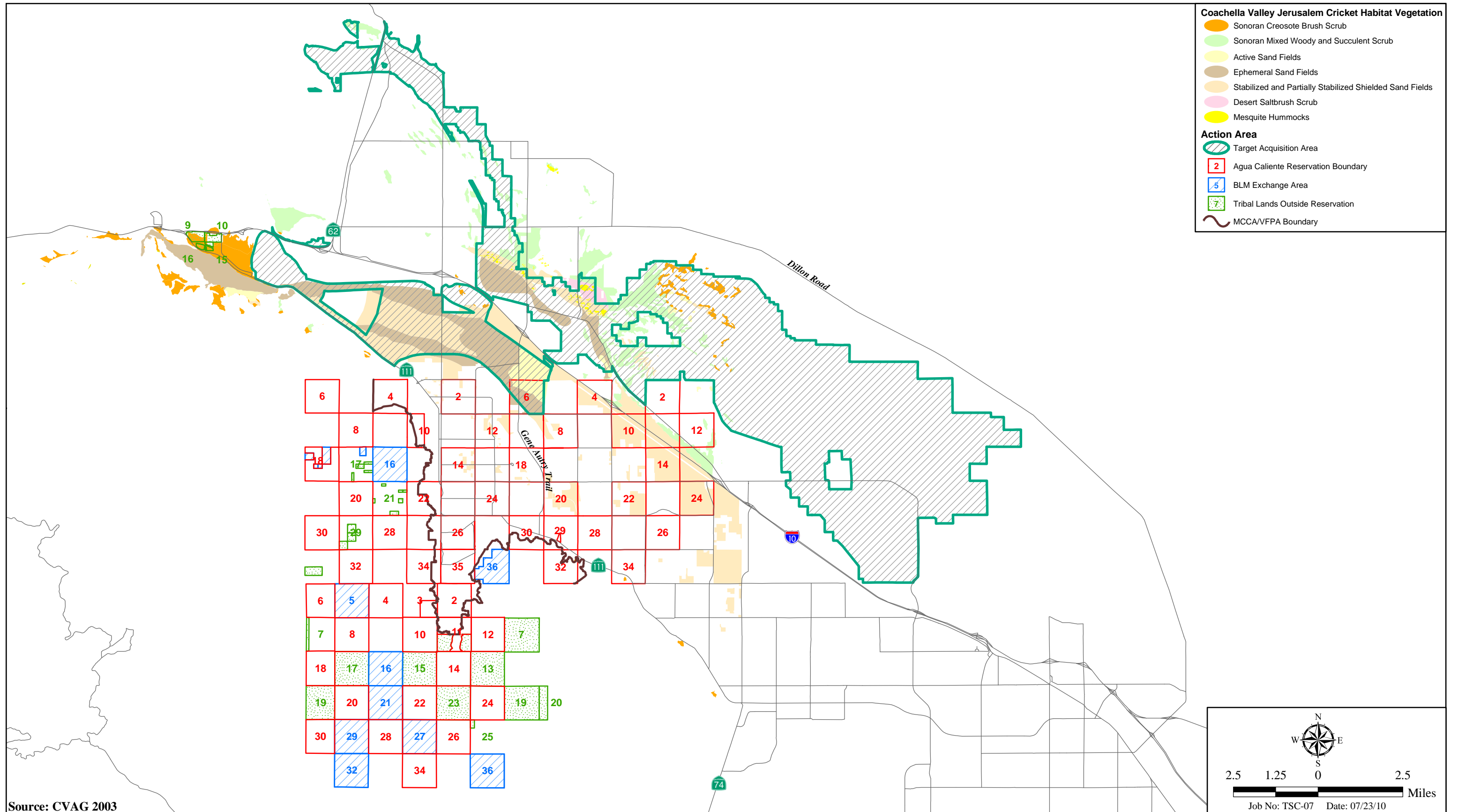
Known locations where the species has been observed include some of the lands owned by the BLM in the Windy Point area and on lands purchased by the BLM or by the Friends of the Desert Mountains along Snow Creek Road. This Jerusalem cricket has not been detected on the Coachella Valley Preserve despite trapping efforts in this area, and it has not been found in the vicinity of the Whitewater Floodplain Reserve.



Palm Springs Ground Squirrel Habitat

AGUA CALIENTE THCP

Figure 22



Source: CVAG 2003

E:\ArcGIS\T\TSC-07_AguaCaliente\Map\THCP\Fig23_CVJerusalem.mxd -EV

Coachella Valley Jerusalem Cricket Habitat

AGUA CALIENTE THCP

Figure 23

3.3.2.7 Coachella Valley Milk-vetch (*Astragalus lentiginosus* var. *coachellae*) Federal Endangered

The Coachella Valley milk-vetch is a federally listed endangered species (USFWS 1998b). It is commonly found in sandy flats, washes, and other sand habitats along the I-10 corridor on the valley floor and is endemic to the Coachella Valley. This species has been found on sand dunes and sandy flats, along the disturbed margins of sandy washes, and in sandy soils along roadsides in areas formerly occupied by undisturbed sand dunes. Within the sand dunes and sand fields, this milk-vetch tends to occur in the coarser sands at the margins of dunes, not in the most active blowsand areas. It may also occur in sandy substrates associated with Sonoran creosote bush scrub. This species occurs at elevations from 180 to 1,100 feet AMSL and flowers from February to May.

Populations are known from the Snow Creek area (in the sandy areas on either side of Snow Creek Road east toward Windy Point and scattered along Tipton Road north of Highway 111). Other concentrations of the species occur along Gene Autry Trail near the airport in Palm Springs, on and around Flat Top Mountain, along Varner Road at the base of Edom Hill, and in scattered locations in the southern parts of Desert Hot Springs. This species is known from locations from One Horse Spring near Cabazon to the sand dunes off Washington Avenue north and west of Indio in a longitudinal west-to-east range of approximately 33 miles.

Biological consultants hired by the Tribe surveyed potentially suitable habitat for Coachella Valley milk-vetch on the valley floor of the Reservation, in particular along the I-10 corridor. During surveys conducted in February and May 2001, populations were located that ranged in size from 1 individual plant to populations estimated to be 5,000 plants in size. Coachella Valley milk-vetch was found in 11 of the 20 sections surveyed. The heaviest concentrations of Coachella Valley milk-vetch were in the sand dunes just south of I-10 in Sections 10, 14, 22 and 24 (Township 4 South, Range 5 East). A few scattered plants were also found along the Whitewater River Wash in Sections 6 and 8 (Township 4 South, Range 5 East) and northeast of the Palm Springs Airport in Section 18 (Township 4 South, Range 5 East). It also has been observed in the off-Reservation Target Acquisition Areas.

Figure 24 depicts the CVAG modeled distribution for this species in Coachella Valley. Modeled habitat consists of approximately 23,188 acres in the Action Area, including within the Reservation 45 acres in the MCCA and 4,651 acres in the VFPA, 116 acres of Tribal Lands outside the Reservation in the VCFA, and 18,376 acres in the off-Reservation Target Acquisition Areas.

This endangered plant species is a perennial or biennial. Flowers are produced from February to May and are pink to deep magenta in color. It is distinguished in part by strongly inflated, mottled pods which, when dried, fall to the ground and blow along the dunes. In years with appropriate climatic conditions, hundreds to thousands of individuals have been described in a population, but often reports are of less than 20 plants.

Specific data on population size and dynamics are not available for this species. Some initial studies on features of this species' life history are being funded under Section 6 of ESA.

The primary threat to the Coachella Valley milk-vetch is habitat destruction due to continuing urban development, including the direct effects of habitat conversion. Other impacts to the species are from increased human activity, including OHV use, trampling, and the introduction of non-native plants, including Saharan mustard and Russian thistle. Development of wind energy parks has impacted this species, although the plants can persist as long as disturbance to the species' sandy habitat is minimized.

This species is conserved on the Whitewater Floodplain Preserve, the Edom Hill/Willow Hole Reserve/ACEC, Snow Creek/Windy Point Conservation Area, and Thousand Palms.

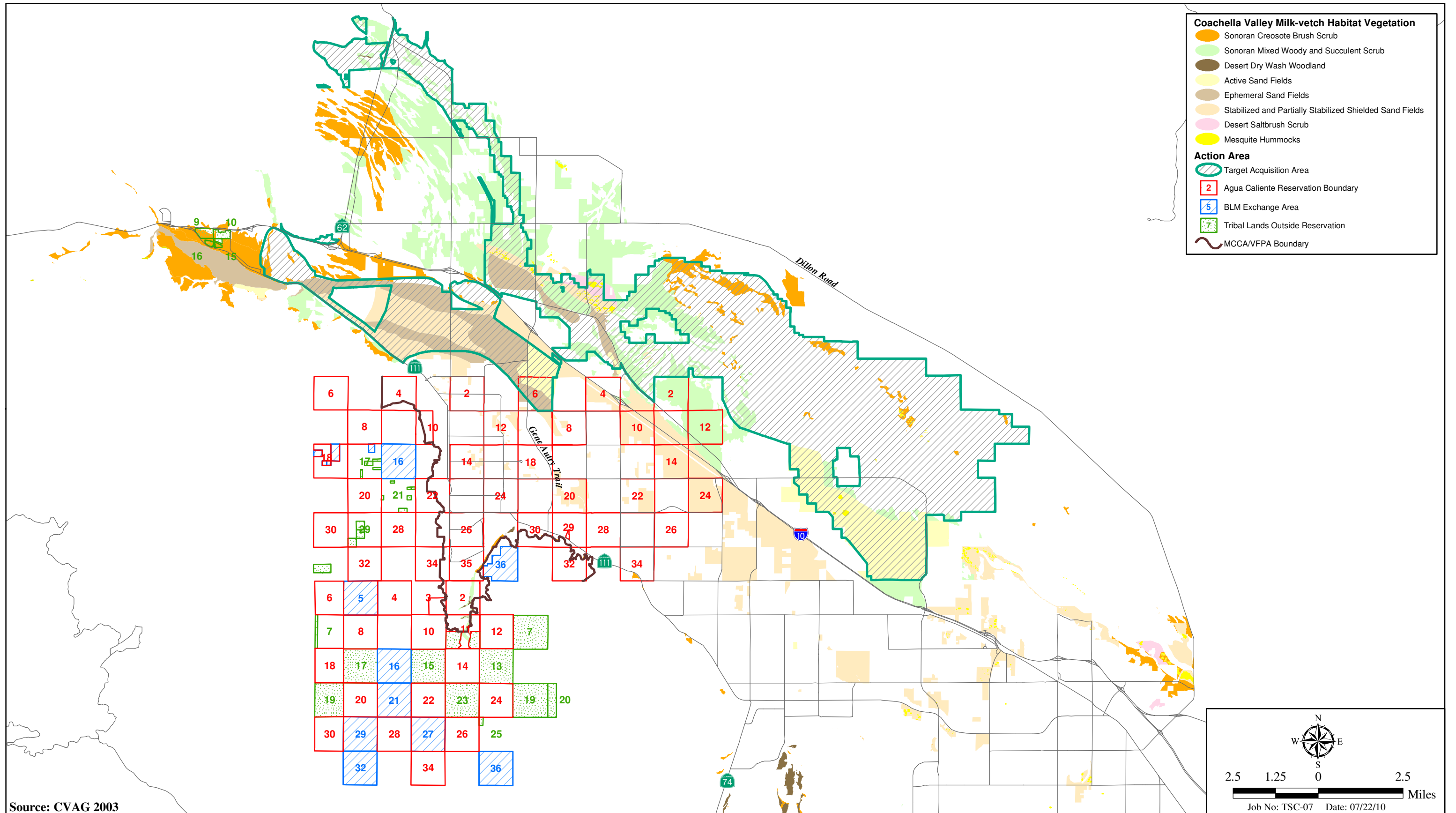
3.3.2.8 Le Conte's Thrasher (*Toxostoma lecontei*) Bird of Conservation Concern

The Le Conte's thrasher is a federal Bird of Conservation Concern. It occurs in a limited area in the southwestern portion of the U.S. and northwestern Mexico. Specifically, the species is known to occur in the San Joaquin Valley and the Mojave and Colorado deserts of California and Nevada into central and coastal Baja. The bird also has been known in the Sonoran Desert from southwestern Utah and western Arizona into western Sonora, Mexico. Despite its moderate distribution, the species is rare, only being observed in patches of this area.

The Le Conte's thrasher occurs in undisturbed, sparsely vegetated desert flats, dunes, alluvial fans, and hills, often in habitat where saltbush or cholla cactus (*Opuntia* sp.) is present. The species usually prefers open areas with sparse patches of ground cover and scattered but contiguous cover in the nearby vicinity. Habitat requirements also include an accumulation of leaf litter on the ground where arthropods, the bird's food source, are present. The presence of surface water in the immediate area does not seem to be a requirement of Le Conte's thrasher, although the species is often found in riparian areas.

Approximately 32,700 acres of modeled habitat for this species occur in the Action Area, including within the Reservation approximately 119 acres in the MCCA and 5,162 acres in the VFPA; 144 acres of Tribal Lands outside the Reservation in the VFPA; and 27,275 acres in the off-Reservation Target Acquisition Areas (Figure 25). This species has not been recorded on the Reservation but has been observed in the off-Reservation Target Acquisition Areas.

Loss of habitat is the primary factor limiting the population size of the Le Conte's thrasher. Urbanization and agriculture often occur in areas with habitat suitable to the bird. Other threats to the species may include fire, pesticides, predation of young by house cats, and collisions with cars.



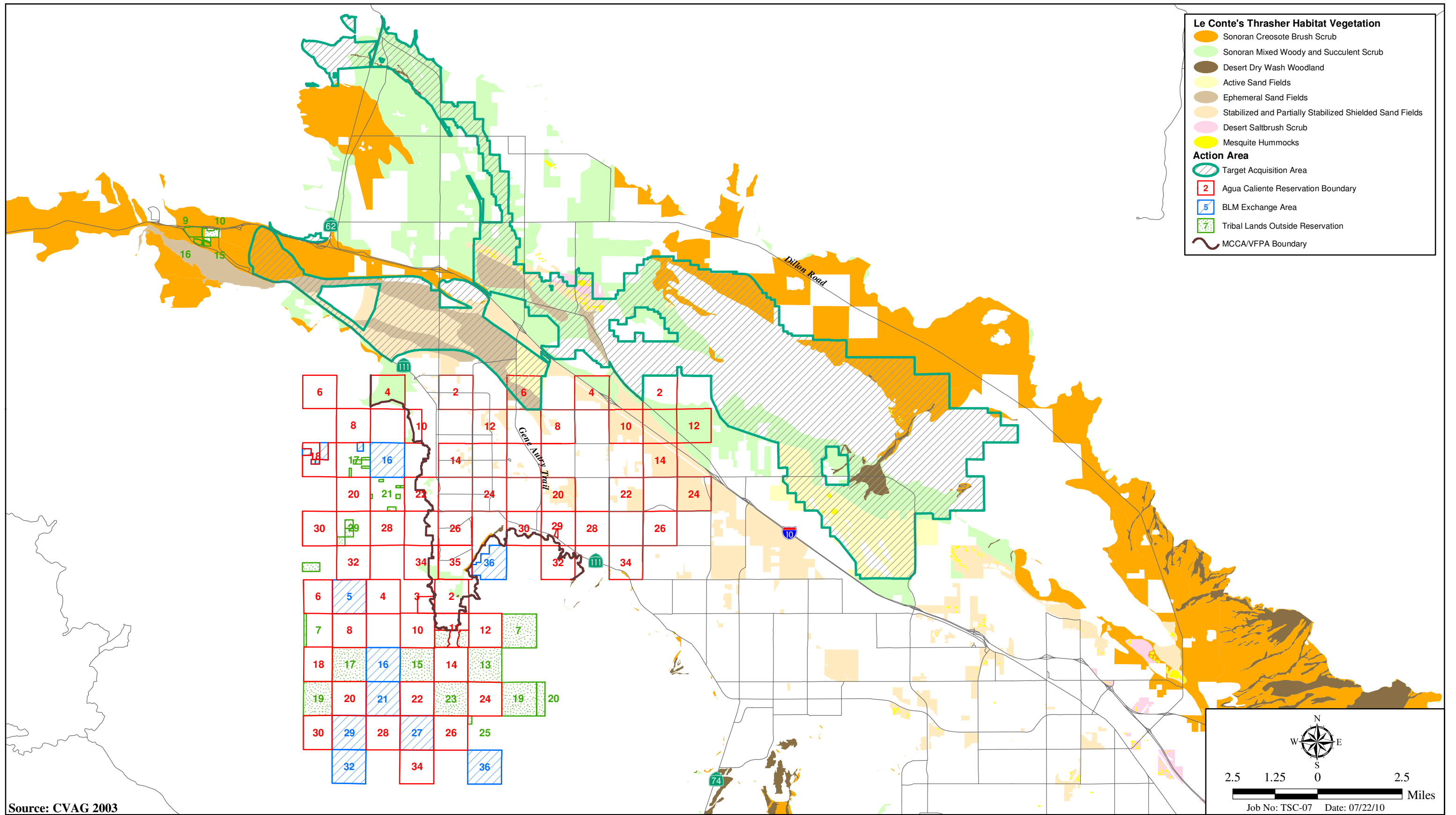
Source: CVAG 2003

I:\ArcGIS\VTSC-07 AguaCaliente\Map\THCP\Fig24_CVMilkV.mxd -EV

Coachella Valley Milk-vetch Habitat

AGUA CALIENTE THCP

Figure 24



Source: CVAG 2003

E:\ArcGIS\TSC-07_AguaCaliente\Map\THCP\Fig25_LE_CThrasher.mxd -EV

Le Conte's Thrasher Habitat

AGUA CALIENTE THCP

Figure 25

3.3.2.9 Crissal Thrasher (*Toxostoma crissale*) Bird of Conservation Concern

The crissal thrasher is a federal Bird of Conservation Concern. It occurs throughout the southwesternmost portion of the U.S. and northwestern Mexico. Its range in the U.S. includes southeastern California, southern Nevada, the southern portions of Arizona and New Mexico, and the westernmost portion of Texas.

The crissal thrasher is a ground-dwelling bird associated with desert environments. It occupies thickets of dense, shrubby vegetation that provide cover along streams and in washes, such as desert saltbush scrub, screwbean mesquite, ironwood, catclaw acacia, arrowweed willow, and mesquite hummocks. The bird is very secretive, spending much of its time in underbrush.

As a result of the species' reclusive behaviors, very little is known about its habitat requirements or population status; however, loss of habitat is certainly a factor affecting populations of the species. Although it was historically (1920) observed in Section 10 (Township 4 South, Range 4 East) of the Reservation, none of the modeled habitat for this species extends onto the Reservation (Figure 26). It potentially could occur near the base of the San Jacinto Mountains or on the valley floor east of I-10. Approximately 354 acres of potential habitat occur in the off-Reservation Target Acquisition Areas.

3.3.2.10 Little San Bernardino Mountains Gilia (*Linanthus maculatus*) None

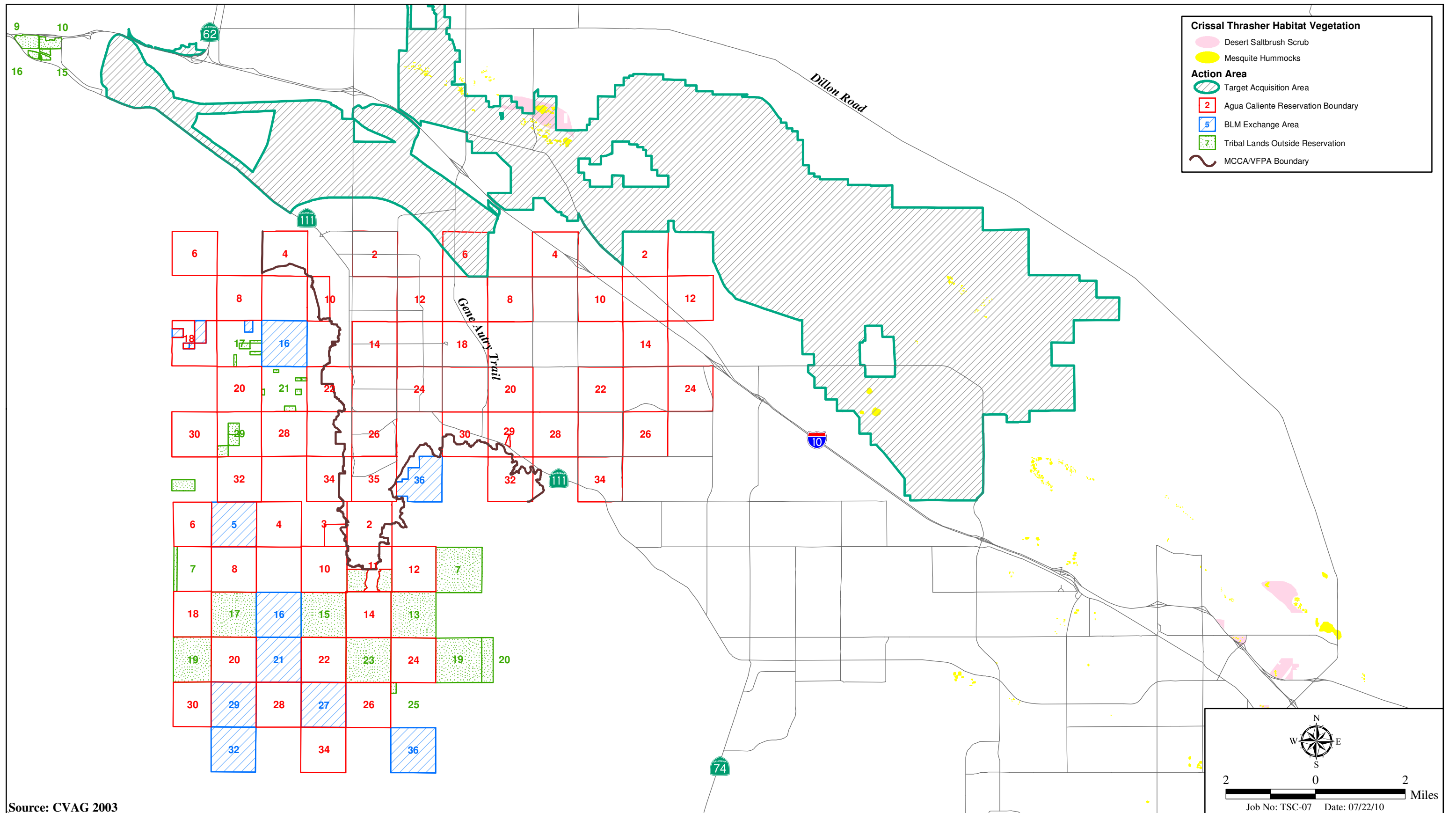
The Little San Bernardino Mountains gilia occurs in the vicinity of the Little San Bernardino Mountains and Mission Creek Canyon to Dry Morongo Wash and Big Morongo Canyon as well as the northwest portion of the Coachella Valley. It also occurs in Whitewater Canyon and from Whitewater to Palm Springs. Recently, an additional population has been discovered in Rattlesnake Canyon on the north side of the San Bernardino Mountains. Populations of this species also occur outside the Action Area along washes at the northern edge of Joshua Tree National Park in the vicinity of Joshua Tree, Yucca Valley, and Twentynine Palms. Additional populations of this species may occur in the 22-mile area between Rattlesnake Canyon and Yucca Valley, but data are lacking.

The Little San Bernardino Mountains gilia is found in loose, soft, sandy soils on low benches along washes, usually in areas where there is evidence of water flow. The plant seems to occur in areas where there is less competition and little shrub or tree cover in the immediate vicinity. The plant is associated with creosote bush scrub, but it avoids growing in the immediate vicinity of other plants. The gilia occurs between the elevations of 500 to 4,000 feet AMSL.

None of the modeled habitat for this species extends onto the Reservation (Figure 27); the species may, however, occur in the bajadas and alluvial fans in the northeastern portion of the Reservation where

habitat may be considered appropriate for this species. Approximately 2,449 acres of potential habitat occur within the off-Reservation Target Acquisition Areas.

The primary threat to this species is increased development near Desert Hot Springs and Highway 62, where the largest populations of the species exist. Only 6 percent of the known locations for Little San Bernardino Mountains gilia are protected in existing public or private conservation areas. Development spreading west from Desert Hot Springs could eliminate the most significant populations, and development pressures are also a concern in the Mission Creek drainage east of Highway 62 and in the Dry Morongo Wash area near Highway 62 and Indian Avenue. Another factor that may impact this species is flood control maintenance activities in the Whitewater Canyon and Mission Creek drainages. Additionally, OHV activity may also be a concern to the species, which occurs along the margins of washes that are often used by riders.



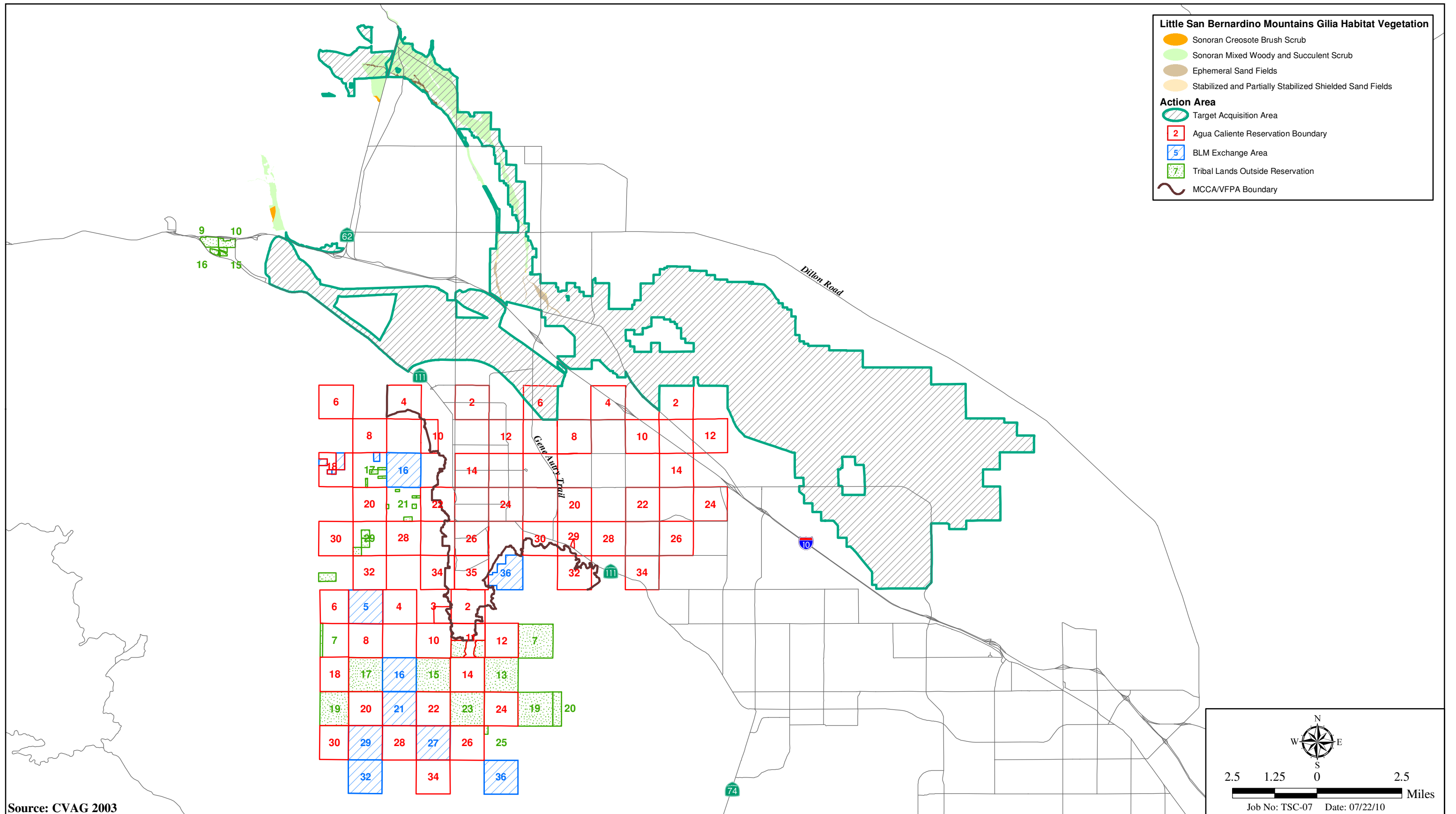
Source: CVAG 2003

E:\ArcGIS\TSC-07_AguaCaliente\Map\THCP\Fig26_CrissalT.mxd -EV

Crissal Thrasher Habitat

AGUA CALIENTE THCP

Figure 26



Source: CVAG 2003

F:\ArcGIS\TSC-07 Agua Caliente\Map\THCP\Fig27_LSBMGilia.mxd -EV

Little San Bernardino Mountains Gilia Habitat

AGUA CALIENTE THCP

Figure 27

CHAPTER 4 CONSERVATION PROGRAM

This Chapter of the Tribal HCP sets forth the Tribe's Conservation Program, including a description of those activities proposed for coverage by the Tribal HCP and Section 10(a) Permit, a listing of the goals and objectives for the Plan and for each Covered Species, a definition of the Tribe's conservation goals and objectives, the specific operating conservation program of the Tribal HCP, and the estimated levels of impact anticipated to result from the maximum habitat disturbance to be authorized by the Section 10(a) Permit. It also describes how a Habitat Preserve will be assembled and legally protected as well as development standards and avoidance, minimization, and mitigation measures for Covered Activities. Additionally, it sets forth a monitoring program for the Plan, Habitat Preserve management program, assurances for funding, and other provisions necessary to achieve the conservation goals and objectives set forth herein.

4.1 COMPLIANCE WITH ESA REQUIREMENTS

The USFWS has the legal authority to approve this Plan, enter into an IA, and issue a Section 10(a) Permit for Covered Activities described in the Plan pursuant to ESA. The requirements that an HCP/Section 10(a) Permit application must meet in order to qualify for USFWS approval are detailed in section 1.6.3.2 of this Plan.

This Tribal HCP together with the IA are intended to meet the mandatory requirements for an HCP and application for permit for incidental taking of wildlife species as follows:

<u>Requirement</u>	<u>Where Addressed</u>
1. Complete description of the activities sought to be authorized [50 CFR 17.22 (b)(1)(i), 17.32 (b)(1)(iii)]	Section 4.2 of the Tribal HCP
2. Identification of the number, age, and sex of Covered Species sought to be covered, if known [50 CFR 17.22 (b)(1)(ii), 17.32 (b)(1)(iii)]	Section 4.3 of the Tribal HCP
3. Impacts likely to result	Section 4.4 of the Tribal HCP
4. Monitoring program	Section 4.12 of the Tribal HCP
5. Minimization and mitigation to the maximum extent practicable	Sections 4.5-4.13 of the Tribal HCP
6. Adequate funding ensured by the applicant [50 CFR 17(b)(2)(iii)]	Section 4.15 of the Tribal HCP
7. Procedures to deal with unforeseen circumstances	Section 4.16.4 of the Tribal HCP; IA
8. Alternatives analysis	Chapter 5 of the Tribal HCP
9. Overall and species-based biological goals and objectives (5 Point Policy)	Section 4.3 of the Tribal HCP
10. Adaptive management strategy	Section 4.13 of the Tribal HCP; IA
11. Permit duration	Section 4.16 of the Tribal HCP; IA
12. Assurances the Plan will be implemented [50 CFR 17(b)(2)(vi)]	Section 4.15 of the Tribal HCP

4.2 COVERED ACTIVITIES

The Tribal HCP provides conservation, minimization, and mitigation for impacts to the species covered by the Plan from the following Covered Activities, provided that such activities are consistent with the provisions of the Tribal HCP and under the Tribe's discretion during the permit term.

The Plan will provide for the following Covered Activities in the MCCA:

1. Covered Projects undertaken by the Tribe within the Plan Area or a Third Party Participant within the Reservation (including on non-Indian fee owned land to the extent authorized by law or provided for in an agreement between the Tribe and landowner) under a development permit issued by or under the discretion of the Tribe, consisting of:
 - a. New commercial, residential, industrial, disturbance/clearing for agricultural and/or horticultural development, and surface mining.
 - b. Construction of public and/or private streets as listed below:
 - :
 - Tramway Road from Highway 111 to the Aerial Tram Station (widen to 66-foot General Plan width)
 - South Palm Canyon Drive from MCCA boundary to the Trading Post
 - c. Public utility infrastructure, facilities, and projects, including but not limited to new projects approved pursuant to this Tribal HCP and adopted General Plans (County or Cities of Palm Springs, Cathedral City, or Rancho Mirage), master drainage plans, or Capital Improvement Programs.

Such infrastructure could include but is not limited to publicly maintained roads and rights-of-way; flood control facilities; public buildings; surface disturbance for water development and production facilities; water storage, treatment, and transmission facilities; public parks; substations and electrical transmission facilities; and other public utility facilities providing services essential to the health, safety and welfare of the public. Future flood control projects include:

- Palm Springs MDP Line 16B
 - Palm Springs MDP Lateral 16A
 - Palm Springs MDP Lateral 16
 - Palm Springs MDP Lateral 19A
 - Palm Springs MDP Line 19
 - ALERT Stations – Cathedral Canyon
- d. Cooperative projects consistent with this Tribal HCP undertaken between the Tribe and public or quasi-public agencies such as cities, water districts, Riverside County Flood Control and Water Conservation District, utility agencies, or any other state or local agencies.

- e. Public access uses such as hiking, bird watching, photography, horseback riding, picnicking, and scientific research, along with associated signs and barriers (new trails are not a Covered Activity).
All Covered Projects are subject to acreage limits as described in section 4.4.

2. Covered Maintenance Activities undertaken by or at the Tribe's discretion in the MCCA, including:

- a. Ongoing operation, use, and maintenance of existing public and private facilities within current disturbance footprints (Figure 28). This will include maintenance of existing trails shown on Figures 9a and 9b, removal of unauthorized trails, and minor re-routing of existing trails as described in section 2.1.1.3. Mitigation would not be required for these activities because they would be limited to areas that are already disturbed. This includes maintenance of the following facilities:

- Indian Canyons Trading Post and related facilities
- Tahquitz Canyon and Visitor Center and related facilities
- Tahquitz Canyon Dam, Debris Basin, and related facilities
- Tachevah Creek Detention Dam and related facilities
- Palm Canyon Wash flood control facilities
- Cathedral Canyon Channel – West
- Cathedral Canyon Channel – East
- Desert Water Agency (DWA) Water Tanks and related facilities
- Tramway Road
- South Palm Canyon Drive from the MCCA boundary to the Trading Post

- b. Ongoing operation, use, and maintenance of flood control facilities within current disturbance footprints. Operations and maintenance activities will typically include:

- The removal of sand, silt, sediment, debris, rubbish, and woody and herbaceous vegetation in existing flood control facilities in order to maintain design capacity of the facility and/or compliance with local fire regulations.
- Control of weeds and vegetation by non-chemical means, and control of debris on all access roads and rights-of-way.
- The repair or replacement of constructed flood control facilities, such as channels, basins, drop structures, and levees, as necessary to maintain the structural integrity and hydraulic capacity of the facility.
- For ALERT stations, an annual inspection visit.
- For ALERT stations, maintenance to replace batteries or make repairs on transmitters, solar panels, tipping buckets, etc.

- c. Operation, use, and maintenance of public and private facilities developed in the future that are approved subject to the requirements of the Plan within the approved Development Envelope. Such facilities include those described in Section 2.b and 2.c above. Mitigation would not be required for these activities because mitigation would have already been provided in accordance with the terms

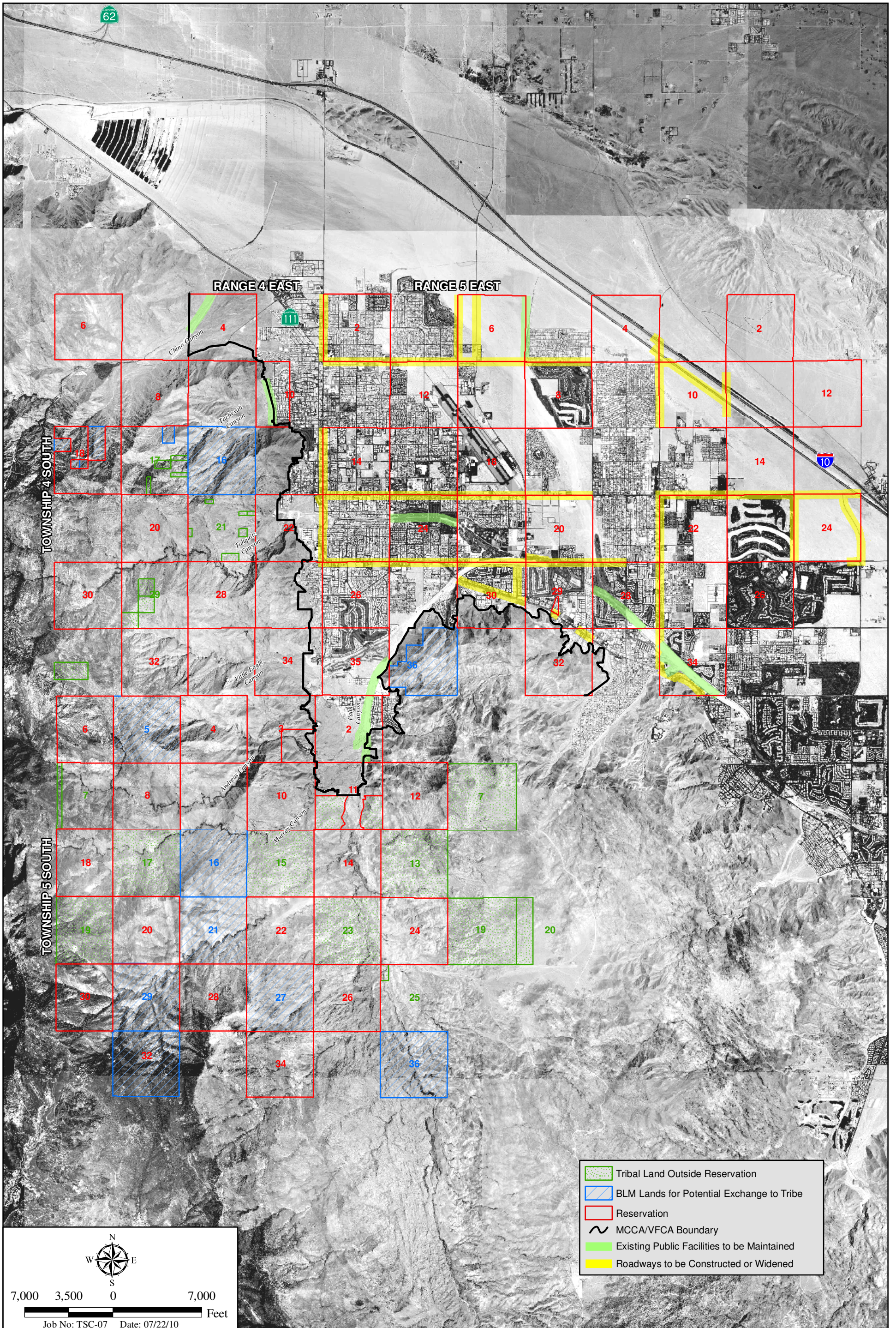
of this Plan when construction of the facility was approved. Covered Activities may occur within the approved limits of disturbance.

- d. Temporary maintenance activities outside of such areas that will allow recovery of native habitats in the near term. Mitigation would not be required for these activities because any disturbance would be short-term (i.e., generally five years or less), with the area returning to its natural state.

Activities that would result in permanent, long-term, or regular disturbance outside of such limits shall not be considered Covered Maintenance Activities but rather subject to review as a new Covered Project. Because they would occur on sites that have been disturbed prior to adoption of this Plan or are approved for disturbance pursuant to the provisions of the Plan, Covered Maintenance Activities would not be subject to additional acreage limits (beyond the requirement to work within the facility's approved disturbance footprint), dedication requirements, or siting criteria (other than any required for initial approval). However, Covered Maintenance Activities would be subject to construction and operation avoidance/minimization requirements.

The Plan will provide for the following Covered Activities in the VFPA, except Section 6:

1. Development permitted or approved within the VFPA. This includes, but is not limited to, new commercial, residential, recreational, industrial, disturbance/clearing for agricultural and/or horticultural development or construction, and surface mining projects approved pursuant to county and city general plans, including the circulation element of said general plans, transportation improvement plans for roads, master drainage plans, capital improvement plans, water and waste management plans, Indian Canyons Master Plan, and other Tribal land use plans.
2. Public facility construction, operations, and maintenance and safety activities undertaken by the Tribe within the Plan Area or a Third Party Participant within the Reservation (including on non-Indian fee owned land to the extent authorized by law or provided for in an agreement between the Tribe and landowner). Such infrastructure could include but is not limited to publicly maintained roads and rights-of-way; materials pits; maintenance yards; flood control facilities; landfills, transfer stations, and other solid waste related facilities, including those for the processing of organic materials; public buildings; surface disturbance for water development and production facilities (including Eagle Canyon Dam); water storage, treatment, and transmission facilities; sewage treatment and transmission facilities; reclaimed water storage and transmission facilities; public parks; substations and electrical transmission facilities; telecommunication towers; and other public utility facilities providing services essential to the health, safety, and welfare of the public.



Planned Public Roadways and Maintenance Activities

AGUA CALIENTE THCP

Figure 28

The Plan will provide for the following Covered Activities in Section 6 in the VFPA:

1. Covered Projects undertaken by the Tribe within the Plan Area or a Third Party Participant within the Reservation (including on non-Indian fee owned land to the extent authorized by law or provided for in an agreement between the Tribe and landowner) under a development permit issued by or under the discretion of the Tribe, consisting of:
 - a. New commercial, residential, recreational, industrial, disturbance/clearing for agriculture and/or horticultural development or construction, and surface mining, to the extent described in Section 4.9.3.
 - b. Construction of public streets as listed in the table below:

Street Name	Agency ¹	Segment Description	Activities Covered ²	Width
GENE AUTRY TRAIL	PS	Vista Chino To Whitewater River Crossing	Widening to 6 lanes and O&M	110'
	PS	Whitewater River Bridge Crossing	Widening to 6 lanes and O&M	110'
	PS	Whitewater River to So. Of Railroad Crossing	Widening to 6 lanes and O&M	110'
VISTA CHINO	PS	Gene Autry Trail to Whitewater River	Widening to 6 lanes and O&M	110'
	PS	Whitewater River Bridge Crossing	Widening to 6 lanes and O&M	110'
	CC	East Bank of Whitewater Bridge to Landau Blvd.	Widening to 6 lanes and O&M	110'

¹PS=Palm Springs; CC=Cathedral City

²O&M=Operations and Maintenance

- c. Conversion of existing outdoor advertising displays to digital outdoor advertising displays
 - d. Upgrading existing radio broadcast facilities including antennae, accessory building, and access road
2. Covered Maintenance Activities undertaken by or at the Tribe's discretion in Section 6, including:
 - a. Ongoing operation, use, and maintenance of existing streets within current disturbance footprints (Figure 28). Operations and maintenance activities typically will include:
 - Installation and maintenance of new and/or replacement signs, including overhead signs
 - Installation and maintenance of traffic control devices, such as traffic signals
 - Installation and maintenance of guardrails and fences (that would not block sand transport) for vehicle and pedestrian safety
 - Routine repair, resurfacing, and reconstruction of pavement
 - Repair of natural disaster damage and restoration of emergency access
 - Grading of shoulders up to 12 feet from the edge of paved roadways
 - Construction, replacement, and repair of curbs, gutters, and sidewalks

- Minor widening and realignment for safety purposes that does not add through
 - travel lanes, but may include turn lanes
 - Slope maintenance and slope protection such as rip-rap
 - Dust stabilization, including application of soil stabilizers and paving of dirt roads
 - Construction, repair, replacement, and cleaning out of culverts, drop structures,
 - and down drains
 - Bridge maintenance, including deck, railing, and column replacement
 - Ditch clearing and lining
 - Tree trimming and weed control by non-chemical means
 - Landscape maintenance
 - Utility relocation incidental to above activities
 - Sand removal
- b. Operation, use, and maintenance of public streets developed in the future that are approved subject to the requirements of the Plan within the approved Development Envelope. Operations and maintenance activities will typically include those as listed in Section 3.a above. Mitigation would not be required for these activities because mitigation would have already been provided in accordance with the terms of this Plan when construction of the facility was approved.
- c. Ongoing operation, use, and maintenance of flood control facilities within current disturbance footprints. Operations and maintenance activities will typically include:
- The removal of sand, silt, sediment, debris, rubbish, and woody and herbaceous vegetation in existing flood control facilities in order to maintain design capacity of the facility and or compliance with local fire regulations.
 - Control of weeds and vegetation by non-chemical means, and control of debris on all access roads and rights-of-way.
 - The repair or replacement of constructed flood control facilities, such as channels, basins, drop structures, and levees, as necessary to maintain the structural integrity and hydraulic capacity of the facility.
 - For ALERT stations, an annual inspection visit.
 - For ALERT stations, maintenance to replace batteries or make repairs on transmitters, solar panels, tipping buckets, etc.
- d. Temporary maintenance activities (such as those detailed in Section 3.a above) outside of the approved disturbance footprint and in areas that will allow recovery of native habitats in the near term. Mitigation in the form of acquisition or dedication of land would not be required for these activities because any disturbance would be short-term (i.e., generally five years or less), with the area returning to its natural state.
- e. Ongoing operation, use, and maintenance of outdoor advertising displays.
- f. Ongoing operation, use, and maintenance of radio broadcast facilities including antennae, accessory buildings and access roads.

The Plan will provide for the following Covered Activities in the MCCA and lands acquired for conservation within the Valley Floor:

1. Covered Conservation Activities, undertaken by agents or employees of the Tribe or any person acting under the direct guidance or authority of the Tribe in the Action Area, including:
 - a. Management of the Habitat Preserve as described in the Adaptive Management Plan or in annual work plans (refer to sections 4.11.3 and 4.13).
 - b. Monitoring of the Habitat Preserve, provided that:
 - (1) Such take occurs during activities specifically described in the annual work plans prepared by the Tribe (section 4.11.3);
 - (2) The person(s) undertaking such activities has been determined by the Tribe to be a Qualified Biologist;
 - (3) The person(s) undertaking such activities carries out his or her duties in conformance with the protocols and procedures specified in the annual work plan; and
 - (4) The activity is consistent with the monitoring program (as described in section 4.12).
 - c. Management of Existing Tribal Conservation Programs as described in section 2.1 to the extent that such actions are expressly taken to benefit Covered Species. Other management activities will be considered maintenance activities, addressed as Covered Maintenance Activities above.

Because Covered Conservation Activities will be designed with the specific purpose of creating a net biological benefit relative to any associated impacts, such activities would not be subject to acreage limits or mitigation requirements provided they are implemented as directed by the adaptive management plan and/or the applicable work plan. Such activities would be required to comply with applicable minimization requirements.

Applicability

All Covered Activities (regardless of whether they are undertaken by the Tribe, a Tribal member, or a non-Federal third party; including activities subject to Federal permits, authorizations, and/or approvals) will be subject to the applicable provisions of this Tribal HCP, including avoidance, minimization, and mitigation requirements. Compliance with such requirements will be established through the Conditional Use Permit process as described in section 4.8 or 4.9 (for MCCA and VFPA, respectively). Impacts beyond the acreages contemplated in this Tribal HCP will not be allowed without pre-authorization from USFWS and any appropriate amendments. Additionally, actions not defined in this section as Covered Activities may require independent incidental take authority from USFWS and/or other compliance with the ESA.

Activities undertaken by Federal agencies are not Covered Activities. To the extent activities undertaken by Federal agencies warrant Section 7 consultation and with respect to any Section 7 consultation processes triggered by other projects within or impacting the Reservation and/or its resources, it is the

Tribe's intent that any such consultation process include Tribal participation and will be conducted in concert with the Tribal HCP. No activities currently are expected from Federal project proponents. The BIA is expected to cooperate with the Tribe in fully implementing the Tribal HCP with respect to any projects for which the BIA is the lead federal agency.

Any projects undertaken by third parties that are proposed to take place partially within and partially outside the Reservation shall be subject to requirements of both the Coachella Valley MSHCP and the Tribal HCP. The Tribe retains jurisdiction over that portion of the project that occurs on the Reservation. In accordance with existing land use agreements and contracts the Tribe has with local agencies, the Tribe may, at its discretion, choose to delegate its authority to that local agency with jurisdiction over the off-Reservation portion of the project. In all instances, the Tribe shall be consulted directly by the third party and the local agency, as provided in the land use agreement/contract. The Tribe shall retain jurisdiction over these actions, assuring that Covered Projects will be consistent with the Plan, and will ensure that the Plan will be fully implemented regarding the portion of such Covered Projects in the Plan Area. Activities occurring outside of the Plan Area are not Covered Activities.

4.3 CONSERVATION NEEDS AND BIOLOGICAL GOALS AND OBJECTIVES FOR COVERED SPECIES

The Tribal HCP is proposed to be the basis for the Tribe to obtain a USFWS Section 10(a) Permit, which would authorize incidental take of covered wildlife species for discretionary activities of the Tribe, resulting from implementation of the Tribal HCP. This Permit would enable the Tribe to authorize or engage in Covered Activities that may result in incidental take of covered wildlife species, including those species currently listed as threatened or endangered and certain species that may become listed during the term of the Tribal HCP. The Covered Species, along with their current status, are listed in Table 3-2.

Among other things, the USFWS's 5 Point Policy Guidance requires that an HCP set forth biological goals and objectives that "translate the applicable statutory and regulatory criteria or standards into meaningful biological measures," relative to the conservation of each species proposed for coverage. Also consistent with the 5 Point Policy, the adaptive management strategy of the Plan is "tied to the biological goals and objectives of the HCP and based on the best scientific information available." This is important, as adaptive management is a "method for examining alternative strategies for meeting measurable biological goals and objectives, and then, if necessary, adjusting future conservation management actions according to what is learned" (65 FR 106). In accordance with this policy, overall biological goals and objectives as well as the conservation needs, goals, and objectives for each Covered Species in the Action Area are described below. These are primarily habitat-based and include some species-specific components based on the needs of the species as outlined in Chapter 3 of this Plan. Conservation objectives for Covered Species are summarized in Tables 4-1a and 4-1b.

4.3.1 Overall Biological Goals and Objectives

The Plan will result in the establishment and management of a Habitat Preserve within the MCCA, VFPA, and Target Acquisition Areas. Pursuant to the USFWS's 5 Point Policy (64 FR 11485-11490) regarding issuance of Section 10(a)(1)(B) permits, the following overall Conservation Goals for this Habitat Preserve are restated from Section 1.3 (specific biological goals and objectives for each Covered Species follow):

1. Represent native ecosystem types or natural communities across their natural range of variation in a system of conserved areas.
2. Protect and manage a comprehensive Habitat Preserve system of connected ecologically functional preserves having high long-term benefit to Covered Species.
3. Coordinate Tribal conservation efforts with those of the Coachella Valley MSHCP.
4. Support the maintenance or restoration of self-sustaining populations or metapopulations of the Covered Species included in the Plan to ensure their permanent conservation, so that take authorization can be obtained for currently listed wildlife species, and non-listed wildlife species can be covered in case they are listed in the future.
5. Sustain the ecological and evolutionary processes necessary to maintain the biological integrity and functionality of the conserved natural communities and habitats utilized by the species included in the Plan.
6. Maximize connectivity among populations and minimize habitat fragmentation within the Habitat Preserve to conserve biological diversity, ecological balance, and connected populations of Covered Species.
7. Minimize adverse impacts from OHV use, illegal dumping, edge effects, exotic species, and other disturbances in accordance with the management and monitoring programs.
8. Manage the Habitat Preserve adaptively to be responsive to short-term and long-term environmental change and new science.
9. 9. Use the Tribe's existing legal authorities to assure the Habitat Preserve is protected and managed in perpetuity.

**Table 4-1
Conservation Objectives for Mountains and Canyons Covered Species***

Species	Avoid habitat impacts to the maximum extent practicable and ensure no net loss of existing habitat in the MCCA	Conserve 85% of existing habitat in the MCCA	Conserve 100% of use areas and linkages	Avoid occupied habitat to the maximum extent practicable	Relocate individuals	Minimize indirect impacts	Create/restore habitat	Remove tamarisk	Control brown-headed cowbird populations	Control predators	Fund or undertake studies	Develop wildland fire management policy
Peninsular bighorn sheep		X	X			X		X			X	X
Least Bell's vireo	X			X		X	X	X	X			X
Southwestern willow flycatcher	X			X		X	X	X	X			X
Summer tanager	X					X	X	X	X			X
Yellow-breasted chat	X					X	X	X	X			X
Yellow warbler	X					X	X	X	X			X
Mountain yellow-legged frog	X			X		X	X	X		X†		
Southern yellow bat	X					X	X	X				X
Triple-ribbed milk-vetch		X		X		X						
Desert tortoise‡		X		X§	X	X						
Burrowing owl‡		X		X§	X	X						
Gray vireo		X				X			X			X

*Table is limited to those Covered Species that occur primarily within the MCCA.

†Predators of these species will be controlled only if the sensitive species are determined to be present.

‡Also may occur on the valley floor.

§ Restriction applies only within the Section 6 Target Acquisition Area.

**Table 4-1 (cont.)
Conservation Objectives for Mountains and Canyons Covered Species***

Species	Maintain sand source	Conserve habitat in Section 6 Target Acquisition Area	Conserve habitat in other Target Acquisition Areas	Conserve habitat in MCCA	Conserve habitat in Indian Canyons		Avoid impacts to Maximum Extent Practicable	Create/restore habitat	Conserve or transplant individuals	Minimize indirect impacts	
Coachella Valley fringe-toed lizard	X	X	X							X	
Coachella giant sand-treader cricket	X	X	X							X	
Flat-tailed horned lizard	X	X	X							X	
Palm Springs pocket mouse†	X	X	X	X	X					X	
Palm Springs (Coachella Valley round-tailed) ground squirrel†	X	X	X	X	X					X	
Coachella Valley Jerusalem cricket	X	X	X							X	
Coachella Valley milk-vetch†	X	X	X	X	X			X‡		X	
Le Conte's thrasher†		X	X	X						X	
Crissal thrasher							X	X		X	
Little San Bernardino Mountains gilia							X		X	X	

*Table is limited to those Covered Species that occur primarily within the VFCA.

†Also may occur in lower elevations of the MCCA.

‡Restriction applies only within the Section 6 Target Acquisition Area.

4.3.2 Species-specific Conservation Needs/Strategy, Biological Goals, and Objectives/Conditions

Conservation calculations throughout this Chapter 4 assume that the maximum permitted development occurs within the Plan Area. If less development occurs, a proportionally smaller amount of land would be dedicated to the Habitat Preserve. For the purposes of the impact and conservation calculations, it is also assumed that conservation in each conservation criteria category (100 percent, 95 percent, 85 percent, and 0 percent conservation) would be distributed evenly among the various species' modeled habitat occurring within that category. Each conservation requirement is applied to the number of acres in the applicable conservation category to calculate the number of acres of modeled habitat assumed to be conserved/impacted under the Tribal HCP.¹ Habitat for riparian species is assumed to be 90 percent conserved overall because of Plan requirements (no net loss requirements would result in creation/restoration of additional Riparian Habitat)². The Fluvial Sand Transport Process Area is included in both the impact and conservation totals because, as described in section 4.9.3.1(a), the area could be subject to some interim impacts but ultimately would be reclaimed and dedicated to the Habitat Preserve to provide some potentially suitable habitat for Covered Species over the long term.

Accounting of actual impacts and conservation (for comparison with the species objectives provided below) would be based on the individually modeled habitat for each Covered Species. As such, the same area may be counted as impacted/conserved habitat for several Covered Species.

4.3.2.1 Peninsular Bighorn Sheep

Conservation Needs/Strategy

The San Jacinto ewe group of Peninsular bighorn sheep is restricted to the east-facing, lower-elevation slopes of the San Jacinto Mountains generally between 700 and 3,400 feet AMSL. The conservation needs for Peninsular bighorn sheep include the following:

- Steep, rugged topography for lambing and rearing habitat that allows Peninsular bighorn sheep to avoid disturbance and predation;

¹Areas designated as 85 percent conservation where mitigation is not required to occur on site may meet some or all conservation obligations within areas designated for 95 or 100 percent conservation. As a result, it was assumed that upland habitats in these areas are subject to only 79.9 percent conservation, the amount required to meet the overall goal of 85 percent conservation for the MCCA as a whole. Acreages throughout this Tribal HCP are rounded to the nearest whole number. For example, if there were 400 acres of habitat for a certain species distributed evenly among the four categories, 275 acres of its habitat are assumed to be conserved (100 acres in the 100 percent conservation area; 95 acres in the 95 percent conservation area; 80 acres in the 85 percent conservation area; and no land in the 0 percent conservation area). This represents the most conservative assumption of potential impacts/conservation. Overall, conservation within the MCCA must occur at a minimum 85:15 ratio.

- Steep escape terrain of adequate area and forage that minimize predation risk;
- Open vegetation with good visibility to allow Peninsular bighorn sheep to detect predators visually;
- Access to permanent water sources;
- Maintenance of potential habitat linkages to other subpopulations for the purpose of maintaining genetic diversity;
- Alluvial fans and washes that have forage critical to Peninsular bighorn sheep nutrition; these fans are especially important for pregnant or lactating ewes during the spring “green-up” of vegetation and for all Peninsular bighorn sheep during times of drought;
- Large blocks of undisturbed land that allow for the current small population to expand numerically and spatially in order to establish a large, self-sustaining, healthy population. Although home ranges usually overlap, each individual Peninsular bighorn sheep uses approximately 20 to 25 square kilometers of habitat (DeForge et al. 1997); and
- Isolation from potential sources of domestic livestock disease, especially those transmitted from domestic sheep and goats.

The conservation strategy is to conserve populations and habitat essential to the recovery of the bighorn sheep in the Plan Area, consistent with the strategy contained in the Peninsular bighorn sheep Recovery Plan (USFWS 2000b).

Goals

The Tribe’s biological goals for conservation of Peninsular bighorn sheep are to proportionally contribute to immediate and long-term conservation of self-sustaining populations and the USFWS’ recovery effort in conjunction with the Coachella Valley MSHCP by: (1) conserving habitat of the San Jacinto and Santa Rosa mountain populations of the Peninsular bighorn sheep within the Plan Area; (2) maintaining connectivity by preventing habitat fragmentation in the Plan Area to allow dispersal and movement of Peninsular bighorn sheep within key linkage areas; and (3) adaptively managing habitat quality³ and subpopulations/ewe groups to alleviate direct and indirect threats in the Plan Area.

² Because a disproportionate amount of the overall 90 percent required riparian conservation would occur in the areas designated for 95 or 100 percent conservation, areas designated as 85 percent conservation are assumed to have a minimum 86 percent conservation of riparian habitats.

³ Habitat quality assessments are based on the current understanding of PBS biology. Because ecological relationships between species, habitats, and physical attributes of landscapes are extremely complex, caution would be used in defining "habitat quality" at any point in time during the Tribal HCP implementation phase. As the Peninsular bighorn sheep knowledge base continues to expand, definitions of habitat quality will likely need to be modified to incorporate this new information, and management measures may need to be modified consistent with an adaptive management strategy.

Objectives and Conditions

These goals are supported by the following biological objectives:

- Ensure that implementation of the Tribal HCP is consistent with the recovery strategy delineated in the Peninsular bighorn sheep Recovery Plan (USFWS 2000b)⁴ and subsequent empirical research and data.
- Conserve a minimum of 14,070 acres of existing Peninsular bighorn sheep habitat in the Plan Area to provide the full range of environmental conditions needed for long-term, self-sustaining bighorn sheep populations, including provisions for population fluctuations and maintenance of genetic diversity.
- Conserve 100 percent of Peninsular bighorn sheep Use Areas (as defined in section 4.8.4.1) within the Plan Area. This will ensure that any allowed Covered Activity does not fragment those areas with high functional value, which include Peninsular bighorn sheep home ranges, known movement or dispersal areas, foraging areas, lambing areas, seasonal and perennial water sources, and escape habitat in close proximity to high function areas.
- Conserve land necessary to maintain linkages within the Plan Area as shown on Figure 34 or identified by studies that are based on empirical data accepted by the USFWS (radio or global positioning system [GPS] collar data and accepted observation records by qualified parties, etc.) to facilitate existing and future Peninsular bighorn sheep movement and connectivity.
- Minimize direct and indirect impacts to Peninsular bighorn sheep and their habitat from Covered Activities by ensuring implementation of development standards, including avoidance and minimization measures (see section 4.8.4.2[a]). These measures include ensuring that edge effects are minimized by clustering Covered Projects and placing them in the portion of project sites that would result in the least biological impact to Peninsular bighorn sheep.
- Minimize impacts to Peninsular bighorn sheep from recreational activities by monitoring recreational trail use and ensuring compliance with restrictions described in the Tribal Trail Plan (Tribal Planning Department 2000) and sections 2.1.1.3 and 4.11.2 of this Plan to ensure that human disturbance associated with recreation does not adversely affect the conservation of Peninsular bighorn sheep.
- Alleviate the threat of disease transfer from domestic livestock or non-native wildlife to Peninsular bighorn sheep through appropriate measures or restrictions associated with project approvals and/or ordinances (see section 4.8.4.2[a]).
- Monitor Peninsular bighorn sheep population size and mortality rates.
- Fund or undertake additional studies regarding the species (refer to section 4.12.1.2).
- Ensure that management action thresholds are routinely assessed during the annual review and reporting period as described in section 4.15.5.2.
- Clear from a minimum of 10 acres per year any tamarisk, umbrella sedge (*Cyperus alternifolius*), and/or African fountain grass (*Pennisetum setacetum*) in Indian Canyons and other accessible areas of

⁴All references to recovery plans include subsequent updated recovery plans and direction provided in five-year reviews.

the MCCA for at least a total of 80 acres (refer to section 4.11.2.1). These 80 acres will continue to be maintained free of such species for the life of the Plan.

4.3.2.2 Avian Riparian Species (Least Bell's Vireo, Southwestern Willow Flycatcher, Summer Tanager, Yellow-breasted Chat, and Yellow Warbler)

Conservation Needs/Strategy

Threats to these species' survival are loss and degradation of riparian habitat as well as brood-parasitism by brown-headed cowbirds. Conservation needs for these species include the protection and management of riparian habitats in the Plan Area. The conservation strategy is to ensure no net loss of suitable habitat for these species and provide for a net gain in functions of the riparian habitat by non-native species removal.

Least Bell's Vireo

The least Bell's vireo is a migratory bird that breeds throughout southern California, including the Coachella Valley. Potential breeding habitat includes riparian woodland with a generally dense, stratified tree and scrub cover harboring very little open area along the river and stream systems in the San Jacinto and Santa Rosa mountains. Typical habitat will have an overstory of cottonwoods with a dense willow and mule fat understory. This species is known to breed in Chino, Palm, Murray, and Andreas canyons on the Reservation.

Goals

The Tribe's biological goals for the least Bell's vireo are to contribute proportionally to the long-term conservation of the species, allowing evolutionary processes and natural population fluctuations to occur in conjunction with other existing and planned regional conservation efforts by (1) conserving habitat for the species; (2) protecting essential ecological processes, including hydrological regimes necessary to maintain habitat for this species; and (3) adaptively managing habitat quality, cowbird parasitism, and vireo populations to alleviate direct and indirect threats in the Plan Area.

Objectives and Conditions

The following biological objectives support these goals:

- Determine presence, absence, distribution, and abundance of vireo in the Plan Area;
- Conserve a minimum of 1,048 acres of existing riparian habitat in place within the Plan Area;
- Ensure no net loss of suitable habitat functions and values in the Plan Area, resulting in net conservation of 1,164 acres (1,048 in place and 116 acres of restoration), and provide for a net gain in functions of the riparian habitat by non-native species removal;

- Avoid impacts to occupied habitat (as determined by surveys conducted and/or required by the Tribe) to the Maximum Extent Practicable;
- Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages;
- Minimize fragmentation, human-caused disturbance, and edge effects by ensuring implementation of development standards, including avoidance and minimization measures (see section 4.8.4);
- Monitor population size;
- Clear from a minimum of 10 acres per year of invasive exotic plant species/noxious weeds in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres over the course of eight years (refer to section 4.11.2). These 80 acres will continue to be maintained free of such species for the life of the Plan; and
- Control brown-headed cowbird populations, if present (refer to section 4.11.2.3).

In addition to these biological objectives, additional habitat restoration is possible through the Clean Water Act Section 404 process and/or other restoration activities discussed in this Plan.

Southwestern Willow Flycatcher

The southwestern willow flycatcher is a migratory bird that breeds in southern California and several other western states but in a limited number of locations and in extremely low population numbers. Potential breeding habitat includes dense riparian woodlands and forests along the river and stream systems in the San Jacinto and Santa Rosa mountains. Only one pair located in Mission Creek has ever been confirmed as breeding in the Coachella Valley. A southwestern willow flycatcher was reported in Palm Canyon in 2003 (Jones & Stokes 2003). A flycatcher was observed in Murray Canyon in 2003, but the subspecies was not confirmed (UCR 2003).

Goals

The Tribe's biological goals for the southwestern willow flycatcher are to contribute to the long-term conservation of the species by protecting habitat for the species and minimizing nest parasitism and indirect impacts.

Objectives and Conditions

The following biological objectives support these goals:

- Determine presence, absence, distribution, and abundance of flycatcher in the Plan Area;
- Minimize fragmentation and edge effects;
- Conserve a minimum of 1,048 acres of existing riparian habitat in place within the Plan Area;

- Ensure no net loss of suitable habitat functions and values in the Plan Area, resulting in net conservation of 1,164 acres (1,048 acres in place and 116 acres of restoration), and provide for a net gain in functions of the riparian habitat by non-native species removal;
- Avoid impacts to occupied habitat (as determined by surveys conducted and/or required by the Tribe) to the Maximum Extent Practicable (as defined in section 4.8.4);
- Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages;
- Clear from a minimum of 10 acres per year of invasive exotic plant species/noxious weeds in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres over the course of eight years (refer to section 4.11.2). These 80 acres will continue to be maintained free of such species for the life of the Plan ; and
- Monitor brown-headed cowbird populations and take appropriate corrective actions (as described in section 4.11.2.3), if present.

In addition to these biological objectives, additional habitat restoration is possible through the Clean Water Act Section 404 process and/or other restoration activities discussed in this Plan.

Summer Tanager

The summer tanager is a migratory bird that breeds across the southern U.S. from California (as far north as the Kern River Valley) to Florida. Potential breeding habitat includes mature riparian woodlands dominated by willows and cottonwoods in areas with openings near water and forests. This species was observed in Andreas, Palm, and Tahquitz canyons on the Reservation; it also was observed on off-Reservation (and outside the Plan Area) land in Chino Canyon.

Goals

The Tribe's biological goals for the summer tanager are to complement other existing and planned regional efforts intended to result in the long-term conservation of the species by protecting habitat for the species and minimizing nest parasitism and indirect impacts.

Objectives and Conditions

The following biological objectives support these goals:

- Determine presence, absence, distribution, and abundance of summer tanager in the Plan Area;
- Minimize fragmentation and edge effects;
- Conserve a minimum of 1,048 acres of the existing riparian habitat in place within the Plan Area;

- Ensure no net loss of suitable habitat functions and values in the Plan Area, resulting in net conservation of 1,164 acres (1,048 acres in place and 116 acres of restoration), and provide for a net gain in functions of the riparian habitat by removal of non-native species;
- Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages;
- Clear from a minimum of 10 acres per year of invasive exotic plant species/noxious weeds in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres over the course of eight years (refer to section 4.11.2). These 80 acres will continue to be maintained free of such species for the life of the Plan ; and
- Monitor brown-headed cowbird populations and take appropriate corrective actions (as described in section 4.11.2.3), if present.

In addition to these biological objectives, additional habitat restoration is possible through the Clean Water Act Section 404 process and/or other restoration activities discussed in this Plan.

Yellow-breasted Chat

The yellow-breasted chat is a migratory bird that breeds throughout the U.S. and southern Canada. Potential breeding habitat includes riparian areas with dense vegetation along the river and stream systems in the San Jacinto and Santa Rosa mountains. This species was observed in Murray Canyon on the Reservation in 2003 and 2006.

Goals

The Tribe's biological goals for the yellow-breasted chat are to complement other existing and planned regional efforts intended to result in the long-term conservation of the species by protecting habitat for the species and minimizing nest parasitism and indirect impacts.

Objectives and Conditions

The following biological objectives support these goals:

- Determine presence, absence, distribution, and abundance of yellow-breasted chat in the Plan Area;
- Minimize fragmentation and edge effects;
- Conserve a minimum of 1,048 acres of the existing riparian habitat in place within the Plan Area;
- Ensure no net loss of suitable habitat functions and values in the Plan Area, resulting in net conservation of 1,164 acres (1,048 acres in place and 116 acres of restoration), and provide for a net gain in functions of the riparian habitat by removal of non-native species;

- Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages;
- Clear from a minimum of 10 acres per year of invasive exotic plant species/noxious weeds in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres over the course of eight years (refer to section 4.11.2). These 80 acres will continue to be maintained free of such species for the life of the Plan; and
- Monitor brown-headed cowbird populations and take appropriate corrective actions (as described in section 4.11.2.3), if present.

In addition to these biological objectives, additional habitat restoration is possible through the Clean Water Act Section 404 process and/or other restoration activities discussed in this Plan.

Yellow Warbler

The yellow warbler is a migratory bird that breeds throughout southern California and much of the U.S. Potential breeding habitat includes riparian woodlands and forests with a dense understory along the river and stream systems in the San Jacinto and Santa Rosa mountains. This species has been observed in Palm and Tahquitz canyons on the Reservation (Haas and Nordby 2006) and on private property off the Reservation (and outside of the Plan Area) in Chino Canyon (UCR 2003).

Goals

The Tribe's biological goals for the yellow warbler are to complement other existing and planned regional efforts intended to result in the long-term conservation of the species by protecting habitat for the species and minimizing nest parasitism and indirect impacts.

Objectives and Conditions

The following biological objectives support these goals:

- Determine presence, absence, distribution, and abundance of yellow warbler in the Plan Area;
- Minimize fragmentation and edge effects;
- Conserve a minimum of 1,048 acres of the existing riparian habitat in place within the Plan Area;
- Ensure no net loss of suitable habitat functions and values in the Plan Area, resulting in net conservation of 1,164 acres (1,048 acres in place and 116 acres of restoration), and provide for a net gain in functions of the riparian habitat by non-native species removal;
- Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages;

- Clear from a minimum of 10 acres per year of invasive exotic plant species/noxious weeds in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres over the course of eight years (refer to section 4.11.2). These 80 acres will continue to be maintained free of such species for the life of the Plan; and
- Monitor brown-headed cowbird populations and take appropriate corrective actions (as described in section 4.11.2.3), if present.

In addition to these biological objectives additional habitat restoration is possible through the Clean Water Act Section 404 process and/or other restoration activities discussed in this Plan.

4.3.2.3 Mountain Yellow-legged Frog

Mountain yellow-legged frog has potential to occur but has not recently been observed in the river and stream systems in the Plan Area. Additionally, reintroduction will likely occur adjacent to the Plan Area (and possibly within the Plan Area) in the near future.

Conservation Needs/Strategy

The conservation needs identified for this amphibian are the protection of riparian and stream habitats and the control of non-native predators in the Plan Area. The conservation strategy is to ensure no net loss of suitable habitat for these species in the Plan Area and provide for a net gain in functions of the riparian habitat by non-native species removal.

The mountain yellow-legged frog has potential to occur in the Plan Area and was historically observed in Chino (1960), Tahquitz (1972), and Andreas (1979) canyons but has not recently been observed in the Plan Area. This species inhabits ponds, dams, lakes, and perennial streams at moderate to high elevations. It seems to be absent from the smallest creeks and prefers open stream or lakes with gently sloping margins. The species seems to be most successful where predatory fish are absent.

Goals

The biological goals for the mountain yellow-legged frog are to complement other existing and planned regional efforts intended to result in the long-term conservation of the species by protecting habitats that may have the potential to support the species, minimizing predation, and minimizing direct and indirect impacts.

Objectives and Conditions

The following biological objectives support these goals:

- Conserve a minimum of 181 acres of the existing mountain yellow-legged frog habitat within the Plan Area;
- Ensure no net loss of suitable habitat functions and values in the Plan Area, resulting in net conservation of 192 acres of habitat (181 acres in place and 11 acres of restoration), and provide for a net gain in functions of the riparian habitat by removal of non-native species;
- Avoid impacts to occupied habitat (as determined by surveys conducted and/or required by the Tribe) to the Maximum Extent Practicable;
- Clear from a minimum of 10 acres per year of invasive exotic plant species/noxious weeds in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres over the course of eight years (refer to section 4.11.2). These 80 acres will continue to be maintained free of such species for the life of the Plan;
- Control predators such as bullfrogs and non-native fish if mountain yellow-legged frog is determined to be present; and
- At the Tribe's sole discretion, provide access for re-establishment (including monitoring of potentially dispersing populations re-introduced on adjacent lands) of mountain yellow-legged frogs within the Plan Area by the USFWS or USGS within drainages where the species is apparently extirpated. If it allows reintroduction of mountain yellow-legged frogs, the Tribe will not be obligated to remove predators in areas of reintroduction but will work with the applicable agencies/organizations to facilitate their removal.

In addition to these biological objectives, additional habitat restoration is possible through the Clean Water Act Section 404 process and/or other restoration activities discussed in this Plan.

4.3.2.4 Southern Yellow Bat

Conservation Needs/Strategy

Southern yellow bats have been recorded in Palm, Andreas, and Murray canyons on the Reservation. The southern yellow bat is not federally listed but has been designated as a Tribal sensitive species. Conservation needs for this species in the Plan Area include the protection and enhancement of palm oases as well as the development of a wildland fire management policy to address consideration of southern yellow bat habitat requirements versus fire risks associated with untrimmed palm trees. Outside of outright loss of palm trees themselves and foraging habitat, the most serious threat to the southern yellow bat would be loss of dead palm fronds, which can result from fire or pruning when trees are used for landscape purposes. If loss of palm fronds on site would occur in the spring or summer before the young can fly, it

could result in the loss of a year's reproduction. This species may form small maternity groups in the trees and palms in the Plan Area. Pregnancy likely occurs from April to June in the Coachella Valley, with lactation occurring in June and July. In Texas, bat pups have been found on fronds that have been trimmed from trees. Additionally, pesticide use likely adversely affects food availability for this species.

Goals

The biological goal for the southern yellow bat is to complement other existing and planned regional efforts intended to result in the long-term conservation of the species by conserving habitat for the species and minimizing direct and indirect impacts.

Objectives and Conditions

This goal is supported by the following biological objectives:

- Determine presence, absence, distribution, and abundance of southern yellow bat in the Plan Area;
- Conserve a minimum of 782 acres of the existing palm oases within the Plan Area;
- Ensure no net loss of suitable fan palm oasis habitat functions and values in the Plan Area, resulting in net conservation of 869 acres of habitat (782 acres in place and 87 acres of restoration), and provide for a net gain in functions of the fan palm oasis habitat by removal of non-native species;
- Conserve a minimum of 17,404 acres of uplands in the MCCA portion of the Plan Area;
- Maximize buffers adjacent to conserved natural palm oases as part of the Conditional Use Permit process;
- Clear from a minimum of 10 acres per year of invasive exotic plant species/noxious weeds in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres over the course of eight years (refer to section 4.11.2). These 80 acres will continue to be maintained free of such species for the life of the Plan;
- Develop and implement a wildland fire management policy that protects the southern yellow bat habitat requirements;
- Work with local residents to educate them regarding the conservation needs of the southern yellow bat, including promoting the appropriate trimming of palm trees; and
- Prohibit trimming of naturally occurring fan palms within the Habitat Preserve in Indian Canyons, unless it is determined through peer-reviewed scientific studies that such activities do not pose a threat to this species.

4.3.2.5 Triple-ribbed Milk-vetch

Conservation Needs/Strategy

This species is not known to occur in the Plan Area but has potential to occur in the washes and/or at the base of the canyon slopes of the San Jacinto and Santa Rosa mountains, where slides or flooding occur. This species' conservation need is the protection of extant locations (including any newly discovered occurrences) within the Plan Area to the Maximum Extent Practicable.

Goals

The biological goal for conserving the triple-ribbed milk-vetch is to complement other existing and planned regional efforts intended to result in the long-term conservation of the species by conserving habitats in the Plan Area with potential to support the species and minimizing direct and indirect impacts to the species.

Objectives and Conditions

This goal is supported by the following biological objectives:

- Conserve a minimum of 85 percent of all MCCA habitats in the Plan Area, including potential triple-ribbed milk-vetch habitat;
- Avoid impacts to populations of this species (as determined by surveys conducted and/or required by the Tribe in suitable habitat) to the Maximum Extent Practicable; and
- Mitigate any unavoidable impacts through conservation of extant populations and/or preparation and implementation of a USFWS-approved restoration plan as described in section 4.8.4.2(f).

4.3.2.6 Desert Tortoise

Conservation Needs/Strategy

Although the number of desert tortoise in the Coachella Valley is low, isolated individuals or remnant low-density populations are found on the alluvial fans and canyon bottoms, washes, and slopes on the eastern side of the San Jacinto and Santa Rosa mountains. Conservation needs for this species in the Plan Area include conservation of potential habitat and avoidance of direct impacts to individuals.

Goals

The biological goals of the Plan for conserving the desert tortoise are to complement other existing and planned regional efforts intended to result in the long-term conservation of the species by conserving habitats with potential to support this species and providing effective avoidance measures for direct impacts to this species.

Objectives and Conditions

These goals are supported by the following biological objectives:

- Completely avoid direct loss of individuals through relocation in accordance with the protocols described in section 4.8.4.2(f);
- Conserve a minimum of 10,301 acres of this species' suitable or occupied habitat in the Plan Area; and
- Avoid impacts to occupied habitat (as determined by surveys conducted and/or required by the Tribe) within the Section 6 Target Acquisition Area to the Maximum Extent Practicable.

4.3.2.7 Burrowing Owl

Conservation Needs/Strategy

The burrowing owl is not federally listed but has been designated as a Tribal sensitive species. It can be found in the canyon bottoms in the San Jacinto and Santa Rosa mountains and in portions of the valley floor. The conservation needs for this species are conservation of potential habitat and avoidance and/or minimization of impacts to individuals or populations.

Goals

The biological goals for conserving the burrowing owl are to complement other existing and planned regional efforts intended to result in the long-term conservation of the species by conserving habitats with potential to support the species and providing effective avoidance of direct impacts to this species.

Objectives and Conditions

These goals are supported by the following biological objectives:

- Minimize direct loss of individuals through relocation in accordance with the protocols described in section 4.8.4.2(g);

- Conserve a minimum of 977 acres of suitable habitat in the Plan Area;
- Ensure that a minimum of 364 acres of the habitat acquired for conservation in Target Acquisition Areas inside and outside of the Reservation are potentially suitable to support this species; and
- Avoid impacts to occupied habitat (as determined by surveys conducted and/or required by the Tribe) within the Section 6 Target Acquisition Area to the Maximum Extent Practicable.

4.3.2.8 Gray Vireo

Conservation Needs/Strategy

The gray vireo is not federally listed but has been designated as a Tribal sensitive species. It usually occurs in semi-arid, shrub-covered foothills and mesas in pinyon-juniper, juniper, and chamise-redshank chaparral habitat. This species has not been previously recorded in the Plan Area but is known from the San Jacinto Mountains and is likely to occur in the MCCA. The conservation needs for this species are habitat conservation and minimizing impacts from brown-headed cowbird parasitism.

Goals

The Tribe's biological goals for the gray vireo are to complement other existing and planned regional efforts intended to result in the long-term conservation of the species by conserving habitats with potential to support the species and minimizing nest parasitism and indirect impacts.

Objectives and Conditions

The following biological objectives support these goals:

- Conserve a minimum of 782 acres of suitable habitat within the Plan Area;
- Control brown-headed cowbird populations, if present, in these same areas; and
- Develop and implement a wildland fire management policy that provides due consideration for gray vireo habitat requirements.

4.3.2.9 Blow Sand-dependent Species

An underlying premise to determining the conservation needs for blow sand-dependent species (Coachella Valley fringe-toed lizard and Coachella giant sand-treader cricket) is the recognition that large blocks of land in the Coachella Valley are shielded from receiving blow sand by upwind obstructions such as I-10, the tamarisk windrow along the railroad, and various developments throughout the valley. Most of the remaining sand habitats in the VFPA are now classified as stabilized and partially-stabilized shielded sand fields, indicating that they no longer receive a viable natural sand source and the underlying substrate has

subsequently become stabilized. As a result, these areas (outside of Section 6, Township 4 South, Range 5 East) will not provide long-term viable habitat for the blow sand-dependent species. However, active and ephemeral sand fields located outside the Reservation and north of I-10 and those remaining within Section 6 (Township 4 South, Range 5 East) on the Reservation would, if protected, provide habitats with higher viability in the long term for blow sand-dependent species.

Conservation Needs/Strategy

The conservation needs of blow sand-dependent species are to conserve remaining habitats still subject to the influence of sand movement (e.g., active and ephemeral sand fields) in the Coachella Valley and enhance/restore ecological and physical processes where these processes have been degraded to levels insufficient to maintain the minimum needed for viability of species that depend on the blow sand ecosystem.

Coachella Valley Fringe-toed Lizard

The Coachella Valley fringe-toed lizard is associated with a substrate of wind-blown sands. Primary threats are direct loss as well as degradation of habitat and the processes that create and maintain its habitat.

Goals

The biological goal for conserving the Coachella Valley fringe-toed lizard is to conserve the majority of Section 6, Township 4 South, Range 5 East and to complement other existing and planned regional efforts intended to result in the long-term conservation of this species through acquisition and management of habitat and the areas required to support the processes that maintain active and ephemeral sand field habitats off of the Reservation.

Objectives and Conditions

The following biological objectives support this goal:

- Avoid, minimize, and/or mitigate impacts to active or ephemeral sand field habitats and biological core and linkage habitat within the Section 6 Target Acquisition Area on the Reservation;
- Conserve at least 177 acres within the Section 6 Target Acquisition Area;
- Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term;
- Assuming the maximum development in the Section 6 Specific Plan Area is undertaken, ensure that a minimum of 32 acres of habitat potentially suitable to support this species are acquired for conservation in Target Acquisition Areas outside of the Reservation;

- Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas; and
- Minimize fragmentation and edge effects to this species.

Coachella Giant Sand-treader Cricket

The Coachella giant sand-treader cricket occurs exclusively in the active and ephemeral sand fields in the Coachella Valley; stabilized sand areas are avoided.

Goals

The biological goal for conserving the Coachella giant sand-treader cricket is to conserve the majority of Section 6, Township 4 South, Range 5 East and to complement other existing and planned regional efforts intended to result in the long-term conservation of this species through acquisition and management of habitat and the areas required to support the processes that maintain active and ephemeral sand field habitats off of the Reservation.

Objectives and Conditions

The following biological objectives support this goal:

- Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area on the Reservation;
- Conserve at least 177 acres within the Section 6 Target Acquisition Area;
- Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term;
- Ensure that a minimum of 32 acres of habitat potentially suitable to support the species are acquired for conservation in Target Acquisition Areas outside of the Reservation if the maximum development in the Section 6 Specific Plan Area is undertaken;
- Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas; and
- Minimize fragmentation and edge effects to this species.

4.3.2.10 Active and Stabilized Sand-dependent Species

The species discussed below occur in both active and partially stabilized or stabilized sand habitats. Most of the approximately 2,971 acres of partially stabilized and stabilized shielded sand field habitat in the

Plan Area is isolated and fragmented by existing development, which substantially reduces its anticipated long-term viability. The existing fragmentation is illustrated in Table 4-2.

**Table 4-2
Stabilized Sand Field Patch Size Analysis**

Patch Size*	Number of Patches	Total Acres	Percentage
<10 acres	22	96	3
10-50 acres	20	439	13
50-100 acres	6	450	17
100-250 acres	3	540	18
>250 acres	3	1,446	49
TOTAL	54	2,971	100

*Patch delineations are based on the presence of surrounding development, including roads.

As illustrated in the table, only three patches of stabilized sand fields exceeding 250 acres in size remain on the Reservation, in its northeastern corner. Most of the relatively large patches are abutted on two sides by development, and the ownership/allotment is highly fragmented (ranging from 8 in Section 14 [Township 4 South, Range 5 East] to over 50 in Section 10 [Township 4 South, Range 5 East], very little of which is held by the Tribe), substantially limiting conservation options. Only Section 2 and Section 12, located north of I-10, currently do not have development bounding at least two sides, although Section 12 does have an existing mining operation on the northern boundary. Section 2 abuts the southern boundary of a conservation area identified in the Coachella Valley MSHCP. Including other portions of the Reservation in the Target Acquisition Areas would not provide conservation of any unique biological resources not already available for conservation elsewhere within the currently proposed Target Acquisition Areas. Adding areas to the Target Acquisition Areas could cause some other portion of the Target Acquisition Areas with higher conservation value to not be conserved.

Conservation Needs/Strategy for Active and Stabilized Sand-dependent Species

The conservation need of these species is to conserve habitats with long-term viability in the Coachella Valley.

Flat-tailed Horned Lizard

The flat-tailed horned lizard typically inhabits desert dry washes and desert flats (stabilized and partially stabilized sand fields) on the valley floor in the Coachella Valley, including the Plan Area. It also occurs far from blow sand on the valley floor in the Coachella Valley. Primary threats are loss or degradation of habitat and mortality due to roadways and household pet predation.

Goals

The biological goal for conserving the flat-tailed horned lizard is to complement other existing and planned regional efforts intended to result in the long-term conservation of the species through acquisition and management of habitat within desert flats and sand dunes.

Objectives and Conditions

The following biological objectives support this goal:

- Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields and biological core and linkage habitat within the Section 6 Target Acquisition Area on the Reservation;
- Conserve at least 177 acres within the Section 6 Target Acquisition Area;
- Ensure that a minimum of 640 acres of habitat acquired for conservation in Indian Canyons and the other Target Acquisition Areas are potentially suitable to support this species;
- Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term;
- Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas; and Minimize fragmentation and edge effects to this species
- .

Palm Springs Pocket Mouse

The Palm Springs pocket mouse is found in sandy habitats on the valley floor of the Coachella Valley, including the Plan Area. Generally its habitat has level to gently sloping topography, sparse to moderate vegetative cover and loosely packed or sandy soils. Threats to the species include habitat disturbance, illegal trash dumping, and household pet predators.

Goals

The biological goal for conserving the Palm Springs pocket mouse is to complement other existing and planned regional efforts intended to result in the long-term conservation of the species through acquisition and management of habitat within sandy areas.

Objectives and Conditions

The following biological objectives support this goal:

- Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields and biological core and linkage habitat within the Section 6 Target Acquisition Area;
- Conserve at least 177 acres within the Section 6 Target Acquisition Area;
- Ensure that a minimum of 640 acres of habitat acquired for conservation in Indian Canyons and the other Target Acquisition Areas are potentially suitable to support this species;
- Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term;
- Conserve a minimum of 293 acres of potential habitat in the MCCA;
- Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas; and
- Minimize fragmentation and edge effects to this species.

Palm Springs (Coachella Valley Round-tailed) Ground Squirrel

The Palm Springs ground squirrel is generally found throughout the Coachella Valley, including the Plan Area. This species is typically associated with sand fields and dune formations, although it does not require active blow sand areas. Squirrels may also be found in areas where sandy substrates occur in Sonoran creosote bush scrub and desert saltbush or desert sink scrub that supports herbaceous scrub, and in areas of coarser sands associated with dry desert washes. They most commonly occur in mesquite hummocks with accumulations of blow sand conducive to the excavation of burrow networks. Threats include loss of habitat (including loss of mesquite hummocks due to lowered water tables), surface disturbances (e.g., OHVs) and predation.

Goals

The biological goal for conserving the Palm Springs ground squirrel is to complement other existing and planned regional efforts intended to result in the long-term conservation of the species through acquisition and management of habitat within sand fields and dune formations.

Objectives and Conditions

The following biological objectives support this goal:

- Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area on the Reservation;
- Conserve at least 177 acres within the Section 6 Target Acquisition Area;
- Ensure that a minimum of 640 acres of habitat acquired for conservation in Indian Canyons and the other Target Acquisition Areas are potentially suitable to support this species;
- Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term;
- Conserve a minimum of 124 acres of potential habitat in the MCCA;
- Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas; and
- Minimize fragmentation and edge effects to this species.

Coachella Valley Jerusalem Cricket

The Coachella Valley Jerusalem cricket inhabits windblown sand habitats on the floor of the Coachella Valley, including known locations adjacent to the Plan Area. Although they normally occur in sandy to somewhat gravelly sandy soils, they do not necessarily require active blow sand habitat. The most significant threats to the species are habitat fragmentation and habitat damage from OHV use.

Goals

The biological goal for conserving the Coachella Valley Jerusalem cricket is to complement other existing and planned regional conservation efforts for the species through acquisition and management of both windblown sand and stabilized sand habitats.

Objectives and Conditions

The following biological objectives support this goal:

- Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area on the Reservation;
- Conserve at least 177 acres within the Section 6 Target Acquisition Area;
- Ensure that a minimum of 640 acres of habitat acquired for conservation in the other Target Acquisition Areas are potentially suitable to support this species;

- Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term;
- Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas; and
- Minimize fragmentation and edge effects to this species.

Coachella Valley Milk-vetch

The Coachella Valley milk-vetch is commonly found in sandy flats, washes, and other sand habitats along the I-10 corridor on the valley floor, including within the Plan Area. It tends to occur in the coarser sands at the margins of dunes, not in the most active blow sand areas. Threats to the species include urban development, human activity, and introduction of non-native plants.

Goals

The biological goal for conserving the Coachella Valley milk-vetch is to complement other existing and planned regional conservation efforts for the species through acquisition and management of sand habitats.

Objectives

The following biological objectives support this goal:

- Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area;
- Conserve at least 177 acres within the Section 6 Target Acquisition Area;
- Ensure that a minimum of 640 acres of habitat acquired for conservation in Indian Canyons and the other Target Acquisition Areas are potentially suitable to support this species;
- Avoid impacts to extant populations (as determined by surveys conducted and/or required by the Tribe) within the Section 6 Specific Plan Area (see section 4.9.3.1[b]) to the Maximum Extent Practicable;
- Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term;
- Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas;
- Conserve a minimum of 42 acres of potential habitat in the MCCA; and

4.3.2.11 Other Valley Floor Species

Three additional Covered Species (crissal thrasher, LeConte's thrasher, and Little San Bernardino Mountains gilia) are not sand-dependent but occur primarily in the VFPA. Each of these species also has potential to occur within the MCCA.

LeConte's Thrasher

Conservation Needs/Strategy

The LeConte's thrasher occurs in the Plan Area and prefers open, sparsely vegetated desert flats, dunes, alluvial fans, and hills, often in habitat where saltbrush and cholla cactus are present. Threats to the species include agriculture and urbanization. The conservation need of the species, therefore, is to conserve habitats with long-term viability in the Coachella Valley.

Goals

The biological goal for conserving the Le Conte's thrasher is to complement other existing and planned regional efforts intended to result in the long-term conservation of this species through acquisition and management of habitat within the Valley Floor as well as in the MCCA.

Objectives and Conditions

The following biological objectives support this goal:

- Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area on the Reservation;
- Conserve at least 177 acres within the Section 6 Target Acquisition Area;
- Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term; and
- Conserve a minimum of 100 acres of potential habitat for this species in the MCCA.

Crissal Thrasher

Conservation Needs/Strategy

The crissal thrasher occurs primarily in desert saltbush scrub, mesquite hummocks, and dense mesquite areas, including portions of the Action Area. Threats to the species include agriculture and urbanization. The conservation need of the species, therefore, is to conserve habitats with long-term viability in the Coachella Valley.

Goals

The biological goal for conserving the crissal thrasher is to complement other existing and planned regional efforts intended to result in the long-term conservation of this species through acquisition and management of habitat on the valley floor as well as in the MCCA.

Objectives and Conditions

The following biological objectives support this goal:

- Avoid impacts to mesquite hummocks and thickets associated with riparian habitat in the Plan Area to the Maximum Extent Practicable; and
- Conserve, create, or restore mesquite hummock and mesquite thicket habitats at a minimum ratio of 2:1 as mitigation for any unavoidable impacts to these areas. Impacts to mesquite hummocks and thickets associated with riparian habitat shall include a minimum of 1:1 creation to ensure no net loss of this habitat type in riparian zones.

Little San Bernardino Mountains Gilia

Conservation Needs/Strategy

The Little San Bernardino Mountains gilia is found on loose, soft sandy soils that occur on low benches along washes with little shrub or tree cover. The primary threat to this species is development of suitable habitat, primarily outside of the Plan Area. The conservation needs of this species are the preservation and management of extant populations and suitable habitat.

Goals

The biological goal for conserving the Little San Bernardino Mountains gilia is to complement other existing and planned regional efforts intended to result in the long-term conservation of this species through acquisition, protection of ecological processes, and management of habitat on the Valley Floor.

Objectives and Conditions

The following biological objectives support this goal:

- Avoid impacts to populations of this species (as determined by project-specific surveys conducted and/or required by the Tribe) to the Maximum Extent Practicable; and
- As mitigation for any unavoidable impacts, conserve or restore populations at a minimum ratio of 3:1 as described in section 4.9.3.4.

4.4 IMPACTS TO COVERED SPECIES

This section serves to quantify impacts to Covered Species and incidental take levels of covered animal species that are anticipated to occur based on maximum acres of habitat disturbance authorized by this Plan. This is necessary to assess the potential impacts of the Tribal HCP on Covered Species, as required by 16 USC 1539(a)(2)(A)(i) and implementing regulations.

This section contains a discussion of conservation and impact levels for each Covered Species, as summarized in Table 4-3. In general, these impact levels are estimated based on loss of potential habitat as modeled by CVAG and reviewed by the USFWS. Accordingly, the table accompanying the discussion of each Covered Species described below contains the following information:

- The number of acres of modeled habitat or the number of known locations that occur in the Coachella Valley as a whole;
- The number of acres of modeled habitat or the number of known locations that occur in the Plan Area;
- The number of acres of modeled habitat for each species that will be conserved by the Tribe under the Plan, assuming the maximum authorized disturbance; and
- The number of acres of modeled habitat for each species or the number of known locations of each species in the Plan Area that are authorized to be disturbed by Covered Projects in accordance with this Plan.

THIS PAGE INTENTIONALLY LEFT BLANK

**Table 4-3
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Peninsular bighorn sheep (<i>Ovis canadensis</i>)	3	<p>The Peninsular bighorn sheep (PBS) is one of two populations of bighorn sheep that occur in southern California and is restricted to the east-facing lower-elevation slopes (below 4,600 feet AMSL) of the Peninsular Ranges in the Sonoran Desert life zone. Surveys during the 1970s, 1980s, and 1990s indicate that declines have occurred in multiple ewe groups. The current population of approximately 700 animals is distributed in eight known ewe groups from the San Jacinto Mountains south to the Mexican border.</p> <p>The current (2007) population of PBS in the San Jacinto Mountains consists of 22 adult sheep, including 10 ewes.</p> <p>The species' population in the Peninsular Ranges is federally listed endangered. Lands within the Plan Area are excluded from designated critical habitat.</p>	<p>Objective 1: Ensure that implementation of the Tribal HCP (THCP) is consistent with the recovery strategy delineated in the Recovery Plan for PBS (USFWS 2000) and subsequent empirical research and data.</p> <p>Objective 2: Conserve a minimum of 14,070 acres of existing PBS habitat in the Plan Area, including 100 percent of use areas within the Plan Area and land necessary to maintain linkages within the Plan Area.</p> <p>Objective 3: Minimize direct and indirect impacts to PBS and their habitat from Covered Activities by ensuring implementation of development standards, including avoidance and minimization measures.</p> <p>Objective 4: Minimize impacts to PBS from recreational activities by monitoring recreational trail use and ensuring compliance with restrictions.</p> <p>Objective 5: Alleviate the threat of disease transfer from domestic livestock or non-native wildlife to PBS through appropriate measures or restrictions associated with project approvals and/or ordinances.</p> <p>Objective 6: Monitor PBS population size and mortality rates.</p> <p>Objective 7: Fund or undertake additional studies regarding the species.</p> <p>Objective 8: Ensure that management action thresholds are routinely assessed during the annual review and reporting period.</p> <p>Objective 9: Clear from a minimum of 10 acres per year any tamarisk, umbrella sedge, and/or African fountain grass, in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres.</p>	<p>Conservation of this species will occur through preservation of at least 14,070 acres of habitat within the Plan Area that will expand upon existing public lands already being set aside. The Plan includes provisions to protect the most sensitive areas by requiring preservation of 100 percent of use areas and defined habitat linkages and by requiring on-site mitigation in certain sensitive areas.</p> <p>Potential indirect impacts would be minimized through the imposition of specific requirements applicable to development and recreational activities. Additional research and management activities also will benefit the species.</p>	<p>The THCP will allow impacts to up to 14 percent (2,278 acres) of potential habitat in the Plan Area.</p> <p>Impacts to the species, which may increase with development, include increased susceptibility to disease, increased mortality from motorized vehicles, poisoning from exotic vegetation, and behavioral modifications resulting in decreased productivity.</p>	None	<p>Upland habitats will be managed in the MCCA. Management activities including public access control, exotic weed control, and fire management will likely benefit this species.</p> <p>It is the Tribe's intent to work closely with cooperating federal and state agencies to address survey and research needs each year for PBS and to make funding commitments each year as part of the implementation of the THCP. The Tribe also will continue to coordinate with these agencies regarding re-introduction of captive-bred PBS onto Tribal Lands for population augmentation.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Least Bell's vireo (<i>Vireo bellii pusillus</i>)	2	<p>The least Bell's vireo was formerly known to inhabit dense willow thickets along streams throughout California's Sacramento and San Joaquin valleys from Red Bluff south and coastal areas inland to the foothills of the Sierra Nevada as well as in Owens and Death valleys. Currently, the vireo in southern California breeds primarily in San Diego, Santa Barbara, and Riverside counties. There also are populations known to breed in northern Baja California, Mexico (Baja).</p> <p>The least Bell's vireo is federally listed endangered. The USFWS-designated Critical Habitat and Recovery Units for this species do not extend into the Plan Area.</p>	<p>Objective 1: Determine presence, absence, distribution, and abundance of vireo in the Plan Area.</p> <p>Objective 2: Conserve a minimum of 1,048 acres of existing riparian habitat in place within the Plan Area.</p> <p>Objective 3: Ensure no net loss of suitable/occupied habitat functions and values in the Plan Area through habitat restoration and provide for a net gain in functions of the riparian habitat by non-native species removal.</p> <p>Objective 4: Avoid impacts to occupied habitat to the Maximum Extent Practicable.</p> <p>Objective 5: Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages.</p> <p>Objective 6: Minimize fragmentation, human-caused disturbance, and edge effects by ensuring implementation of development standards, including avoidance and minimization measures.</p> <p>Objective 7: Monitor population size.</p> <p>Objective 8: Clear from a minimum of 10 acres per year invasive exotic plant species in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres.</p> <p>Objective 9: Control brown-headed cowbird populations, if present.</p>	<p>The least Bell's vireo is known to breed in Chino, Palm, Murray, and Andreas canyons in the Plan Area. Conservation of this species will occur through preservation of at least 1,048 acres of currently extant riparian habitat within the Plan Area that will expand upon existing public lands already being set aside. Occupied habitat would be avoided to the Maximum Extent Practicable, and no net loss of existing riparian habitat suitable to support Covered Species within the Plan Area would occur as a result of required habitat restoration for Covered Activity impacts. Thus, a total of 1,163 acres of riparian habitat would be conserved. Enhancement of riparian habitat through removal of non-native plant and animal species will result in a net increase in functions and values of riparian habitat for this species. Native vegetation removal during the nesting season would be subject to restrictions to avoid impacts to active nests.</p> <p>Because 90 percent of the habitat suitable for vireos in the Plan Area will not be disturbed by Covered Activities, the breeding population of vireos will not be significantly impacted by the Plan. Additionally, the tamarisk removal and cowbird control proposed by the Plan will significantly enhance habitat quality for the vireo throughout the Plan Area.</p>	<p>Up to 10 percent (155 acres) of the riparian habitats could be impacted within the Plan Area. No net loss standard would result in no suitable habitat functions and values or acreage being lost after mitigation.</p> <p>Indirect threats to the species that may increase with development include the alteration of riparian habitat and an increase in nest parasitism by the brown-headed cowbird, a species that is common around developed and agricultural areas.</p>	<p>Prior to disturbances in potential vireo habitat in the Plan Area, surveys will be conducted according to the most current protocol to detect the presence/absence of the vireo.</p>	<p>Management activities for the vireo include tamarisk removal from potential habitat and the control of cowbirds.</p> <p>Monitoring surveys were conducted in 2002 through 2005. Point count sampling stations will be established within two years of permit issuance for surveys to be conducted every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Southwestern willow flycatcher (<i>Empidonax trallii extimus</i>)	3	<p>The southwestern willow flycatcher's breeding range includes southern Nevada, Arizona, New Mexico, Utah, California, western Texas, and southwestern Colorado. Historically in California, the southwestern willow flycatcher occurred throughout the lower third of the state. Currently, populations can be found in only four counties: Kern, San Diego, San Bernardino, and Riverside. Only two locations in California contain viable populations: along the South Fork of the Kern River and along the Santa Margarita River on Camp Pendleton. In other places in California, the species occurs only in small scattered and isolated populations. The willow flycatcher winters in Mexico, Central America, and northern South America. The breeding status of the southwestern willow flycatcher in the Coachella Valley is not well known. A breeding pair was confirmed only once in Mission Creek.</p> <p>The southwestern willow flycatcher is federally listed endangered. The USFWS-designated Critical Habitat and Recovery Units for this species do not extend into the Plan Area.</p>	<p>Objective 1: Determine presence, absence, distribution, and abundance of flycatcher in the Plan Area.</p> <p>Objective 2: Avoid fragmentation (to the Maximum Extent Practicable) and minimize edge effects.</p> <p>Objective 3: Conserve a minimum of 1,048 acres of existing riparian habitat in place within the Plan Area.</p> <p>Objective 4: Ensure no net loss of suitable/occupied habitat functions and values in the Plan Area and provide for a net gain in functions of the riparian habitat by non-native species removal.</p> <p>Objective 5: Avoid impacts to occupied habitat to the Maximum Extent Practicable.</p> <p>Objective 6: Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages.</p> <p>Objective 7: Clear from a minimum of 10 acres per year invasive exotic plant species in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres.</p> <p>Objective 8: Monitor brown-headed cowbird populations and take appropriate corrective actions, if present.</p>	<p>Suitable habitat is limited on the Reservation to Chino, Andreas, Murray, and Palm canyons. This species has been observed in Palm Canyon. Breeding habitat for this species likely does not occur in the Plan Area.</p> <p>Conservation of this species will occur through preservation of at least 1,048 acres of currently extant riparian habitat within the Plan Area that will expand upon existing public lands already being set aside. Occupied habitat would be avoided to the Maximum Extent Practicable, and no net loss of existing riparian habitat suitable to support Covered Species within the Plan Area would occur as a result of required habitat restoration for Covered Activity impacts. Thus, a total of 1,163 acres of riparian habitat would be conserved. Enhancement of riparian habitat through removal of non-native plant and animal species will result in a net increase in functions and values of riparian habitat for this species. Native vegetation removal during the nesting season would be subject to restrictions to avoid impacts to active nests. Additionally, the tamarisk removal and cowbird control proposed by the Plan will significantly enhance habitat quality for this species throughout the Plan Area.</p>	<p>Up to 10 percent (116 acres) of the riparian habitats could be impacted within the Plan Area. No net loss standard would result in no suitable habitat functions and values or acreage being lost after mitigation.</p> <p>Indirect threats to the species that may increase with development include the alteration of riparian habitat and an increase in nest parasitism by the brown-headed cowbird.</p>	<p>Prior to disturbances in potential flycatcher habitat in the Plan Area, surveys will be conducted according to the most current protocol to detect the presence/absence of the flycatcher.</p>	<p>Management activities for this species include tamarisk removal from potential habitat and the control of cowbirds.</p> <p>Monitoring surveys were conducted in 2002 through 2005. Point count sampling stations will be established within two years of permit issuance for surveys to be conducted every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Summer tanager (<i>Piranga rubra cooperi</i>)	1	<p>The summer tanager is migratory. The species breeds across the southwestern U.S. from California to west Texas and northern Mexico to Florida and as far north as the Kern River Valley. The species' distribution also extends throughout the southeastern half of the U.S. Two subspecies of summer tanagers are recognized, the current of which generally inhabits riparian woodlands but will utilize woodlands dominated by mesquite and salt cedar at higher elevations.</p> <p>Although summer tanager populations have remained stable throughout much of the species' range, the population has declined drastically in California, likely in response to the loss of riparian forests.</p>	<p>Objective 1: Determine presence, absence, distribution and abundance of summer tanager in the Plan Area.</p> <p>Objective 2: Minimize fragmentation and edge effects.</p> <p>Objective 3: Conserve a minimum of 1,048 acres of existing riparian habitat in place within the Plan Area.</p> <p>Objective 4: Ensure no net loss of suitable habitat functions and values in the Plan Area and provide for a net gain in functions of the riparian habitat by non-native species removal.</p> <p>Objective 5: Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages.</p> <p>Objective 6: Clear from a minimum of 10 acres per year invasive exotic plant species in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres.</p> <p>Objective 7: Monitor brown-headed cowbird populations and take appropriate corrective actions, if present.</p>	<p>This species has been observed in Andreas, Tahquitz, and Palm canyons in the Plan Area. Conservation of this species will occur through preservation of at least 1,048 acres of currently extant riparian habitat within the Plan Area that will expand upon existing public lands already being set aside.</p> <p>Because 90 percent of the habitat suitable for this species in the Plan Area will not be disturbed by Covered Projects, the population of this species will not significantly be impacted by the Plan. No net loss of existing habitat suitable to support Covered Species within the Plan Area would occur as a result of required habitat restoration for Covered Activity impacts. Thus, a total of 1,163 acres of riparian habitat would be conserved. Enhancement of riparian habitat through removal of non-native plant and animal species will result in a net increase in functions and values of riparian habitat for this species. Native vegetation removal during the nesting seasons would be subject to restrictions to avoid impacts to active nests. Additionally, the tamarisk removal and cowbird control proposed by the Plan will significantly enhance habitat quality for this species throughout the Plan Area.</p>	<p>Up to 10 percent (116 acres) of the riparian habitats could be impacted in the Plan Area. No net loss standard would result in no suitable habitat functions and values or acreage being lost after mitigation.</p> <p>Additional impacts to the species that may increase with development include alteration of riparian habitat and an increase in cowbird brood parasitism.</p>	None	<p>Conservation measures established for the least Bell's vireo and southwestern willow flycatcher will likely benefit the tanager. These measures include tamarisk removal from potential habitat and the control of cowbirds.</p> <p>Monitoring surveys were conducted in 2002 through 2005. Point count sampling stations will be established within two years of permit issuance for surveys to be conducted every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Yellow-breasted chat (<i>Icteria virens</i>)	1	<p>The yellow-breasted chat is found throughout most of the U.S. and southern Canada during the breeding season. It spends the rest of the year in parts of Mexico south to Panama.</p> <p>In the Coachella Valley, this species is known or likely to breed in Whitewater Canyon, Mission Creek, Chino Canyon, and the Whitewater River between Mecca and the Salton Sea, and likely elsewhere in the vicinity. In migration, the yellow-breasted chat could potentially use many different habitat types throughout the Plan Area. Direct observations of the species have been made at Dos Palmas, the Coachella Valley Preserve, and Willow Hole, as well as in Murray Canyon on the Reservation. Populations of chats are declining.</p>	<p>Objective 1: Determine presence, absence, distribution and abundance of yellow-breasted chat in the Plan Area.</p> <p>Objective 2: Minimize fragmentation and edge effects.</p> <p>Objective 3: Conserve a minimum of 1,048 acres of existing riparian habitat in place within the Plan Area.</p> <p>Objective 4: Ensure no net loss of suitable habitat functions and values in the Plan Area and provide for a net gain in functions of the riparian habitat by non-native species removal.</p> <p>Objective 5: Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages.</p> <p>Objective 6: Clear from a minimum of 10 acres per year invasive exotic plant species in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres.</p> <p>Objective 7: Monitor brown-headed cowbird populations and take appropriate corrective actions, if present.</p>	<p>This species has been observed in Murray Canyon on the Reservation. Conservation of this species will occur through preservation of at least 1,048 acres of currently extant riparian habitat within the Plan Area that will expand upon existing public lands already being set aside.</p> <p>Because 90 percent of the habitat suitable to this species in the Plan Area will not be disturbed by Covered Projects, the breeding population of this species will not significantly be impacted by the Plan. No net loss of existing habitat suitable to support Covered Species within the Plan Area would occur as a result of required habitat restoration for Covered Activity impacts. Thus, a total of 1,163 acres of riparian habitat would be conserved. Native vegetation removal during the nesting season would be subject to restrictions to avoid impacts to active nests. Additionally, the tamarisk removal and cowbird control proposed by the Plan will significantly enhance habitat quality for this species throughout the Plan Area.</p>	<p>Up to 10 percent (116 acres) of the riparian habitats could be impacted within the Plan Area. No net loss standard would result in no suitable habitat functions and values or acreage being lost after mitigation.</p> <p>Additional impacts to the species that may increase with development include alteration of riparian habitat and an increase in cowbird brood parasitism.</p>	None	<p>Conservation measures established for the least Bell's vireo and southwestern willow flycatcher will likely benefit the chat. These measures include tamarisk removal from potential habitat and the control of cowbirds.</p> <p>Monitoring surveys were conducted in 2002 through 2005. Point count sampling stations will be established within two years of permit issuance for surveys to be conducted every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Yellow warbler (<i>Dendroica petechia brewstri</i>)	1	The yellow warbler is migratory, breeding in riparian areas throughout the U.S., Alaska, Canada, and portions of Mexico. A subspecies of the yellow warbler occurs in Central and South America. Populations of yellow warblers appear to be fluctuating in North America. In California, the bird was once common in the Sacramento Valley, the San Joaquin Valley, San Francisco, and along the Colorado River, but little or no breeding now occurs in these locations. Numbers also are known to have declined in Siskiyou and Marin counties. However, the bird is still maintaining healthy populations in some areas of California, such as Santa Cruz County and the eastern Sierra Nevada. Despite its changing distribution, the yellow warbler has declined significantly as a breeding bird in the coastal lowlands of southern California.	<p>Objective 1: Determine presence, absence, distribution and abundance of yellow warbler in the Plan Area.</p> <p>Objective 2: Minimize fragmentation and edge effects.</p> <p>Objective 3: Conserve a minimum of 1,048 acres of existing riparian habitat in place within the Plan Area.</p> <p>Objective 4: Ensure no net loss of suitable habitat functions and values in the Plan Area and provide for a net gain in functions of the riparian habitat by non-native species removal.</p> <p>Objective 5: Conserve the riparian habitat within a larger upland matrix that includes connectivity between adjacent drainages.</p> <p>Objective 6: Clear from a minimum of 10 acres per year invasive exotic plant species in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres.</p> <p>Objective 7: Monitor brown-headed cowbird populations and take appropriate corrective actions, if present.</p>	<p>This species has been observed in Palm and Tahquitz canyons on the Reservation and on private property in Chino Canyon. Conservation of this species will occur through preservation of at least 1,048 acres of currently extant riparian habitat within the Plan Area that will expand upon existing public lands already being set aside.</p> <p>Because 90 percent of the habitat suitable to this species in the Plan Area will not be disturbed by Covered Projects, the population of this species will not significantly be impacted by the Plan. No net loss of existing habitat suitable to support Covered Species within the Plan Area would occur as a result of required habitat restoration for Covered Activity impacts. Thus, a total of 1,163 acres of riparian habitat would be conserved. Native vegetation removal during the nesting season would be subject to restrictions to avoid impacts to active nests. Additionally, the tamarisk removal and cowbird control proposed by the Plan will significantly enhance habitat quality for this species throughout the Plan Area.</p>	<p>Up to 10 percent (116 acres) of the riparian habitats could be impacted within the Plan Area. No net loss standard would result in no suitable habitat functions and values or acreage being lost after mitigation.</p> <p>Additional impacts to the species that may increase with development include alteration of riparian habitat and an increase in cowbird brood parasitism.</p>	None	<p>Conservation measures established for the least Bell's vireo and southwestern willow flycatcher will likely benefit the warbler. These measures include tamarisk removal from potential habitat and the control of cowbirds.</p> <p>Monitoring surveys were conducted in 2002 through 2005. Point count sampling stations will be established within two years of permit issuance for surveys to be conducted every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
<p>Mountain yellow-legged frog (<i>Rana muscosa</i>)</p>	<p align="center">3</p>	<p>The species is endemic to California and western Nevada. It was historically distributed from southern Plumas County southward to southern Tulare County. It was observed in two forks of Tahquitz Canyon (approximately 4,000 and 13,000 feet west of the Reservation) in 2009. In southern California, it also can be found in the upper San Jacinto River and portions of the San Gabriel and San Bernardino mountains. The frog also is known to occur in small populations in the upper portion of the Little Rock Creek, Devil's Canyon, and the east fork of the San Gabriel River.</p> <p>The mountain yellow-legged frog is federally listed endangered. Critical habitat does not extend into the Plan Area and no Recovery Plan has been published.</p>	<p>Objective 1: Conserve a minimum of 181 acres of the existing mountain yellow-legged frog habitat in place within the Plan Area.</p> <p>Objective 2: Ensure no net loss of suitable habitat functions and values in the Plan Area and provide for a net gain in functions of the riparian habitat by non-native species removal.</p> <p>Objective 3: Avoid impacts to occupied habitat to the Maximum Extent Practicable.</p> <p>Objective 4: Clear from a minimum of 10 acres per year invasive exotic plant species in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres.</p> <p>Objective 5: Control predators such as bullfrogs and non-native fish if mountain yellow-legged frog is determined to be present.</p> <p>Objective 6: At the Tribe's sole discretion, provide access for re-establishment and associated monitoring of mountain yellow-legged frogs within the Plan Area, within drainages where the species is apparently extirpated.</p>	<p>The mountain yellow-legged frog has not been recently observed in the Plan Area, but was historically observed in Chino, Tahquitz, and Andreas canyons. The Plan calls for avoidance of occupied frog habitat to the Maximum Extent Practicable, and provides for conservation of a minimum of 181 acres (94 percent) of habitat suitable to support this species. Mitigation for riparian habitats would be required to ensure that no net loss of habitats suitable to support Covered Species occurs within the Plan Area, and to provide for a net gain in functions of riparian habitat through non-native species removal. Thus, a total of 192 acres of habitat for this species would be conserved. Additionally, the tamarisk removal proposed by the Plan will significantly enhance habitat quality for this species throughout the Plan Area. The Tribe would undertake control efforts for predators such as bullfrogs and non-native fish in occupied habitat (if any) and would not authorize stocking of fish species that could adversely affect this species.</p>	<p>Up to 6 percent (11 acres) of suitable habitat could be impacted within the Plan Area. No net loss standard would result in no suitable habitat functions and values or acreage being lost after mitigation.</p> <p>Additional indirect threats to the species that may increase with development include the manipulation of its habitat through alteration and changes to natural flooding cycles; water quality impacts; and predation by exotic fish species and bullfrogs, which may increase with development. Exotic plants and the presence of humans in riparian areas also may have an effect on the frog.</p>	<p>Focused surveys following current protocol shall be required for projects proposing to impact potential frog habitat.</p>	<p>Management activities for this species include tamarisk removal from potential habitat and the control of predators such as bullfrogs and non-native fish (if the species is present). No stocking of fish species that could adversely affect this species would be authorized by the Tribe. Additionally, the Tribe will evaluate proposals for re-establishment and associated monitoring of this species within drainages where it is apparently extirpated.</p> <p>Surveys for this species were conducted in 2002 through 2005. In suitable habitat, a biologist will conduct surveys of these areas once a month between April and August. Surveys will be repeated for two years upon Plan approval by USFWS. Subsequent monitoring of streams with populations (if any) will occur, focusing on identification of population concentrations or nodes as well as the identification of potential threats.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Southern yellow bat (<i>Lasiurus ega xanthinus</i>)	2	The southern yellow bat is known to occur in the Coachella Valley Preserve, Dos Palmas/ACEC, and on the Applegarth Ranch in the Thermal area. They also were identified on the Reservation within Palm, Andreas, and Murray canyons. Other locations throughout the Coachella Valley may contain yellow bats, but surveys have not been conducted in most locations. It is likely that the bat occurs throughout the Coachella Valley and into the residential areas where ungroomed palm trees are common. The Coachella Valley is likely important to this species, as it has a significant portion of the native palm oases in southeastern California.	<p>Objective 1: Determine presence, absence, distribution, and abundance of southern yellow bat in the Plan Area.</p> <p>Objective 2: Conserve a minimum of 1,022 acres of the existing palm oases in place within the Plan Area.</p> <p>Objective 3: Ensure no net loss of suitable fan palm oases habitat functions and values in the Plan Area and provide for a net gain in functions of the fan palm oases habitat by non-native species removal.</p> <p>Objective 4: Conserve a minimum of 17,404 acres of uplands within the MCCA portion of the Plan Area.</p> <p>Objective 5: Maximize buffers adjacent to conserved natural palm oases as part of the Conditional Use Permit process.</p> <p>Objective 6: Clear from a minimum of 10 acres per year invasive exotic plant species in Indian Canyons and other accessible areas of the MCCA for at least a total of 80 acres.</p> <p>Objective 7: Develop and implement a wildland fire management policy that protects the southern yellow bat's habitat requirements.</p> <p>Objective 8: Work with local residents to educate them regarding the conservation needs of the southern yellow bat, including promoting the appropriate trimming of palm trees.</p> <p>Objective 9: Prohibit trimming of naturally occurring fan palms within the Habitat Preserve in Indian Canyons, unless it is determined through peer-reviewed scientific studies that such activities do not pose a threat to this species.</p>	<p>The southern yellow bat has been detected within Palm, Andreas, and Murray canyons. The Plan provides for conservation of a minimum of 782 acres (90 percent) of desert fan palm oasis woodlands. The Tribe would dedicate 10 acres of naturally occurring palm oases to the Habitat Preserve within one year of Plan approval. Mitigation for impacts to fan palm oasis woodland would be required to ensure that no net loss of habitats suitable to support Covered Species occurs within the Plan Area, and to provide a net gain in functions of the palm oases habitat through non-native species removal. Thus, a total of 869 acres of palm oases would be conserved. Additionally, this species may use upland areas of which a minimum of 85 percent is required for conservation in the MCCA and 95 percent is required for conservation in Palm Canyon.</p> <p>The Plan also calls for habitat enhancement measures including tamarisk removal and would attempt to minimize potential indirect impacts through appropriate fire management policies.</p>	<p>Up to 10 percent (87 acres) of the naturally occurring palm oases and 15 percent of adjacent upland areas could be impacted within the Plan Area. No net loss standard would result in no fan palm oases habitat being lost after mitigation. Additional habitat may be lost, as it is likely that the bat is utilizing palms throughout the valley floor in urbanized areas where conservation is not proposed.</p> <p>Very little is known about the southern yellow bat, whose most significant threat (aside from the loss of habitat) is the potential loss of acceptable roosting sites. Because the bat requires dead palm leaves, pruning dead vegetation off of palms could pose a serious threat to the species. Fire also could be devastating to the species by removing roosting sites. Additionally, the bat (being an insectivore) requires insects, so the use of insecticides could limit food availability in parts of its distribution.</p>	None	<p>This species will benefit from tamarisk removal efforts in riparian areas. The Tribe will include policies for reducing or avoiding the impacts of fire to the species in its Fire Management Plan.</p> <p>All naturally occurring stands of palms (<i>Washingtonia</i> spp.) will be identified and mapped upon approval of the Plan. Long-term echolocation monitoring stations were installed in 2005 in Palm, Andreas, and Murray canyons. The Tribe will maintain these stations.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Triple-ribbed milk-vetch (<i>Astragalus tricarinatus</i>)	3	<p>The triple-ribbed milk-vetch is an endemic species found in a narrow range, primarily from the northwestern portion of the Coachella Valley from the area of Whitewater Canyon in Mission Creek Canyon to Dry Morongo Wash and Big Morongo Canyon. Most of the populations of this species appear to be in the eastern end of the San Bernardino Mountains and at the western end of the Little San Bernardino Mountains. Potential habitat occurs in scattered locations along canyon bottoms in the MCCA. None of the modeled distribution of this species extends into the Plan Area.</p> <p>The triple-ribbed milk-vetch is a federally listed endangered plant. Critical habitat has not been designated and a Recovery Plan has not been prepared for this species.</p>	<p>Objective 1: Conserve a minimum of 85 percent of all MCCA habitats, including potential triple-ribbed milk-vetch habitat.</p> <p>Objective 2: Avoid impacts to populations of this species to the Maximum Extent Practicable.</p> <p>Objective 3: Mitigate any unavoidable impacts through conservation of extant populations and/or preparation and implementation of a USFWS-approved restoration plan.</p>	<p>This species is not known from the Plan Area, and the modeled distribution for the species does not include any potential habitat in the Plan Area. Most locations where the species is likely to be found in the Plan Area are areas with a low potential to be impacted. If a population were found in the Plan Area, it would be avoided to the Maximum Extent Practicable, and unavoidable impacts would be mitigated at a 3:1 ratio.</p> <p>Elsewhere within the Coachella Valley, this species occurs on existing conservation lands in protected status, including those in Mission Creek on land owned by the BLM or the Wildlands Conservancy, in Big Morongo Canyon on BLM land, and in Whitewater Canyon on BLM land.</p>	<p>Up to 10 percent of the riparian habitats and 15 percent of adjacent upland areas could be impacted within the MCCA. No known location or modeled habitat will be impacted by Covered Activities.</p>	<p>If a Covered Activity proposes to impact habitat that the Tribal Biologist deems suitable for the species, presence/absence surveys will be conducted between February 1 and May 15, depending on weather conditions for that given year.</p>	<p>The Tribe will manage any future occurrences of this species should it be found within the Habitat Preserve and surveys will be conducted on nearby lands within the Habitat Preserve. Special focus will be on maintaining appropriate hydrological processes within drainages where the species is found.</p>
Desert tortoise (<i>Xerobates</i> or <i>Gopherus agassizii</i>)	2	<p>The Plan Area supports a small portion of the desert tortoise's overall range (approximately 2 percent of the habitat available to the tortoise in the Coachella Valley). The tortoise's distribution spans 680 miles from the northern Sinaloa state, Mexico across the Sonoran and Mojave Deserts to the edge of the Colorado Plateau in southwestern Utah. Tortoises are found naturally along the northern, eastern, and western rims of the Coachella Valley. Tortoises in the foothills of the southeastern San Bernardino Mountains (especially in the Whitewater Hills) outside of the Plan Area represent the westernmost reproductively active population of tortoises in the Colorado Desert ecosystem.</p> <p>The species is federally listed as threatened. A Recovery Plan and Critical Habitat have been adopted by the USFWS for the desert tortoise, but neither extend into the Plan Area.</p>	<p>Objective 1: Completely avoid direct loss of individuals through relocation in accordance with accepted protocols.</p> <p>Objective 2: Conserve a minimum of 10,301 acres of this species' habitat in the Plan Area.</p> <p>Objective 3: Avoid impacts to occupied habitat within the Section 6 Target Acquisition Area to the Maximum Extent Practicable.</p>	<p>Recorded observations of this species on the Reservation are limited to sightings in the vicinity of Chino and Little Eagle canyons. Conservation of this species will occur through preservation of 10,301 acres of potential habitat in the Plan Area.</p> <p>Impacts to this species will be minimized through implementation of relocation requirements.</p>	<p>Up to 26 percent (2,649 acres) of potential habitat could be impacted. Direct impacts to individuals would be avoided.</p> <p>Additional indirect threats to the tortoises that may increase with development include an increase in predation by edge generalist animals such as ravens and coyotes, which increase with fragmented land. Development also increases activities such as OHV use, which can kill individuals and crush burrows. Additionally, exotic plants are a problem that increases with development and can lead to an increased fire frequency and decreased forage quality.</p>	<p>Prior to disturbances in potential tortoise habitat in the Plan Area, surveys will be conducted to detect the presence of the tortoise. If fresh sign is located, the Development Envelope must be fenced with tortoise-proof fencing and a presence/absence clearance survey conducted during the clearance window in order to find tortoises within the impact area for monitoring and potential relocation. Surveys, construction monitoring, and relocation will follow the Guidelines for Handling Desert Tortoises During Construction Projects prepared by the Desert Tortoise Council (1994, revised 1999) or other current protocol. If found, tortoises shall be relocated to an appropriate location.</p>	<p>Management activities, including exotic weed control and fire management, will likely benefit this species.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Burrowing owl (<i>Athene cunicularia</i>)	2	<p>Burrowing owls occur throughout the idwestern and western portion of the U.S., Texas, and southern Florida, with their distribution extending into Canada, Mexico, and portions of Central and South America. In southern California, it is known from lowlands over much of the region, particularly in agricultural areas. Despite the owl's extensive distribution, numbers of burrowing owls are known to be declining.</p> <p>The species can utilize a wide variety of habitats. Owls are scattered in low to moderate numbers throughout the Coachella Valley.</p>	<p>Objective 1: Minimize direct loss of individuals through relocation in accordance with accepted protocols.</p> <p>Objective 2: Conserve a minimum of 977 acres of suitable habitat in the Plan Area.</p> <p>Objective 3: Ensure that a minimum of 364 acres of habitat acquired for conservation in the Target Acquisition Areas are potentially suitable to support this species.</p> <p>Objective 4: Avoid impacts to occupied habitat in the Section 6 Target Acquisition Area to the Maximum Extent Practicable.</p>	<p>Burrowing owls have been observed in the vicinity of the Palm Springs Airport and may occur in both the MCCA and VFCA.</p> <p>The THCP will conserve 1,341 acres of habitat. Impacts to this species will be minimized through implementation of relocation requirements.</p> <p>Conservation of this species within the Coachella Valley occurs at Big Dune, Snow Creek/Windy Point, the Willow Hole-Edom Hill Reserve, Whitewater Floodplain Reserve, and Coachella Valley Preserve.</p>	<p>The THCP will allow up to 78 percent (3,450 acres) of potential habitat to be disturbed by Covered Projects. Impacts to individuals would be minimized through relocation.</p> <p>Additional threats to the species that may increase with development include the alteration or disturbance of nest sites by humans and domestic animals, poisonings from pesticides used to control insects and rodents, and habitat degradation by non-native plant species. Burrowing owls also are killed on roadways while foraging.</p>	<p>Protocol surveys for burrowing owls will be conducted prior to the disturbance of potential owl habitat.</p> <p>If owls are found during project pre-disturbance surveys, they will be relocated to an area with suitable habitat at a time that does not interfere with the breeding season. If necessary, artificial burrows will be created as part of the relocation effort.</p>	<p>Management measures that will likely benefit this species include controlling access and exotic weeds.</p>
Gray vireo (<i>Vireo vicinior</i>)	1	<p>In California, breeding gray vireos are known from semi-arid, shrub-covered foothills and mesas in pinyon juniper, juniper, and chamise-redshank chaparral habitat on the northeastern slopes of the San Bernardino Mountains in the vicinity of Rose Mine and Round Valley, the San Jacinto and Santa Rosa mountains from Mountain Center to Pinyon Flat and Sugarloaf Mountain, and on the southern slopes of the Laguna Mountains near Campo and Kitchen Creek. The vireo also is known from the mountains of the eastern Mojave Desert, including the Grapevine, Kinston, Clark, and New York mountains. Historically, the breeding distribution was much broader, with the species being observed in Kern County, Joshua Tree National Park, portions of the San Gabriel Mountains, and in the San Bernardino, Riverside, and San Diego County desert slopes. The vireo also was known as a migrant in Whitewater Canyon. This species spends winters primarily south of the Mexican border and in southwestern Arizona.</p>	<p>Objective 1: Conserve a minimum of 782 acres of suitable habitat in the Plan Area.</p> <p>Objective 2: Control brown-headed cowbird populations, if present, in these same areas.</p> <p>Objective 3: Develop and implement a wildland fire management policy that provides due consideration for gray vireo habitat requirements.</p>	<p>Regular surveys for this species have not been conducted in the Plan Area, and it is not known if viable populations exist there. It does have potential to occur in the higher elevations of the Plan Area.</p> <p>Conservation of this species (if it occurs) will occur through preservation of at least 782 acres of habitat within the MCCA that will expand upon existing public lands already being set aside. It is likely that a much larger portion of this species' habitat would actually be conserved because this species typically occurs at high elevations that are difficult to access.</p> <p>The cause of the decline in gray vireo populations are not fully understood. One factor in the decline of the species may be brood parasitism by the brown-headed cowbird. Cowbird control measures implemented by the Tribe would benefit this species. Fire management activities in accordance with the Tribe's draft Fire Management Plan would minimize impacts associated with habitat change due to fire suppression activities.</p>	<p>The THCP will allow impacts to up to 25 percent (196 acres) of potential habitat.</p> <p>Impacts to the species that may increase with development include an increase in brood parasitism by brown-headed cowbirds, which are common in edge environments. Other threats may include habitat changes to vegetation as a result of fire suppression activities.</p>	<p>None</p>	<p>Upland habitats will be managed in the MCCA. Management activities including exotic weed control and fire management will likely benefit this species. Any reduction of cowbird populations on Tribal lands also will benefit the gray vireo.</p> <p>Point count sampling stations will be established within the Habitat Preserve during initiation of the long-term monitoring phase, with surveys to be conducted every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Coachella Valley fringe-toed lizard (<i>Uma inornata</i>)	3	<p>The Coachella Valley fringe-toed lizard is restricted to the Coachella Valley. This species has well defined habitat requirements, and significant areas of appropriate habitat have already been conserved. Historically, the species was found from the Cabazon area to near Thermal.</p> <p>The Coachella Valley fringe-toed lizard is federally listed as threatened. Designated critical habitat extends into the off-Reservation Target Acquisition Areas.</p>	<p>Objective 1: Avoid, minimize, and/or mitigate impacts to active or ephemeral sand field habitats and biological core and linkage habitat within the Section 6 Target Acquisition Area.</p> <p>Objective 2: Conserve at least 177 acres within the Section 6 Target Acquisition Area.</p> <p>Objective 3: Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term.</p> <p>Objective 4: Assuming the maximum development in the Section 6 Specific Plan Area is undertaken, ensure that a minimum of 32 acres of the habitat potentially suitable to support this species is acquired for conservation in Target Acquisition Areas outside of the Reservation.</p> <p>Objective 5: Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas.</p> <p>Objective 6: Minimize fragmentation and edge effects to this species.</p>	<p>The only recorded sighting and the only likely location for this species on the Reservation is in the Section 6 Target Acquisition Area. In 1993, three fringe-toed lizard preserves were established as a result of the Coachella Valley fringe-toed lizard HCP: Coachella Valley, Whitewater, and Willow Hole. These preserves protect nearly 20,000 acres of habitat and blowsand sources within Target Acquisition Areas.</p> <p>Additionally, the CVMSHCP has proposed the creation of a large interconnected preserve system that will protect areas containing the most suitable habitat known for the species, including the east end of the Indio Hills, Big Dune, Snow Creek/Windy Point, the Willow Hole-Edom Hill Reserve, Whitewater Floodplain Reserve, and Coachella Valley Preserve at Thousand Palms.</p> <p>The THCP will provide for conservation of a minimum of 524 acres of active or ephemeral sand fields within the Target Acquisition Areas, including a minimum of 492 acres within the Section 6 Target Acquisition Area (the only remaining area on the Reservation that contains these habitats). The habitat would be located adjacent to or in the vicinity of other existing reserves, thereby minimizing potential edge effects.</p> <p>Although the loss of Plan Area habitat would result in the loss of up to 10 percent of the habitat modeled as available to the species in the Coachella Valley, because a majority of these areas no longer have viable sand sources, the preservation of habitat with long-term viability is considered to benefit the species.</p>	<p>The THCP will allow disturbance to 69 percent (386 acres) of active and ephemeral sand fields in the Plan Area (55 percent of temporary impact resulting from activities in the Fluvial Sand Transport Process Area and 14 percent from other activities within Section 6). A maximum of 32 acres of such habitats would be subject to permanent impact.</p> <p>Additional threats to the species that may increase with development include loss or degradation of wind-blown sand habitat (with which the species is associated), introduction of roads, feral pets, and reptile collectors, all of which increase with development. OHV activity, illegal garbage dumping, and exotic plant and animal species invasion also becomes more prevalent in urbanized areas.</p>	None	<p>As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds.</p> <p>Trap arrays will be established within conserved habitat in the Target Acquisition Areas, with surveys to be conducted every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Coachella Valley giant sand-treader cricket (<i>Macrobaenetes valgum</i>)	3	The Coachella Valley giant sand-treader cricket is endemic to the active sand hummocks and dunes in the Coachella Valley. The historic distribution of this species is entirely within the Coachella Valley, from Fingal's Finger east to the sand dune areas in the vicinity of Indio. Data on the occurrence of this species in Big Dune from Palm Springs east to La Quinta and Indio is limited, as most of the land is privately owned. Potential habitat occurs on the Big Dune; however, the active blowsand areas apparently preferred by the Coachella giant sand treader cricket are no longer present. The cricket is most abundant in the active dunes and ephemeral sand fields in the west end of the Coachella Valley.	<p>Objective 1: Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area.</p> <p>Objective 2: Conserve at least 177 acres within the Section 6 Target Acquisition Area.</p> <p>Objective 3: Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term.</p> <p>Objective 4: Assuming the maximum development in the Section 6 Specific Plan Area is undertaken, ensure that a minimum of 32 acres of the habitat potentially suitable to support this species is acquired for conservation in Target Acquisition Areas outside of the Reservation.</p> <p>Objective 5: Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas.</p> <p>Objective 6: Minimize fragmentation and edge effects to this species.</p>	<p>This species has not been observed on the Reservation. Conservation of this species will occur through acquisition of appropriate habitat within the Target Acquisition Areas that will expand upon existing reserves in the Coachella Valley.</p> <p>The Coachella Valley giant sand-treader cricket is strongly associated with wind-blown, active sand dunes and fields, sand sources, sand corridors, and dune hummocks. Suitable habitat occurs within the Whitewater Floodplain Reserve and at the Coachella Valley Preserve on the main dunes and the Simone Dunes. Despite the low numbers reported from pit-trap samples at the Coachella Valley Preserve, burrows of these crickets are commonly observed in the main dunes.</p> <p>The THCP will provide for conservation of a minimum of 524 acres of active or ephemeral sand fields within the Target Acquisition Areas, including a minimum of 492 acres within the Section 6 Target Acquisition Area (the only remaining area on the Reservation that contains these habitats). The habitat would be located adjacent to or in the vicinity of other existing reserves, thereby minimizing potential edge effects.</p> <p>Although the loss of Plan Area habitat would result in the loss of up to 10 percent of the habitat modeled as available to the species in the Coachella Valley, because a majority of these areas no longer have viable sand sources, the preservation of habitat with long-term viability is considered to benefit the species.</p>	<p>The THCP will allow the disturbance of 69 percent (386 acres) of active and ephemeral sand fields in the Plan Area (55 percent of temporary impact resulting from activities in the Fluvial Sand Transport Process Area and 14 percent from other activities within Section 6). A maximum of 32 acres of such habitats would be subject to permanent impact.</p> <p>Additional threats to the species that may increase with development include reduction and stabilization of aeolian sand ecosystems and sand sources and corridors that maintain them. OHV activity is also a threat to the habitat of this species, as their shallow burrows can be crushed and the sand compacted. Also, non-native plant species can significantly stabilize active sand habitats.</p>	None	<p>As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds.</p> <p>Insect monitoring stations may be established within lands dedicated to the Habitat Preserve in the Target Acquisition Areas, if it is determined by the Tribe and the USFWS that such monitoring is warranted.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Flat-tailed horned lizard (<i>Phrynosoma mcalli</i>)	2	Historically, the flat-tailed horned lizard occurred in southeastern California; southwestern Arizona; northwestern Sonora, Mexico; and northeastern Baja. The flat-tailed lizard population in the Coachella Valley is isolated from other flat-tailed lizard populations by agriculture, urban development, and the Salton Sea. The Coachella Valley population of flat-tailed lizards occurs at the northern and western limits of the species' distribution.	<p>Objective 1: Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields and biological core and linkage habitat within the Section 6 Target Acquisition Area.</p> <p>Objective 2: Conserve at least 177 acres within the Section 6 Target Acquisition Area.</p> <p>Objective 3: Ensure that a minimum of 640 acres of habitat acquired for conservation in the other Target Acquisition Areas are potentially suitable to support this species.</p> <p>Objective 4: Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term.</p> <p>Objective 5: Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas.</p> <p>Objective 6: Minimize fragmentation and edge effects to this species.</p>	<p>The flat-tailed horned lizard occurs in the Thousand Palms Preserve, which was established to protect the Coachella Valley fringe-toed lizard. One additional population occurs in an unprotected area at the east end of the Indio Hills on the north side of the Coachella Canal, which could provide a habitat corridor to the Coachella Valley Preserve. This species has been recorded in the northeastern portion of the Reservation. Although Reservation lands contain 8 percent of the potential habitat available to the species in the Coachella Valley based on habitat modeling, a majority of these habitats are already isolated by development and have limited long-term conservation value.</p> <p>The THCP will provide for conservation of at least 1,132 acres of appropriate habitat within the Target Acquisition Areas, including a minimum of 492 acres within the Section 6 Target Acquisition Area. This habitat would be located adjacent to or in the vicinity of other existing reserves, thereby minimizing potential edge effects.</p>	<p>The THCP will allow disturbance of 95 percent (3,215 acres) of habitat available to the lizard within the Plan Area. This would represent approximately 7 percent of habitat in the Coachella Valley.</p> <p>Additional threats to the species that may increase with development include loss or alteration of sand habitats and agriculture. Development also brings in roads, which increase mortality to individuals and cause an increase in OHV activity. Developments also cause an increased presence of domestic animals, which may prey on the lizard.</p>	None	<p>As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds. Special consideration will be given to edge conditions that could affect the ability to maintain healthy ant populations as prey for this species.</p> <p>Trap arrays will be established within conserved habitat in the Target Acquisition Areas, with surveys to be conducted every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Palm Springs pocket mouse <i>(Perognathus longimembris bangsi)</i>	1	The Palm Springs pocket mouse is found only in the Coachella Valley floor. The subspecies is restricted to the lower Sonoran life zone from the San Gorgonio Pass east to the Little San Bernardino Mountains and south along the eastern edge of the Peninsular Range to Borrego Valley and the eastern side of San Felipe Narrows. This species has fairly broad habitat requirements that include loosely packed or sandy soils in locations with level or gently sloped topography with sparse to moderate vegetative cover.	<p>Objective 1: Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields and biological core and linkage habitat within the Section 6 Target Acquisition Area.</p> <p>Objective 2: Conserve at least 177 acres within the Section 6 Target Acquisition Area.</p> <p>Objective 3: Ensure that a minimum of 640 acres of habitat acquired for conservation in Indian Canyons and the other Target Acquisition Areas are potentially suitable to support this species.</p> <p>Objective 4: Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term.</p> <p>Objective 5: Conserve a minimum of 293 acres of potential habitat in the MCCA.</p> <p>Objective 6: Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas.</p> <p>Objective 7: Minimize fragmentation and edge effects to this species.</p>	This species has been observed in the northeastern portion of the Reservation. Conservation of this species will occur through acquisition of at least 1,256 acres of appropriate habitat within the Target Acquisition Areas and Plan Area that will expand upon existing reserves in the Coachella Valley. The species maintains significant populations in the Snow Creek and Mission Creek areas. It also occurs throughout the Coachella Valley Preserve, the Whitewater Floodplain Reserve, and the Willow Hole-Edom Hill Reserve/ACEC.	<p>The THCP will allow the disturbance to 88 percent (5,838 acres) habitat in the Plan Area by Covered Projects. This would represent approximately 3 percent of habitat in the Coachella Valley.</p> <p>Agriculture and development are threats to this species, as are road construction, OHV use, the illegal dumping of trash, and predation by domestic animals, all of which may increase with development.</p>	None	<p>As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds.</p> <p>Small mammal trapping grids will be established within lands dedicated to the Habitat Preserve in the Target Acquisition Areas for monitoring every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
<p>Palm Springs round-tailed ground squirrel (<i>Spermophilus tereticaudus</i> var. <i>chlorus</i>)</p>	<p align="center">1</p>	<p>The distribution of the Palm Springs ground squirrel is from San Gorgonio Pass to the Salton Sea in a variety of sandy areas, including sand fields and dune formations. It does not require active blow sand. Although the species is most often found in mesquite habitat, it is also found in other habitats, such as Sonoran creosote bush scrub, desert saltbush, desert sinks with herbaceous growth, and washes with coarse sands. The species is found throughout the Coachella Valley, including within the Plan Area.</p> <p>The Palm Springs round-tailed ground squirrel is a Federal candidate for listing.</p>	<p>Objective 1: Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area.</p> <p>Objective 2: Conserve at least 177 acres within the Section 6 Target Acquisition Area.</p> <p>Objective 3: Ensure that a minimum of 640 acres of habitat acquired for conservation in Indian Canyons and the other Target Acquisition Areas are potentially suitable to support this species.</p> <p>Objective 4: Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term.</p> <p>Objective 5: Conserve a minimum of 124 acres of potential habitat in the MCCA.</p> <p>Objective 6: Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas.</p> <p>Objective 7: Minimize fragmentation and edge effects to this species.</p>	<p>This species has been observed in the northeastern portion of the Reservation and near Palm Springs Airport. The ground squirrel has been observed in multiple areas throughout the Coachella Valley, including the Whitewater Floodplain Reserve, the Whitewater Channel, near Snow Creek from Fingal to Windy Point, the Mission Creek Wash, and in the west near Cabazon. In Edom Hill-Willow Hole Reserve/ACEC, quality habitat exists and many individuals have been observed. The Coachella Valley Preserve also possesses quality habitat.</p> <p>Conservation for this species will occur through acquisition of a minimum of 1,256 acres of appropriate habitat within the Target Acquisition Areas and Plan Area that will expand upon existing reserves in the Coachella Valley.</p>	<p>The THCP will allow the disturbance to 92 percent (5,160 acres) of habitat in the Plan Area by Covered Projects. This would represent approximately 4 percent of habitat in the Coachella Valley.</p> <p>Additional threats that may increase with development include the alteration and destruction of sand habitats and an increase in roads, which can cause noise pollution and mortality to individuals. Development can also increase the quantity of non-native plants that may restrict the species' line of sight, making them more susceptible to predation. In addition, development will increase the number of domestic animals, which may outcompete or prey on the squirrels. There is also a significant threat to the squirrel caused by OHVs, which can kill individuals and crush burrows.</p>	<p align="center">None</p>	<p>As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds.</p> <p>Small mammal trapping grids will be established within lands dedicated to the Habitat Preserve in the Target Acquisition Areas for monitoring every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Coachella Valley Jerusalem cricket (<i>Stenopelmatus cahuillaensis</i>)	3	The Coachella Valley Jerusalem cricket is known to occur from the Snow Creek area from Fingal's Finger east to Indian Avenue, as well as in remnants of sand dune habitat around the Palm Springs Airport. Known locations where this species has been observed occur on some of the lands either owned by the BLM (in the Windy Point area) or by the Friends of the Desert Mountains (along Snow Creek Road) or purchased by the BLM. This species' habitat preferences include sandy to somewhat gravelly sandy soils. The species does not necessarily require active blow sand habitat but has been observed in loose wind blown drift sands and dunes. Jerusalem crickets have been observed most widely at the western edge of the Coachella Valley, which possesses cool, moist conditions, re-affirming the belief that the cricket is dependent on a specific climate type.	<p>Objective 1: Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area.</p> <p>Objective 2: Conserve at least 177 acres within the Section 6 Target Acquisition Area.</p> <p>Objective 3: Ensure that a minimum of 640 acres of habitat acquired for conservation in the other Target Acquisition Areas are potentially suitable to support this species.</p> <p>Objective 4: Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term.</p> <p>Objective 5: Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas.</p> <p>Objective 6: Minimize fragmentation and edge effects to this species.</p>	<p>Conservation of this species will occur through acquisition of at least 1,132 acres of appropriate habitat within the Target Acquisition Areas that will expand upon existing reserves in the Coachella Valley. At present, the only location where this species has been reliably observed (and where a viable population of this species may occur) is in the area from Windy Point west to Snow Creek Road and Fingal's Finger. Some observations have occurred within the remnants of sand dune habitat around the Palm Springs Airport. Observations of this species east of Windy Point are few and suggest that the species may not occur in significant numbers in the central Coachella Valley.</p> <p>The Coachella Valley Jerusalem cricket appears to exist only in areas with a specific range of climatic conditions. According to estimates of habitat potential for the species on lands on the Reservation, less than 2 percent of the habitat is suitable for the species, and off-Reservation acquisition will likely benefit this species.</p>	<p>The THCP will allow the disturbance of 95 percent (3,442 acres) of habitat in the Plan Area by Covered Projects. This would represent approximately 12 percent of the habitat in the Coachella Valley.</p> <p>Additional threats to the Coachella Valley Jerusalem cricket that may increase with development are an increase in land fragmentation and OHV activity, which can crush burrows and eliminate native vegetation. Cleaning up surface debris may also pose a problem, as the species uses it for cover. This species is apparently limited to sand dunes and sand fields at the northwest end of the Coachella Valley, where the temperature/moisture gradients are within their tolerance levels. Alteration of these habitats may affect the species.</p>	None	<p>As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds.</p> <p>Insect monitoring stations may be established within lands dedicated to the Habitat Preserve in the Target Acquisition Areas, if it is determined by the Tribe and the USFWS that such monitoring is warranted.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Coachella Valley milk- vetch <i>(Astragalus lentiginosus coachellae)</i>	3	<p>The Coachella Valley milk-vetch is endemic to the Coachella Valley. It occurs at elevations from 180 to 1,100 feet AMSL. The distribution of this species is restricted to the area between Cabazon and Indio, with the exception of six outlying occurrences within a 5-mile area along the Rice Road in the Chuckwalla Valley north of Desert Center.</p> <p>The Coachella Valley milk-vetch is a federally listed endangered species. The USFWS declined to designate any areas as critical habitat for this species.</p>	<p>Objective 1: Avoid, minimize and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area.</p> <p>Objective 2: Conserve at least 177 acres within the Section 6 Target Acquisition Area.</p> <p>Objective 3: Avoid impacts to extant populations within the Section 6 Specific Plan Area to the Maximum Extent Practicable.</p> <p>Objective 4: Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term.</p> <p>Objective 5: Ensure that a minimum of 640 acres of habitat acquired in Indian Canyons and the other Target Acquisition Areas are potentially suitable to support this species.</p> <p>Objective 6: Consider benefits to this species in making acquisitions in the off-Reservation Target Acquisition Areas.</p> <p>Objective 7: Conserve a minimum of 42 acres of potential habitat in the MCCA.</p>	<p>The Coachella Valley milk-vetch exhibits fluctuating population sizes from year to year as a result of drought conditions. This is a concern as stochastic events could extirpate the plant from an area.</p> <p>This species occurs in three preserves: Whitewater Floodplain, Willow Hole-Edom Hill/ACEC, and Coachella Valley. It also has been observed in the northeastern portion of the Reservation. The Reservation contains approximately 8 percent of the potential habitat available to the species, although almost all of this habitat has been isolated by existing development and no longer provides long-term conservation value for the species. Acquisition of habitat within the Target Acquisition Areas and conservation elsewhere within the Plan Area will benefit this species by conserving 1,174 acres of appropriate habitats within a larger reserve system. The extant population within the Section 6 Specific Plan Area will be avoided to the Maximum Extent Practicable.</p>	<p>The THCP will allow the disturbance of 95 percent (4,557 acres) of habitat in the Plan Area. This would represent approximately 7 percent of the habitat in the Coachella Valley.</p> <p>Additional threats to the species that may increase with development include the loss of suitable habitat through the stabilization of sand. Other impacts may include OHV use, trampling, and introduction of non-native plants, which increase with development.</p>	<p>Surveys of portions of the Section 6 Specific Plan Area proposed for disturbance will be conducted by a qualified biologist during the appropriate season and conditions to identify this species.</p>	<p>As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds.</p> <p>Populations identified during the Specific Plan process that are conserved will be monitored during vegetation monitoring conducted every eight years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Le Conte's thrasher (<i>Toxostoma lecontei</i>)	1	The Le Conte's thrasher occurs in a limited area in the southwestern portion of the U.S. and northwestern Mexico in undisturbed, sparsely vegetated desert flats, dunes, alluvial fans, and hills, often in habitat where saltbush or cholla cactus dominate. Specifically, the species is known to occur in the San Joaquin Valley, Mojave, and Colorado deserts of California and Nevada into central and coastal Baja. The bird also has been known in the Sonoran Desert from southwestern Utah and western Arizona into western Sonora, Mexico. Despite its moderate distribution, the species is rare, only being observed in patches of this area.	<p>Objective 1: Avoid, minimize, and/or mitigate impacts to active or ephemeral sand fields within the Section 6 Target Acquisition Area on the Reservation.</p> <p>Objective 2: Conserve at least 177 acres within the Section 6 Target Acquisition Area.</p> <p>Objective 3: Ensure that activities within the 315-acre Section 6 Fluvial Sand Transport Process Area do not disrupt sand transport, and ensure that reclamation of the site would result in potentially suitable habitat for the species over the long term.</p> <p>Objective 4: Conserve a minimum of 100 acres of potential habitat in the MCCA.</p>	<p>Historical records from the California Natural Diversity Database have placed this bird throughout the Coachella Valley, many areas of which have been impacted by development. Records of sightings of the bird over the last 10 years place the species in multiple areas, including Desert Hot Springs, west of Whitewater Canyon, south of I-10, west of Gene Autry Trail, Willow Hole ACEC, Pushwalla Canyon, Thousand Palms Oasis, and Indian Wells. It has not been recorded on the Reservation (and has not been the subject of extensive surveys there).</p> <p>Conservation of this species will occur through acquisition of at least 492 acres of appropriate habitat within the Target Acquisition Areas and 100 acres elsewhere in the Plan Area that will expand upon existing reserves in the Coachella Valley.</p>	<p>The THCP will allow the disturbance of 96 percent (5,149 acres) of the habitat in the Plan Area by Covered Projects. This would represent approximately 2 percent of the habitat in the Coachella Valley.</p> <p>Urbanization and agriculture often occur in areas with habitat suitable to the bird. Other threats to the species may include fire, pesticides, predation of young by house cats, and collisions with cars, all of which may increase with development.</p>	None	<p>As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds.</p> <p>Avian survey stations will be established within lands dedicated to the Habitat Preserve in the Target Acquisition Areas for monitoring every five years.</p>

**Table 4-3 (cont.)
Species Conservation Summary**

COMMON NAME/ SCIENTIFIC NAME	GROUP DESIGNATION*	RATIONALE FOR GROUP DESIGNATION	SPECIES OBJECTIVES†	CONSERVATION ANALYSIS SUMMARY	INCIDENTAL TAKE	PRE-DISTURBANCE SURVEY REQUIREMENTS	MANAGEMENT AND MONITORING ACTIVITIES SUMMARY
Crissal thrasher (<i>Toxostoma crissale</i>)	1	The crissal thrasher occurs throughout the southwesternmost portion of the U.S. and northwestern Mexico. Its range in the U.S. includes southeastern California, southern Nevada, the southern portions of Arizona and New Mexico, and the westernmost portion of Texas. Its preferred habitats are desert saltbush scrub and mesquite hummocks.	Objective 1: Avoid impacts to mesquite hummocks and thickets associated with riparian habitat in the Plan Area to the Maximum Extent Practicable. Objective 2: Conserve, create, or restore mesquite hummock and mesquite thicket habitats at a minimum ratio of 2:1 (including a 1:1 minimum creation component for impacts to mesquite hummocks and thickets associated with riparian habitat) as mitigation for any unavoidable impacts to these areas.	In the Coachella Valley, the crissal thrasher occurs in desert saltbush scrub and mesquite hummocks. As a result, the species likely occurs throughout the Coachella Valley floor. These vegetation communities have not been mapped within the Plan Area, but may occur in small areas not mapped at a regional scale. This species has not been the subject of extensive surveys in the Plan Area, and it has not been recorded there in recent years. All mesquite hummocks and thickets associated with riparian habitat (which may support this species) in the Plan Area will be avoided to the Maximum Extent Practicable and any impacts will be mitigated at a 2:1 ratio, including a 1:1 creation component.	No modeled habitat occurs in the Plan Area. It is not known if viable populations exist in the potential impact area, and if the destruction of this habitat will have an effect on the species.	The presence of mesquite hummocks and thickets associated with riparian habitat (which may provide habitat for this species) on lands proposed to be subject to a Covered Activity must be reported to the Tribe.	As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds. Avian survey stations will be established within lands dedicated to the Habitat Preserve in the Target Acquisition Areas for monitoring every five years.
Little San Bernardino Mountains gilia (<i>Linanthus maculatus</i>)	3	The Little San Bernardino Mountains gilia is an endemic plant species that occurs along the margins of washes in the vicinity of the Little San Bernardino Mountains and Mission Creek Canyon to Dry Morongo Wash and Big Morongo Canyon as well as the northwest portion of the Coachella Valley. It also occurs in Whitewater Canyon and from Whitewater to Palm Springs. Recently, an additional population was discovered in Rattlesnake Canyon on the north side of the San Bernardino Mountains. Populations of this species also occur outside the Coachella Valley along washes at the northern edge of Joshua Tree National Park in the vicinity of Joshua Tree, Yucca Valley, and Twentynine Palms. Populations may occur in the 22-mile area between Rattlesnake Canyon and Yucca Valley, but data are lacking.	Objective 1: Avoid impacts to populations of this species to the Maximum Extent Practicable. Objective 2: As mitigation for any unavoidable impacts, conserve or restore populations at a minimum ratio of 3:1.	It is not known whether the Little San Bernardino Mountains gilia exists on lands within the Plan Area's boundaries, but habitat has not been modeled there. Extant populations will be avoided to the Maximum Extent Practicable and any impacts will be mitigated at a 3:1 ratio.	No modeled habitat occurs in the Plan Area, and it is not known if any viable populations exist there. Threats to the species that may increase with development include the loss of or degradation to suitable habitat, which can occur from activities such as flood control maintenance activities, OHVs, illegal dumping of garbage, and sand and gravel mining. Edge effects are also a problem when development encroaches into areas where the species occurs.	If a Covered Activity proposes to impact habitat that the Tribal Biologist deems suitable for the species, presence/absence surveys will be conducted at the appropriate time of year and in appropriate conditions to detect the species.	As part of Habitat Preserve acquisition, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted. Management measures that will benefit the species include controlling access and exotic weeds.

*Group 1: Take coverage is warranted based on regional or landscape-level considerations, such as healthy population levels, widespread distribution throughout the Coachella Valley, and life history characteristics that respond to habitat-scale conservation and management actions.

Group 2: Take coverage is warranted based on regional or landscape-level considerations with the addition of site-specific conservation and management requirements clearly identified in the Tribal HCP for species that are generally well-distributed but have core habitats that require conservation.

Group 3: Take coverage is warranted based on site-specific considerations and the identification of specific conservation and management conditions for species within a narrowly defined habitat or limited geographic area within the Coachella Valley.

†Species conservation objectives assume implementation of the maximum allowable disturbance to fund associated conservation.

THIS PAGE INTENTIONALLY LEFT BLANK

Acreage is based on the habitat modeling that is graphically depicted on the figures in Chapter 3. The acreage and percentages given for Coachella Valley habitat are provided for comparison purposes to assess impacts likely to result from implementation of this Plan.

Conservation would occur only as impacts occur, proportionate to the amount of impact. Based on the vagaries of how development (and resultant impacts and mitigation) under the Plan may occur within the Plan Area, a maximum of 1,455 acres would be acquired and managed within the Target Acquisition Areas. It should be noted that the habitat suitability models for the blow sand-dependent species potentially occurring on the valley floor substantially overestimate the amount of suitable habitat for species, based on the fact that many of the sand fields are already stabilized.

Impacts to covered species and their habitat within the Plan Area will result from private development projects and public projects consistent with the Tribal HCP. Additionally, where preserve areas are planned adjacent to existing developed areas, the fuel management zone may encroach into the preserve. Such fuel management zones are typically maintained by removing exotic and non-native vegetation that increase fire risk and decrease habitat value. As such, fuel management areas that involve such activities shall be counted as conservation.

Direct Effects

With the exception of Peninsular bighorn sheep and migratory birds, direct effects from the proposed plan may include injury, death, and/or harassment of listed and Tribal sensitive species. Direct effects may also include the destruction of habitats necessary for species breeding, feeding, or sheltering. Organisms with multiple life stages may be affected in different ways (e.g., amphibians have certain hydrologic requirements in streams or ponds depending on their life stage). Additionally, direct effects to plants can include crushing of adult plants, bulbs, or seeds.

Indirect Effects

Indirect effects from the proposed plan may include habitat fragmentation, edge effects, noise effects, disruption of the natural fire regime, changes in hydrology from adjacent development, increased lighting, and the proliferation of exotic species.

Habitat Fragmentation. Habitat fragments generally have less conservation value than large habitat blocks because smaller habitat areas usually contain fewer species, have proportionally larger perimeters (making them more vulnerable to edge effects), are more likely to be biologically isolated from other habitat areas, and tend to be more vulnerable to adverse stochastic events.

Edge Effects. A negative effect of fragmentation is exposure to incompatible land uses along the habitat edge (edge effects). The biological integrity of habitats adjoining development can be diminished by adverse effects of noise, lighting, exotic plant and animal invasion, dust/air pollution, predators, parasites, disturbance from human activities, pesticides, fuel modification, and other factors. Numerous predators such as snakes, opossums, raccoons, skunks, ground squirrels, and various corvids thrive on edges by making use of additional food and water sources provided by residential development adjacent to preserves.

Alteration of Fire Regimes. Alteration of the natural fire regime could lead to elimination of fire in small habitat fragments adjacent to development or to an increase in fire frequency from anthropogenic ignition.

Noise. Development in the Plan Area is likely to result in higher ambient noise levels which is likely to adversely affect some Covered Species within the Plan Area and those areas where work is conducted adjacent to preserves. The impact of noise on wildlife is likely to differ from species to species and is not only dependent on the source of the noise (e.g., aircraft versus blasting), but also on the duration and schedule. Organisms that rely on sound to communicate (e.g., birds, frogs, etc.) may be indirectly impacted from noise. Construction activity (for example) that is outside of a preserve area may also generate noise that impacts species within the preserve.

Changes in Hydrology. Changes in the character of urbanization in the Plan Area may be indirectly affected by implementation of the Tribal HCP. Resulting changes in hydrology, run-off, and sedimentation could indirectly impact surface water dependent Covered Species both in and outside of the preserve system. Increased urban run-off into the preserve system and channelization for flood control is likely to result in increased erosion and increased rates of scouring, which is likely to result in downstream habitat loss for some species. Because urbanization has the potential to increase the magnitude and frequency of high flows causing bank erosion and channel widening, species could be adversely affected if they rely on natural flow regimes for their persistence. Additionally, urban run-off increases the temperature of adjacent streams due to higher water temperatures from streets, roof tops, and parking lots, and increases the variety and amount of pollutants carried into streams, rivers, and lakes.

Lighting. Artificial night lighting adversely impacts the habitat value for some species, particularly for nocturnal species through potential modification of predation rates, obscuring of lunar cycles, and/or causing direct habitat avoidance. Illumination of foraging habitat by artificial light during surface activity periods of prey likely makes detection by predators easier, potentially increasing the predation rate by owls, coyotes, fox, house cats, etc. Artificially lit habitat areas may also be directly avoided by certain species.

Illumination of bird habitat by increased night lighting of the Plan Area has the potential to adversely affect bird species. Physiological, developmental, and behavioral effects of light intensity, wavelength,

and photoperiod on domestic bird species are well documented. Placement of nests away from lighted areas implies that part of the home range is rendered less suitable for nesting by artificial light. If potential nest sites are limited within the bird's home range, reduction in available sites associated with artificial night lighting may cause the bird to use a suboptimal nest site that is more vulnerable to predation, cowbird parasitism, or extremes of weather.

Exotic Species. Native species are often at a disadvantage after exotic species or nonnative predators are introduced. Nonnative plant and animal species have few natural predators or other ecological controls on their population sizes, and they often thrive in disturbed habitats. These species may aggressively out-compete native species or otherwise harm sensitive species. When top predators are absent, intermediate predators multiply and increase predation on native bird species and their nests. Feral and domestic animal holding areas, and golf courses provide resources for increased populations of parasitic cowbirds, which adversely effect native songbird populations. Litter and food waste from picnickers can contribute to an increase in Argentine ant populations which out-compete native ants. Invasive plant species such as tamarisk and giant reed can alter water flow and quantities resulting in adverse effects to water dependent species.

4.4.1 Peninsular Bighorn Sheep

The Action Area and adjacent lands support one of the eight subpopulations, or ewe groups, of the Peninsular bighorn sheep metapopulation. The Plan Area includes 20,527 acres or 11 percent of the habitat within the Coachella Valley for this species. With implementation of this Plan, authorized development could directly disturb up to 2,278 acres or 11 percent of Peninsular bighorn sheep habitat in the Plan Area, or approximately 1 percent of suitable habitat in the Coachella Valley. This development will be subject to a number of minimization measures and restrictions (see section 4.8.4.2(a)), including that no habitat disturbance will be authorized in use areas and habitat linkages will be maintained (as identified in section 4.8.4.1). Impacts that could occur include direct loss of habitat, indirect effects to habitat, and harassment of individuals through construction, recreation, and maintenance activities. Although some disturbance would occur, the actual impacts of disturbance to the species are expected to be low as a result of the avoidance, minimization, and mitigation requirements incorporated into the Plan. These measures, including habitat protection, indirect impact minimization, and management will provide for protection of habitat and individuals to ensure the long-term conservation of the species. Implementation of the Plan would be consistent with the Recovery Plan adopted for the species. This Tribal HCP, therefore, is not anticipated to adversely affect the range-wide recovery of the species.

Conservation and Incidental Take Levels for Peninsular Bighorn Sheep

Total Potential Acres of Habitat within Coachella Valley	Acres of Habitat in the Plan Area	Minimum Habitat Acres to be Conserved	Maximum Habitat Acres to be Disturbed
173,415	16,269 (11% of potential habitat in Coachella Valley)	14,070	2,278

4.4.2 Avian Riparian Species (Least Bell’s Vireo, Southwestern Willow Flycatcher, Summer Tanager, Yellow-breasted Chat, and Yellow Warbler)

The Plan Area represents a small proportion of the range of each of these species (refer to section 3.3 for details), and less than two percent of the potential habitat for these species in the Coachella Valley. The Plan Area and other lands throughout the Action Area include potential breeding habitat for least Bell’s vireo, summer tanager, yellow-breasted chat, and yellow warbler in riparian woodlands, including desert fan palm oasis woodland, Sonoran cottonwood-willow forest, and Sonoran sycamore-alder woodland. These species are known to breed in low numbers in the Plan Area and adjacent lands in the Action Area. Potential breeding and foraging habitat for the southwestern willow flycatcher is similar to that of the least Bell’s vireo, although southwestern willow flycatcher generally prefer a more developed canopy and are often found only adjacent to open water; breeding habitat for this species likely does not occur in the Plan Area.

Habitat disturbance by Covered Projects will be conditioned to ensure that no more than 116 acres or 10 percent of existing riparian habitat in the Plan Area is disturbed, and that no net loss of existing riparian habitat suitable to support Covered Species within the Plan Area occurs through creation of habitat at a minimum 1:1 ratio, with habitat functions and values fully replaced within 5 years of initiating creation efforts. Enhancement of riparian habitat through removal of non-native plant and animal species will result in a net increase in functions and values of riparian habitat for these species. All Covered Activities will be subject to the conditions of any required Clean Water Act permits. Additional riparian habitat may be conserved, created, or restored through Clean Water Act Section 404 mitigation requirements and other restoration activities described in this Plan (refer to section 4.10). As a result of these measures, along with the small proportion of the species’ ranges and populations that the Plan Area represents, this Tribal HCP is not anticipated to adversely affect the range-wide recovery of any of these species.

Potential habitat along the Whitewater River, Snow Creek, and Mission Creek, among others, occur outside of the Plan Area and are afforded some level of protection by other conservation efforts in the region, as well as the wetland permitting process.

Conservation and Incidental Take Levels for Avian Riparian Species

Total Potential Acres of Habitat within the Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Habitat Acres to be Conserved*	Maximum Habitat Acres to be Disturbed†
69,035	1,164 (2% of potential habitat in Coachella Valley)	1,048	116

*With restoration, an amount equal to at least 100% of the existing amount of suitable habitat functions and values will be conserved.

†No net loss standard would result in no suitable acreage and habitat functions and values being lost after mitigation.

4.4.3 Mountain Yellow-legged Frog

This species was historically distributed throughout substantial proportions of California (refer to section 3.3 for details). While there are only historic sightings of the mountain yellow-legged frog within the Plan Area and Action Area, riparian areas in the MCCA may provide habitat for this species. As described in section 3.3.1.7, further habitat assessments have been conducted to develop a more accurate estimate of the amount of habitat in the Plan Area that currently may be suitable to support this species. If occupied habitat is identified, it will be avoided to the Maximum Extent Practicable (although some take may occur).

Habitat disturbance by Covered Projects will be conditioned to ensure that no more than 11 acres of mountain yellow-legged frog habitat or 6 percent of existing suitable riparian habitat is disturbed, and that no net loss of existing riparian habitat suitable to support Covered Species within the Plan Area occurs through creation of habitat at a minimum 1:1 ratio, with habitat functions and values fully replaced within 5 years of initiating creation efforts. Enhancement of riparian habitat through removal of non-native plant and animal species will result in a net increase in functions and values of riparian habitat for this species. All Covered Activities will be subject to the conditions of any required Clean Water Act permit. Furthermore, approximately 73 acres (38 percent) of habitat determined through USGS surveys to be potentially suitable to support the mountain yellow-legged frog are within areas designated for 100 percent conservation. Some additional riparian habitat may be conserved, created, or restored through Clean Water Act Section 404 mitigation requirements and other restoration activities described in this Plan (section 4.10). As a result of these measures, combined with the lack of recent observations and the small proportion of the species' range that the Plan Area represents, this Tribal HCP is not anticipated to adversely affect the range-wide recovery of the mountain yellow-legged frog.

The USFS's Angeles, San Bernardino, and Cleveland National forests manage lands containing all known extant locations of mountain yellow-legged frog in southern California. The Plan Area is in the extreme southeastern portion of the species' ranges, and available habitat in the Plan Area represents a small fraction of their available range. Regardless, current USGS and other partners efforts are underway to potentially reintroduce mountain yellow-legged frogs on Forest Service lands and possibly Tribal Lands in the near future.

Conservation and Incidental Take Levels for Amphibian Species

Species	Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Habitat Acres to be Conserved*	Maximum Habitat Acres to be Disturbed†
Mountain yellow-legged frog	2,148‡	192	192	11

*With restoration, an amount equal to at least 100% of the existing amount of suitable habitat functions and values will be conserved.

†No net loss standard would result in no suitable acreage and habitat functions and values being lost after mitigation.

‡Estimate based upon riparian habitat, more precise delineation is not available for the Coachella Valley.

4.4.4 Southern Yellow Bat

As described in section 3.3.1.9, the range of this species extends from southeastern California to southwestern Texas and includes the northwestern portion of Mexico. Known occupied habitat for this species within the Plan Area includes the palm oases occurring in the San Jacinto and Santa Rosa Mountains, including the canyons of Indian Canyons Heritage Park. Habitat disturbance by Covered Projects will be conditioned to ensure that no more than 81 acres or 10 percent of existing naturally occurring palm oasis habitat is disturbed, and that no net loss of existing riparian habitat suitable to support Covered Species within the Plan Area occurs through creation of habitat at a minimum 1:1 ratio, with habitat functions and values fully replaced within 5 years of initiating creation efforts. Enhancement of riparian habitat through removal of non-native plant species will result in a net increase in functions and values of riparian habitat for this species. All Covered Activities will be subject to the conditions of any required Clean Water Act permits. The maximum allowable level of impact represents approximately five percent of the modeled potential habitat for this species in the Coachella Valley. As a result of these considerations, combined with the small proportion of the species total range that the Coachella Valley represents, this Tribal HCP is not anticipated to adversely affect the range-wide recovery of the species.

Additionally, it should be noted that the species also is expected to occur in palms used as landscaping in the Action Area and throughout the valley floor. Acreage estimates for such landscaping are not currently available. As mitigation for Covered Activities undertaken by or under the discretion of the Tribe within the Plan Area that would result in impacts to this species (e.g., trimming or removal of palm trees used in landscaping around Tribal facilities), the Tribe would dedicate 10 acres of naturally occurring palm oases to the Habitat Preserve within one year of Plan approval. Palm trimming or removal activities that are not under Tribe discretion are not Covered Activities. The Tribe would continue to work with local residents to educate them regarding the conservation needs of the southern yellow bat, including by promoting the appropriate trimming of palm trees.

Appropriate habitat is conserved in the Coachella Valley and Dos Palmas preserves outside of the Plan Area, and is provided some additional protection through the wetland permitting process.

Conservation and Incidental Take Levels for Southern Yellow Bat

Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Habitat Acres to be Conserved*	Maximum Habitat Acres to be Disturbed†
1,831	869 (47% of potential habitat in Coachella Valley)	869	81

*With restoration, an amount equal to at least 100% of the existing amount of suitable acreage and habitat functions and values will be conserved.

†No net loss standard would result in no suitable habitat functions and values being lost after mitigation.

4.4.5 Triple-ribbed Milk-vetch

This species is known from a narrow range in the Coachella Valley. Although there have been no sightings of this species in the Plan Area, and none of the modeled habitat in the Coachella Valley occurs in the Plan Area, populations could occur in the rugged canyons and washes within Indian Canyons. It is anticipated that the protection of such habitat in connection with other species (i.e., Peninsular bighorn sheep and riparian-dependant species) will likely conserve most, if not all, possible habitat for this species within the MCCA. If a Covered Activity would impact habitat determined by the Tribal Biologist to have the potential to support this species, surveys will be conducted at the appropriate time of year (February 1 through May 15 depending on weather conditions for a given year). If present, this species will be avoided to the Maximum Extent Practicable; however, impacts could occur to this species. The Covered Activity Proponent would be required to conserve extant populations elsewhere and/or prepare and implement a restoration plan as mitigation for any unavoidable impacts, to the satisfaction of the Tribe. As explained in Section 3.3.1.10, 85 percent of the known locations of this species occur on public lands that have some form of protective status. As a result of the protective measures that would be applied should this species be observed within the Plan Area, combined with its limited potential to occur there, this Tribal HCP is not anticipated to affect adversely the range-wide recovery of the species.

Conservation and Incidental Take Levels for Triple-ribbed Milk-vetch

Known Locations within Coachella Valley	Known Locations in Plan Area	Maximum Potential Disturbance (%)
4	0	Although observed locations will be avoided to Maximum Extent Practicable, up to 100% potential impact to occupied habitat, if any, may occur.†

†Mitigation for any unavoidable impacts would be required at a 3:1 ratio.

4.4.6 Desert Tortoise

Desert tortoises are known to occur across the Sonoran and Mojave deserts from Colorado to Utah and into Mexico. The species is known to occur in the Plan Area, which contains approximately 2 percent of the modeled habitat for this species in the Coachella Valley. Potential desert tortoise habitat occurs on the alluvial fans and slopes found along the foothills in the MCCA. Under the Tribal HCP, up to 2,649 acres (26 percent) of modeled desert tortoise habitat in the Plan Area (less than 1 percent of the modeled habitat for this species in the Coachella Valley) will be available for disturbance by Covered Projects. A minimum of 10,301 acres of potential desert tortoise habitat would be conserved if the Tribal HCP is fully implemented. In addition, direct impacts to individuals will be minimized through avoidance of impacts to occupied habitat within the Section 6 Target Acquisition Area to the Maximum Extent Practicable and relocation requirements (see sections 4.8.4.2(f) and 4.9.3.4 below). As a result of these considerations, this Tribal HCP is not anticipated to affect adversely the range-wide recovery of the species.

Conservation and Incidental Take Levels for Desert Tortoise

Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Acres to be Conserved	Maximum Habitat Acres to be Disturbed
602,321	12,950 (<1% of potential habitat in Coachella Valley)	10,301	2,649

4.4.7 Burrowing Owl

The burrowing owl is known to occur throughout the midwestern and western U.S., Texas, and southern Florida, parts of central Canada, and into Mexico and the drier regions of Central and South America. It has been documented to occur in the Plan Area and can occupy any open habitat within the canyon bottoms in the San Jacinto and Santa Rosa Mountains and on the valley floor. Specifically, it has potential to occur in the desert dry wash and Sonoran mixed woody and succulent scrub communities found on canyon bottoms within Indian Canyons Heritage Park and Tahquitz and Chino canyons as well as in the stabilized and partially stabilized desert sand fields found along the I-10 corridor in the northeast portion of the Reservation. A majority of suitable habitat for this species in the Coachella Valley occurs outside of the Plan Area. Subject to the provisions of this Tribal HCP, up to 3,450 acres (78 percent) of modeled habitat for this species could be impacted in the Plan Area, much of which occurs in areas already fragmented by development. A minimum of 1,341 acres of habitat suitable to support this species will be conserved within much larger continuous blocks of habitat compared with the acres to be impacted. It should be noted that direct impacts to individuals will be minimized through avoidance of impacts to occupied habitat within the Section 6 Target Acquisition Area to the Maximum Extent

Practicable and relocation requirements (see sections 4.8.4.2(g) and 4.9.3.4 below). As a result of the conservation measures that will be employed, combined with the small proportion of the species' range that the Plan Area represents, this Tribal HCP is not anticipated to adversely affect the range-wide recovery of the species.

Conservation and Incidental Take Levels for Burrowing Owl

Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Acres to be Conserved	Maximum Habitat Acres to be Disturbed
Not Available	4,427	1,341	3,450

4.4.8 Gray Vireo

The gray vireo occurs in semi-arid, shrub-covered foothills and mesas in pinyon-juniper, juniper, and chamise-redshank chaparral habitat. It breeds in the southwestern U.S. and in Baja California, Mexico, and its summer range includes New Mexico, southern Nevada, southern Utah, southern Colorado, western Texas, Arizona, and southeastern California. The Plan Area represents less than 1 percent of modeled habitat for this species in the Coachella Valley. Although this species has not been documented to occur in the Plan Area, observations have occurred elsewhere in the San Jacinto Mountains. A minimum of 782 acres (80 percent) of the available gray vireo habitat will be conserved within the MCCA. Up to 20 percent of potential habitat in the Plan Area could be impacted by Covered Activities. Existing conserved habitat for this species includes public lands in the Santa Rosa and San Jacinto Mountains, Joshua Tree National Park, Whitewater Canyon Conservation Area, and San Gorgonio Wilderness. As a result of the proposed habitat conservation and the small proportion of the species' range that occurs within the Plan Area, this Tribal HCP is not anticipated to adversely affect the range-wide recovery of the species.

Conservation and Incidental Take Levels for Gray Vireo

Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Acres to be Conserved	Maximum Habitat Acres to be Disturbed
111,883	978 (1% of potential habitat in Coachella Valley)	782	196

4.4.9 Blow Sand-dependent Species

The Coachella Valley fringe-toed lizard and Coachella giant sand-treader cricket are associated exclusively with active and ephemeral sand fields. The only remaining area on the Reservation that

supports these conditions is 571 acres of modeled habitat in Section 6 (Township 4 South, Range 5 East). The remaining 2,820 acres of modeled habitat within the Plan Area consist of stabilized and partially stabilized sand fields, which may currently support remnant populations of these species, but are not considered to have long-term viability. The total area of modeled habitat available for potential disturbance by Covered Projects represents approximately 10 percent of modeled habitat for these species in the Coachella Valley, although most areas within the Reservation are fragmented and no longer are maintained by a viable sand source. The remainder of this analysis focuses on active and ephemeral sand fields.

As described in detail in section 4.9.3.1, Covered Activities in the Section 6 Target Acquisition Area will be subject to avoidance, minimization, and/or mitigation requirements. Activities within the 315-acre Fluvial Sand Transport Process Area would be limited to activities that do not disrupt sand transport (e.g., sand mining), and the site would be reclaimed and dedicated to the Habitat Preserve upon completion of activities (which would be authorized for a maximum 20-year term). Activities within the 209-acre Section 6 Specific Plan Area would be limited to a maximum disturbance footprint of 32 acres and be subject to design standards to minimize impacts. The remaining 177 acres within the Section 6 Specific Plan Area would be conserved. Thus, a minimum of 492 acres (315 acres in the Fluvial Sand Transport Process Area and 177 acres in the Specific Plan Area) of potentially suitable habitat (i.e., active and ephemeral sand fields) would ultimately be conserved within Section 6. Development in the Specific Plan Area would require off-site mitigation at a 1:1 ratio. Therefore, an additional 32 acres of active and ephemeral sand fields would be acquired for conservation in off-Reservation Target Acquisition Areas if the maximum allowable development in the Section 6 Specific Plan Area is ultimately implemented. This would result in a total of 524 acres of active and ephemeral sand field conservation.

A maximum of 69 percent of existing active and ephemeral sand fields, which have long-term viability to support these species, on the Reservation would be authorized for disturbance (55 percent of temporary impact resulting from activities in the Fluvial Sand Transport Process Area and 14 percent of permanent impact from other areas within Section 6). Thus, a maximum of 347 acres of habitat with long-term viability for these species would be impacted (315 acres of it temporarily) in exchange for dedication and management in perpetuity of a minimum of 524 acres of habitat with long-term viability, a ratio of 1.3:1. In the ultimate condition (if the maximum authorized amount of development and associated mitigation occur and once the Fluvial Sand Transport Process Area is reclaimed and dedicated to the Habitat Preserve), 79 acres would be impacted in exchange for 524 acres of conservation, a ratio of 6.7:1. This would represent on-site conservation of 85 percent of the existing habitat, or (with the off-site conservation) net conservation of 91 percent. As a result of these considerations, this Tribal HCP is not anticipated to adversely affect the range-wide recovery of the species.

Conservation and Incidental Take Levels for Blow Sand-dependent Species

Species	Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Acres to be Conserved	Maximum Habitat Acres to be Disturbed
Coachella Valley Fringe-toed Lizard and Coachella Valley Giant Sand-treader Cricket	32,384	3,391 (10% of potential habitat in Coachella Valley)	524	3,214

4.4.10 Blow Sand and Stabilized Sand-dependent Species

The flat-tailed horned lizard, Palm Springs pocket mouse, Palm Springs ground squirrel, Coachella Valley Jerusalem cricket, and Coachella Valley milk-vetch can occur in both blow sand and stabilized sand environments. The flat-tailed horned lizard, Palm Springs pocket mouse, Palm Springs ground squirrel, and Coachella Valley milk-vetch all occur within the Plan Area, while the Coachella Valley Jerusalem cricket has been documented within the Action Area. As described in section 4.4.9, 394 acres (69 percent) of the 571 acres of active and ephemeral sand fields that potentially provide habitat for these species could be impacted. This total acreage adversely affected includes 315 acres of the Section 6 Fluvial Transport Process Area, which may be impacted through sand mining operations, although this Covered Activity would not be allowed to interrupt natural fluvial sand transport. Upon completion of authorized activities, this area would be reclaimed and dedicated to the Habitat Preserve. As described in section 4.3.2.10, stabilized sand habitats on the valley floor portions of the Plan Area are highly isolated, fragmented, and subject to extensive edge effect, but may still provide habitat for sand-dependent species in the near-term. Under the Tribal HCP, all stabilized sand habitat within the Plan Area will be available for disturbance by Covered Activities. The amount of potential impact contemplated by the Plan represents less than 10 percent of the currently remaining modeled habitat in the Coachella Valley for each species other than Coachella Valley Jerusalem cricket (13 percent). It should be noted that most of the modeled habitat for these species in the Plan Area is isolated and therefore these areas would not likely provide long-term viable habitat. Mitigation for development impacts to stabilized and partially stabilized sand fields would consist of a fee payment. A minimum of 80 percent of the total habitat conserved on the Valley Floor (1,164 acres, assuming the maximum development allowed on the valley floor under the Tribal HCP occurs) would be for the benefit of these species. The Palm Springs pocket mouse, Palm Springs ground squirrel, and Coachella Valley milk-vetch may also benefit from the conservation of modeled habitat within the MCCA and/or Indian Canyons. Additionally, Coachella Valley milk-vetch populations occurring within the Section 6 Specific Plan Area would be avoided to the Maximum Extent Practicable. As a result of these considerations and the proposed conservation and management of suitable habitat in an appropriate reserve configuration, this Tribal HCP is not anticipated to adversely affect the range-wide recovery of the species.

Conservation and Incidental Take Levels for Blow Sand and Stabilized Sand-dependent Species

Species	Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Acres to be Conserved	Maximum Habitat Acres to be Disturbed
Flat-tailed Horned Lizard	43,478	3,392 (8% of potential habitat in Coachella Valley)	1,132	3,215
Palm Springs Pocket Mouse	174,644	6,666 (4% of potential habitat in Coachella Valley)	1,425	5,838
Palm Springs Ground Squirrel	121,347	5,579 (5% of potential habitat in Coachella Valley)	1,256	5,160
Coachella Valley Jerusalem Cricket	28,202	3,619 (13% of potential habitat in Coachella Valley)	1,132	3,442
Coachella Valley Milk-vetch	63,544	4,812 (8% of potential habitat in Coachella Valley)	1,174	4,557

4.4.11 Other Valley Floor Species

Four species have specialized habitat requirements that do not fit within active or stabilized sand habitat categories: crissal thrasher, Le Conte’s thrasher, and Little San Bernardino Mountains gilia.

Crissal thrashers occur in southeastern California, southern Nevada, southern portions of Arizona and New Mexico, westernmost portion of Texas, and northwestern Mexico. In the Coachella Valley, they occur in the Action Area and are restricted to mesquite hummocks and desert saltbush scrub. These vegetation communities have not been mapped within the Plan Area, but may occur in small areas not mapped at a regional scale. Under the Tribal HCP, all mesquite hummocks and thickets associated with riparian habitat in the Plan Area will be avoided to the Maximum Extent Practicable and any impacts will be mitigated at a 2:1 ratio. As a result of these considerations, the Tribal HCP is not anticipated to adversely affect the range-wide recovery of the species.

Le Conte’s thrasher has been observed in the Plan Area and occurs in a patchy distribution in the southwestern portion of the U.S. and northwestern Mexico. Its habitat includes desert flats, dunes, alluvial fans, and habitat where saltbush or cholla cactus is present. Under the Tribal HCP, all desert flats, alluvial fans outside of the MCCA, and habitat where saltbush or cholla cactus is present in the Plan Area (with the exception of active and ephemeral sand fields in the conservation portion of the Specific Plan Area of the Section 6 Target Acquisition Area) will be available for disturbance by Covered Activities. The area available for potential impacts represents approximately two percent of the modeled habitat for this species in the Coachella Valley. Therefore, the Tribal HCP is not anticipated to adversely affect the range-wide recovery of this species.

Little San Bernardino Mountains gilia is restricted to the vicinity of the Coachella Valley. It occurs in loose, soft, sandy soils on low benches along washes, usually in areas where there is evidence of water flow. No modeled habitat for this species extends into the Plan Area; however, the species may occur in the bajadas and alluvial fans in the northeastern portion of the Reservation. Unless considered jurisdictional habitat under Section 404 of the Clean Water Act, these habitats will be available for disturbance by Covered Activities. Impacts to populations documented through surveys conducted or required by the Tribe will, however, be avoided to the Maximum Extent Practicable and any impacts will be mitigated at a 3:1 ratio. As a result of these considerations, the Tribal HCP is not anticipated to adversely affect the range-wide recovery of the species.

Conservation and Incidental Take Levels for Crissal Thrasher

Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Acres to be Conserved	Maximum Habitat Acres to be Disturbed
10,826	None modeled	2:1 ratio for any impacts	100%

Conservation and Incidental Take Levels for Le Conte’s Thrasher

Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Acres to be Conserved	Maximum Habitat Acres to be Disturbed
250,198	5,426 (2% of potential habitat in Coachella Valley)	592	5,149

Conservation and Impact Levels for Little San Bernardino Mountains Gilia

Total Potential Acres of Habitat within Coachella Valley	Potential Acres of Habitat in the Plan Area	Minimum Acres to be Conserved	Maximum Habitat Acres to be Disturbed
3,554	None modeled	3:1 ratio for any impacts	100%

4.4.12 Summary of Impact Restrictions

Impacts likely to result to Covered Species, as contemplated by this Plan, can be summarized as follows:

1. A maximum of 15 percent of the modeled potential habitat found in the MCCA may be subject to ground disturbance associated with Covered Projects, leaving protected a minimum of 85 percent of such habitats from such activities. This is subject to the following restrictions:
 - a. Impacts will not be authorized in use areas and defined habitat linkages of the Peninsular bighorn sheep will be maintained (as described in section 4.8.4.1).
 - b. Impacts to riparian areas (i.e., desert fan palm oasis woodland, Sonoran cottonwood-willow riparian forest, and southern sycamore-alder riparian woodland) shall be avoided to the Maximum Extent Practicable. A maximum of 10 percent of such habitat in the MCCA as a whole may be disturbed, including a maximum of 10 percent of the naturally occurring palm oases. Any unavoidable impacts shall be mitigated such that no net loss of riparian habitat suitable to support riparian Covered Species occurs in the Plan Area, and provide for a net gain in functions of the riparian habitat by removal of non-native species.
 - c. Covered Activities within Indian Canyons Heritage Park and Tribal Reserve would be subject to impact minimization and mitigation requirements as described in section 4.9.3.3.
 - d. Impacts to mesquite hummocks and thickets associated with riparian habitat shall be avoided to the Maximum Extent Practicable.
 - e. Impacts to habitats occupied by the least Bell's vireo, southwestern willow flycatcher, mountain yellow-legged frog, triple-ribbed milk-vetch, and/or Little San Bernardino Mountains gilia (as determined by surveys conducted and/or required by the Tribe) will be avoided to the Maximum Extent Practicable. Nonetheless, the Plan does allow for impacts to these species if present and avoidance is determined not to be practicable and appropriate mitigation is provided.
 - f. All MCCA Covered Activities must minimize direct impacts to burrowing owl and desert tortoise individuals through relocation, as described in section 4.8.4.2(f) and (g).
2. Impacts in the VFPA will be subject to the VFPA Project Design and Mitigation Standards detailed in section 4.9.2 and summarized as follows:
 - a. Covered Activities within the Section 6 Target Acquisition Area will be required to employ impact avoidance, minimization, and mitigation measures as described in section 4.9.3.1.
 - b. Covered Activities within Peninsular bighorn sheep-sensitive VFPA areas would be subject to measures to minimize indirect impacts to the species as described in section 4.9.3.2.
 - c. Impacts to riparian areas shall be avoided to the Maximum Extent Practicable. Any unavoidable impacts shall be mitigated such that no net loss of habitats suitable to support riparian Covered Species occurs in the Plan Area, and provide for a net gain in functions of the riparian habitat by removal of non-native species.
 - d. All VFPA Covered Activities must minimize impacts to burrowing owl and desert tortoise individuals through relocation, as described in section 4.8.4.2(f) and (g); impacts to occupied

habitat in the Section 6 Target Acquisition Area will be avoided to the Maximum Extent Practicable.

- e. Impacts to habitats occupied by crissal thrasher and Little San Bernardino Mountains gilia (as determined by surveys conducted and/or required by the Tribe) will be avoided to the Maximum Extent Practicable. Any impacts to habitat occupied by these species would be mitigated at a 2:1 or 3:1 ratio, respectively.

4.5 HABITAT PRESERVE

This Plan provides for long-term conservation of Covered Species by establishing a Habitat Preserve, with legally protected lands and management. The Habitat Preserve shall be managed and legally protected by the Tribe, as described in sections 4.11 and 4.13, for the benefit of all Covered Species. Management of the Habitat Preserve will be the responsibility of the Department under guidance of the Tribal Council. Assembly of the Habitat Preserve will occur as described in the following sub-sections.

In order for lands to be considered mitigation lands, all of the methods described below will include use of appropriate legal authorities (including the Tribe's existing legal authorities) to protect such parcels for conservation purposes. Covered Activities authorized in the Habitat Preserve will be limited to public access uses, Covered Maintenance Activities, and Covered Conservation Activities, as described in section 4.2. Habitat Preserve lands will be managed and monitored in accordance with the terms of this Tribal HCP.

The Habitat Preserve shall be assembled over time as Covered Activities are undertaken. If no development occurs, no impacts will occur and no assembly of the Habitat Preserve will occur. Should the Plan Area become developed to the full extent allowed by this Plan, the Habitat Preserve will include all lands dedicated for conservation in perpetuity as a result of mitigation measures implemented by this Tribal HCP and all lands acquired by the Tribe from funds generated through the fee applied to Covered Activities. In such event, the Habitat Preserve would include an estimated 18,870 total acres, comprising approximately one half of the entire Reservation, including 16,367 acres of upland habitat in the MCCA and 1,048 acres of currently extant riparian habitat, as well as up to 1,455 acres of valley floor species habitat on and off the Reservation, which would be legally protected and managed in perpetuity (see section 4.5.1).

4.5.1 Habitat Preserve Assembly by Covered Activities

Habitat Preserve assembly will primarily occur through land dedications, restrictions, or conditions on Covered Projects. Land use designations, restrictions on development, adoption of development standards, assessment of development fees, and other impact avoidance, minimization, and mitigation measures will be implemented to ensure that all Covered Activities are approved consistent with the Tribal HCP and that

Covered Projects in particular contribute to the Habitat Preserve. As such activities are implemented, compliance with these conservation measures will result in lands being dedicated to the Habitat Preserve. The rough proportionality of impacts of Covered Activities to protection of Habitat Preserve lands is described in Section 4.15.4.3 and 4.15.4.4. It can be described as the proportionality of lands subject to impacts (by acreage) in basic proportionality in area and time to lands (by acreage) legally protected and managed, pursuant to this Plan. Thus, the Tribe will ensure that mitigation will remain roughly proportional with impacts as they occur. These measures are more fully described in sections 4.8 and 4.9 below.

Dedications of land for the Habitat Preserve will occur using specific mechanisms appropriate for each land tenure type, as described below:

1. Fee Land on the Reservation not owned by the Tribe: Land will be dedicated via a perpetual conservation easement granted to the Tribe or acquisition of the land by the Tribe or authorized agent of the Tribe. Specific steps are expected to include:
 - a. Developer submits project application package to agency.
 - b. Tribe reviews project and determines consistency with Tribal HCP and imposes conditions of approval as needed to ensure consistency with the Tribal HCP. This information shall be presented to the agency in a Determination Letter (DL) in the form of a letter, memo, or email. A copy of the DL shall be sent to the BIA.
 - c. If land dedication is required, Developer works with Tribe to create/sign a perpetual conservation agreement (CA) over land to be conserved.
 - d. Once CA is signed, copy forwarded to City/County for release of construction permits.
 - e. Conservation easements held by Tribe for conservation in perpetuity.
2. Tribal Trust or Tribal Fee Land: Land will be dedicated via a commitment in the IA that the Tribe will conserve its holdings in perpetuity.
 - a. Tribe develops project plans.
 - b. Tribe reviews project and determines consistency with Tribal HCP.
 - c. If land dedication is required, Tribe adopts a resolution that reiterates the commitment made in the IA and reconfirms its applicability to the project.
3. Allotted Trust Land: Land will be dedicated via the Tribe enacting a resolution or ordinance mandating the conservation of dedicated lands in perpetuity. The Tribe will work with the BIA to incorporate language in BIA-approved leases acknowledging this conservation dedication requirement.
 - a. Developer submits project application package to agency.
 - b. Tribe reviews project and determines consistency with Tribal HCP and imposes conditions of approval as needed to ensure consistency with the Tribal HCP. This information shall be presented to the agency in a DL in the form of a letter, memo, or email. A copy of the DL shall be sent to the BIA.
 - c. The BIA will ensure that the following language is included in the lease agreement:

- (1) *“Purpose of the Lease. Lessee shall use the Premises and keep the premises, and all improvements located thereon in full compliance with all applicable laws. Lessee shall not use or suffer to permit any person or persons to use the premises or any part thereof for any use or purpose in violation of the applicable laws of the United States of America, the applicable laws, ordinances, regulations and the requirements of the State, County or City where the property is situated including those of the Agua Caliente Band of Cahuilla Indians or of any other applicable governmental authorities and Lessee shall keep the premises and every part thereof in good condition, free from any nuisances and shall comply with any and all applicable health and police regulations in all material respects.”*
- (2) *“General Provisions. Governing Law. This lease shall be governed exclusively by the provisions hereof and by the laws of the United States and to the extent applicable, California Law.”*
- (3) *“Environmental Protection Requirements. The Lessee shall comply with 40 CFR, Parts 1500 through 1508, Council on Environmental Quality regulations and all other regulations applicable to Environmental Protection Requirements on Federal lands. No ground disturbing activities for the Business Lease shall occur until National Environmental Policy Act (NEPA) Compliance has been met and the Business Lease has been approved by the Secretary or his authorized representative. No hazardous substance, as defined by Federal and State of California law can be stored or placed on the subject property.”*
- (4) *If the dedication land is within the area covered by the lease, the identification of that land and the use restrictions also will be included in the lease.*
 - i. If land dedication is required, Tribe adopts a resolution that reiterates the commitment made in the IA and reconfirms its applicability to the project. The resolution will specifically identify the lands that will be conserved in perpetuity (e.g., legal description). A copy of the resolution is provided to the USFWS.
 - ii. Copy of signed lease and Tribal resolution to agency for release of construction permits.

4.5.2 Habitat Preserve Assembly by Acquisitions

As described above, Habitat Preserve assembly will primarily occur through land dedications, restrictions, or conditions on Covered Projects. However, Habitat Preserve lands may also be acquired by the Tribe or through government or private partnerships from willing sellers and/or may be obtained in advance of development mitigation requirements. Prior to issuance of a grading permit for the applicable Covered Project, all associated Habitat Preserve lands will be designated as such by the Tribe using its existing legal authorities, and the Tribe will assure the long-term protection of such lands in perpetuity.

4.5.2.1 Acquisition

Acquisitions by the Tribe are anticipated to be used to meet the Preserve assembly obligations of this Plan. Acquisition from willing sellers may be used by the Tribe to increase lands of the Habitat Preserve.

While the Tribe is committed to implementing the required conservation under the Tribal HCP independent of outside funding sources, Tribal funding/acquisition partnerships with local, state, and/or federal agencies may also be used to facilitate the acquisition program. As these funds become available, they will be used to acquire lands for conservation that complement the strategies of the Tribal HCP. Federal funds will be used as mitigation for specific Covered Activities or to otherwise meet required conservation obligations of this Plan consistent with Federal regulations in effect at the time that mitigation is required. Lands conserved through such funding would proportionately reduce the acreage available for disturbance, thus reducing overall disturbance and increasing the total conservation provided through implementation of the Tribal HCP. Acquisition priorities will be defined and updated by the Department after consultation with USFWS. Such priorities will provide for preservation of the most sensitive or highest quality habitats for which non-acquisition mechanisms do not provide adequate protection. Acquisition can be accomplished through purchase of fee title, conservation easement, land exchange donation, or such other method as deemed appropriate by the Tribe and approved by the USFWS.

4.5.2.2 Advance Habitat Preserve Acquisitions

The Tribe anticipates acquisition of lands for the Habitat Preserve in advance of the triggering of development mitigation requirements. These lands may be held by the Tribe or its designee to preserve habitat before mitigation is required under the Tribal HCP. Advance acquisitions that are consistent with this Plan (e.g., in areas targeted by the Plan for conservation) may be accomplished by the Tribe, or by another party upon agreement with the Tribe. Advance acquisitions by the Tribe may be used for preservation in perpetuity and mitigation in both the MCCA and the Valley Floor (Target Acquisition Areas). For example, advance acquisitions in the MCCA may, in the Tribe's sole discretion, be used to facilitate mitigation required of Covered Projects in that area. The Tribe may also purchase lands in any of the Target Acquisition Areas (defined in section 4.9.1 below) in advance of the imposition of mitigation fees on Covered Projects proposed to take place in the VFPA and apply future fee revenues as a reimbursement to the Tribe for costs of the acquisition. Lands within the Indian Canyons Heritage Park and Tribal Reserve targeted for conservation already are owned by or held in trust for the Tribe and would be available for use as mitigation at the Tribe's discretion. Such lands would not be required to be formally dedicated to the Preserve until they are needed as mitigation for an impact. Upon formal dedication to the Preserve, such lands would be subject to the record-keeping and reporting system described in sections 4.15.5.1 and 4.15.5.2, respectively, and could not be used as mitigation of impacts resulting from projects that are not Covered Activities under this Plan.

4.5.3 Conservation Banking

The Tribe or other landowners may use Conservation Banking as a tool to facilitate assembly of the Habitat Preserve by allowing conservation of habitat in advance of mitigation. The Tribe or another

landowner may enter into a Conservation Bank Agreement with USFWS whereby land is committed to conservation through a conservation easement or other means and the property is assigned conservation credits that can be sold to offset mitigation requirements. Each conservation bank proposal shall be evaluated by the Tribe and USFWS for its consistency with the Tribal HCP and must comply with USFWS policies at the time of the proposal.

4.5.4 Density Transfers, Density Bonus Program, and Development Clustering

The Tribe may adopt and make available density transfer, density bonus, or development clustering programs to facilitate Habitat Preserve assembly. These techniques have the potential to minimize the impact of new development and encourage the preservation of large tracts of land across ownerships. Until such time as the Tribe may adopt one or all of these programs for this purpose, density transfers, density bonuses, and development clustering shall be considered on a case-by-case basis. The potential exists that density transfers from the MCCA to a VFPA Covered Project may facilitate the conservation of land in the MCCA. This type of program may provide that as density is reduced on a parcel of land in the MCCA and transferred to a VFPA Covered Project, a proportionate amount of land associated with the density transferred from the MCCA Covered Project (based upon the project acreage, permissible density, and Habitat Preserve dedication requirements discussed in section 4.8 below) shall be contributed to the Habitat Preserve within the MCCA, including necessary management funding. For example, if a Covered Project in the MCCA would be permitted to develop 20 units and 10 of those units are transferred to a valley floor project, one half of the MCCA project's Habitat Preserve requirements should be dedicated prior to ground disturbance of the VFPA Covered Project. A density bonus and/or development clustering program may be adopted to provide incentives for Covered Projects to increase dedication of land for the Habitat Preserve. Such programs also may be applied to encourage conservation within the Section 6 Target Acquisition Area. Any application of these programs would be applied on a project-specific basis in accordance with applicable local land use regulations, and cannot be mapped at this time.

4.6 CREATION OF CONSERVATION AREAS

This Plan will cause the assembly of a Habitat Preserve as described above and the imposition of development-specific avoidance, minimization, and mitigation measures through the use of mechanisms (such as development restrictions) that differ geographically; therefore, the Tribal HCP creates two distinct Conservation Areas within the Plan Area:

- The MCCA, from which a portion of the Habitat Preserve shall be created, and in which certain development standards and conditions shall be imposed; and
- The VFPA, in which impacts to active and ephemeral sand fields, as well as riparian habitat, shall be avoided, minimized, and/or mitigated; portions of Indian Canyons shall be conserved; and a

mitigation fee program applied to other valley floor habitats shall fund acquisition and management of Habitat Preserve lands in perpetuity within specified Target Acquisition Areas.

The boundary delineating these two planning areas is depicted on Figure 5.

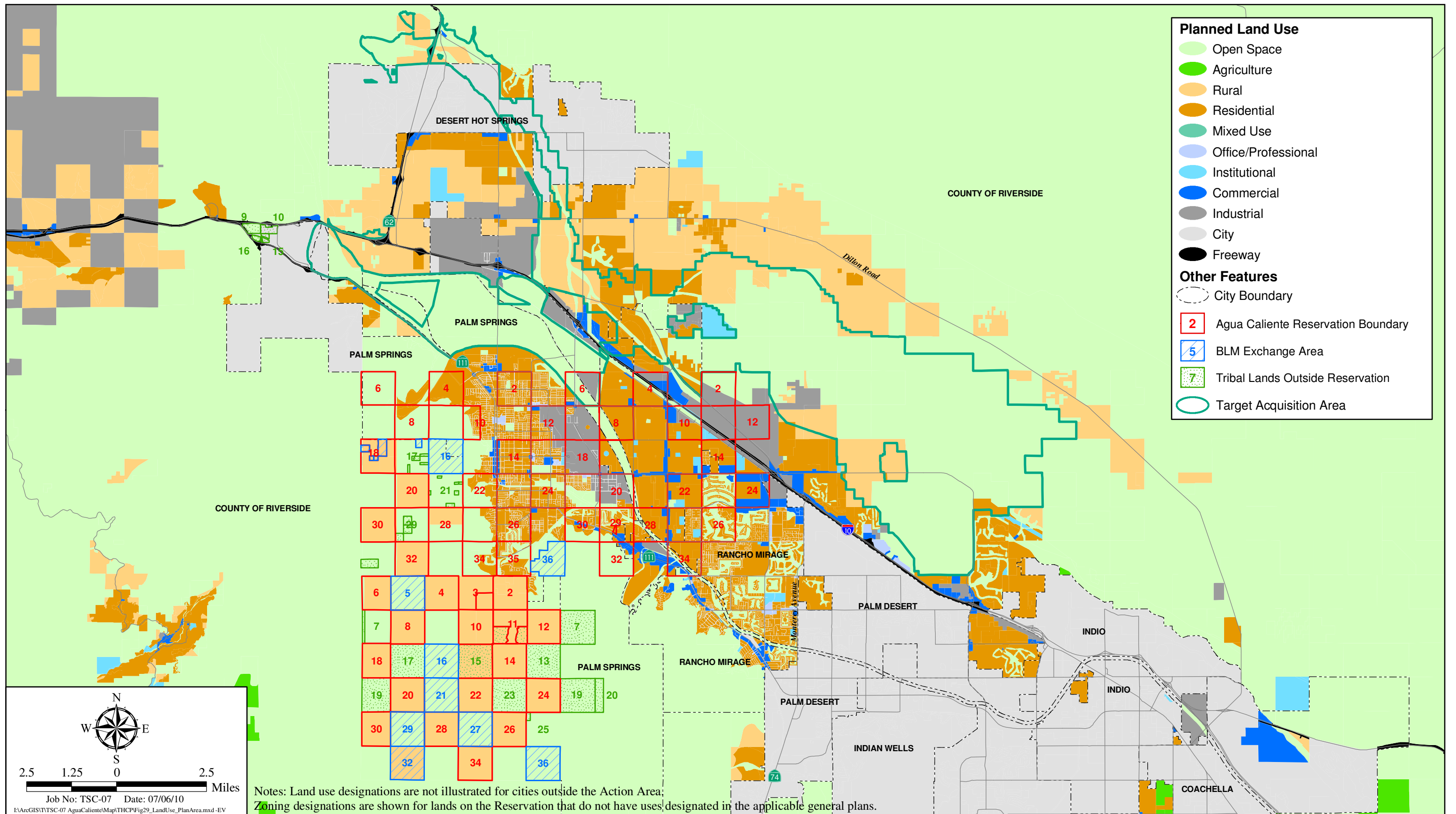
4.7 GENERAL DESIGN AND MITIGATION REQUIREMENTS FOR COVERED ACTIVITIES

Project design and mitigation requirements will be imposed upon Covered Activities by the Tribal HCP and Tribal implementing regulations to facilitate assembly of the Habitat Preserve and to assure that conservation goals for Covered Species are met. These requirements include existing general plan and land use designations (see below) and the adoption of new requirements (sections 4.8 and 4.9).

Through its Land Use Agreements with the Cities of Palm Springs, Cathedral City, and Rancho Mirage, and the County, the Tribe has already authorized the application of certain state and local land use regulations on certain lands within the Reservation, including general plan land use designations, zoning regulations, and specific development standards. General plan land use designations for lands in the Action Area are illustrated on Figure 29 and summarized in Appendix E.

Immediately upon issuance of a Section 10(a) Permit, the Tribe will provide copies of the approved Tribal HCP to the applicable local land use jurisdictions and inform them that its provisions must be enforced. The Tribe will ensure that all development or other activities approved by the Tribe or other entities within the Plan Area will be subject to impact acreage accounting and limits (such as the 85:15 MCCA ratio) and all other requirements of the Plan. Compliance with the Tribal HCP will be mandatory in order for a project to receive incidental take authorization within the Plan Area.

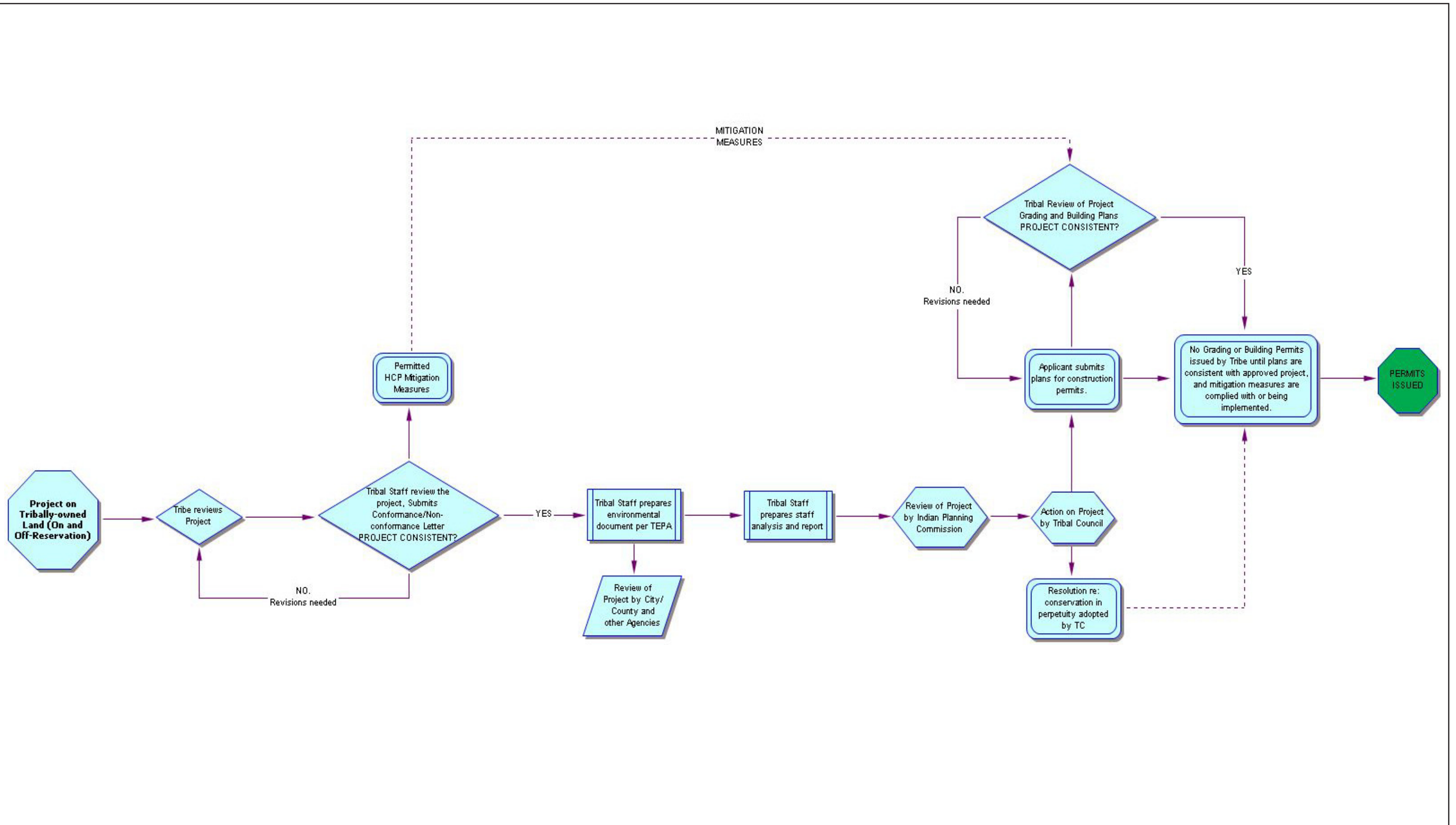
The Tribe will incorporate its determinations regarding the consistency of proposed Covered Projects with the provisions of the Tribal HCP into the existing framework for project permitting within the Plan Area (refer to Figures 30 through 32). Specifically, requirements will be imposed through the established entitlement process of each of the local jurisdictions with which the Tribe has existing Land Use Agreements, or by the Tribe itself where those Agreements do not apply. The Tribe will be responsible for making the consistency determinations, working with the local jurisdictions, as appropriate, to ensure that appropriate conditions are placed on Covered Activities, and monitoring compliance with the Tribal HCP and Section 10(a) Permit. Regardless of whether a project is processed through a local jurisdiction, the Tribal Council has ultimate authority over the appeals process (Ordinance 5; Appendix A). The Tribe will notify the USFWS in writing with (1) a draft set of consistency findings for all Covered Activities in the MCCA, Indian Canyons, or the Section 6 Target Acquisition Area at least 30 days prior to the Tribe approving such findings; and (2) any notices of appeal pertaining to the Tribal HCP.



Sources: County of Riverside 2003, City of Cathedral City 2002, City of Rancho Mirage 2006, City of Palm Springs 1993, City of Desert Hot Springs 2000

Planned Land Use

AGUA CALIENTE THCP

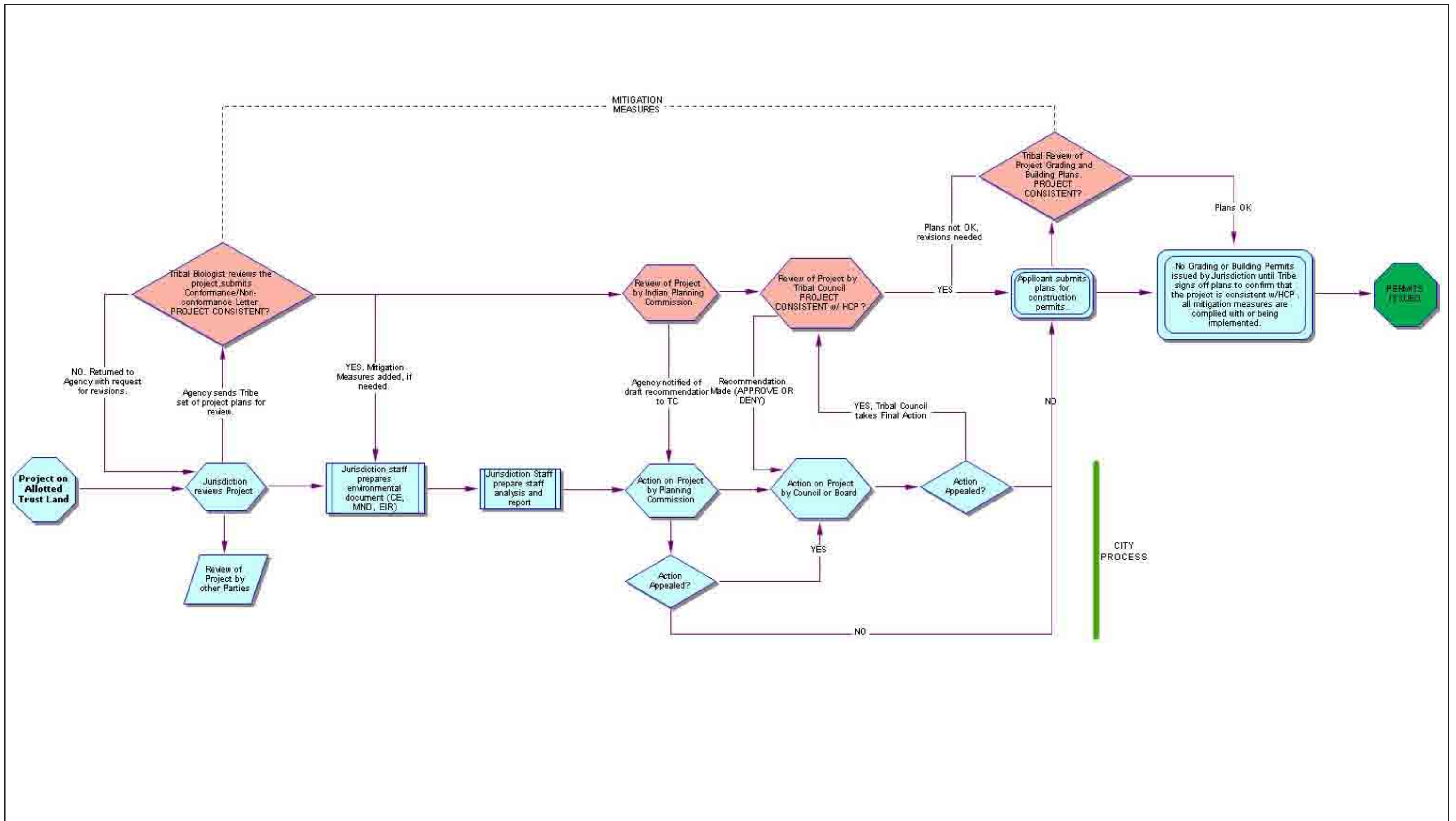


I:\ArcGIS\T\TSC-07_AguaCaliente\Map\THCP\Fig30-32 -EV

Permit Review Process - Tribal Trust and Tribal Fee Land

AGUA CALIENTE THCP

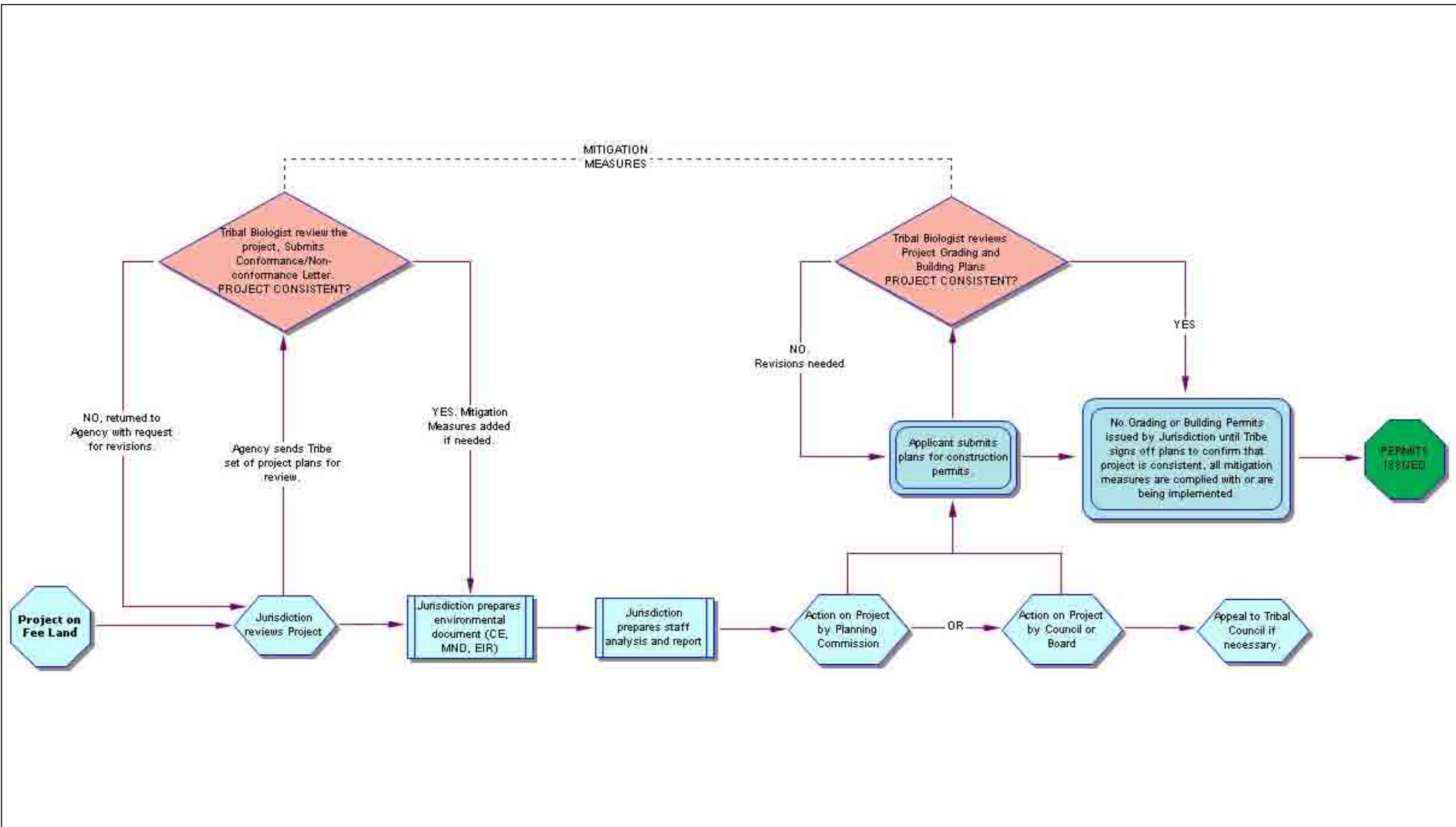
Figure 30



I:\ArcGIS\T\TSC-07_AguaCaliente\Map\THCP\Fig30-32 -EV

Permit Review Process - Allotted Trust Land

AGUA CALIENTE THCP



I:\ArcGIS\TISC-07 AguaCaliente\Map\THCP\Fig30-32 -EV

Permit Review Process - Reservation Fee Land

AGUA CALIENTE THCP

Figure 32

4.8 MCCA OVERLAY ZONE

To implement the Tribal HCP, the Tribe adopted (via adoption of the Tribal Zoning Code in 2009) an Overlay Zone for the MCCA, in which the additional processes, standards, and restrictions described in this section 4.8 shall apply. The 26,331-acre MCCA is located in the mountainous western and southern regions of the Action Area. Its boundaries, which are described in the preamble to Chapter 2, encompass portions of the San Jacinto and Santa Rosa mountain ranges. Natural Plant Communities and Covered Species found in the MCCA are described in Chapter 3. In summary, the MCCA provides the primary potential habitat for 12 of the Covered Species, including Peninsular bighorn sheep, riparian bird species, mountain yellow-legged frog, southern yellow bat, triple-ribbed milk-vetch, desert tortoise, burrowing owl, and gray vireo. Some habitat is also available for some Covered Species that occur primarily on the valley floor, including Palm Springs pocket mouse, Palm Springs ground squirrel, Le Conte's thrasher, and Coachella Valley milk-vetch.

As described in section 2.1.1, the Tribe has already established Existing Conservation Programs within the MCCA. These programs result in ongoing Tribal management of Indian Canyons Heritage Park and Tahquitz Canyon, and include Tribal trails and wetland management programs.

The balance of the MCCA remains mostly undeveloped and will remain undisturbed habitat for Covered Species unless and until Covered Activities, approved consistent with the provisions of this Plan, are implemented. The Tribe has determined that the best way to protect Covered Species and their habitat in the MCCA, where existing habitat values are still high, is to conserve existing habitat by imposing a limit on the percentage of Covered Species habitat disturbed by the implementation of Covered Projects in the MCCA, requiring that the acreage conserved through such restrictions on development be dedicated to the Tribe for inclusion in the Habitat Preserve, and protecting (through appropriate legal authorities) and managing these lands in perpetuity. In addition to conserving habitat, this Tribal HCP will result in the provision of funding for management of the conserved habitat in perpetuity. Such funding shall be provided from mitigation fees or Tribal funding as set forth in section 4.15. Development standards and avoidance, minimization, and mitigation requirements, described in sections 4.8.2 to 4.8.4 below, will further minimize or mitigate for impacts to Covered Species and their habitat in the MCCA resulting from Covered Activities.

The MCCA Overlay Zone shall include revisions to the development process and a mandatory program of the development standards described in section 4.8.1 below.

4.8.1 Permitting Process for Covered Activities in the MCCA

All Covered Activities within the MCCA shall require a Conditional Use Permit and shall be subject to TEPA and/or other applicable environmental review requirements (NEPA, California Environmental Quality Act [CEQA]). As part of the Conditional Use Permit process, the following shall apply:

4.8.1.1 Pre-application

1. Prior to submitting a Conditional Use Permit application, an entity seeking a permit (Covered Activity Proponent) may submit a letter of intent to seek an agreement with the Tribe to conserve property through acquisition by the Tribe, density transfer, or other means.
2. Prior to submitting a Conditional Use Permit application, a proposed activity plan shall be submitted to the Department. The activity plan shall delineate the extent of the proposed activity, topography and potential for presence of sensitive biological resources (including Natural Plant Communities and known detections, records, or observances of any Covered Species), shall describe any applicable compliance standards or issues under the Tribal HCP, and shall describe how the proposed activity would be consistent with the Tribal HCP. The Department shall meet and confer with the Covered Activity Proponent to comment on the activity plan; make recommendations as to the project's Tribal HCP compliance requirements and location of the least sensitive Development Envelope (as applicable); and identify information requirements that must be satisfied in order for Conditional Use Permit processing to proceed. The Department will make its best effort to prepare this initial response within 30 days of receipt of the application. The intent is to develop an activity plan that focuses on avoidance of the most sensitive biological resources to the extent feasible. Priorities shall (as applicable depending upon the type of activity) be placed on avoiding, to the Maximum Extent Practicable, riparian habitats, especially those occupied by Covered Species; maximizing buffer areas adjacent to conserved habitat and riparian areas; minimizing edge effects; and using sound conservation planning principles. These shall be in addition to species-specific measures identified in section 4.8.4.2. The Tribe also encourages the use of smart growth and low-impact development design features.

4.8.1.2 Application

1. A biological assessment of the site may, at the Tribe's discretion based on Pre-Application Item 2, be required of the Covered Activity Proponent when sufficient information does not exist or the information is more than one year old. This assessment will be used for the Covered Activity Proponent and the Tribe to agree upon the Tribal HCP requirements for the proposed Covered Activity. In the Tribe's discretion, the assessment shall include but not be limited to any or all of the following information: topography; habitat types; vegetation maps; drainage areas (including any

USACE jurisdictional areas); the results of presence-absence studies for Covered Species (except Peninsular bighorn sheep⁵) for which appreciable potential for occurrence exists in the project area, based on habitat characteristics; location of Covered Species, based on occurrence data or records; and evaluation of the site for its importance and function for Covered Species and their habitats. Specifically, the Tribe will require that surveys be conducted by Qualified Biologists who are qualified to conduct such surveys in accordance with applicable protocols, if potential habitats for least Bell's vireo, southwestern willow flycatcher, mountain yellow-legged frog and/or triple-ribbed milk-vetch is/are determined by the Tribal Biologist to likely exist on the site of a proposed activity, as described in section 4.8.4.2, below.

2. In accordance with TEPA (and/or other applicable environmental law), a document shall be prepared to assess the proposed Covered Activity's environmental impacts, including those on biological resources, and identify all the mitigation measures that will be implemented by the Covered Activity as required by this Plan.

4.8.1.3 Conditional Use Permit Conditions

If the Conditional Use Permit is approved, it shall be conditioned to ensure that the implementation of the Covered Activity is consistent with the Tribal HCP, including the MCCA development standards and applicable avoidance, minimization, and mitigation standards described in this section 4.8. The Tribe shall issue take via the conditions of approval issued by the Tribal Council for each project. These project conditions shall note the amount of take extended to the project.

4.8.2 Density Categories and Slope/Density Ratios

In addition to limits on development as set forth in any applicable general plan, allowable development within the MCCA (on properties identified on Figure 34 as requiring 85 percent or greater conservation) shall be subject to a maximum residential density that is based on topography of the subject property according to the following categories (see Figure 33 for generalized slope categories within the MCCA):

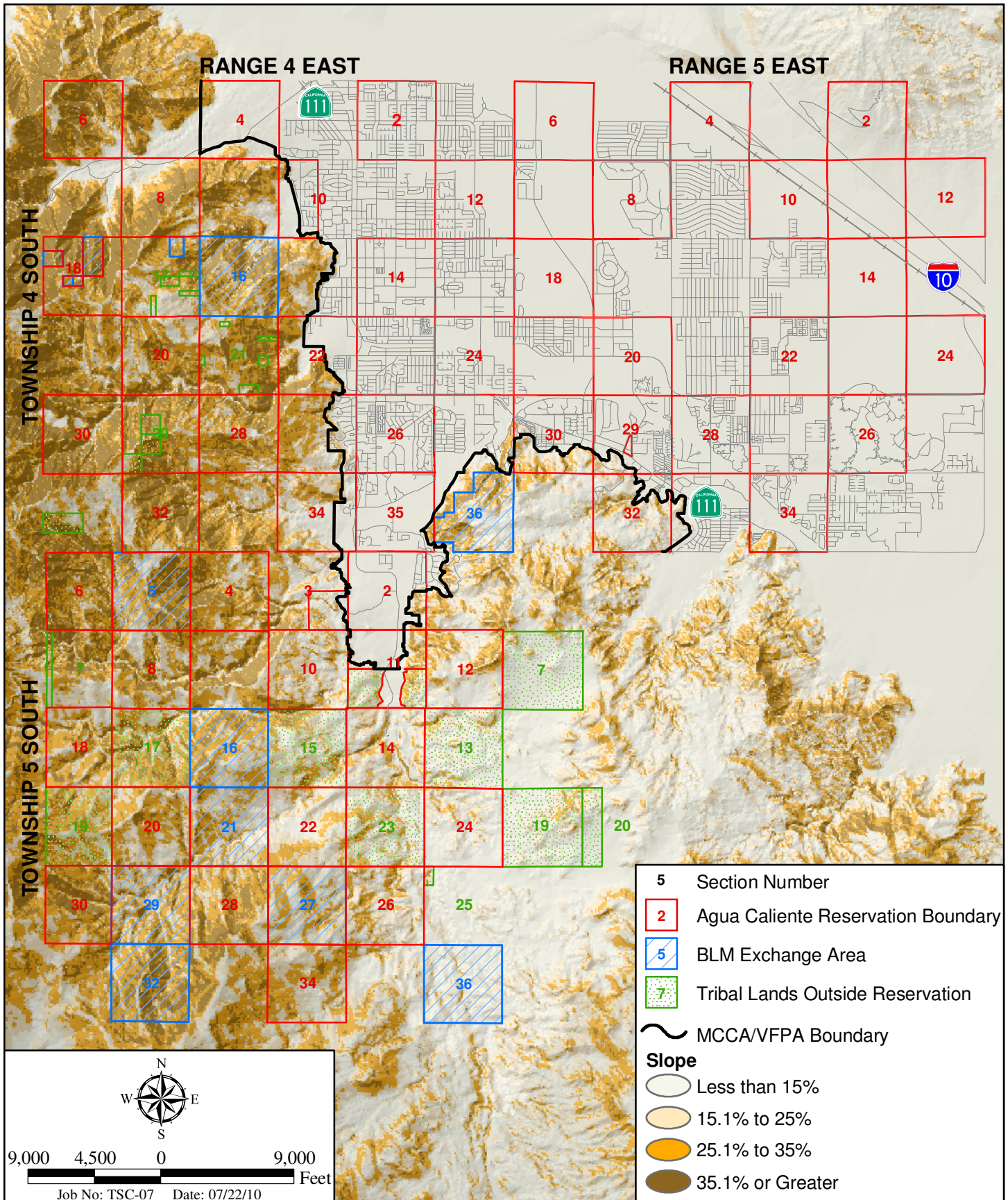
1. For areas up to 15 percent slope, the maximum density is one unit per 2.5 acres;
2. For areas from 15.1 percent to 25 percent slope, the maximum density is one unit per 5 acres;
3. For areas from 25.1 percent slope to 35 percent slope, the maximum density is one unit per 15 acres;
and
4. For slopes greater than 35 percent, the maximum density is one unit per 20 acres.

⁵Peninsular bighorn sheep habitat usage is tracked on a regional basis. Surveys for individual projects would therefore be duplicative and may result in unnecessary harassment of the sheep.

4.8.3 MCCA Covered Activity Design and Mitigation Standards

Covered Activities within the MCCA shall comply with the following design and mitigation standards:

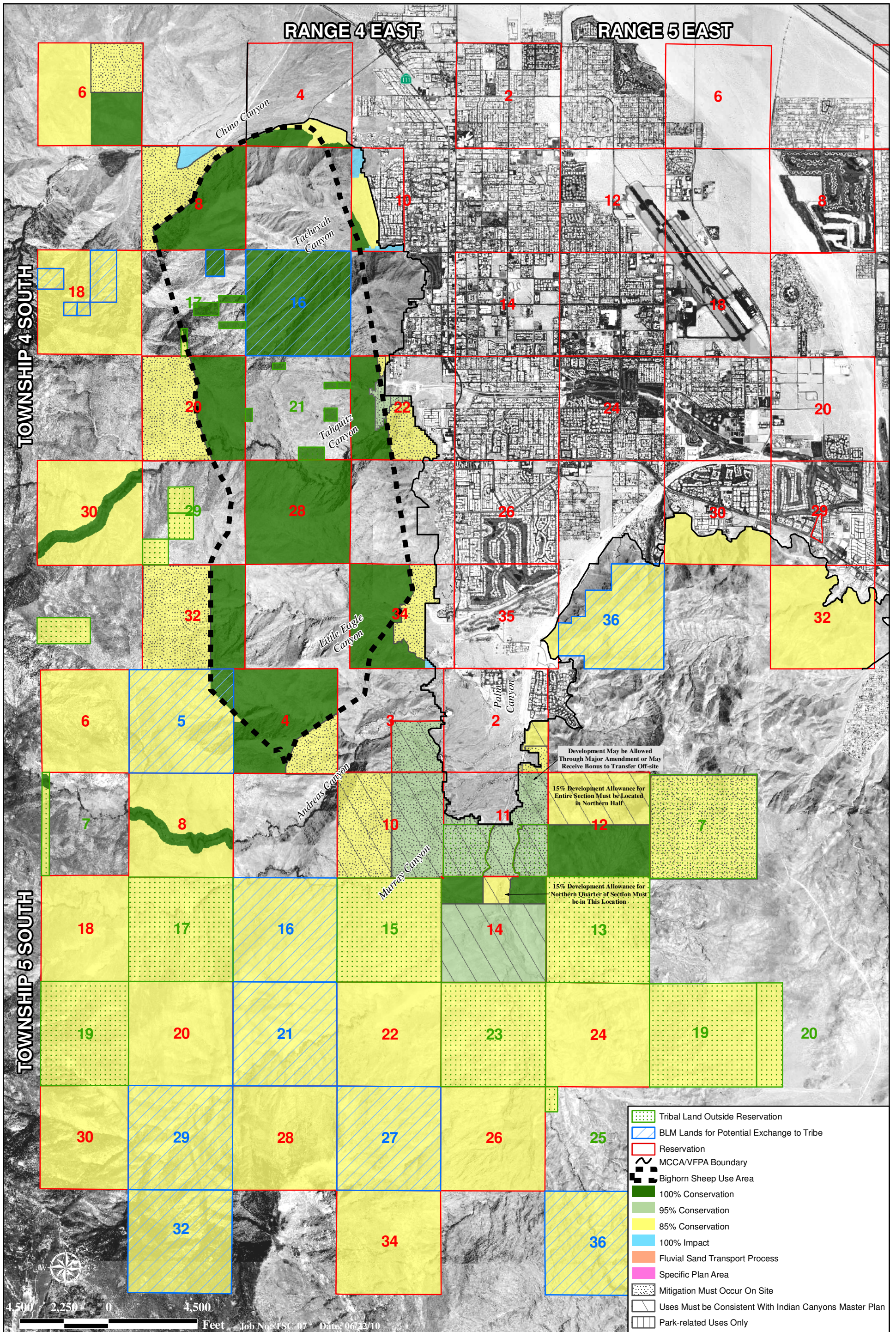
1. Covered Activities' impact on property within the MCCA shall be limited to the Development Envelope. The Development Envelope shall include all areas of contiguous land upon which structures shall be located, and shall include any access roads or driveways, fuel modification zones, non-native landscaping, necessary maintenance areas, and domestic animal use areas.
2. The Development Envelope shall be sited to avoid impacts to the parcel's most sensitive biological resources and the most sensitive portions of the site to the extent feasible. In addition to specific measures outlined in section 4.8.4.2, priorities shall be placed on avoiding, to the Maximum Extent Practicable, riparian habitats and mesquite hummocks and thickets, especially those occupied by Covered Species; maximizing buffer areas adjacent to conserved habitat and riparian areas; minimizing edge effects; and using sound conservation planning principles. Mitigation may also occur through off-site conservation within the MCCA, except as otherwise specifically described in section 4.8.4.1 and shown on Figure 34.
3. The Covered Project's impacts, reflected in the siting of the Development Envelope, shall not cause to be exceeded the habitat impact restrictions for each of the habitat categories present on the project site, as set forth in section 4.4. A maximum of 15 percent of the habitat of Covered Species found in the MCCA may be subject to ground disturbance associated with Covered Projects, resulting in an overall minimum of 85 percent (a 5.67:1 ratio) of such habitat being conserved and dedicated to the Habitat Preserve. Within this overall requirement, each section of the MCCA is assigned a maximum percentage of allowable development, as described in section 4.8.4.1 and shown on Figure 34, and is subject to additional restrictions as described in this section 4.8. The specified percentages shall be applied on a project-specific basis but may except in certain specified areas for Peninsular bighorn sheep be achieved through conservation of lands outside of the project site, elsewhere within the MCCA. No disturbance shall be allowed within a use area or defined linkage for Peninsular bighorn sheep [as determined in accordance with section 4.8.4.1]. Covered Projects must be sited to avoid, to the Maximum Extent Practicable, impacts to riparian areas and to mesquite hummocks and thickets associated with riparian habitat; must comply with the conditions of any required Clean Water Act permits; and must provide compensatory mitigation through restoration/creation at a minimum 1:1 ratio, such that no net loss of habitats suitable to support riparian Covered Species occurs within the Plan Area. Such compensatory mitigation would be designed on a project-specific basis, taking into account the functions for Covered Species of the habitat to be impacted. It may include enhancement of existing habitats that currently are not suitable to support riparian Covered Species through activities such as tamarisk removal, revegetation with native plant species, and cowbird removal activities. Such activities would result in a net gain in functions of the riparian habitat.
4. Prior to any ground or habitat disturbance, the portion of the parcel outside of the Development Envelope (on which development is not allowed) and/or any off-site mitigation lands as may be



Percent Slope in the MCCA

AGUA CALIENTE THCP

Figure 33



Conservation Requirements

AGUA CALIENTE THCP

Figure 34

approved or required by the Tribe, shall be dedicated to the Tribe or its designee for inclusion in the Habitat Preserve through any of the mechanisms defined in section 4.5. This shall include, at a minimum, dedication of habitats at a 5.67:1 ratio, habitat sufficient to ensure no net loss of suitable habitat functions and values for riparian species, and mitigation for any impacted mesquite hummocks and thickets associated with riparian habitat at a minimum ratio of 2:1. The value of lands dedicated to the Habitat Preserve may, at the Tribe's discretion, be credited against the Tribal HCP Mitigation Fee.

5. The Covered Activity shall be conditioned to comply with applicable impact avoidance and minimization measures set forth in section 4.8.4.

4.8.4 Impact Avoidance and Minimization Measures

Except as otherwise provided, implementation of the measures specified in the following sub-sections shall be required of all Covered Activities in the MCCA.

In the context of this Tribal HCP, the term "Maximum Extent Practicable" refers to changes in the proposed Development Envelope in order to site Covered Activities in the least environmentally sensitive location practicable, where the fewest impacts to Covered Species and their habitats would occur and habitat disruption and fragmentation would be at a minimum. Determination of the least environmentally sensitive location shall consider all biological resources that potentially could be affected by the project alternatives (e.g., both wetland and upland impacts). The determination that impacts would be avoided and minimized to the Maximum Extent Practicable shall include an evaluation of biological functions and values, based on the best available science. This evaluation will consider rarity of the resource, support of Covered Species, proportion of natural to exotic vegetation, existing levels of habitat disturbance, reserve design considerations, and other relevant ecological factors.

Project design changes to achieve avoidance shall, in the light of overall project purposes, take into consideration cost, technical constraints (e.g., roadway geometry, slope stability, geotechnical hazards, etc.), and logistics, and shall not involve extraordinary engineering design. Any deviation for economic viability should be the minimum necessary to achieve economically viable use of the property, and will only be done for circumstances not of the Covered Project Proponent's making. This means that a deviation should not be granted to achieve economic viability when the primary reason a project is economically unviable, absent the deviation, is because of a poor investment decision by a land owner.

The Covered Project Proponent shall submit documentation to the Tribe demonstrating that avoidance has occurred to the Maximum Extent Practicable. This shall include the following information:

- Definition of the Covered Project area.
- A written Covered Project description.

- A written description of biological information available for the Covered Project area, including the results of resource mapping and all relevant species surveys.
- Quantification of unavoidable impacts to the subject resource(s).
- A written description of project design features and mitigation measures that reduce indirect effects, such as edge treatments, landscaping, elevation difference, minimization, and/or compensation through restoration or enhancement.
- An analysis of alternatives to avoid the impacts, including a full description and economic and/or other factual substantiation of the reasons that these alternatives were not pursued. Alternatives shall include, as applicable, an avoidance alternative and a substantive minimization alternative with regard to the resource in question.

The Tribe will include a summary of this information for each Covered Activity in its consistency findings, which must be approved by the Tribal Council. Any unavoidable impacts must be mitigated in accordance with the terms of the Tribal HCP. This information will be supplied in an annual report to the USFWS as described in section 4.15.5.2.

4.8.4.1 Area-specific Conservation Requirements

The Tribe will apply specific development criteria to Covered Activities proposed in certain sections of the Plan Area, as described below. Should the BLM Exchange Areas be transferred to the Tribe during the term of the Section 10(a) Permit, they would become subject to the terms of this Plan; therefore, they are shown on Figure 34 and described below. All sections or areas in the MCCA for which criteria are not specifically described herein in section 4.8.4.1 shall be subject to the MCCA conservation criteria described throughout this section 4.8.

Chino Canyon

A Peninsular bighorn sheep corridor study area has been identified across Chino Canyon. The Chino Canyon corridor study area consists of the eastern half of Section 6 and approximately the northwestern third of Section 8 (Township 4 South, Range 4 East). The Tribe has agreed to conserve the entirety of the southeastern quarter of Section 6 as part of broader efforts to maintain a corridor. The northeastern quarter of Section 6 would be authorized for up to 15 percent development in the least environmentally sensitive area, with the remaining 85 percent of the quarter section required for on-site conservation. The northwestern portion of Section 8 would be authorized for 15 percent development in the least environmentally sensitive area, with the remaining 85 percent required for on-site conservation. Development in this area must be designed to retain a corridor. The north-central portion of Section 8 (shown as blue on Figure 35), which was previously authorized for development as part of the former Shadowrock project (USFWS 2007a), is designated for 100 percent development but would be included within the corridor study area, within which a Peninsular bighorn sheep corridor must be maintained.

Peninsular Bighorn Sheep Use Areas

The Peninsular bighorn sheep Use Areas discussed herein and identified in Figure 34 are based on tracking data provided by the Bighorn Institute. Within these identified Peninsular bighorn sheep Use Areas, development rights shall be transferred to land elsewhere within the Plan Area or the land shall be acquired for dedication to the Habitat Preserve, resulting in 100 percent conservation of these areas. The Peninsular bighorn sheep Use Area encompasses all or portions of Sections 4, 8, 10, 16, 17, 20, 21, 22, 28, 32, and 34 (Township 4 South, Range 4 East) and Sections 4 and 5 (Township 5 South, Range 4 East) in the Action Area. Portions of the Peninsular bighorn sheep Use Areas within which 100 percent conservation would not be required are limited to portions of Sections 4, 22, and 34 (Township 4 South, Range 4 East), as illustrated on Figure 34; these areas would be available for partial development, subject to requirements for on-site conservation. In Section 22, any development would be limited to park-related uses (see Tahquitz Canyon in this section, below).

Tachevah Canyon

Within the southwestern corner of Section 10 (Township 4 South, Range 4 East), as illustrated on Figure 34, development rights shall be transferred to land elsewhere within the Plan Area (with a density bonus as described in section 4.5.4) or the land shall be acquired for dedication to the Habitat Preserve, resulting in 100 percent conservation of these areas. Within the area identified for 85 percent minimum conservation, development should be designed so as to provide a buffer between urban uses and the Peninsular bighorn sheep Use Area to the west. The remaining portions of the MCCA in this section would be authorized for 100 percent development, subject to applicable adjacency measures and mitigation requirements that are identified in sections 4.8.3 and 4.8.4.

Tahquitz Canyon

Tahquitz Canyon (located in Section 22, Township 4 South, Range 4 East) would be authorized for 5 percent development, consisting only of park-related uses. The adjacent slopes outside of the Peninsular bighorn sheep Use Area would be authorized for 15 percent development in the least environmentally sensitive area (generally, adjacent to the existing urban edge), with the remaining 85 percent of the site required for on-site conservation.

Upper Tahquitz Creek

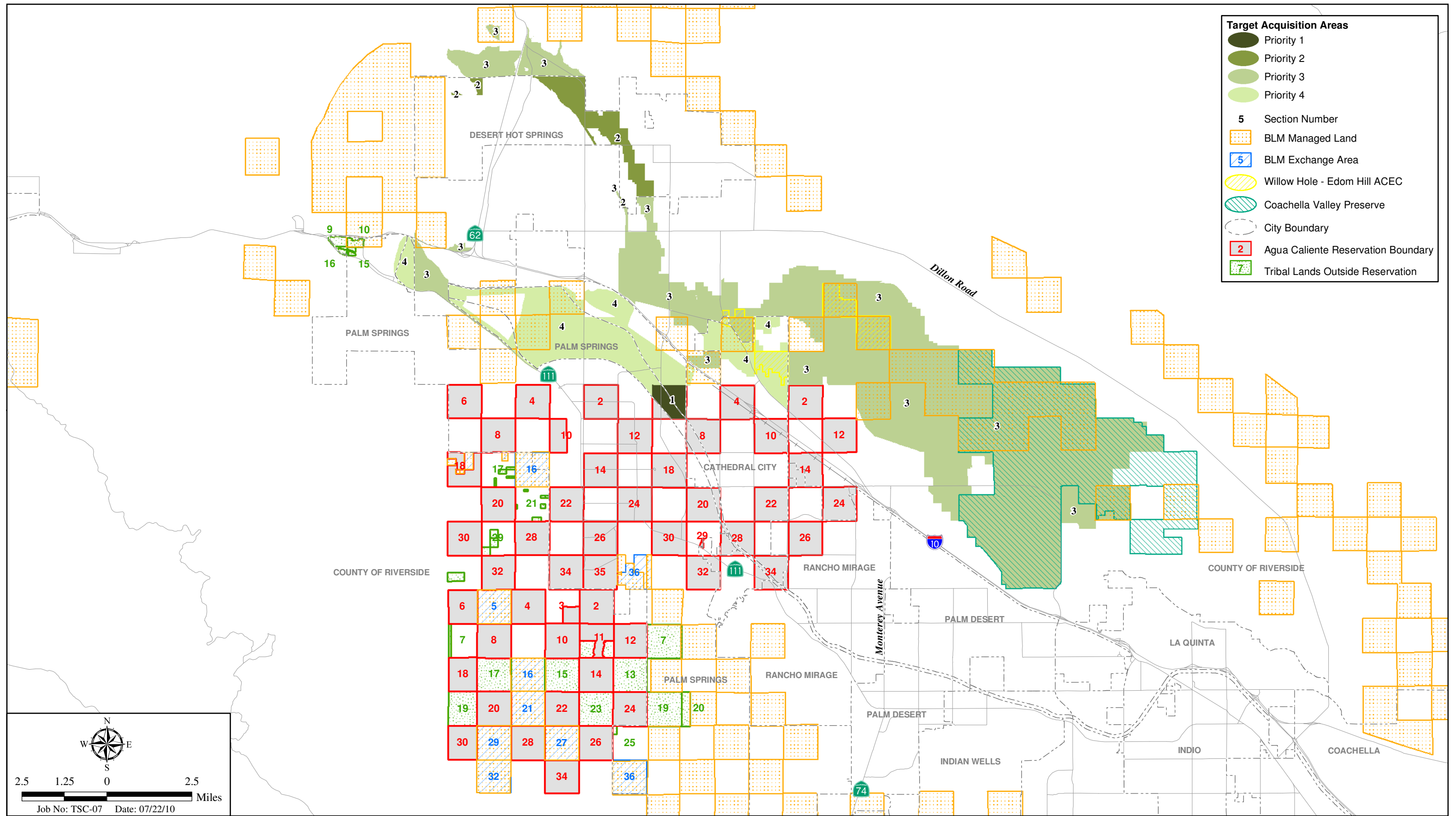
A minimum 500-foot-wide swath would be maintained along Tahquitz Creek in Section 30 (Township 4 South, Range 4 East).

Sections 20 and 32 (Township 4 South, Range 4 East)

The portions of these sections located west of the limits of the Peninsular bighorn sheep Use Area would be authorized for 15 percent development in the least environmentally sensitive area, with the remaining 85 percent required for on-site conservation.

Little Eagle Canyon

In 2006, the City of Palm Springs approved a residential development project at the mouth of Little Eagle Canyon. (Please note that the Section 10(a) Permit to be issued in conjunction with this Tribal HCP would apply to discretionary activities/approvals of the Tribe. Any project that would proceed outside the discretion of the Tribe, such as a previously approved action or an action approved by some other party, would not be discretionary and would not receive incidental take coverage under this Plan.) In order to receive incidental take coverage pursuant to this Tribal HCP, Little Eagle Canyon and the slopes to its north (shown as stippled areas in Section 34, Township 4 South, Range 4 East on Figure 34) could be authorized for



Target Acquisition Areas

AGUA CALIENTE THCP

Figure 35

15 percent development in the least environmentally sensitive area (generally adjacent to the existing urban edge), with the remaining 85 percent required for on-site conservation. On slopes to the south of the canyon (shown as green on Figure 34), development rights shall be transferred to land elsewhere within the Plan Area (with a density bonus) or the land shall be acquired for dedication to the Habitat Preserve, resulting in 100 percent conservation of these areas.

North Fork of Andreas Canyon

The portion of Section 4 (Township 5 South, Range 4 East) located to the southeast of the Peninsular bighorn sheep Use Area, as well as a small area in the west-central portion of the section (shown as yellow stippled on Figure 34) would be authorized for 15 percent development in the least environmentally sensitive area, with the remaining 85 percent required for on-site conservation. In the area southwest of the Peninsular bighorn sheep Use Area (shown as green on Figure 34), development rights shall be transferred to land elsewhere within the Plan Area (with a density bonus) or the land shall be acquired for dedication to the Habitat Preserve, resulting in 100 percent conservation of these areas.

Upper Andreas Creek

A minimum 500-foot-wide swath would be maintained along the upper portion of the southern fork of Andreas Creek in Sections 7 and 8 (Township 5 South, Range 4 East).

Indian Canyons

A Peninsular bighorn sheep corridor study area has been identified across Palm Canyon. Any development in the Indian Canyons Master Plan area (hatched on Figure 34) would be required to be in accordance with the Indian Canyons Master Plan, described in Section 2.1.1.1 of this Tribal HCP. Development within the southeastern quadrant of Section 3 within the MCCA; eastern half of Section 10; entirety of Section 11 within the MCCA; and southern three-quarters of Section 14 (Township 5 South, Range 4 East) would be limited to 5 percent of the property. The remaining 95 percent of this area would be required for conservation. Development in the northeastern quarter of Section 11 could be authorized only through a major amendment. In the absence of such amendment, development rights shall be transferred to land elsewhere within the Plan Area (with a density bonus) or the land shall be acquired for dedication to the Habitat Preserve, resulting in 100 percent conservation of this area.

The 15 percent development allowance for the northern quarter of Section 14 (Township 5 South, Range 4 East) would be authorized only in the central portion of this area (see Figure 34). Similarly, the 15 percent (96 acres) development allowance for the entirety of Section 12 would be authorized only within the northern half of Section 12. The remaining 85 percent (544 acres) of Section 12 would be targeted for

acquisition for dedication to the Habitat Preserve (or dedicated as mitigation for the noted development), resulting in 100 percent conservation of the southern half of the section, shown as green on Figure 34.

Within the southeastern corner of Section 2 (Township 5 South, Range 4 East, shown as stippled yellow on Figure 34), 15 percent development of the area may be authorized in the least environmentally sensitive area, with the remaining 85 percent of the area required for conservation. Alternatively, some or all of the development within this area may be transferred to the one-sixteenth section immediately to its north (as a result, this area is identified as available for 100 percent development, subject to applicable adjacency measures and mitigation requirements).

Low-priority Conservation Areas

Several small areas (totaling approximately 104 acres) within the MCCA that were identified as having low priority for conservation are identified as being available for 100 percent development. Development in these areas would be subject to the indirect impact minimization measures described in sections 4.8.4.3 and 4.8.4.4. The areas are identified as blue on Figure 34, and include portions of Section 10 (Township 4 South, Range 4 East) and Section 2 (Township 5 South, Range 4 East). As previously noted, it is anticipated that the portion of Section 2 within the MCCA in Indian Canyons designated for up to 100 percent development may be the recipient of a transfer of development rights from the property immediately to the south. For those properties that are within the MCCA, mitigation at a 5.67:1 ratio would be required.

4.8.4.2 Species-specific Avoidance and Minimization Measures

In addition to the general conservation and minimization measures discussed elsewhere in this section 4.8, the measures described in this section 4.8.4.2 must be implemented to achieve the Tribe's conservation goals and objectives with regard to Peninsular bighorn sheep, least Bell's vireo, southwestern willow flycatcher, mountain yellow-legged frog, triple-ribbed milk-vetch, desert tortoise, and burrowing owl. Species-specific surveys and avoidance measures for other Covered Species are not considered necessary to achieve the Tribe's conservation goals and objectives because of their generally broader distribution and/or lower overall sensitivity.

4.8.4.2(a) Peninsular Bighorn Sheep

No direct kill or injury of an individual Peninsular bighorn sheep shall be authorized to occur as a result of any Covered Activity. Take may occur in the form of habitat loss, as well as indirect effects that potentially could disrupt normal behavioral patterns. The following measures have been incorporated into this Tribal HCP to minimize such take and assist in implementation of the tasks identified by the Peninsular bighorn sheep Recovery Plan. They shall be made a condition of Covered Activity approval

and Covenants, Conditions and Restrictions (CC&Rs) (if applicable), to ensure preservation/protection of the species in the MCCA (and Peninsular bighorn sheep-Sensitive VFPA Areas discussed in section 4.9.3.2 below):

1. The Tribe may require clustering or other measures to ensure that the most sensitive biological areas for the Peninsular bighorn sheep are avoided to the extent feasible. For example, development densities on a less sensitive portion of the site could be increased beyond the limits specified in section 4.8.2 in exchange for providing a larger buffer from use areas or defined habitat linkages.
2. Known Peninsular bighorn sheep watering areas, surrounding areas within one-quarter mile, and slopes above these watering areas to the ridgeline shall be avoided.
3. Fences shall be constructed around Covered Projects implemented within or adjacent to Peninsular bighorn sheep habitat to exclude Peninsular bighorn sheep from urban areas where the species might otherwise use urban sources of food and water, or otherwise potentially be subject to adverse effects. Barriers, a minimum of eight feet high, must be constructed in conformance with the Peninsular bighorn sheep Recovery Plan where development adjoins Peninsular bighorn sheep habitat. These fences will be constructed concurrent with the proposed development and prior to issuance of Certificates of Occupancy. Their maintenance will be required by the CC&Rs for the development, if applicable, or Tribe if enforcement of CC&Rs proves problematic.
4. Goats, sheep, and cattle shall not be permitted in areas adjacent to Peninsular bighorn sheep habitat.
5. No toxic vegetation shall be used within 50 feet of fenced habitat interfaces and areas accessible to Peninsular bighorn sheep. Such species include oleander (*Nerium oleander*), laurel cherry (*Prunus laurocerasus*), and ornamental nightshade (*Solanum* sp.). The Department will develop a list of such plants, and will distribute the list to Covered Activity Proponents and review project landscaping plans against the list. (This list is in addition to the list of invasive plants listed on Table 4-4 and discussed in section 4.8.4.3(c)). Covered Project Proponents shall provide information in the CC&Rs that describes the prohibited species and the importance of avoiding their use in landscaping areas accessible by Peninsular bighorn sheep.
6. The Department shall require utilization of native landscaping that requires less use of pesticides, herbicides, and other chemicals along the project edge abutting native habitat. Brochures provided to homeowners also will describe the benefits of such landscaping.
7. Water features shall be designed to include water deeper than three feet, slopes greater than 30 degrees and, if possible, rapidly fluctuating water levels to eliminate bluetongue and other vector-carried diseases.
8. Water diversions shall be regulated to preserve Peninsular bighorn sheep water sources.

4.8.4.2(b) Least Bell's Vireo

If, based on the determination of the Tribal Biologist, habitat assessments indicate the potential for the presence of the species, the Tribe will require surveys for least Bell's vireo in appropriate habitat within or immediately adjacent to the Covered Activity area in accordance with USFWS protocols current at that time. If least Bell's vireos are detected on the site, occupied habitat shall be avoided to the Maximum Extent Practicable.

4.8.4.2(c) Southwestern Willow Flycatcher

If, based on the determination of the Tribal Biologist, habitat assessments indicate the potential for the presence of the species, the Tribe will require surveys for southwestern willow flycatcher in appropriate habitat within or immediately adjacent to the Covered Activity area in accordance with USFWS protocols current at that time. If southwestern willow flycatchers are detected on the site, occupied habitat shall be avoided to the Maximum Extent Practicable.

4.8.4.2(d) Mountain Yellow-legged Frog

If, based on the determination of the Tribal Biologist, habitat assessments indicate the potential for the presence of the species, the Tribe will require surveys for mountain yellow-legged frog in appropriate habitat within or immediately adjacent to the Covered Activity area. Surveys shall be conducted between May 1 and August 31 or in accordance with USFWS protocols current at that time. If this species is detected on the site, occupied habitat shall be avoided to the Maximum Extent Practicable. No stocking of fish species that could adversely affect this species will be authorized by the Tribe.

4.8.4.2(e) Triple-ribbed Milk-vetch

If, based on the determination of the Tribal Biologist, habitat assessments indicate the potential for the presence of the species, the Tribe will require surveys to be conducted at the appropriate time of year (February 1 through May 15, depending on weather conditions for a given year). If present, this species will be avoided to the Maximum Extent Practicable. If avoidance is determined not be practicable, the Covered Project Proponent will be required to conserve extant populations of the species elsewhere, or to prepare and implement a USFWS-approved restoration plan, at a minimum 3:1 ratio, to the satisfaction of the Tribe prior to Project implementation. Conservation or restoration activities will occur in a location suitable to support the species. This could include a location outside of the Action Area if determined appropriate by the Tribe and USFWS.

4.8.4.2(f) Desert Tortoise

Prior to any ground or habitat disturbance associated with any Covered Activity on a site that provides modeled (or potential based on ground truthing) desert tortoise habitat, the Covered Activity Proponent shall require a Qualified Biologist to conduct a pre-disturbance presence/absence survey of the Development Envelope and adjacent areas within 200 feet of the Development Envelope, or to the property boundary if less than 200 feet and permission from the adjacent landowner cannot be obtained to determine if the desert tortoise occupies the site. The Qualified Biologist will survey for fresh sign of desert tortoise, including live tortoises, tortoise remains, burrows, tracks, scat, or egg shells. The presence/absence survey must be conducted during the clearance window between February 15 and October 31. Presence/absence surveys require 100 percent coverage of the survey area. If no sign is found, no further surveys are required. A presence/absence survey is valid for 90 days or indefinitely if tortoise-proof fencing is installed around the Development Envelope following negative survey results.

1. If fresh signs are located, the Development Envelope must be fenced with tortoise-proof fencing and a presence/absence clearance survey conducted during the clearance window in order to find tortoises within the impact area for monitoring and potential relocation. Presence/absence clearance surveys must cover 100 percent of the Development Envelope. A presence/absence clearance survey must be conducted during different tortoise activity periods (morning and afternoon).
2. All surveys, construction monitoring, and relocation (if necessary) will follow the Guidelines for Handling Desert Tortoises During Construction Projects prepared by The Desert Tortoise Council (1999), or other protocol accepted by USFWS at that time. If tortoises are found, they shall be relocated to a destination selected by the Tribe on a case-by-case basis to provide the greatest long-term conservation potential for the species (regardless of whether it is within the Action Area), considering factors such as habitat characteristics, long-term viability, and the presence/status of existing populations of this species on the available sites. Then-current protocols shall be used in handling individuals.
3. For Covered Maintenance Activities in the Habitat Preserve, the Tribe shall ensure that personnel conducting such activities are instructed to be alert for the presence of desert tortoise. If a tortoise is spotted, activities adjacent to the tortoise's location will be halted until such time as the tortoise moves away from the activity area. If the tortoise does not move in an amount of time determined to be a reasonable waiting period by a Qualified Biologist based on site-specific considerations, it may be relocated by a Qualified Biologist to nearby suitable habitat and placed in the shade of a shrub. If the original location of the tortoise is near the edge of the Plan Area, it may be moved outside of the Plan Area if the Qualified Biologist determines that is the most appropriate location for the individual.

4.8.4.2(g) Burrowing Owl

Prior to any ground or habitat disturbance associated with any Covered Activity on a site that provides potential burrowing owl habitat, the Covered Activity Proponent shall cause a pre-disturbance survey of the site to be conducted for presence of the species.

1. Surveys and relocation, if applicable, shall be conducted between September 1 and January 31. The Tribe and USFWS currently are working together to develop appropriate relocation protocols. It is anticipated that these protocols will, at a minimum, reflect the standards of the CDFG Staff Report on Burrowing Owl Mitigation (1995, as summarized below).
2. Owls shall be excluded from burrows within the approved limit of disturbance and an appropriate buffer zone as determined by a Qualified Biologist by installing one-way doors in burrow entrances or other technique as deemed appropriate by the Tribe. The biological monitor must ensure through appropriate means (e.g., monitoring for owl use, excavating burrows) that the burrows to be impacted are not being used. If active relocation methods are employed, the destination will be selected by the Tribe on a case-by-case basis to provide the greatest long-term conservation potential for the species (regardless of whether it is within the Action Area). Factors to be considered include habitat characteristics, long-term viability, and the presence/status of existing populations of this species on the available sites based on available information or a site reconnaissance by a Qualified Biologist. Artificial burrows will be constructed at the receptor site under supervision of the Qualified Biologist. Artificial burrows shall not be required for passive relocation unless there is already conserved land immediately adjacent to the parcel from which the owls will be passively relocated.
3. Occupied burrows shall not be disturbed during the nesting season unless a Qualified Biologist verifies through non-invasive methods that either the birds have not begun egg laying and incubation or juveniles from the occupied burrows are foraging independently and capable of independent survival.

4.8.4.3 Planning Avoidance and Minimization Measures (Adjacency Measures)

The following avoidance and minimization measures must be included in the project plans and implemented during operation of Covered Activities in the MCCA (and Peninsular bighorn sheep-Sensitive VFPA Areas, as discussed in section 4.9.3.2 below), to the extent that such activities are adjacent to habitat that is conserved or anticipated to be conserved. The Department shall ensure that the following measures are addressed in project development plans, included as conditions of approval for applicable proposed Covered Activities and, if applicable, included in the project's CC&Rs. If a development would establish a Homeowner's Association (HOA), the HOA shall be responsible for enforcing the CC&Rs addressing these and all other standards required by this Plan. The Tribe shall have oversight authority to ensure that this enforcement occurs, and shall be directly responsible for ensuring that the standards are followed on lands without CC&Rs and/or HOAs.

4.8.4.3(a) Lighting

Lighting shall be selectively placed, shielded, and directed away from habitat. In addition, lighting from homes abutting habitat shall be screened by planting vegetation, and large spotlight-type backyard lighting directed into habitat shall be prohibited.

4.8.4.3(b) Fuel Management Zones

Fuel management zones separating habitat from the location of the activity shall be developed, designed, and managed to minimize impacts to native vegetation. Fuel management activities shall be conducted in accordance with the Tribe's Fire Management Plan. To minimize the potential spread of non-native insect species such as the Argentine ant, either (1) fuel management zones in new developments adjacent to the Habitat Preserve shall not be irrigated; or (2) a moisture barrier shall be provided to ensure that excess irrigation does not seep into the adjacent native habitats. All future developments shall have adequate fuel modification zones designed within their development envelope (footprint), with appropriate impacts quantified and mitigated per the Plan. Any additional fuel management activities required within existing areas designated as preserves shall be minimized by applying all measures possible that do not require removal of native vegetation. If native vegetation removal is not avoidable, such impacts will be mitigated fully by acquisition of additional Habitat Preserve lands of equivalent ecological value at a minimum 1:1 ratio.

4.8.4.3(c) Landscaping

Invasive species such as giant reed and pampas grass shall not be used. A list of prohibited landscaping vegetation shall be provided to each Covered Activity Proponent for planning purposes (Table 4-4). This list will periodically be updated by the Tribe based on the California Invasive Pest Plant Council's list of invasive species and/or other applicable resources. Covered Project Proponents also shall be responsible for providing information in the CC&Rs that explains the importance of avoiding landscaping with invasive species.

**Table 4-4
Prohibited Invasive Ornamental Plants**

BOTANICAL NAME	COMMON NAME
<i>Acacia</i> spp. (all species except <i>A. greggii</i>)	acacia (all species except native catclaw acacia)
<i>Acroptilon repens</i>	Russian knapweed
<i>Alianthus altissima</i>	tree-of-heaven
<i>Arundo donax</i>	giant reed or arundo grass
<i>Asphodelus fistulosus</i>	onion weed
<i>Atriplex semibaccata</i>	Australian saltbush
<i>Avena barbata</i>	slender wild oat

**Table 4-4 (cont.)
Prohibited Invasive Ornamental Plants**

BOTANICAL NAME	COMMON NAME
<i>Avena fatua</i>	wild oat
<i>Brassica tournefortii</i>	African or Saharan mustard
<i>Bromus diandrus</i>	ripgut grass
<i>Bromus madritensis</i> ssp. <i>rubens</i>	red brome
<i>Bromus tectorum</i>	cheat grass, downy brome
<i>Carduus pycnocephalus</i>	Italian thistle
<i>Centarea</i> spp.	star thistle
<i>Cirsium vulgare</i>	bull thistle
<i>Cortaderia jubata</i> (syn. <i>C. atacamensis</i>)	Jubata grass, Andean Pampas grass
<i>Cortaderia dioica</i> (syn. <i>C. selloana</i>)	pampas grass
<i>Cynodon dactylon</i>	Bermuda grass
<i>Cytisus</i> spp.	broom
<i>Descurainia sophia</i>	tansy mustard
<i>Ehrharta</i> spp.	veldtgrass
<i>Eichhornia crassipes</i>	water hyacinth
<i>Elaeagnus angustifolia</i>	Russian olive
<i>Eucalyptus camaldulensis</i>	river red gum
<i>Foeniculum vulgare</i>	sweet fennel
<i>Holcus lanatus</i>	common veldt grass
<i>Hirschfeldia incana</i>	Mediterranean or short-pod mustard
<i>Hordium marinum</i>	Mediterranean barley
<i>Hordium murinum</i>	hare barely
<i>Hydrilla verticillata</i>	hydrilla
<i>Kochia scoparia</i>	kochia
<i>Lepidium latifolium</i>	perennial pepperweed
<i>Lolium multiflorum</i>	Italian ryegrass
<i>Lolium perenne</i>	perennial ryegrass
<i>Ludwigia hexapetala</i>	Uruguay water-weed
<i>Ludwigia peploides</i>	creeping water-weed
<i>Lythrum hyssopifolium</i>	hyssop loosestrife
<i>Mesembryanthemum</i> spp.	iceplant
<i>Mryiophyllum</i> spp.	parrot feather
<i>Nicotiana glauca</i>	tree tobacco
<i>Olea europea</i>	European olive tree
<i>Pennisetum clandestinum</i>	Kikuyu grass
<i>Pennisetum setaceum</i>	fountain grass
<i>Phoenix canariensis</i>	Canary Island date palm
<i>Potamogetion crispus</i>	crispate-leaved pondweed
<i>Ricinus communis</i>	castor bean
<i>Salsola tragus</i>	Russian thistle
<i>Schinus molle</i>	Peruvian pepper tree, California pepper
<i>Schinus terebinthifolius</i>	Brazilian pepper tree
<i>Schismus arabicus</i>	Mediterranean grass
<i>Schismus barbatus</i>	Saharan grass, Abu mashi
<i>Sisymbrium irio</i>	London rocket
<i>Spartium junceum</i>	Spanish broom
<i>Taeniatherum caput-medusae</i>	medusa-head
<i>Tamarix</i> spp. (all species)	tamarisk, salt cedar

**Table 4-4 (cont.)
Prohibited Invasive Ornamental Plants**

BOTANICAL NAME	COMMON NAME
<i>Tribulus terrestris</i>	puncture vine
<i>Trifolium hirtum</i>	rose clover
<i>Vinca major</i>	periwinkle
<i>Vulpia myuros</i>	foxtail fescue
<i>Washington robusta</i>	Mexican fan palm

4.8.4.3(d) Controlled Access

The Covered Project Proponent shall be responsible for installation of security fences/walls for the purpose of controlling human and pet access into lands where Covered Project development abuts natural habitats. Prior to construction of any foundations or structures, the Tribe shall approve the final design of these barriers. Signs shall be posted at potential access points into the Habitat Preserve informing residents of the wildlife habitat value of the open space and to minimize intrusions. Maintenance of access controls shall be the responsibility of the HOA or, if no HOA is formed, the individual landowner. Signs shall be maintained by the HOA or, if no HOA is formed, the Tribe. If any unauthorized pedestrian or pet access results in any degradation of habitat, the HOA, landowner, or Tribe, as applicable, shall take extra steps to control access by additional signage, fencing, or other steps as necessary, to the satisfaction of the Tribe.

4.8.4.3(e) Trash Sequestration

Covered Project Proponents developing multi-family, commercial, or industrial development projects shall provide trash receptacles contained in accordance with the ordinances and policies of the Tribe's governmental agents for land use.

4.8.4.4 Disturbance Period Avoidance and Minimization Measures

The avoidance and minimization measures specified in the following subsections must be implemented during performance of Covered Activities within the MCCA (and Peninsular bighorn sheep Sensitive VFPA Areas, as discussed in section 4.9.3.2 below).

Disturbance Monitoring

Each Covered Activity Proponent proposing new habitat disturbance shall provide the names, addresses, and phone numbers of all biological monitors contracted for project implementation to the Department prior to ground- or habitat-disturbing activities. At least two days prior to grading, Tribe-approved monitor(s) shall contact the Tribe to verify that the limits of disturbance have been properly staked and are readily identifiable.

A pre-disturbance meeting shall be conducted by the biological monitor(s) and on-site activity manager(s) to ensure that on-site personnel are informed of the sensitivity of conserved habitat and all applicable avoidance and minimization requirements to ensure conformity with all applicable provisions of this section 4.8.

The monitor(s) shall be responsible for ensuring, on at least a weekly basis during rough grading, that the approved limits of disturbance are not exceeded and that the contractor adheres to the other provisions set forth in this section. The monitor(s) shall have the authority to halt disturbance activities in the event that these provisions are not met. In such an event, the monitor shall report the situation to the Tribe, which will determine appropriate remediation measures (a 10:1 ratio of mitigation is required for all disturbance to natural habitat outside of the approved Development Envelope). All such impacts shall be recorded and tracked by the Tribe to ensure the cumulative maximum amount of habitat disturbance of the Tribal HCP is accurately accounted and not exceeded. The monitor(s) shall submit a report to the Department at the end of March, June, September, and December of each year during construction documenting the implementation of all disturbance period minimization measures. The Tribe will forward a copy of the annual construction monitoring reports as an appendix to the annual report that will be submitted to the USFWS by December 31 of each year.

Control of Toxic Substances

During and after the implementation of any Covered Activity, the proper use and disposal of oil, gasoline, diesel fuel, antifreeze, herbicides, and other toxic substances shall be restricted so as to avoid and minimize impacts to Covered Species and their habitat.

Fire Prevention

Equipment to extinguish small brush fires (e.g., from trucks or vehicles) shall be present on site during all phases of disturbance, along with personnel trained in the use of such equipment. Smoking shall be prohibited in disturbance areas adjacent to flammable vegetation.

Controlled Access

Prior to commencement of new ground- or habitat-disturbing activities, areas proposed for conservation shall be flagged by a biologist, and silt or snow fencing shall be installed to prevent disturbance by construction vehicles. All movement of personnel, including ingress and egress of equipment and personnel, shall be limited to designated disturbance areas. This flagging/fencing may be removed upon completion of all disturbance activities and/or replaced with permanent fencing to protect conserved habitat. Pets shall be prohibited on the site during disturbance activities. The Covered Activity

Proponent and its contractor(s)/subcontractor(s) shall be responsible for compensating at a ratio of 10:1 (acre restoration or acquisition/acre impact) for the disturbance of natural habitat outside of the approved limits of disturbance (Development Envelope). Any restoration mandated for infringements outside the approved disturbance footprint shall require a restoration plan approved by the Tribe.

Storage and Staging Areas

No temporary storage or stockpiling of construction materials shall be allowed outside of the Development Envelope (within conserved habitat or habitat to be conserved), and all staging areas for equipment and materials shall be located a minimum of 50 feet away from conserved habitat or habitat to be conserved. Staging areas and construction sites shall be kept free of trash, refuse, and other waste; no waste dirt, rubble, or trash shall be deposited within conserved habitat or habitat to be conserved.

Dust Control

Active disturbance areas shall be watered regularly to control dust, and to minimize impacts to nearby habitats, especially sensitive species habitat adjacent to disturbance areas. If at any time, significant amounts of dust or material are determined by the monitoring biologist to be affecting conserved habitat or habitat to be conserved, then corrective measures must be taken immediately.

For projects that involve dust control watering for a period of 12 months or more, the monitoring biologist shall report to the Tribe any observation that watering activities are encouraging encroachment by non-native species. The Tribe shall determine any appropriate corrective measures to be implemented by the Covered Activity Proponent (e.g., application of chemical stabilizers instead of water, removal of non-native species), as necessary to protect the Habitat Preserve.

Lighting

Night lighting shall be prohibited during the course of activities, unless determined by the Tribe to be absolutely necessary for safety and protection of property. Any lighting determined to be necessary by the Tribe shall be shielded to avoid impacts to the surrounding habitat.

Breeding Season Restrictions

Native vegetation removal for Covered Activities will not be permitted within the MCCA during the period from March 15 to August 15 (or March 15 to September 15 for riparian areas; January 15 to June 15 for crissal thrasher habitat) because of the potential to disturb active nests during this period, unless a Qualified Biologist determines that no nesting activity is occurring at that time. As an exception, hand crew activities, such as trail maintenance and non-native invasive species control efforts, would be

permitted provided that a Qualified Biologist conducts a pre-disturbance survey to identify any active nests, marks their locations, and monitors activities to ensure that they are avoided.

4.9 VALLEY FLOOR PLANNING AREA (VFPA)

The VFPA includes most of the northeastern half of the Action Area, encompassing approximately 15,517 acres (excluding off-Reservation Target Acquisition Areas). Its boundaries are described in the preamble to Chapter 2. Natural Plant Communities and Covered Species that occur in the VFPA are described in detail in Chapter 3. In summary, 12 Covered Species occur or have the potential to occur within the VFPA, including desert tortoise, burrowing owl, Coachella Valley fringe-toed lizard, flat-tailed horned lizard, Palm Springs ground squirrel, Palm Springs pocket mouse, Coachella Valley giant sand treader cricket, Coachella Valley Jerusalem cricket, crissal thrasher, Le Conte's thrasher, Little San Bernardino Mountains gilia, and Coachella Valley milk-vetch. Approximately 56 percent of the VFPA (8,726 acres) is already developed and no longer provides habitat for native plants and animals. Most portions of the valley floor still supporting native vegetation are fragmented and largely surrounded by existing development, and no longer receive a consistent natural source of sand. They therefore cannot be considered long-term viable habitat. Active and ephemeral sand fields having long-term preservation benefits to Covered Species do, however, occur within a small portion of the VFPA in Section 6 (Township 4 South, Range 5 East).

This Tribal HCP incorporates and enhances, the Tribe's existing valley floor fee and acquisition program to ensure the continued conservation of valley floor Covered Species and their habitat through specification of additional conservation on the Valley Floor and implementation and management measures.

Conservation on the Valley Floor is anticipated to include portions of the Indian Canyons Master Plan area and the Target Acquisition Areas. Indian Canyons Heritage Park would be authorized for five percent development, consisting only of park-related uses. Tribal Reserve lands within the Indian Canyons Master Plan (refer to Figure 7) also would be authorized for five percent development. The remaining 95 percent of these areas would remain undisturbed and may be dedicated to the Habitat Preserve, at the Tribe's discretion, in partial fulfillment of overall conservation acreage requirements for the Plan. Those portions of the VFPA within 500 feet of Peninsular bighorn sheep habitat, while not subject to land dedication requirements, shall be subject to requirements to minimize potential indirect impacts to that species.

4.9.1 Conservation Areas on the Valley Floor

An analysis of available data shows that the valley floor Covered Species are found primarily in association with active sand field habitat, ephemeral sand field habitat and stabilized and partially stabilized shielded sand field habitat. In total, there are approximately 561 acres of active or ephemeral sand field habitats and 2,971 acres of stabilized and partially stabilized shielded sand field habitat within

the VFPA (excluding off-Reservation Target Acquisition Areas). As described in section 4.3.2.10 above, the remaining stabilized and shielded sand fields within the Plan Area have limited long-term habitat value due to their isolation and fragmentation. Based upon this information, the Tribe will emphasize the preservation of active and ephemeral sand fields both on the Reservation and in off-Reservation Target Acquisition Areas. As described in Chapter 3, other habitats near the base of the mountains (e.g., Sonoran mixed woody and succulent scrub) provides suitable habitat for several species that occur primarily in the VFPA. As a result, conservation within Indian Canyons would benefit species such as a Coachella Valley ground squirrel, Palm Springs pocket mouse, and Coachella Valley milk-vetch.

Impacts to habitat in the VFPA will be mitigated through preservation and management of habitat acquired within Indian Canyons and Target Acquisition Areas on the valley floor (Figure 35). In total, the Tribe will preserve, or acquire, and dedicate to the Habitat Preserve up to 1,455 acres of land within any or all of the Indian Canyons and Target Acquisition Areas based on the conservation priorities described in this section. Habitat may be purchased for mitigation credit outside of the Target Acquisition Areas with approval by the Tribe and USFWS.

Target Acquisition Areas habitat to be acquired is based on (1) providing appropriate replacement habitat for the habitat to be impacted; and (2) consideration of regional conservation needs. Specifically, although a relatively small amount of the habitat in the Plan Area to potentially be impacted would consist of active or ephemeral sand field habitats, these are the habitats with the greatest losses regionally and that support the Covered Species with the greatest level of threat (the federally listed threatened Coachella Valley fringe-toed lizard). The Tribe will, therefore, commit to the goal of acquiring a proportionately larger acreage of active or ephemeral sand field habitat types than of stabilized sand field habitats. In conjunction with this regional contribution, the Tribe will also ensure that an adequate amount of stabilized sand field habitats will be acquired to mitigate for impacts to those habitats. To this end, the Tribe commits to the goal of acquiring mitigation habitats in the following proportions:

- *Active or ephemeral sand fields: Minimum of 25 percent*

Based upon 1,455 acres of required VFCA mitigation, conservation of a minimum of 364 acres of active or ephemeral sand field habitat would be required. Much of this acquisition will likely occur in the Section 6 Target Acquisition Area, where it is expected that this minimum will be exceeded. Development of Section 6 will require 492 acres (of the existing 571 acres) of active and ephemeral sand field habitats to be preserved. When fully developed, Section 6 impacts will require an additional 32 acres of active and ephemeral sand field habitat to be acquired based upon the 1:1 mitigation requirement. Therefore, active and ephemeral sand field mitigation from Section 6 development is a total of 524 acres.

The maximum amount of impact that would be authorized under this Tribal HCP would be 74 acres of active sand field habitats (58 acres of which would be limited to activities that would allow for continued fluvial sand transport) and 320 acres of ephemeral sand field habitats (257 acres of which would be limited to activities that would allow for continued fluvial sand transport and 47 of which are located southwest of the Whitewater River levee and so not considered to have long-term viability).⁶ Thus, a maximum of 347 acres of habitat with long-term viability for these species would be impacted (most of it temporarily) in exchange for dedication and management in perpetuity of a minimum of 524 acres of habitat with long-term viability, a ratio of 1.3:1. In the ultimate condition (if the maximum authorized amount of development and associated mitigation occur and once the Fluvial Sand Transport Process Area is reclaimed and dedicated to the Habitat Preserve), 32 acres would be impacted in exchange for 524 acres of conservation, a ratio of 16.4:1. This would represent on-site conservation of 86 percent of the existing habitat, or (with the off-site conservation), net conservation of 92 percent.

- *Stabilized or stabilized shielded sand fields: Minimum of 25 percent*

This would represent a minimum of 364 acres, assuming that enough development occurs to warrant acquisition of the entire 1,455 acres as mitigation. It is anticipated that most of this acquisition will occur off of the Reservation. Assuming impacts to all of the approximately 2,971 acres of stabilized and stabilized shielded sand fields on the Reservation, the resulting mitigation ratio would be a minimum of 1 acre of higher quality habitat preserved for every 7.9 acres of habitat with lower long-term conservation values impacted. Given the isolated and fragmented nature of the habitat existing within the Reservation, compared to the relatively high long-term conservation value of lands to be acquired, in conjunction with the prioritization of regional conservation needs (i.e., disproportionate acquisition of active and ephemeral sand field habitats), the proposed ratio of impact to preservation is considered appropriate.

- *Other habitat types: Maximum of 20 percent*

The Tribe recognizes that other habitat types have value for some of the Covered Species. Habitat types that would be acceptable for acquisition include mesquite hummocks, desert scrub, Sonoran creosote bush scrub, and Sonoran mixed woody and succulent scrub. Other habitat types also may be acquired for credit if approved by USFWS. Habitat acquired for credit in this category may include habitat within Indian Canyons. Conservation of these habitats for credit against VFCA mitigation requirements would not exceed 291 acres without authorization from USFWS.

Overall, up to 6,164 acres (91 percent) of existing habitat in the VFPA portion of the Plan Area may be impacted (including 315 acres of Fluvial Sand Transport Process Area to be revegetated), in exchange for

⁶ These values assume that development within the Specific Plan is divided equally between active and ephemeral sand fields. The actual disturbance of each of these habitat types may vary; however, the combined disturbance within the Specific Plan Area would not exceed 32 acres.

up to 1,455 acres of mitigation, proportionate to the amount of development that occurs. The resulting mitigation ratio would be 1 acre of higher quality habitat preserved for every 4 acres of habitat having lower long-term conservation values impacted and not restored. The distribution of the impacts and mitigation among VFPA habitat types is summarized in Table 4-5.

**Table 4-5
Summary of VFPA Impacts and Conservation***

Vegetation Community	Maximum Impacts	Minimum Acres Conserved	Maximum Acres Conserved
Active or ephemeral sand fields	394	524	--
Stabilized or stabilized shielded sand fields	2,971	364	--
Other habitat types	2,799	--	291

*Conservation acreages are calculated assuming the stated maximum impacts. Sand field acquisition would need to comprise a minimum of 80 percent (1,164 acres) of the total acquisition.

The proposed mitigation is considered biologically appropriate for the reasons described above. In addition to biological considerations, the proposed mitigation is considered to be in accordance with the “mitigation to the maximum extent practicable” threshold due to the following considerations: (1) to meet the identified mitigation need, the mitigation fee for development within the valley floor has already been increased with the Tribe-adopted version of the Tribe’s HCP from \$600 to \$2,371 (a 295 percent increase); (2) the Tribe has committed to collecting fees for mitigation of all Covered Projects under this Plan (“THCP Mitigation Fee”) at an amount equal to the per-acre amount adopted by CVAG within its MSHCP; (3) the Tribe will collect fees, acquire, or cause the dedication of a minimum acreage of lands (at a ratio to impacts from Covered Activities) within the approved acquisition areas, and legally protect and manage these lands; (4) if the “VFPA Rough Proportionality Commitment” (see section 4.15.4.4) is not met, the Tribe will halt Covered Activity approvals in the VFPA until conserved/protected lands acreages are increased to proportional amounts, evaluate the amount of the fee, and consider further increasing the fee to meet the commitment; and (5) the Tribe cannot place itself or its members at an economic disadvantage with competing interests or obligate itself or its members to a disproportionate share of the conservation requirements of any species. Accordingly, the Tribe will review acquisitions and acquisition progress in the Indian Canyons and Target Acquisition Areas with USFWS to achieve the above-specified acquisition goals and the factors described below within their obligation to acquire up to 1,455 acres of lands for the Valley Floor Habitat Preserve but in no event shall the Tribe be obligated to exceed a total acquisition of 1,455 acres for the benefit of VFPA Covered Species. As part of this review process, the Tribe and USFWS may mutually agree to alter the percentages of each habitat type to be acquired that are specified above.

The Target Acquisition Areas, both within and outside the Reservation, have been identified by the Tribe, in consultation with USFWS and CVAG, as core habitat for the Valley Floor Covered Species

(e.g., desert sand field habitats), areas that support ecological processes necessary to sustain these areas (i.e., sand source areas), or areas that provide linkage between core habitat areas (Appendix F). In addition to the lands identified by CVAG as conservation areas, the Tribe has, at the request of USFWS, included additional properties in the Target Acquisition Areas that are considered to have high habitat value and a relatively high degree of potential threat. Conservation of lands within the Target Acquisition Areas will complement other existing and proposed public and private conservation efforts described in Chapter 2 above and depicted on Figure 6. On the Reservation, the portion of Township 4 South, Range 5 East, Section 6 located north of the southern bank of the levee is valuable both as core active and ephemeral desert sand field habitat, and as a habitat linkage. The Tribe may acquire habitat in Indian Canyons in partial satisfaction of the VFPA Rough Proportionality Commitment, provided that such lands also provide potential habitat for other VFPA Covered Species, and that the maximum limit for “other” habitat types described above is not exceeded.

In addition to Target Acquisition Areas in the Plan Area, areas north and east of the Reservation (within the Action Area) have been identified for potential acquisition. Figures F-1 through F-5 in Appendix F show the location of active sand field habitat and ephemeral sand field habitat within each of the Target Acquisition Areas and the relationship of these habitat areas to existing preserves. Additionally, lands within Indian Canyons provide suitable habitat for several active and stabilized sand-dependent species, and may contribute to their conservation, as well as providing a critical linkage for Peninsular bighorn sheep. Other areas could be acquired for mitigation purposes with USFWS pre-authorization.

Indian Canyons Heritage Park and Tribal Reserve lands addressed by the Indian Canyons Master Plan are owned by or held in trust for the Tribe, and may be dedicated to the Habitat Preserve at a time to be determined by the Tribe, as partial fulfillment of overall conservation acreage requirements for the Plan.

Specifically with respect to the Target Acquisition Areas, the Tribe and USFWS have agreed upon prioritization of these areas for acquisition, based on regional conservation needs. The Target Acquisition Area priorities are as follows:

1. Section 6 Target Acquisition Area located in the north-central area of the Reservation south of I-10;
2. Target Acquisition Areas in Desert Hot Springs, in CVAG Special Provisions Areas;
3. Target Acquisition Areas in the County, in CVAG Conservation Areas; and
4. Target Acquisition Areas in Palm Springs or Cathedral City, in CVAG Conservation Areas.

Table 4-6 summarizes the types of habitat, potentially associated Covered Species, and undeveloped acres found in each Target Acquisition Area, by priority.

**Table 4-6
Target Acquisition Areas**

Target Acquisition Area Priority	Habitat Description	Potential Species Present*	Total Undeveloped Acres	Total Active/Ephemeral Desert Sand Fields
1	Active and ephemeral desert sand fields	CVMV, CVFTL, CGSC, CVJC, FTHL, PSGS, PSPM, LCT	521	521
2	Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub, desert dry wash woodland	CVMV, CVJC, FTHL, BO, PSGS, PSPM, DT, LCT, LSBG	1,756	0
3	Active and ephemeral sand fields, stabilized and partially stabilized shielded sand fields, Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub, desert saltbush scrub, desert dry wash woodland, mesquite hummocks, desert fan palm oasis woodland, Sonoran cottonwood-willow riparian forest, southern sycamore-alder riparian woodland.	CVMV, CVFTL, CGSC, FTHL, BO, PSGS, PSPM, DT, CT, LCT, LSBG, SYB	35,258	5,044
4	Active and ephemeral sand fields, stabilized and partially stabilized sand fields, Sonoran creosote bush scrub, Sonoran mixed woody and succulent scrub.	CVMV, CVFTL, CGSC, CVJC, FTHL, BO, PSGS, PSPM, DT, LCT	8,510	3,623

*Species: CVMV=Coachella Valley milk-vetch, CVFTL=Coachella Valley fringe-toed lizard, CGSC=Coachella giant sand-treader cricket, CVJC=Coachella Valley Jerusalem cricket, FTHL=flat-tailed horned lizard; BO=burrowing owl, PSGS=Palm Springs ground squirrel, PSPM=Palm Springs pocket mouse, DT=desert tortoise, CT=Crisal thrasher; LCT=Le Conte's thrasher, LSBG=Little San Bernardino Mountains gilia, SYB=southern yellow bat.

Also with respect to the Target Acquisition Areas, in concert with the geographic prioritization described above, the Tribe shall consider the factors listed below in determining which properties to acquire or accept for mitigation credit. Each of the first four factors must be met with respect to any given property; the fifth may be a consideration, but is not a required element for the property to be acceptable.

- *Habitat value for Covered Species*

Habitats conserved would be appropriate to mitigate for the habitat types impacted by development (see above with regard to required percentages for the various habitat types of concern). In addition to habitat type, the Tribe will consider habitat quality (e.g., constituent species, amount of non-native vegetation) and presence of Covered Species (if survey information is available).

- *Proximity to other habitat preserves existing at the time of the acquisition or considered likely to exist in the near future*

Lands that are adjacent to or in close proximity to other habitat preserves provide enhanced long-term viability through greater opportunity for gene flow, colonization, and rescue effect. Edge effects to the reserve system as a whole are reduced as well. This is also biologically superior for land management and land management costs are optimized. Ideally, lands conserved by the Tribe would be immediately adjacent to other habitat preserves, which also would increase habitat patch size.

- *Habitat patch size, including adjacent conserved habitats*

Island biogeography design principles indicate that larger preserves result in greater species richness, greater long-term population viability due to an increased number of individuals, and reduced edge effect (i.e., larger ratio of reserve area to reserve perimeter). It should be noted, however, that ecotonal situations often result in a higher number of species in a smaller area. Larger reserves also result in economies of scale in management costs, which allow for more intensive management within the available budget. To the extent practicable, therefore, the Tribe will target acquisition of large parcels and/or parcels that increase the size of an existing reserve.

- *Amount of edge effect*

Many sensitive species tend to be less abundant (or absent) in areas that are subject to edge effects from human activities. Examples of human-related intrusions that could result in edge effects include lighting, noise, invasive species, exotic predators, and dumping. Edge effects typically occur adjacent to existing development, along roadways, and in and adjacent to areas valued as recreational resources. In acquiring land, preference will be given to areas that are not adjacent to areas that currently, or are likely in the future to, support such uses.

- *Threat to the habitat in the absence of Tribal acquisition*

The Tribe has an interest in protecting imperiled habitats. Habitats likely to be threatened by development include areas adjacent to existing development and/or proximate to existing infrastructure such as roads and waterlines. To the extent that it does not conflict with other factors listed above or the Tribe's concerns regarding cost, areas that would be threatened in the absence of Tribal acquisition will be prioritized for preservation.

The Tribe is open to working with the Coachella Valley Conservation Commission and would coordinate as appropriate on land acquisitions in portions of the Valley Floor outside the Plan Area. Prior to the Tribe acquiring or accepting such property for mitigation purposes, the Department shall prepare written findings documenting how the property is consistent with the priorities described above. If properties are acquired from Target Acquisition Areas in an order other than the identified geographic priorities, the Department shall provide an explanation of why that is appropriate. Considerations may include factors such as, but not limited to, a lack of willing sellers, substantially higher cost, or lower biological value

(including lack of habitat types needed to meet the above-noted target percentages) in the higher priority areas, relative to the lands proposed for acquisition. Cost shall not be the sole factor in determining selection of a property for acquisition. Such findings shall be provided in annual reports to the USFWS (refer to section 4.15.5.2). In cases that the property is being dedicated as mitigation for a specific Covered Activity, such findings also shall be included in the project's environmental documentation and/or resolutions of approval (as applicable).

4.9.2 Permitting Process for Covered Activities in the VFPA

Covered Activities within the VFPA shall require a Conditional Use Permit only if they are located in the Section 6 Target Acquisition Area or Peninsular bighorn sheep-Sensitive VFPA Area. Covered Activities subject to the Conditional Use Permit process must comply with the design and mitigation standards set forth in section 4.9.3.1, 4.9.3.2, or 4.9.3.3, as applicable. All other Covered Activities shall be required to satisfy the standards set forth in section 4.9.3.4, but will not be required to obtain a Conditional Use Permit. Take shall be extended to projects via a letter from the Tribe to the issuing agency specifying the conditions of approval required to qualify for take. Covered Activities within Indian Canyons Heritage Park (Figure 7) would consist only of park-related uses. All Covered Activities in Indian Canyons Heritage Park and Tribal Reserve portions of the Indian Canyons Master Plan area would be limited to a cumulative maximum total disturbance of five percent of the area.

The Conditional Use Permit process for applicable Covered Activities within the VFPA is as follows:

4.9.2.1 Pre-application

1. Prior to submitting a Conditional Use Permit application, a Covered Activity Proponent may submit a letter of intent to seek an agreement with the Tribe to conserve property through acquisition by the Tribe, density transfer or other means.
2. Prior to submitting a Conditional Use Permit application, a proposed activity plan shall be transmitted to the Department. The activity plan shall delineate the extent of the proposed activity, topography, and presence of sensitive biological resources (including habitat types and known sightings or observations of any Covered Species) and shall illustrate any applicable compliance issues under the Tribal HCP. The Department shall meet and confer with the Covered Activity Proponent to comment on the activity plan; make recommendations as to the project's Tribal HCP compliance requirements and location of the least sensitive Development Envelope (as applicable); and identify information requirements that must be satisfied in order for Conditional Use Permit processing to proceed. The Department will make its best effort to prepare this initial response within 30 days of receipt of the application. The intent will be to develop an activity plan that focuses on avoidance of the most sensitive biological resources to the extent feasible. Priorities shall be placed on avoiding and/or minimizing impacts to active and ephemeral sand field habitat (with attention paid to sand source and

corridor values) and Peninsular bighorn sheep. The Tribe also encourages the use of smart growth and low-impact development design features.

4.9.2.2 Application

1. A biological assessment of the site may, at the Tribe's discretion based on Pre-Application Item 2, be required of the Covered Activity Proponent when sufficient information does not exist or the information is more than one year old. This assessment will be used for the Covered Activity Proponent and the Tribe to agree upon the Tribal HCP requirements for the proposed Covered Activity. In the Tribe's discretion, the assessment shall include but not be limited to any or all of the following information: topography; habitat types; vegetation maps; drainage areas (including any USACE jurisdictional areas); the results of presence-absence studies for Covered Species the habitat characteristics of which exist on the property; location of observed Covered Species; and evaluation of the site for its significance for Covered Species and their habitat.
2. In accordance with TEPA (and/or other applicable environmental law), a document shall be prepared to assess the proposed Covered Activity's environmental impacts, including those on biological resources, and identify appropriate mitigation measures as required in this Plan.

4.9.2.3 Conditional Use Permit Conditions

If the Conditional Use Permit is approved, it shall be conditioned to ensure that the implementation of the Covered Activity is consistent with the Tribal HCP, including the VFPA development standards and applicable avoidance and minimization measures described in section 4.9.3.

4.9.3 VFPA Covered Activity Design and Mitigation Standards

Covered Activities within the VFPA shall comply with the design and mitigation standards specified in the following subsections.

4.9.3.1 Covered Activities within or adjacent to Section 6 Target Acquisition Area

Covered Activities within the Section 6 Target Acquisition Area shall be required to comply with impact avoidance and minimization measures as follows:

1. Night lighting shall be prohibited, unless absolutely necessary for safety and protection of property. Lighting shall be selectively placed, shielded, and directed away from conserved habitats to avoid impacts to Covered Species.
2. Invasive plant species shall not be used (see Table 4-4).

3. Prior to commencement of clearing, grading, or excavation activities, areas proposed for conservation shall be flagged by a biologist. The Covered Activity Proponent shall be responsible for installation and maintenance of any security fences necessary for the purpose of controlling human and pet access into conserved habitat. All movement of personnel, including ingress and egress of equipment and personnel, shall be limited to designated disturbance zones. The Covered Activity Proponent and its contractor(s)/subcontractor(s) shall be responsible for restoring sensitive habitat outside of the approved limits of disturbance as staked and monitored by the project biologist and compensating such impact at a ratio of 5:1 (acre restoration/acre impact) within one year of the unauthorized disturbance.. Any restoration mandated for infringements outside the project footprint shall require a restoration plan approved by the Tribe.
4. The proper use and disposal of oil, gasoline, diesel fuel, antifreeze, and other toxic substances shall be required so as to avoid and minimize impacts to Covered Species and their habitat.
5. Equipment to extinguish small brush fires (e.g., from trucks or vehicles) shall be present on site during disturbance activities, along with personnel trained in the use of such equipment. Smoking shall be prohibited within and adjacent to flammable vegetation.
6. Active disturbance areas shall be watered regularly to control dust, and to minimize impacts to nearby habitats, especially adjacent conserved habitat. If at any time, significant amounts of dust or material are determined by the Tribe to be affecting conserved habitat, then corrective measures must be taken immediately. For projects that involve dust control watering for a period of 12 months or more, the monitoring biologist shall report to the Tribe any observation that watering activities are encouraging encroachment by non-native species. The Tribe shall determine any appropriate corrective measures to be implemented by the Covered Activity Proponent (e.g., application of chemical stabilizers instead of water, removal of non-native species), as necessary to protect the Habitat Preserve.
7. All Covered Activities proposed in portions of the Section 6 Target Acquisition Area having potential habitat for burrowing owl and/or desert tortoise shall be required to ensure that surveys for these species are conducted by a Qualified Biologist at the appropriate time of year and in appropriate conditions, and report the results of those surveys to the Tribe. If habitat occupied by either species is identified in this area, it shall be avoided to the Maximum Extent Practicable. If avoidance is determined by the Tribe not to be practicable, any individuals shall be relocated in accordance with the protocols described in section 4.8.4.2(f) and/or (g) above, as appropriate.

4.9.3.1(a) Covered Activities within Fluvial Sand Transport Process Area

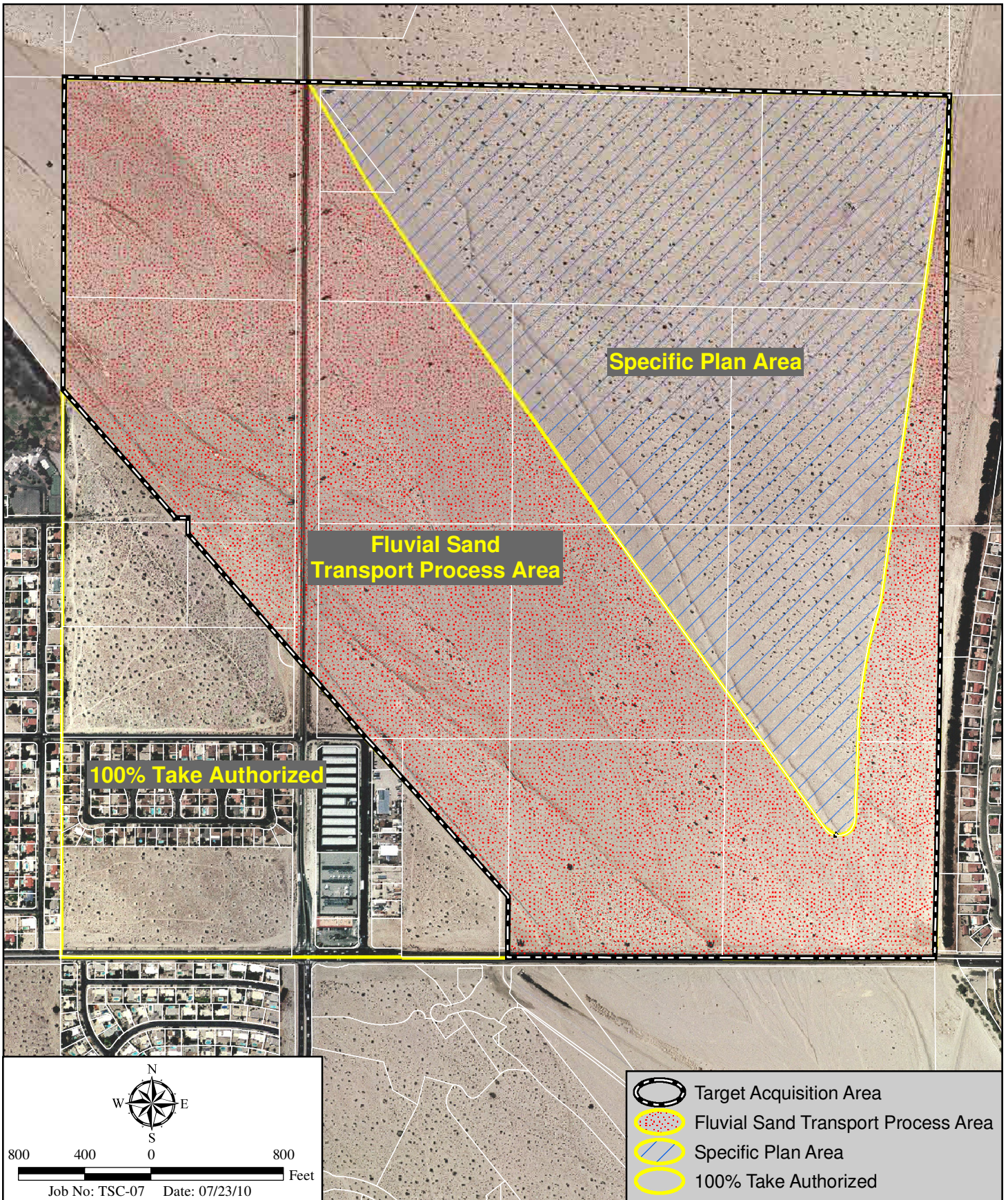
The Whitewater River channel, which runs northwest-southeast through the center of Section 6, and the associated Mission Creek drainage channel, which runs along the eastern edge of the section, would be designated as a Fluvial Sand Transport Process Area (totaling 315 acres, Figure 36). Within the Fluvial Sand Transport Process Area, activities that would not disrupt sand transport (e.g., sand mining) would be authorized provided they comply with the following design and mitigation standards, as applicable:

1. Impact areas associated with Covered Projects and Covered Maintenance Activities shall be limited to the Development Envelope. The Development Envelope shall include all areas of contiguous land upon which structures shall be located and shall include all areas of ground disturbance, including any access roads or driveways. Allowable uses will be limited to such uses as sand mining; no construction of structures other than those ancillary to the operation will be allowed.
2. Covered Activities shall be allowed only to the extent that they would not impact natural fluvial sand transport processes. All natural flows onto the parcel must be conveyed off site in the natural pre-disturbance direction of flow. This will ensure that disturbance on the property will not impede water-borne sand transport across the parcel. In addition, water-borne sediments and flood waters will not be allowed to be artificially retained on site. Concentration of flows and increase in flow velocity off site must be minimized to the extent feasible to avoid downstream erosion and scour.
3. Covered Activities shall be subject to any necessary Clean Water Act permits.
4. Covered Activities shall not include walls, wind breaks, hedges, and other barriers to sand movement.
5. Covered Projects within the Fluvial Sand Transport Process Area would be exempt from payment of the THCP Mitigation Fee. Sand mining permits could be issued for a maximum duration of 20 years. The Covered Activity Proponent shall be responsible for preparation of a reclamation plan that provides habitat values for Covered Species, subject to review and approval by the Tribe. Upon completion of any authorized sand mining or similar activities, the site must be reclaimed pursuant to the approved reclamation plan and dedicated to the Habitat Preserve (at no cost to the Tribe) in partial fulfillment of the required Target Acquisition Area conservation.

4.9.3.1(b) Covered Activities Within Section 6 Specific Plan Area

The 209-acre portion of the Section 6 Target Acquisition Area outside of the Fluvial Sand Transport Process Area shall be considered the Section 6 Specific Plan Area. Development in this area may be authorized only with the preparation of a Specific Plan, which must meet the following requirements:

1. Impacts associated with Covered Activities shall be limited to the Development Envelope. The Development Envelope shall include all areas of contiguous land upon which structures shall be located and shall include all areas of ground disturbance, including any access roads or driveways, fuel modification zones, non-native landscaping, and domestic animal use areas.



E:\ArcGIS\TSC-07 AguaCalienteMap\THCP\Fig36_Section6.mxd -JP

Section 6 Target Acquisition Area

AGUA CALIENTE THCP

Figure 36

2. The Development Envelope shall consist of a maximum of 32 acres of the Section 6 Specific Plan Area and shall be sited to minimize impacts to sand transport processes. It is, therefore, anticipated (subject to revision based upon detailed sand transport modeling) that the Development Envelope (with the exception of the potential widening of Gene Autry Trail) would be sited within 1,000 feet of the eastern boundary of the Section 6 Target Acquisition Area.
3. Covered Activities shall be subject to any necessary Clean Water Act permits.
4. Areas outside of the Development Envelope shall be conserved through dedication to the Tribe by the Covered Activity Proponent through appropriate legal authorities for inclusion in the Habitat Preserve.
5. The Covered Activity Proponent shall be responsible for acquiring and dedicating to the Tribe for inclusion in the Habitat Preserve, through appropriate legal authorities, habitat within off-Reservation Target Acquisition Areas within 3 miles of the project site at a 1:1 ratio to any authorized impacts. The Covered Activity Proponent shall not be responsible for funding management of any lands dedicated to the Habitat Preserve; such management shall be funded by the Tribe in perpetuity.
6. The value of on- and off-site lands dedicated to the Habitat Preserve may, at the Tribe's discretion, be credited against the THCP Mitigation Fee.
7. The Department shall ensure that the following adjacency measures are addressed in the Specific Plan, included as conditions of approval for applicable proposed Covered Activities and, if applicable, included in the project's CC&Rs. If a development would establish an HOA, the HOA shall be responsible for enforcing the CC&Rs addressing these and all other standards required by this Plan. The Tribe shall have oversight authority to ensure that this enforcement occurs, and shall be directly responsible for ensuring that the standards are followed on lands without CC&Rs and/or HOAs.
 - a. If Gene Autry Trail is proposed to be widened to six lanes, undercrossings of sufficient size to allow for movement of reptiles and small mammals shall be installed to allow for movement of Coachella Valley round-tailed ground squirrel, Palm Springs pocket mouse, and Coachella Valley fringe-toed lizard.
 - b. Surveys of the portions of the Specific Plan Area proposed for disturbance shall be conducted by a Qualified Biologist during the appropriate season and conditions to identify Coachella Valley milk-vetch, desert tortoise, and burrowing owl. Identified populations shall be avoided to the Maximum Extent Practicable, while also considering the sand transport objectives of the Target Acquisition Area. Avoidance of such populations shall not cause the allowable development area to be reduced below 32 acres.
 - c. To minimize the potential spread of non-native insect species such as the Argentine ant, either (1) no irrigation shall be allowed along the western boundary of the Development Envelope; or (2) a moisture barrier shall be provided to ensure that excess irrigation does not seep into the adjacent native habitats.
 - d. Lighting shall be selectively placed, shielded, and directed away from conserved habitats. In addition, lighting from homes abutting conserved habitat shall be screened by planting non-

invasive vegetation, and large spotlight-type backyard lighting directed into habitat shall be prohibited.

- e. Invasive plant species shall not be used in landscaping. A list of prohibited landscaping vegetation shall be provided to each Covered Activity Proponent for planning purposes (Table 4-4). This list will periodically be updated by the Tribe based on the California Invasive Plant Council's list of invasive species and/or other applicable sources. Covered Project Proponents shall provide information in the CC&Rs that explains the importance and requirements of avoiding landscaping with invasive species.
- f. Fuel management zones separating native habitat from the location of the activity shall be developed, designed, and managed to minimize impacts to native vegetation. Fuel management activities shall be conducted in accordance with the Tribe's Fire Management Plan. The Covered Activity shall have adequate fuel modification zones designed within its Development Envelope, with appropriate impacts quantified and mitigated per the Plan.
- g. The Covered Project Proponent shall be responsible for installation of barriers for the purpose of controlling human and pet access into lands where the Covered Project abuts natural habitats to be preserved. Prior to construction of any foundations or structures, the Tribe shall approve the final design of these barriers. Signs shall be posted at potential access points into the Habitat Preserve informing residents of the wildlife habitat value of the open space and to minimize intrusions. Maintenance of access controls shall be the responsibility of the HOA or, if no HOA is formed, the individual landowner. Signs shall be maintained by the HOA or, if no HOA is formed, the Tribe. If any unauthorized pedestrian or pet access results in any degradation of habitat, the HOA, or individual landowner as applicable, shall take extra steps to control access by additional signage, fencing, or other steps as necessary, to the satisfaction of the Tribe.

4.9.3.2 Covered Activities within Peninsular Bighorn Sheep-Sensitive VFPA Areas

VFPA Covered Activities located within 500 feet of Peninsular bighorn sheep habitat (Peninsular bighorn sheep-Sensitive VFPA Areas) must comply with all applicable impact avoidance and mitigation measures for Peninsular bighorn sheep set forth in section 4.8.4.2(a) as well as all applicable mitigation and avoidance measures set forth in sections 4.8.4.3 and 4.8.4.4.

4.9.3.3 Covered Activities within Indian Canyons Heritage Park and Tribal Reserve

Covered Activities within the Indian Canyons Heritage Park and the Tribal Reserve portions of the Indian Canyons Master Plan Area (refer to Figure 7) shall comply with the following design and mitigation standards:

1. Covered Activities' impact on property shall be limited to the Development Envelope. The Development Envelope shall include all areas of contiguous land upon which structures shall be

located, and shall include any access roads or driveways, fuel modification zones, non-native landscaping, necessary maintenance areas, and domestic animal use areas.

2. The Development Envelope shall be sited to avoid impacts to the parcel's most sensitive biological resources and the most sensitive portions of the site to the extent feasible. Priorities shall be placed on avoiding, to the Maximum Extent Practicable, riparian habitats and mesquite hummocks and thickets, especially those occupied by Covered Species; maximizing buffer areas adjacent to conserved habitat and riparian areas; minimizing edge effects; and using sound conservation planning principles.
3. The Covered Project's impacts, reflected in the siting of the Development Envelope, shall not exceed a cumulative total of five percent of the area. Covered Projects must be sited to avoid, to the Maximum Extent Practicable, impacts to riparian areas and to mesquite hummocks and thickets associated with riparian habitat; must comply with the conditions of any required Clean Water Act permits; and must provide compensatory mitigation through restoration/creation at a minimum 1:1 ratio, such that no net loss of habitats suitable to support riparian Covered Species occurs within the Plan Area. Such compensatory mitigation would be designed on a project-specific basis, taking into account the functions for Covered Species of the habitat to be impacted. It may include enhancement of existing habitats that currently are not suitable to support riparian Covered Species through activities such as tamarisk removal, revegetation with native plant species, and cowbird removal activities. Such activities would result in a net gain in functions of the riparian habitat.
4. The Covered Activity shall be conditioned to comply with applicable impact avoidance and minimization measures set forth in section 4.8.4.3 and 4.8.4.4.

4.9.3.4 All VFPA Covered Activities

The presence of riparian habitat on lands proposed to be subject to a Covered Activity must be reported to the Tribe. The Covered Activity must be sited to avoid, to the Maximum Extent Practicable, impacts to riparian areas; must comply with the conditions of any Clean Water Act permits; and must provide compensatory mitigation such that no net loss of habitats suitable to support riparian Covered Species occurs within the Plan Area.

The presence of mesquite hummocks and thickets associated with riparian habitat on lands proposed to be subject to a Covered Activity must be reported to the Tribe. The Covered Activity must be designed to avoid them to the Maximum Extent Practicable. As mitigation for any unavoidable impacts, the Covered Activity Proponent must conserve, create, or restore mesquite hummock and thicket habitats at a minimum ratio of 2:1.

All Covered Activities having potential habitat for burrowing owl and/or desert tortoise as described in this Plan shall be required to conduct pre-disturbance surveys for such species prior to engaging in any

ground or habitat disturbing activities, and to relocate any individuals found pursuant to the provisions of sections 4.8.4.2(f) and/or (g) above, as appropriate.

Any Covered Activities having potential habitat for Little San Bernardino Mountains gilia (as determined by the Tribal Biologist) shall be required to ensure that surveys for this species are conducted by a Qualified Biologist at the appropriate time of year and in appropriate conditions, and report the results of those surveys to the Tribe. Identified populations shall be avoided to the Maximum Extent Practicable. As mitigation for any unavoidable impacts, the Covered Activity Proponent shall conserve or transplant populations at a minimum ratio of 3:1 in a location appropriate for the species, regardless of whether it is within the Action Area. Transplant activities would require a USFWS-approved restoration plan.

Prior to authorized ground disturbing activities, the Tribe shall provide information to affected landowners regarding their responsibilities under the MBTA.

Tribal staff encourages the use of smart growth and low impact design features. These will be incorporated into Covered Projects by the planning and environmental staff of the Tribe's land use agents, working in cooperation with Tribal staff, as appropriate based on each project's location, use, and zoning. Where feasible, undergrounding of utilities would be required in accordance with the ordinances and policies of the Tribe's land use agents.

VFPA Covered Activity Proponents will not be required to conduct biological surveys for Covered Species or perform any further mitigation beyond that described above. Any environmental documentation required by applicable law other than the provisions of this Plan for a Covered Activity within the VFPA may utilize information from the Tribal HCP and its supporting environmental documentation to identify potential impacts and mitigation for biological resources, including Covered Species and Natural Plant Communities.

4.10 MITIGATION THROUGH ENHANCEMENT OR RESTORATION

The Tribe may increase the habitat values for Covered Species by enhancing riparian and other sensitive habitats and/or restoring disturbed areas to natural conditions and dedicating such areas to the Habitat Preserve. Such activities may be conducted by the Tribe, or by third parties as authorized by the Tribe. These activities may be used to offset mitigation obligations set forth in this Tribal HCP, if the enhancement provides a net conservation benefit to the Covered Species. The Tribe shall provide a description of the proposed enhancement or restoration activity to the USFWS for review and approval prior to implementation. The USFWS may submit comments on such proposal. If such comments are received within 30 days, the Tribe will confer with the USFWS to resolve issues associated with the proposal. If the USFWS does not respond within 30 days after receipt of mailed notice, the Tribe shall deem the proposal acceptable for mitigation credit.

In the event such enhancement or restoration occurs, the incremental net conservation value of every acre (or portion of an acre) provided to Covered Species or their habitats shall become Mitigation Credits and may be used, as authorized by the Tribe, to offset mitigation requirements for Covered Activities. Mitigation Credits may become available as follows:

1. For upland habitats restored in disturbed areas, criteria for determining successful restoration will be established in coordination with USFWS. The restored habitat will be counted as mitigation acreage and may be used to offset acreage dedication requirements in the MCCA. Similarly, restored upland habitat in biologically appropriate areas of the VFPA will reduce the VFPA acreage requirement for habitat acquisition within Target Acquisition Areas. Mitigation Credits will become available as provided for in the mitigation banking agreement.
2. For enhanced or restored riparian habitats, criteria for determining successful enhancement or restoration will be established in coordination with the USFWS. The enhanced or restored habitat will be counted as acreage for wetland mitigation within the Plan Area. Mitigation Credits will become available as provided for in the mitigation banking agreement.

4.11 MANAGEMENT OF THE HABITAT PRESERVE

This Tribal HCP is designed to function as an adaptive tool, allowing the Tribe to update and revise baseline information, to refine its conservation goals and priorities, and to complement other existing and planned conservation programs in the region. The overall management goal of the Tribal HCP is to establish and maintain the Habitat Preserve, focusing on conserving Covered Species and Natural Plant Communities, consistent with the conservation objectives for those species. Under the direction of the Tribal Council, the Department will manage the Existing Tribal Conservation Programs and the newly created Habitat Preserve. Management programs and conservation measures will be conducted in accordance with Annual Work Plans prepared by the Department and approved by the Tribal Council. The Tribe will provide, or will ensure the provision of, funding for all conservation management efforts, as described in section 4.15.

Management and monitoring activities will be conducted cooperatively with the managers of adjacent lands. It is anticipated that the Tribe will directly manage the portions of the Habitat Preserve in the Plan Area, but that day-to-day management of Habitat Preserve lands in the off-Reservation Valley Floor Target Acquisition Areas will be carried out by others (such as the Coachella Valley Conservation Commission or Center for Natural Lands Management), with funding and oversight provided by and under the responsibility of the Tribe through a contractual arrangement. The Tribe will develop a detailed framework management plan with the review and approval of the USFWS within one year of the initial dedication of lands to the Habitat Preserve. This framework plan would be applied to all lands that are ultimately dedicated to the Habitat Preserve. With regard to Valley Floor areas of the Habitat Preserve, the initial framework management plan will be considered interim, with management measures to be updated once baseline monitoring data from these areas is available. Alternatively, lands within the off-

Reservation Target Acquisition Areas could be managed consistent with the science, monitoring, and management efforts on surrounding lands in accordance with an Adaptive Management Plan as may be developed for the Coachella Valley MSHCP, provided such management plan becomes approved by the USFWS.

The detailed framework management plan to be prepared by the Tribe will include general ongoing management, monitoring, and adaptive management measures, and will reflect an adaptive management approach. The framework for adaptive management programs can be found in section 3.B.3.g of the USFWS/National Marine Fisheries Service *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* (1996) and in the final 5 Point Policy Guidance added to the Handbook in 2000 (USFWS 2000b). The *Federal Register* notice contains the following guidance regarding adaptive management programs:

- An adaptive management approach allows for up-front mutually agreed-upon changes in an HCP's operating conservation plan that may be necessary for the species in light of new information. In order to be successfully implemented, adaptive management provisions must be linked to measurable biological goals and monitoring.
- Not all HCPs or all species covered in a Section 10(a) Permit need an adaptive management strategy. However, an adaptive management strategy is essential for permits that cover species that have biological data or information gaps *that incur a significant risk to that species*. Possible significant data gaps that could lead to the development of an adaptive management strategy include, but are not limited to, significant biological uncertainty about specific information about the ecology of the species or its habitat (e.g., food preferences, relative importance of predators, territory size), habitat or species management techniques, or the degree of potential effects of the activity on the species covered in the Section 10(a) Permit.

In addition to the above-listed considerations, adaptive management is useful in addressing the effects of outside influences on the Habitat Preserve. For example, it provides a framework for addressing potential effects of global climate change, if and when such effects occur and necessitate adjustments to the Tribal HCP.

Consistent with the 5 Point Policy Guidance and No Surprises Assurances, the range of adjustments that require additional resource commitments by the Tribe or a Third Party Participant is limited and is set forth in Sections 4.11.2, 4.13.2, and 4.14 below.

4.11.1 Goals and Approaches

Biological goals and objectives for the Plan are identified in Section 4.3. In addition, the Tribe has the following goals and objectives for management and monitoring:

1. Provide for the long-term protection and contribute to the recovery of Covered Species within the Action Area by protecting Covered Species and existing Natural Plant Communities within the Habitat Preserve as and after Habitat Preserve lands are acquired;
2. Improve degraded habitat conditions by enhancing or restoring suitable habitats for Covered Species within the Habitat Preserve;
3. Manage the ecosystems of the Habitat Preserve lands for biological integrity as it relates to maintaining self-sustaining populations or numbers of Covered Species where self-sustaining populations occur within the Habitat Preserve, incorporating actions designed to improve or maintain the components of systems (i.e., species) and system processes (i.e., predator-prey dynamics, succession, dynamic physical processes, etc.); and
4. Provide adequate biological monitoring of Covered Species and/or their habitats so as to ascertain the effectiveness of management strategies and programs and to identify and respond to likely threats to each species or its habitat. Certain Covered Species do not occur in sufficient numbers within the Action Area to allow for monitoring of individual species, and will be monitored through assessment of habitat quality instead.

4.11.2 Proposed Management Activities

Management activities will be implemented commensurate with the priorities identified by the Tribe, in consultation with the USFWS, to meet species objectives and provide for the biological values identified in this Plan. Specifically, priorities will be placed upon those species for which a decline within the Action Area would represent the most significant threat to the species (i.e., those species federally listed and for which the Action Area represents an important portion of the occupied range). Emphasis will be given to maintaining and/or improving habitat conditions and ecosystem functions within the Habitat Preserve.

Management activities will occur at two levels: habitat- or landscape-based management activities, and where appropriate, species-specific management activities. The habitat- or landscape-based management activities will allow for management and monitoring at a broader scale and will allow the Tribe to focus management efforts at a habitat-based scale. The species-specific management activities for species of particular concern will ensure that management needs of those individual species are met in consideration of known information for the species related to core locations, primary habitats, and known threats.

4.11.2.1 General Management Measures

General management measures will address the processes, threats, and disturbances that affect the habitat and natural community, with the intention of sustaining sufficient species diversity to maintain the health of the particular ecosystem. Disturbance regimes include illegal trespass (e.g., dumping, vandalism, and off-road vehicle use); altering the natural fire regime (fires too frequent or too infrequent); habitat disturbance; invasion by exotic plant and animal species; and erosion and sedimentation. The specific effects of global climate change in the Action Area cannot currently be accurately predicted (e.g., Lenhian

et al. 2005; United Nations Intergovernmental Panel on Climate Change 2007). As one recent California Energy Commission Staff Paper on global climate change impacts in California stated, “there is a very high level of uncertainty in any regional projection” (Franco 2005). Nevertheless, global climate change does have the *potential* (especially when considering a 75-year permit term) to affect natural processes such as the frequency and intensity of precipitation, fire, and flood; the spread of exotic species and diseases; and the distribution of vegetation communities and associated species.

Typical responses to these disturbance regimes may include controlling public access through appropriate fencing, gates, and signage; trash removal; maintaining the natural fire regime by maintaining fuel breaks, rapid responses to suppression, and controlled burns; control of exotic species; seeding or planting with native species; and soil amendment. These general management measures will be undertaken to benefit all Covered Species within the Habitat Preserve. Furthermore, it is anticipated that these general measures will be sufficient to ensure that appropriate habitat conditions for the majority of the Covered Species are maintained.

The following general management measures will be undertaken:

1. Control of unauthorized public access to the Habitat Preserve using appropriate fencing, gates, and signage; trash removal; and trespass control in response to illegal dumping, off-road vehicle use, and vandalism.
2. Habitats within the Habitat Preserve will be maintained and managed to the extent feasible (e.g., to the extent that such potential is not constrained through the occurrence of Changed or Unforeseen Circumstances) in a condition similar to or better than the habitat’s conditions at the time lands are conveyed to the Habitat Preserve.
3. General management efforts will target disturbance regimes that may be causing ecosystem state transition (conversion of one habitat type to another) or otherwise pose a threat to the conservation values of the Habitat Preserve. Table 4-7 identifies a common list of considerations and examples of potential actions for Reserve Managers to evaluate, but is not intended to prescribe specific management activities. Pre-existing and post-disturbance conditions (e.g., habitat type, slope aspect, anticipated seed bank, accessibility, surrounding habitat types, etc.) and special considerations (e.g., soil type, acreage of disturbance, proximity to undisturbed habitat, proximity to sensitive wildlife habitat, etc.) will contribute to determining the appropriate management activities in response to disturbance regimes. The Habitat Manager will determine whether to take any or all of the actions considering, for example, whether doing so is necessary, appropriate, and cost-effective.
4. In larger blocks within the Habitat Preserve, fire management activities such as prescribed burning may be determined to be desirable to achieve biological goals. Such activities will be considered in the detailed framework management plan to be prepared for the Habitat Preserve. Such fire management activities, if undertaken, must consider both biological resource needs and public health and safety considerations. The risks of uncontrolled wildfire in proximity to structures must be a primary consideration when evaluating these types of fire management practices.

**Table 4-7
Factors to be Considered in Management Responses to Disturbance Regimes**

Disturbance Source	Pre-Existing/Post-Disturbance Conditions	Special Considerations	Potential Responses and Management Actions
Fire	Native vegetation type Native vs. non-native cover Anticipated seed bank: native vs. non-native, annual vs. perennial Slope gradient Slope aspect (solar orientation) Topography/erosion potential Soil type Fire temperature Accessibility Surrounding habitat types Nearby and adjacent exotic species populations	Presence of sensitive plant or animal species Presence of fire-following native species Hydrophobic soil conditions Fire frequency Climactic considerations Acreage of disturbance Proximity to undisturbed habitat Potential for resprouting Proximity to sensitive wildlife habitat Determine target vegetation to reestablish: pioneer, seral, climax community	Establish erosion control where runoff is likely to concentrate Exotic species control only Establish weed control buffer area around burn site Reseed with appropriate native species w/exotic control, if necessary Install selected native species container plants that don't establish from seed w/ exotic species control, if necessary
Disturbed habitat	Presence of erosion Soil compaction Soil structure damage Access points Slope gradient Native vegetation type Native vs. non-native cover Anticipated seed bank: native vs. non-native, annual vs. perennial Slope aspect (solar orientation) Topography/erosion potential Soil type Equipment accessibility Surrounding habitat types Nearby and adjacent exotic species populations	Presence of sensitive plant and animal species Acreage of disturbance Proximity to undisturbed habitat Proximity to sensitive wildlife habitat Potential for resprouting Determine target vegetation to reestablish: pioneer, seral, climax community	Erect appropriate fence Post signage (No trespassing, Preserve information) Establish erosion control where runoff is likely to concentrate Backfill eroded or soil-damaged areas with appropriate local native soil Establish weed control buffer area around disturbance area Reseed with appropriate native species w/ exotic control Install selected native species container plants that don't establish from seed w/ exotic species control
Exotic plant invasion	Exotic species present Native vegetation type Native vs. non-native cover Anticipated seed bank (if any): native vs. non-native, annual vs. perennial	Presence of sensitive plant and animal species Species reproductive biology (i.e., sexual vs. vegetative) Dispersal method, i.e., wind, animal, birds, etc. Timing of flowering/seed set Timing of control measures Potential sources of re-introduction of non-native species	Removal with hand equipment Chemical treatment Soil solarization Direct removal/replace technique Controlled burn

**Table 4-7 (cont.)
Factors to be Considered in Management Responses to Disturbance Regimes**

Disturbance Source	Pre-Existing/Post-Disturbance Conditions	Special Considerations	Potential Responses and Management Actions
Sedimentation	Native vegetation type Native vs. non-native cover Anticipated seed bank (if any): native vs. non-native, annual vs. perennial Type of Flow: perennial, ephemeral or intermittent Channel cross section: incisement, etc. Underfit/overfit stream Cutbank vs. slip face Streambed particle size: clay, silt, sand, gravel Normal character of flow Adjacent structures to be protected	Source of sedimentation Presence of sensitive plant or animal species Stable streambed gradient Existing non-native wetland species propagules upstream Existing native wetland species propagules upstream Flooding likely to recur Upstream flood control structures	Establish erosion control where erosion is likely Exotic species control Establish weed control buffer area around site Install appropriate wattled native plant materials for stream bank stabilization Install geotextile fabric where unstable soil will limit plant reestablishment Install grade stabilizing structures/ vegetation Reseed with appropriate native understory species Install selected native species container plants that don't establish from seed
Erosion	Native vegetation type Native vs. non-native cover Anticipated seed bank: native vs. non-native, annual vs. perennial Slope gradient Slope aspect (solar orientation) Topography Soil type Equipment accessibility Surrounding habitat types Nearby and adjacent exotic species populations	Presence of sensitive plant and animal species Water source Single or recurring event Extent of erosion feature: rivulets, gullies, etc.	Establish erosion control where erosion is likely Install appropriate wattled native plant materials for stream bank stabilization Install geotextile fabric where unstable soil will limit plant reestablishment Install grade stabilizing structures/ vegetation Reseed with appropriate native understory species Install selected native species container plants that don't establish from seed
Non-native animal species	Non-native animal species present Native vegetation type Native vs. non-native cover	Presence of sensitive plant and animal species Potential source of non-native species Species reproductive biology/life history considerations Timing of control measures Habitat considerations	Implement cowbird control program Implement non-native amphibian control program Implement non-native fish control program

Adapted from Dudek 2003

5. Tamarisk stands and fountain grass will be slated for removal as funding levels permit. It is currently estimated that there are approximately 82 acres of tamarisk in Indian Canyons and Tahquitz Canyon. Noxious weed species will be removed a minimum of 10 acres per year within the Indian Canyons and other accessible areas of the MCCA for a total of at least 80 acres, which is anticipated to benefit all applicable Covered Species. This commitment is based on the following known limitations: (1) removal is limited to those areas that are accessible to workers with hand tools and (2) removal activities may occur only between September 16 and March 15 to avoid sensitive species impacts, unless a qualified biologist determines that no nesting activity is occurring at that time. As an exception, hand crew activities, such as trail maintenance and non-native invasive species control efforts, would be permitted provided that a qualified biologist conducts a pre-disturbance survey to identify any active nests, mark their locations, and monitors activities to ensure that they are avoided. Removal at this rate will continue until noxious weed populations in accessible areas fall below the acreage threshold. These acres would be maintained free of target weed species in perpetuity. Peninsular bighorn sheep will be benefited by increasing surface water availability through the removal of the high water-use tamarisk, and potentially increasing access to open water because tamarisk can result in impenetrable stands. It is well documented that tamarisk is far less desirable as an avian nesting habitat (Anderson and Ohmart) and, as a result, removal of tamarisk will benefit bird species including the least Bell's vireo, southwestern willow flycatcher, yellow warbler, yellow-breasted chat, and summer tanager. The southern yellow bat would benefit from an anticipated increase in palms within areas cleared of invasive species. Similarly, should the mountain yellow-legged frog occur within the Plan Area, the removal of tamarisk and fountain grass would increase water availability, reduce potential for high salt accumulation, and increase native vegetation for this species.

4.11.2.2 Trails Management

Management of trails throughout the MCCA for hiking and equestrian use (no OHV use or biking is allowed) is a vital part of focusing/minimizing human use impacts to sensitive biological resources, including Peninsular bighorn sheep, throughout the MCCA. Riparian habitats and Peninsular bighorn sheep use areas and habitat linkages are extremely sensitive areas that must be protected. Tribal staff, under the guidance of the Department, inventoried existing trails using topographic maps, aerial photos, and photo documentation to record existing conditions from 1999 to 2003. Refinements to these data are made incrementally on an annual basis as maintenance crews identify problems. Future trail re-routing or temporary closures would be considered if research conducted as part of the Coachella Valley MSHCP Trails Management Program indicates there are negative effects on the Peninsular bighorn sheep. The Coachella Valley MSHCP proposes the following program (which the Tribe intends to implement, which includes trails that cross into the Tribal HCP Plan Area:

A focused research program to evaluate the effects of recreational trail use on Peninsular bighorn sheep within Essential bighorn sheep Habitat in the Santa Rosa and San Jacinto mountains will be initiated during Plan implementation in Year 1, if this program has not already been initiated. This

research will address the proximate response of bighorn sheep to recreation disturbance as well as broader questions about the population-level effects and impacts to long-term persistence of bighorn sheep. An element of the research program focusing on the effects of recreational trail use on captive bighorn sheep is also proposed to be initiated in Plan implementation Year 1. (p. 7-58)

The results of the program would be evaluated as part of the Tribe's Adaptive Management Program and appropriate actions would be considered for implementation as appropriate.

In addition, if it is determined that equestrian uses are causing appreciable increases in cowbirds, this situation will be addressed through the Tribe's adaptive management program. This information will continue to be gathered and used to adaptively modify management actions in the future so as to best to minimize potential impacts on existing sensitive biological resources, including riparian areas and Peninsular bighorn sheep. Initially, trails management will at minimum include the measures described in section 2.1.1 to minimize impacts to Peninsular bighorn sheep and Covered Species that utilize riparian areas.

4.11.2.3 Species-specific Management Measures

As summarized in Table 4-3, the Covered Species are anticipated to benefit from the general habitat management measures described above. In addition, the following measures are intended to specifically benefit identified Covered Species.

Peninsular Bighorn Sheep

The Plan Area (with adjacent/interspersed lands) supports the San Jacinto ewe group of Peninsular bighorn sheep, which represents the northernmost extent of the distribution of this species. Based on the status of this species and the importance of habitat within the Plan Area to its survival and recovery, the Tribe considers this a high priority species for management and monitoring efforts.

Activities that degrade Peninsular bighorn sheep habitat within the Habitat Preserve will be controlled and managed. In particular, access to the Habitat Preserve will continue to be controlled as described earlier in this section. The Tribe will identify actions to reduce impacts from, and control where feasible, invasive and toxic species. In particular, the Tribe will continue to remove tamarisk (an identified threat to this species' habitat) and other exotic species within a 10-foot minimum radius around springs and 50 feet from streams. The Tribe's Fire Management Plan will be amended within one year of permit issuance to include guidelines to protect populations of Peninsular bighorn sheep from fires and disturbances associated with fire protection. Finally, the Tribe will continue to cooperate with the applicable agencies/organizations regarding reintroduction of captive-bred Peninsular bighorn sheep onto Tribal Lands for population augmentation.

Avian Riparian Species

Least Bell's vireo occurs in low numbers in the Plan Area, and extensive knowledge is available about the species across its range. The Plan Area lacks suitable breeding habitat for southwestern willow flycatcher, and this species has only been documented on one occasion in the Plan Area. The other three riparian bird species are of relatively low sensitivity. The vast majority of the range of each of the avian riparian species is outside of the Plan Area. As a result of these considerations, it currently is not anticipated that these species will represent a focus of monitoring and management efforts.

It is anticipated that exotic plant (especially tamarisk) removal and cowbird control will be the most effective management tools available for these species. If least Bell's vireos are observed, and cowbirds are determined to be occupying the riparian habitat, the Tribe will assess the most appropriate measure(s) for minimizing cowbird impacts on the vireo. Options could include but are not limited to cowbird control, least Bell's vireo nest monitoring, and removal of cowbird eggs from vireo nests. This removal program would also benefit other avian riparian Covered Species occupying the same or adjacent drainages, although given their lower overall sensitivity, absent the least Bell's vireo, cowbird control would not be required for these species.

Mountain Yellow-legged Frog

Based on the negative surveys for these species conducted to date within the Plan Area, it currently is not anticipated that this species will represent a focus of monitoring and management efforts. However, management and monitoring may occur by partner agencies (e.g., USGS, Forest Service) for reintroduced populations that may occur on lands in the Action Area or in the Plan Area (upon access approval by the Tribe) if populations disperse onto Tribal lands. In the event that this species is observed incidentally or during periodic surveys of the Habitat Preserve, its prioritization will be reconsidered. Should non-native fish, bullfrogs, or exotic vegetation be encountered in mountain yellow-legged frog habitat, the Tribe will determine if removal or eradication efforts are appropriate based on whether the mountain yellow-legged frog is present. No stocking of fish species that could adversely affect this species would be authorized by the Tribe. Upon receipt from the USFWS and/or other applicable agency, the Tribe will evaluate proposals for re-establishment of this species within drainages where it is apparently extirpated. If the Tribe allows reintroduction of this species, it will not be obligated to remove predators in areas of reintroduction, but will work with the applicable agencies/organizations to facilitate their removal.

Southern Yellow Bat

Based on the presumed importance of the Coachella Valley to this species and the presence of important naturally occurring palm oases within the Existing Tribal Conservation Areas, this species will be prioritized for management (primarily exotic plant species control) and monitoring activities. The Tribe's

Fire Management Plan will be amended within one year of permit issuance to include policies for reducing or avoiding the impact of fire on southern yellow bat. This must be balanced against the fact that fire may be part of the ecology of the *Washingtonia* palm. Trimming of naturally occurring fan palms within the Habitat Preserve in Indian Canyons is prohibited unless it is determined that such activities do not pose a threat to this species. The Tribe would continue to work with local residents to educate them regarding the conservation needs of the southern yellow bat, including by promoting appropriate trimming of palm trees.

Blow Sand-dependent Species

It is anticipated that the Coachella Valley fringe-toed lizard and Coachella giant sand-treader cricket have the potential to occur within Target Acquisition Areas that support blow sand habitats. As part of the acquisition of these lands, an initial clean-up of the site (including removal of highly invasive weedy species) will be conducted to a level acceptable to the land manager. This will enable the site to be turned over for long-term management in a condition that will maximize its value to blow sand-dependent species.

Active and Stabilized Sand-dependent Species

Active and stabilized sand-dependent species include the flat-tailed horned lizard, Palm Springs pocket mouse, Palm Springs ground squirrel, Coachella Valley Jerusalem cricket, and Coachella Valley milk-vetch. Similar to blow sand-dependent species, Target Acquisition Areas dedicated to the Habitat Preserve will be cleaned up prior to turning over for long-term management to a level acceptable to the land manager. If surface debris is removed from within the Habitat Preserve, alternate sources of cover will be provided for Coachella Valley Jerusalem cricket. Special consideration will be given to edge conditions that could affect the ability to maintain healthy ant populations for the flat-tailed horned lizard.

4.11.3 Annual Work Plans

Each year the Tribal Council will adopt an annual work plan and budget that specifies the Habitat Preserve management and other Tribal conservation activities for the ensuing year. These annual work plans would describe specific plans for implementation of the framework management plan, incorporating any appropriate revisions pursuant to the monitoring and adaptive management program. The Tribe will submit this plan and budget to the USFWS at the time it submits its annual report for the past year (on or before December 31). Funding assurances are discussed in section 4.15.4.

Within the constraints of available funding, such activities typically could include:

1. Fencing, other barriers, and security patrols to control the access of people, vehicles, livestock (including horses), and domestic pets;
2. Assessments, surveys, and monitoring of habitat and/or Covered Species (see below);
3. Weed abatement and monitoring and removal of invasive plant species;
4. Monitoring and removal of non-native animal species that threaten Covered Species (e.g., cowbird and bullfrog);
5. Habitat restoration and enhancement of disturbed areas; and
6. Operation and management of trails.

4.12 BIOLOGICAL MONITORING PROGRAM

This section describes the framework for monitoring, types of data to be gathered, and how the results of the monitoring will be used to guide long-term management of the Habitat Preserve. This integration of monitoring results and management actions is an essential element of adaptive management. Because of the small population size of many of the Covered Species, monitoring will focus on habitat-based assessments, and measuring broader population trends where feasible. The goal is to collect data that is of sufficient quality and quantity to allow for an accurate assessment of the health of the Covered Species and the ecosystems in which they occur.

Biological monitoring is needed to strategically inventory the Habitat Preserve and to provide data that will help the Tribe to assess the Tribal HCP's effectiveness at meeting resource objectives and help achieve or maintain a healthy Habitat Preserve in perpetuity. Data from biological monitoring will provide a framework upon which detailed and specific inventory and monitoring activities can be developed and implemented to address biological questions arising regarding the ecological viability of a species and/or habitat. This information will also be used to examine/demonstrate compliance with meeting the conservation needs and biological objectives for each Covered Species.

The "Five Point Policy Guidance" (65 FR 35242, June 1, 2000; USFWS 2000a) states: "In order to obtain meaningful information, the applicant and the Services should structure the monitoring and standards so that we can compare the results from one reporting period to another period or compare different areas, and the monitoring protocol responds to the question(s) asked." In addition, it states that "[t]he monitoring program will be based on sound science."

The goals of the Monitoring Program are to meet monitoring requirements necessary for the successful implementation of the Tribal HCP and to provide data upon which future management decisions can be made. The Monitoring Program must provide information that will allow the Tribe to confirm that Covered Species objectives are met or to guide the Tribe in providing adaptive management strategies as may be necessary.

The Monitoring Program will be implemented in two phases. The initial phase of the Monitoring Program focuses on compiling existing data, collecting supplemental data on Covered Species abundance, and assessing habitat quality within preserved habitats. Once these data have been compiled, long-term surveys and data collection can be implemented for long-term monitoring of Covered Species.

4.12.1 Initial Assessment, Inventory, and Monitoring

As part of the implementation of this Plan, the Tribe has embarked upon a biological monitoring/inventory program designed to assess existing biological conditions for Covered Species and their habitats within the Tribe's lands in the MCCA. This information, along with information available from other survey efforts (e.g., CVAG, proposed private developments) has been used to establish a baseline documenting the presence or absence of Covered Species. During the first three years following issuance of the Section 10(a) Permit, the Tribe will continue to conduct initial phase monitoring to update available data on vegetation communities/habitats and applicable Covered Species within the Habitat Preserve.

The Tribe proposes to use this information to provide documentation of species and vegetation community/habitat associations, the status of conditions within Covered Species' respective habitats, identification of any potential threats to the Covered Species that should be monitored, response to management actions, and any other environmental issues or concerns that are encountered. Due to the low numbers in which many of the Covered Species occur within the Action Area, monitoring cannot produce statistically meaningful results with regard to the status of the species or allow for testable management hypotheses. In addition, given that a relatively small proportion of the occupied habitat for a majority of the Covered Species occurs within the Action Area, monitoring of the Action Area (by itself) is not necessary to determine the survival and recovery of these species in the wild. Therefore, as described in detail in section 4.12, the intent of the monitoring program is to use vegetation community/habitat monitoring as an indicator of overall ecosystem health and function within the Habitat Preserve, use a combination of specific Covered Species as well as surrogate species as indicators for particular suites of species (e.g., riparian bird species), and focus monitoring and management efforts on those species for which unsuccessful conservation/management within the Action Area could pose a significant risk. This monitoring data will provide information sufficient to determine whether the Covered Species are being sustained by management practices.

Species-level monitoring that is conducted will provide data on the extent to which conservation goals for species are being met. Species monitoring will involve tracking Covered Species and invasive species that may pose a threat to Covered Species. It also will involve collecting information on the ecology of the species to better manage them and increase the probability of conservation. The monitoring will sample in both space and time, to address distribution and trends in Covered Species, to the extent applicable. It also will track species responses to resource fluctuations and the level at which threats are affecting the relevant species.

This initial monitoring program, which will be integrated as an element of the Tribe's adaptive management program, is conceptually described below, with additional details to be provided in the detailed framework management plan to be prepared by the Tribe and approved by the USFWS within one year of the initial dedication of lands to the Habitat Preserve. The information gathered will be made available in an Existing Conditions Report, which will be submitted to USFWS when baseline information is completed, analyzed, and compiled into a report format by the Tribe, but no later than three years after permit issuance. The following subsections describe inventory efforts and results to date, along with the inventory and monitoring efforts that will be conducted in the initial phase for Covered Species and/or sensitive habitats.

It should be noted that field survey efforts can only be conducted on those lands over which the Tribe has control. Initially, this will be limited to the Existing Tribal Conservation Areas. Additional lands will be added to the monitoring program within one year of their dedication to the Habitat Preserve. Once baseline data is collected regarding areas of the Valley Floor dedicated to the Habitat Preserve, the management measures contained in the framework management plan will be updated as necessary.

4.12.1.1 Vegetation Communities/Habitats

The presence and condition of habitats will influence Covered Species distributions and population trends in the Habitat Preserve. Consequently, as part of the comprehensive strategy that will aid the understanding of Covered Species trends over time, information regarding the distribution, abundance, and health of Natural Plant Communities and habitats is important.

Habitat designations initially proposed in the Tribal HCP were modeled in the Coachella Valley MSHCP. These hypotheses of current species distribution from the Coachella Valley MSHCP, existing wildlife species information, the results of the biological baseline assessments (section 4.12), and subsequent monitoring efforts will be used to refine information linking species and habitats. The refinement of the linkage of species with habitat types will contribute to predicting species distributions within the Habitat Preserve in the absence of inventory data, and may result in the designation of more meaningful boundaries of potential habitat and more efficient long-term sampling protocols.

The vegetation communities and habitat inventory and mapping will be accomplished through both qualitative and quantitative efforts. Qualitative mapping will identify stands, or polygons, of vegetation using aerial photographs and/or satellite images. Quantitative efforts include collecting the environmental, biological, and vegetative attributes or measures of the stand. The quantitative assessment will use the California Native Plant Society (CNPS) "Vegetation Rapid Assessment Protocol" (CNPS 2004b) and "Releve Protocol" (CNPS 2004a). Use of this methodology to map vegetation types is consistent with techniques proposed to be used by the Coachella Valley MSHCP and currently used throughout California.

Use of this standardized approach will contribute to the desired large-scale and coordinated approach to inventory and monitoring.

Rapid assessment plots will be permanently located within the stand polygons using GPS coordinates in Existing Tribal Conservation Areas within two years of permit issuance, and on additional lands as they are incorporated into the Habitat Preserve over time. Plots will be randomly located within the Habitat Preserve such that they will reflect the range of conditions throughout the Preserve and contribute to the identification of potential effects of global climate change. For example, they will be located to collect data across environmental gradients (e.g., elevation, latitude, slope aspect). Information such as fire history, flooding, erosion, and other natural or human-made disturbances also will be collected, mapped, and used to assess condition of the vegetation communities/habitats. Where particular threats (e.g., bullfrogs, brown-headed cowbirds, invasive exotic plant species, Argentine ants, imported fire ants, etc.) are observed, they also will be recorded.

4.12.1.2 Peninsular Bighorn Sheep

Annual surveys and research programs are conducted on Peninsular bighorn sheep in and adjacent to the Action Area. Because of the nomadic nature of Peninsular bighorn sheep and the lack of any defined boundaries between the Action Area and adjacent lands outside of the Action Area, these surveys and research programs also document the biological and ecological conditions of the Peninsular bighorn sheep San Jacinto Ewe Group and its habitat occurring in the Action Area. The Tribe will coordinate with these ongoing efforts as follows:

1. It is the Tribe's intent to work closely with cooperating federal and state agencies (e.g., USFWS, BLM and CDFG) to address survey and research needs each year for Peninsular bighorn sheep.
2. Funding commitments will be made each year as part of the implementation of the Tribal HCP. The Tribe reserves the option to use the committed funding to either support the ongoing efforts by others or finance its own research programs in lieu of participating with the above organizations and agencies.

As a condition of permission for research on Tribal Lands, all researchers must possess the appropriate qualifications, expertise, and authorization from the USFWS to complete the necessary work. In addition, the following will be required for each observation (including those obtained by GPS radio collars): Universal Transverse Mercator coordinate; date; time; sex; age; identification number (or name); the sex, age, and identification number of other individuals observed; how the data were obtained (e.g., GPS collar; VHS collar tracked from helicopter, plane, or ground; or visual observation), and copies of all original supporting field notes and photographs. The raw data may be presented in a spreadsheet. Accession numbers will be used to provide a cross reference to supporting documentation or specimens. For animals released or sampled on Tribal Lands, data also will be collected and provided to the Tribe regarding disease,

physiological profiles, and genetics. Any necropsy reports also will be provided to the Tribe. Raw data will be archived at Tribal offices. The researcher will archive any tissue and blood samples at a suitable public tissue archive, and will notify the Tribe of the archive location. The above information will be provided to the Tribe on at least a biannual basis. A summary of the data collected on Peninsular bighorn sheep in the Plan Area will be provided by the Tribe to the USFWS in an annual report.

4.12.1.3 Riparian Areas

Habitat Inventory

The Tribe continued its efforts to inventory riparian habitats within the Existing Tribal Conservation Areas in Tahquitz Canyon and Indian Canyons Heritage Park during 2004 through 2006. Each riparian habitat inventory site identified for long-term monitoring within riparian communities will be photographed and documented within two years of permit issuance either on topographic maps or using GPS for entry into the Tribe's GIS system. Vegetation transects using the Vegetation Rapid Assessment Protocol and Releve Protocol noted above will be established for long-term study. An analysis of all data gathered will be used to systematically determine what riparian areas are appropriate for avian and amphibian surveys and monitoring in subsequent years, and these areas will be mapped and reported within annual reports to Tribal Council and annual reports to the USFWS. Those canyons where tamarisk or other invasive plants are discovered will be carefully documented and incorporated into the Tribal GIS and reported in annual reports to the USFWS.

Species Monitoring

During monitoring activities for the below-noted species, observations of other Covered Species also will be recorded in field notes and reported in annual reports to the USFWS.

Least Bell's Vireo

This species is expected to be a scattered resident of riparian habitats occurring along the eastern slopes of Tahquitz Canyon and in Indian Canyons. The following monitoring measures have been or will be implemented for this species:

1. Surveys for riparian bird species, including least Bell's vireo, were conducted in the Plan Area on behalf of the Tribe and CVAG annually from 2002 to 2005. Least Bell's vireo is known to breed in low numbers in Chino, Palm, Murray, and Andreas canyons. In 2005, for example, two vireo pairs bred in Andreas Canyon and one pair bred at Pelton Crossing along the west fork of Palm Canyon (Varanus Monitoring/Tierra Environmental 2006).

2. This species is subject to project-related surveys. Surveys will be conducted by a Qualified Biologist in accordance with the then-current protocols, and will be coordinated to the extent feasible with southwestern willow flycatcher surveys, should they also be required. The biologist will record all observations on an aerial photograph and/or use GPS for downloading into the Tribe's database. During these surveys, the biologist also will make note of any cowbird observations.
3. Point count sampling stations will be established for riparian habitat within the Habitat Preserve within two years of permit issuance. As described in section 4.12.1.1 with regard to vegetation communities, the riparian point count sampling stations will be specifically located (albeit randomly) across environmental gradients to ensure that species distribution throughout the Habitat Preserve is adequately represented, and to detect the potential effects of global climate change. Surveys will systematically assess all bird use within riparian habitat, and will be used as the basis for monitoring long-term trends of riparian bird species, including the least Bell's vireo.
4. A summary of the data collected on least Bell's vireo and general riparian bird use in the Plan Area will be provided by the Tribe to the USFWS in an annual report.

Based on the species' limited numbers within the Plan Area, and the extensive knowledge base for the vireo, data collected as part of the general riparian bird data collection is considered adequate monitoring for this species.

Southwestern Willow Flycatcher

Some of the riparian habitats within Tahquitz Canyon and Indian Canyons have the potential to support southwestern willow flycatcher foraging; however, the Tribe does not expect it to breed in the Plan Area. The following monitoring measures have been or will be implemented for this species:

1. As part of the 2003 assessment by a Qualified Biologist of riparian habitat within Tahquitz Canyon and Indian Canyons Heritage Park, certain riparian zones were identified as potentially providing habitat for southwestern willow flycatcher and were included in the initial three years of monitoring surveys. Southwestern willow flycatcher was observed in Palm Canyon in 2003 (Jones & Stokes 2003). However, Qualified Biologists conducting habitat assessments in Indian Canyons in 2005 found no suitable breeding habitat for this species (Varanus Monitoring/Tierra Environmental 2006).
2. This species is subject to project-related protocol surveys, and surveys for this species will be conducted by a Qualified Biologist. Surveys will follow established protocol techniques for southwestern willow flycatcher, and the biologist will record all observations on an aerial photograph and/or use GPS for downloading into the Tribe's GIS database. These surveys will be coordinated to the extent feasible with least Bell's vireo surveys conducted for the project.
3. Point count sampling stations will be randomly established for riparian habitat within the Habitat Preserve within two years of permit issuance. Surveys will systematically assess all bird use within riparian habitat, and will be used as the basis for monitoring long-term trends of riparian bird species,

including the southwestern willow flycatcher. If a southwestern willow flycatcher is observed during a point count, focused surveys will be conducted to determine its breeding status. This methodology, rather than full protocol surveys, is considered adequate because of the low existing/potential population of this species within the Plan Area.

4. A summary of the data collected on southwestern willow flycatcher in the Plan Area will be provided by the Tribe to the USFWS in an annual report.

Other Riparian Bird Species

Other avian riparian Covered Species are summer tanager, yellow-breasted chat, and yellow warbler. The following monitoring measures have been or will be implemented for these species:

1. Surveys for riparian bird species were conducted in the Plan Area on behalf of the Tribe and CVAG annually from 2002 to 2005. Summer tanager has been observed by biologists from UCR in Andreas (2002), Palm (2002 and 2005), and Tahquitz (2003 and 2005) canyons on the Reservation; it also was observed on private land in Chino Canyon. Yellow-breasted chat has been observed in Murray Canyon on the Reservation (Tierra Environmental Consultants 2003; Haas and Nordby 2006). Yellow warbler has been observed in Palm and Tahquitz canyons on the Reservation (Haas and Nordby 2006), and on private property in Chino Canyon (UCR 2003).
2. Surveys for these species will be conducted concurrent with least Bell's vireo surveys. The biologist will record all observations on an aerial photograph and/or use GPS for downloading into the Tribe's GIS database.
3. Survey stations will be established for riparian habitat within the Habitat Preserve within two years of permit issuance. Surveys will systematically assess all bird use within riparian habitat and will be used as the basis for monitoring long-term trends of riparian bird species, including the summer tanager, yellow-breasted chat, and yellow warbler.
4. A summary of the data collected will be provided by the Tribe to the USFWS in an annual report.

Mountain Yellow-legged Frog

Surface waters associated with the riparian habitats along the eastern slopes of the Plan Area (Indian Canyons Heritage Park, Tahquitz Canyon, and Chino Canyon) have the potential to support populations of mountain yellow-legged frog. To assess the potential for this species to occur in the Plan Area, the following monitoring measures have been or will be implemented:

1. Qualified Biologists conducted surveys of streams within Chino, Tahquitz, Murray, Andreas, and Palm canyons annually from 2002 to 2005 to determine the presence or absence of suitable habitat for, and individuals of, the mountain yellow-legged frog (Gallegos et al. 2005). While some suitable habitat was identified, no individuals were observed.

2. Qualified Biologists will conduct both diurnal and nocturnal surveys of these streams for mountain yellow-legged frog once a month between April and August. These surveys will be repeated for a period of two years upon Plan approval by USFWS. Surveys will be timed to take advantage of optimal water levels and temperature conditions. Additionally, surveys will be conducted to avoid surveys during the full moon phase.
3. Each survey will carefully note the sampling conditions (e.g., flow rates, temperatures, etc.) and the presence of larvae, juveniles, and/or adults.
4. Subsequent monitoring of streams with known populations of these amphibian species (if any) will focus on the identification of population concentrations or nodes and the identification and management of potential threats (e.g., introduced species).
5. Should non-native fish, bullfrogs, or exotic vegetation be encountered in frog habitat, their locations will be carefully documented using GPS.
6. A summary of the data collected on mountain yellow-legged frog in the Plan Area will be provided by the Tribe to the USFWS in an annual report.

4.12.1.4 Southern Yellow Bat

Southern yellow bats inhabit riparian forests and occur in palm oases with open water within Indian Canyons. The following biological monitoring measures have been or will be implemented by the Tribe:

1. All stands of *Washingtonia* palms will be identified and mapped upon approval of the Plan.
2. Long-term echolocation monitoring stations, which record echolocation data every night year-round, were installed in 2005 in Palm, Andreas, and Murray Canyons. The Tribe will maintain these stations. The data collected will be analyzed with a translation that has been developed on behalf of the Tribe to analyze long-term population-level monitoring data (Rahn 2006b).

A summary of the data collected on southern yellow bats in the Plan Area will be provided by the Tribe to the USFWS in an annual report.

4.12.1.5 Triple-ribbed Milk-vetch

Triple-ribbed milk-vetch has not been the subject of extensive surveys within the Plan Area, and has not been observed there. Modeling for this species also does not indicate any potential habitat within the Plan Area. Consequently, it is not anticipated that this species will represent a focus of monitoring and management efforts. As part of the Covered Activity approval process described in section 4.8, however, surveys for this species would be required on sites supporting appropriate habitat. Should the species be identified within the Plan Area as a result of these surveys or incidental observations, surveys will be conducted on nearby lands within the Habitat Preserve and the prioritization of the species for future monitoring and management efforts will be reconsidered, with management and monitoring plans

developed in cooperation with the USFWS. Special focus will be on maintaining appropriate hydrological processes within drainages where the species is found.

4.12.1.6 Desert Tortoise

The Plan Area supports low numbers of desert tortoise, and is outside of the Critical Habitat and Recovery Units for this species. As a result, it is not anticipated that this species will represent a focus of monitoring and management efforts. Rather, this species will benefit from habitat-based monitoring and management measures as described in sections 4.11.2.1, 4.12.1.1, and 4.12.2.1.

4.12.1.7 Burrowing Owl

The Plan Area supports relatively low numbers of this unlisted species, and does not represent a critical portion of its extensive range. As a result, it is not anticipated that this species will represent a focus of monitoring and management efforts. Rather, this species will benefit from habitat-based monitoring and management measures as described in sections 4.11.2.1, 4.12.1.1, and 4.12.2.1.

4.12.1.8 Valley Floor Species

No portion of the Valley Floor would be dedicated to the Tribe's Habitat Preserve upon adoption of the Plan. As a result, lands are not initially available for monitoring of these species. Long-term monitoring requirements (to be applied if and when lands are dedicated to the Habitat Preserve in the future) are described in section 4.12.2.

4.12.2 Long-term Monitoring in Habitat Preserve

Long-term monitoring will be based on data collected during the initial implementation of the monitoring program noted in section 4.12.1. Both vegetation sampling and wildlife monitoring will be conducted.

The monitoring intervals described below are considered to represent a reasonable time period to detect broad-scale change. Because the time required to initiate, conduct, and report on such inventories may take two or more years, a more frequent interval might result in a short useful life of any such inventory. On the other hand, a longer interval may miss changes that occur more frequently. Potentially problematic in this schedule is the uncertainty of factors such as extreme drought conditions that would greatly influence some species, most notably plants. Should this occur, the Tribal Biologist and outside experts will be consulted to determine whether to proceed with, or delay, all or part of a re-sample.

Some subjective flexibility for monitoring is needed. Geographic areas considered most potentially affected (e.g., areas nearest to the urban influence or Natural Plant Communities at high risk to fire) may

need to be monitored on a more frequent basis than those areas less anticipated to be affected. The monitoring schedule must be flexible enough to adapt to unanticipated events or opportunities. If and when large acreages (i.e., 5,000 or more acres), rare Natural Plant Communities, or key Linkages are added to the Habitat Preserve, then rapid assessment of these areas would be implemented the following field season. Similarly, events such as wildfire, flood, or rapid species invasions would also prompt re-consideration of the monitoring schedule, with adjustments as necessary.

The rate of change will vary based on numerous natural and human-induced factors. If, during the initial years of the Tribal HCP implementation, indications suggest that the currently contemplated interval between sampling periods may be too long or too short, then a more or less frequent sampling interval will be considered for the entire area, or for the particular Natural Plant Communities undergoing rapid change. As a start, any change greater than 10 percent that occurs between sampling periods in acreage/distribution of a Natural Plant Community or distribution/abundance of a Covered Species, will be evaluated to assess whether the next round of assessment needs to be more frequent for that type, or for the entire Action Area. The need for modifications to the monitoring schedule will be assessed within the context of the Plan's overall conservation goals and funding availability.

4.12.2.1 Vegetation Communities/Habitats

Vegetation assessments for both riparian and upland habitats using the Vegetation Rapid Assessment Protocol and Releve Protocol will be conducted every eight years.

4.12.2.2 Species-specific Monitoring

Peninsular Bighorn Sheep

As noted in Section 4.12.1.2, the Tribe will coordinate with ongoing monitoring efforts as follows:

1. It is the Tribe's intent to work closely with the cooperating federal and state agencies (e.g., USFWS, BLM and CDFG) to address survey and research needs each year for Peninsular bighorn sheep.
2. Funding commitments will be made each year as part of the implementation of the Tribal HCP. The Tribe reserves the option to use the committed funding to either support the ongoing efforts by others or finance its own research programs in lieu of participating with the above organizations and agencies.

Riparian Bird Species

Point count sampling stations established for riparian habitat within the Habitat Preserve during the initial two-year implementation phase will be used to track long-term population trends of riparian bird species.

Surveys will systematically assess all bird use within riparian habitat, and will be used as the basis for monitoring long-term trends of riparian bird species, including the least Bell's vireo, southwestern willow flycatcher, summer tanager, yellow-breasted chat, and yellow warbler. Surveys will be conducted every five years.

Upland Bird Species

Point count sampling stations will be established for upland habitat within the Habitat Preserve during the initiation of the long-term monitoring phase. As described in section 4.12.1.3 for riparian bird species, sample stations would be specifically (but randomly) located across environmental gradients to detect the potential effects of global climate change. Surveys will systematically assess all bird use within upland habitat, and will be used as the basis for monitoring long-term trends of upland bird species, including the gray vireo, should they occur. Surveys will be conducted every five years.

Valley Floor Species

Avian survey stations will be established for habitat within the Valley Floor Habitat Preserve during the initiation of the long-term monitoring phase following dedication of land to the Habitat Preserve in the Target Acquisition Areas. These survey stations will be located across environmental gradients. Surveys will systematically assess all bird use within upland habitat, and will be used as the basis for monitoring long-term trends of upland bird species, including the crissal and LeConte's thrasher, should they occur within the Target Acquisition Areas. Surveys will be conducted every five years.

Trap arrays will be established within lands dedicated to the Habitat Preserve in the Target Acquisition Areas to monitor population trends for VFPA reptile Covered Species, including Coachella Valley fringe-toed lizard and flat-tailed horned lizard, as well as more common species. Trap arrays will be randomly located across environmental gradients. Specific sampling protocols, monitoring strategies, and placement of the trapping grids will be determined during the initial phase of the monitoring program. Surveys will be conducted every five years.

Small mammal trapping grids will be established within lands dedicated to the Habitat Preserve in the Target Acquisition Areas to monitor population trends for VFPA Covered Species, including Palm Springs pocket mouse and Palm Springs ground squirrel, as well as more common species. Trapping grids will be randomly located across environmental gradients. Specific sampling protocols, monitoring strategies, and placement of the trapping grids will be determined during the initial phase of the monitoring program. Surveys will be conducted every five years.

Insect monitoring stations may be established within lands dedicated to the Habitat Preserve in the Target Acquisition Areas, if it is determined by the Tribe and USFWS that such monitoring is warranted. Species that could be targeted include Coachella giant sand-treader cricket and Coachella Valley Jerusalem cricket.

Populations of Coachella Valley milk-vetch identified during the Conditional Use Permit process that are conserved will be monitored during vegetation monitoring conducted every eight years.

4.13 ADAPTIVE MANAGEMENT PROGRAM

4.13.1 Approach

The overriding biological goal of the Tribal HCP is to contribute to the conservation of Covered Species and their habitats, which the Tribe will accomplish by establishing and maintaining a Habitat Preserve with the focus on conserving these biological resources. The results of the above-described monitoring program will be integrated with the management of the Habitat Preserve through an Adaptive Management Program to ensure the accomplishment of this goal.

Adaptive management relies on monitoring efforts such as those outlined in Section 4.12 above to detect changes in species, habitats, and/or threats. Linking the monitoring program with Adaptive Management actions will inform reserve managers of the status of Covered Species, Natural Plant Communities, and essential ecological processes, as well as the effectiveness of management actions, in a manner that provides data to allow informed management actions and decisions. When change is detected, reserve managers assess the information and respond by initiating, modifying, or even ending a particular management strategy if necessary. An important component of implementation of management measures described above includes evaluating data from monitoring activities to determine whether trends in threats are part of a natural cycle of fluctuation or are anthropogenic. If there is a substantial decline in native species compared to the baseline (e.g., greater presence of exotics) or other apparent threats to habitat conditions are observed, remedial measures will be evaluated with the USFWS and implemented on an as-needed basis.

Direct Tribal management activities are anticipated to focus on the MCCA. The Tribe, through biological monitoring as described above and its management program provided in this Tribal HCP, will provide adaptive management for MCCA species. Adaptive management of the Tribe's Valley Floor Habitat Preserve will be assured by the Tribe and will be coordinated with adaptive management strategies implemented by other conserved properties in the area to the extent practical and within the funding limits as specified in section 4.15.1.

As noted above, the Tribe will prepare a detailed framework management plan with the review and approval of the USFWS within one year of any lands being dedicated to the Habitat Preserve. This detailed management plan will also include Valley Floor Covered Species, but will be regarded as interim with regard to those species, with management measures to be updated once baseline biological data for those areas are available. Alternatively, the Tribe may contract with another entity to manage its Habitat Preserve on the Valley Floor consistent with a management plan approved in conjunction with the Coachella Valley MSHCP once completed and approved by the USFWS. In either case, the Tribe will fully fund and implement monitoring and adaptive management for all Covered Species in a manner consistent with a management plan approved by USFWS.

Adaptive management was pioneered by Holling (1978). In its simplest form, Adaptive Management is “learning by doing” (Walters and Holling 1990). More specifically, Adaptive Management is the application of the scientific method to management strategies. It requires the development of management objectives and a formal recognition of uncertainties surrounding management decisions. A key element of Adaptive Management is the establishment of testable hypotheses linked to the conservation strategies and their biological objectives (USFWS and National Marine Fisheries Service 1996). The hypotheses are tested with the commencement of the management options, results are quantified and analyzed, and uncertainty reduced. Hypotheses are restated, and the process repeated until goals are met or uncertainty is reduced sufficiently. The Tribal HCP will utilize Adaptive Management strategies as applicable throughout the Habitat Preserve within funding limits identified in Section 4.15.1.

An adaptive management approach is important because ecosystems and individual species’ life histories are complex, we have only a limited understanding of their functioning, and anthropogenic changes are disturbing natural ecosystem functions. As described by Field et al. (1999), “earth’s ecosystems are never static, even in the absence of human influences. They are dynamic, shifting, and reorganizing on a variety of time scales in response to diverse external and internal forces [such as] seasonal changes in plant or animal populations [or] the recolonization of an area scorched by fire. . . . Future climate change will almost certainly lead to alterations of in the earth’s ecosystems, but those will be superimposed onto a complex tapestry of ongoing changes.”

The Management Program will address management uncertainty, including the following issues:

1. Management action as indicated by the results of the monitoring program in regard to unanticipated changes in the needs of individual species or groups of species, or natural communities, or processes including fluvial and aeolian transport and sorting of sand.
2. Reserve and species management techniques and actions.
3. Management actions to address Changed Circumstances as described in Section 4.14.
4. Management actions to address the currently uncertain potential effects of global climate change.

Management activities about which there is uncertainty regarding application or outcomes should be designed as experiments to increase understanding of the system and the effectiveness of management (Atkinson et al. 2004). In this scenario, clear hypotheses are developed and tested to determine if the null hypothesis should be rejected. When the viability of natural communities and Covered Species are threatened, Adaptive Management actions must be implemented to eliminate or control those perturbations.

The monitoring program and the adaptive management component of the management program must be integrally linked. The analyses of species and natural community monitoring data (and information regarding on-going preserve management issues) will be used to identify if and where adaptive management actions should be considered. When adaptive management actions are implemented, the monitoring program will need to evaluate the species and/or natural community’s response.

Linking the monitoring program with the implementation of adaptive management actions will require:

1. The use of data from the monitoring program to update adaptive management models and the implementation of actions suggested by the monitoring data; and use of available data to structure a range of alternative response models to address a given threat or stressor affecting a Covered Species or Natural Plant Community and evaluation of the models.
2. The implementation of actions suggested by the monitoring program data and adaptive management models.
3. Development of cost estimates and schedules for implementation of adaptive management actions and monitoring results.
4. A program implementation structure, which helps identify potential adaptive management options and associated monitoring to determine their effectiveness, and evaluates the adaptive management action for further use or modification.

4.13.2 Management Responsibilities

Responsibility for managing the Habitat Preserve will be undertaken pursuant to the sovereign authority of the Tribe as directed by the Tribal Council in consultation with USFWS and as defined by the IA. The Department will be the implementing authority. Duties/responsibilities will be as follows:

The **Tribal Council** will:

1. Set the overall policies and goals for developing the annual work plans consistent with the Plan.
2. Review and approve the annual work plans.
3. Fully fund (from Tribal funds, funds provided by Covered Project Proponents, or by obtaining funding from other sources, such as grants) acquisition, protection, and management of the Habitat Preserve in perpetuity, including biological monitoring and an adaptive management program, and other activities to be performed in conjunction with managing the Habitat Preserve (see section 4.15 below).
4. Coordinate the ongoing management of Existing Tribal Conservation Programs with management of the Habitat Preserve.
5. Review and approve, as appropriate, research and study proposals for individual species and/or Habitat Preserve areas.
6. Adopt and implement Overlay Zone regulations, including required impact avoidance, minimization, and mitigation measures for Covered Activities.

The **Tribal Planning and Development Department**, as directed by the Tribal Council, will:

1. Coordinate implementation of the Tribal HCP with the short-term and long-term land use management goals of the Tribe.
2. Prepare the necessary annual work plans and reports, maintain records, and provide administrative support for Habitat Preserve activities.
3. Coordinate the management of the Habitat Preserve with the overall land use management program for the Reservation.
4. Submit annual funding requests to the Tribal Council for the continued management of the Habitat Preserve.
5. Provide day-to-day management of those portions of the Habitat Preserve managed directly by the Tribe (see section 4.11). Management may include the delegation of duties to full-time and part-time staff and consultants as needed to monitor and manage the biological resources and properties within the Habitat Preserve. The tasks and responsibilities of the Department and supporting staff/consultants (if needed) will be identified in annual work plans. These tasks will, at a minimum, include initial site cleanup, signage, access controls (as applicable), weeding/exotics control, trash pickup, and patrolling.
6. Coordinate with the land manager regarding management and monitoring of any lands for which the Tribe does not assume day-to-day management responsibilities.
7. Review, as appropriate, and forward any research or study proposals for individual species and/or the Habitat Preserve to the Tribal Council for final approval.

The **Tribe understands that the USFWS** will:

1. Provide technical biological assistance as requested by the Tribe for developing the Annual Work Plans.
2. Provide expeditious review of Annual Work Plans.
3. Review and recommend approval or denial of research and study proposals that could affect Covered Species or their habitats occurring within the Action Area.
4. Request funding for acquisition and management of Habitat Preserve lands for complementary conservation activities, above and beyond those required for mitigation of impacts associated with the Tribal HCP through federal avenues. Federal acquisition funding may be directed to the MCCA or Section 6 Target Acquisition Area. Federal funds may be used for other components of Plan implementation, such as management, monitoring, and habitat enhancement. Federal funding will not reduce the mitigation requirements of any proposed Covered Activities.

4.14 RESPONSES TO CHANGED CIRCUMSTANCES

Changed Circumstances are defined under the federal No Surprises Rule as changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the USFWS and that can be planned for. Changed Circumstances potentially affecting the Tribe's Habitat Preserve are defined as future events reasonably foreseeable to occur during the life of the Plan and that may negatively affect Covered Species and/or their preserved habitat.

Changed Circumstances⁷ addressed by this Plan include the following:

- wildland fire;
- flood;
- drought;
- lowering of the water table;
- invasion by new exotic species; and
- new listings of species not covered by the Tribal HCP.

These represent all of the Changed Circumstances to be addressed by the Tribe. The Tribe intends that other changes in the circumstances of a Covered Species or in the Habitat Preserve will be treated by the USFWS as Unforeseen Circumstances (see section 4.16.4). These Changed Circumstances provisions reflect the reasonably foreseeable changes in circumstances that could occur within the Habitat Preserve; they apply to all lands within the Habitat Preserve at the time the Changed Circumstance occurs (i.e., they do not apply to lands outside of or not yet dedicated to the Habitat Preserve at that point in time).

Because this Plan includes an adaptive approach to habitat management, changes over time and adaptive responses are already contemplated. In the event that a Changed Circumstance occurs, however, additional remedial measures may be required. As the entity responsible for management of the Habitat Preserve, the Tribe will have primary responsibility for notifying USFWS of any Changed Circumstances; if the USFWS becomes aware of a potential Changed Circumstance, however, it may notify the Tribe that such an event has occurred. Funding to address actions identified in this section as potentially necessary in response to Changed Circumstances is included in the line item amounts provided in the budget. In general, the goal of the planned response will be to return the habitat to a minimum of 80 percent, based on measurable components of biological integrity (specifically focusing on native species percent cover that includes a diversity of native species) of the site or appropriate reference site within 5 to 10 years. The reference site would be of the same habitat type and of the same or higher quality to the disturbed area prior to the Changed Circumstances.

⁷Although climate change is not specifically addressed as one of the bulleted "Changed Circumstances," the Tribe recognizes the importance of including this circumstance in a long-term (75-year) HCP. Therefore, the Tribe has elected to include climate change under each of the associated changed circumstance categories within this Plan.

The following text describes each of the identified Changed Circumstances, an assessment of risk, description of preventive measures, and the approach the Tribe will use to respond to these circumstances if they occur. The Tribe may implement alternative preventive measures or responses in the event it is determined by the Tribe that such alternatives result in biologically superior management and conservation of the Habitat Preserve, based on the results of previous monitoring and adaptive management efforts by the Tribe and other organized monitoring efforts in the region. The Tribe will notify and coordinate with the USFWS regarding the proposed alternative response(s) prior to implementation. If the USFWS does not respond within 60 days, the alternative response will be deemed to be acceptable. In the event that there is a disagreement regarding the appropriate alternative response, the parties will meet and confer. The management obligations of the Tribe shall not exceed the funding limitations set forth in section 4.15.1 of this Plan.

4.14.1 Wildland Fire

Frequent fires can cause the conversion of one biotic community to another. Many desert ecosystems have no adaptation to fire. Increases in non-native plant cover can cause or contribute to fires occurring in habitats that historically never had fires, resulting in significant modification or elimination of these habitats. For the purpose of defining Changed Circumstances, short-interval return wildland fire is defined as fire occurring within an overlapping footprint with a previous fire within five years subsequent to an initial fire. The Tribe reviewed fire history data maintained by the California Department of Forestry and Fire Protection for the period from 1900 through 2003 for the vicinity of the Action Area. Because approximately 75 percent of the short-interval return fires in that time period were less than 375 acres, that will be used as the lower threshold for defining a Changed Circumstance. A Changed Circumstance will include short-interval return fires damaging up to 4,700 acres of potential habitats of Covered Species within the MCCA Habitat Preserve. Only twice in the fire history data has an area exceeding 2,500 acres burned twice within five years (6,111-acre overlap in 1980/1985 and 9,358-acre overlap in 1967/1968). As the Tribe's Reservation is (and therefore, the Habitat Preserve would be) a checkerboard, it is anticipated that no more than half of the overall area burned would be within the Habitat Preserve. The threshold for an Unforeseen Circumstance was therefore determined to be half of the largest overlap in available fire history records. During approximately the same period of time as the available fire history data, one report on global climate change indicates that average surface temperatures have increased due to human activity (California Climate Change Center 2006). For this reason the existing fire history data may be expected to inform our understanding of the likelihood of wildland fire in the future.

The increase of exotic species such as grasses and mustard in the Action Area may result in an increased fire danger, especially following substantial rainfall events. In addition, global climate change has the potential to affect future wildfire size and/or intensity. The actual effects will depend heavily upon local

precipitation, wind conditions, and vegetation composition, which are not accurately reflected in currently available models (California Climate Change Center 2006; Cayan et al. 2006). According to one report, global climate change may actually decrease fire risk in southern California (Westerling and Bryant 2006) but there is substantial uncertainty at this juncture. As a result, the effects of global climate change on fire in the Action Area cannot be predicted based on the best scientific and commercial data currently available except to the extent that fire history data provides an accurate predictor of those effects.

As described below, the Tribe is continuing to improve its fire prevention and interagency fire response process. As a result, the Tribe believes that the likelihood of a fire of this size returning to the same area within a short interval during the life of the Plan is unlikely; therefore, a short return interval fire greater than 4,700 acres in size within potential habitats of Covered Species within the MCCA Habitat Preserve is considered an Unforeseen Circumstance.

4.14.1.1 Risk Assessment

According to the Safety Element of the County General Plan, the VFPA is considered to have low or very low risk of wildfire. However, the MCCA is considered to have a high to very high risk for potential wildland fire. Much of the MCCA is characterized by steep terrain with highly flammable native vegetation. Fire potential is typically greatest in the months of August, September, and October when dry vegetation co-occurs with hot, dry Santa Ana winds. Fire protection services in this area are provided by the USFS through an agreement with the BIA.

Because fire is a natural ecological process in the Action Area and surrounding areas for chaparral and scrub habitats (especially the MCCA), under normal circumstances natural re-growth of habitat is expected. Certain repetitive fires within the same location may, however, adversely affect Covered Species as a result of habitat type conversion from existing habitat(s) to habitats dominated by non-native species.

As noted in the previous section, the increase of exotic species such as grasses and mustard in the VFPA portion of the Action Area may result in an increased fire danger in desert ecosystems that have no adaptation to fire. These increases in non-native weedy species and resulting fires in habitats that historically never had fires, may result in modification or elimination of these habitats.

4.14.1.2 Preventive Measures

The Tribe has developed a Fire Management Plan for the Reservation (Appendix G). The Fire Management Plan provides a process that will allow the Tribe to utilize a variety of fuel management techniques to protect the Tribe's natural and cultural resources as fire preventative measures, manage wildland fires that may occur on the Reservation, and address rehabilitation efforts necessary after wildfire. It includes the following objectives relevant to this Tribal HCP: use vegetation management

techniques to reduce wildfire risk and maintain vegetation; assure that agreements are in place that will provide adequate wildland fire protection; and protect wildlife, fish, and related resource values. It also includes a policy that natural resource values will be evaluated on an equal basis with property and not automatically relegated to a lower priority. Implementation of the plan is intended to be proactive and collaborative, and would include the following measures:

- Installation of a Remote Automated Weather Station on the Reservation that will collect, store, and forward data to the National Interagency Fire Center in Boise, Idaho, and the Weather Information Management System in Reno, Nevada;
- Build a database of assessment criteria that can be managed through the Tribe's GIS Group to aid in fire prevention, and shared with collaborative agencies;
- Provide emergency wildland response support facilities in the case of active wildfire;
- Provide two trained employees to participate on the Fire Response Management Team in the event of a fire within the Traditional Use Area of the Tribe;
- Continue hazardous fuel removal programs on the Reservation through a variety of methods; and
- Continue to enter into cooperative protection agreements and memorandums of understanding as necessary with collaborative agencies for wildland fire preparedness.

4.14.1.3 Planned Responses

Upon the occurrence of a short-interval return wildland fire, the Department shall notify USFWS of this Changed Circumstance. The Department shall assess the damage caused by the short-interval return fire within the Habitat Preserve. Depending on the extent and severity of the fire damage, as determined by the Department in consultation with USFWS, the Tribe will take one or more of the following actions:

- Should revegetation for erosion control be determined necessary, such revegetation will be completed with native species.
- Develop and implement a monitoring program to monitor natural re-growth (compared to conditions observed through the regular monitoring program described in section 4.12) within the damaged area for a period of up to two years. The monitoring program will provide for site visits on a regular basis, as determined by the Department to be appropriate to the scope and severity of the burn.
- Should monitoring observations indicate that allowing habitat to re-grow without interference is resulting in insufficient growth of native habitat, increased opportunity for invasion by exotic plant species, and/or increased potential for type conversion, and that this is likely to adversely affect Covered Species, the habitat management program in effect at the time will be modified to include a specific action plan. The action plan shall involve efforts to improve habitat conditions.
- The response measures will be implemented through the Tribe's adaptive management program. Potential responses include establishing erosion control, controlling exotic species, reseeding with

appropriate native species, and installing from containers selected native species that do not establish well from seed.

- The response of Covered Species and their habitats to the action(s) taken will be monitored for a period of at least two years to evaluate the re-establishment of native components of the burned habitat.

4.14.2 Flood

For the purpose of defining Changed Circumstances, flood is defined as flood events occurring at greater than 50-year and up to and including 100-year level, as classified by the Federal Emergency Management Agency (FEMA). The Tribe considers flood events at greater than 100-year levels within the Permit term to be Unforeseen Circumstances.

4.14.2.1 Risk Assessment

FEMA provides local jurisdictions with mapping that defines the areas that may be affected, or inundated, by flood. A 100-year flood, as defined by FEMA, produces a magnitude of inundation that has a one percent chance of occurring in any given year. The 100-year flood has a 64 percent chance of occurring in any given 100-year period (Rogers 2003) within the drainages of the Action Area, and thus is reasonably foreseeable during the life of the Plan.

More severe flooding is frequently mentioned as a potential outcome of global climate change. However, at least in California, most predictions of flooding are associated with more precipitation falling in the form of rain rather than snow, and with earlier melting of the snowpack (California Climate Change Center 2006), neither of which is expected to significantly affect the Coachella Valley. In addition, predicting the future trend of floods is particularly difficult because it depends on very local conditions and on extreme weather events, both of which are poorly addressed through current climate models (Field et al. 1999). Therefore, the effects of global climate change on flooding in the Action Area cannot be predicted based on the best scientific and commercial data currently available.

Alluvial fan vegetation communities along the canyon bottom of the San Jacinto Mountains and the desert wash communities along the valley floor are influenced by seasonal flooding. This is a natural event and is generally not expected to cause damage sufficiently severe to prevent natural regeneration of existing habitats within the Habitat Preserve. Severe floods can, however, have impacts on Covered Species and their habitats.

4.14.2.2 Preventive Measures

As part of the typical project review process, the Tribe and/or applicable land use jurisdiction will review development projects to ensure that (1) post-development peak storm water runoff discharge rates and

velocities are functionally the same as pre-development levels and (2) flow through the designated floodplain is not impeded. These measures will minimize the impacts of development on natural flood flows.

4.14.2.3 Planned Responses

If a flood as defined in this section occurs, the Department will notify the USFWS of this Changed Circumstance. The Department shall assess the damage caused by the inundation within the Habitat Preserve. Depending on the extent and severity of the damage, as determined by the Department in consultation with USFWS, the Tribe will take one or more of the following actions:

- Recommend actions to repair the damage if necessary; such recommendations may be limited to natural regeneration.
- Should revegetation for erosion control be determined necessary, such revegetation will be completed with native species.
- Should the extent and severity of flood damage indicate a need for monitoring, the Department will develop and implement a monitoring program for a period of two to five years, to monitor natural re-growth within the damaged area. The monitoring program will provide for site visits on a regular basis, as determined by the Department to be appropriate to the scope and severity of the damage.
- Should monitoring observations indicate that allowing habitat to re-grow without interference is resulting in increased opportunity for invasion by exotic species and/or increased potential for type conversion, and that this is likely to adversely affect Covered Species, the habitat management program in effect at that time will be modified to include a specific action plan. The action plan shall involve efforts to improve habitat conditions.
- The response measures will be implemented through the Tribe's adaptive management program. Potential responses include removal of sediment and/or debris, and controlling species considered inappropriate to the desired habitat type.
- The response of Covered Species and their habitats to the action(s) taken will be monitored for a period of at least two years to evaluate the re-establishment of native components of the burned habitat.

4.14.3 Drought

A climatic drought three years in length is considered a Changed Circumstance; a climatic drought of four or more years is considered an Unforeseen Circumstance.

4.14.3.1 Risk Assessment

Drought is a cyclical weather phenomenon that is beyond human control. Drought is not uncommon in southern California, and it is a phenomenon to which local habitats and species have adapted over time.

Drought occurs over a multi-year period, differing from the catastrophic events of fire and flood, which occur rapidly and afford little time for preparing disaster response. Drought conditions may adversely affect Covered Species if the species and/or their habitats are unable to adapt to the conditions. The potential for drought to impact the Habitat Preserve increases with the length of a drought.

Rainfall data assembled by the County over the past 120 years indicate a general eight-year periodicity in wet and dry conditions with more infrequent occurrences of dry years extending for more than a one- to two-year period. Specifically, according to the Western Regional Climate Center Archives, periods of three consecutive years with rainfall below 75 percent of the mean annual precipitation have occurred only three times in Palm Springs since 1927; this has not occurred for four or more consecutive years in the available records. Based on these data, and the fact that drought is an expected occurrence in Southern California, a drought significantly affecting Covered Species is possible (but unlikely) during the life of the Permit.

Although global precipitation is forecast to increase with global climate change, uncertainties regarding the location of future stormtracks that separate the wet Northwest from the dry Southwest make regional precipitation patterns especially difficult to forecast for California (Lenihan et al. 2006). As a result, there is no clear trend in precipitation projections for California over the next century (Cayan et al. 2006; Franco 2005). Some show more rainfall, while others show less, with the average being relatively little change relative to current rainfall (Cayan et al. 2006). Therefore, the effects of global climate change on drought in the Action Area cannot be predicted based on the best scientific and commercial data currently available. There is no evidence that the Mediterranean seasonal precipitation pattern will change, and the projected frequency of El Niños remains about the same (Cayan et al. 2006).

4.14.3.2 Preventive Measures

No measures are available to prevent climatic drought within the Habitat Preserve. The Tribe relies primarily on ground water for its water supply, which is not typically affected by a drought. To the extent that it can be accommodated by existing infrastructure, the Tribe will attempt to minimize adverse impacts from a drought event by ensuring that water is available for (1) Habitat Preserve areas undergoing active restoration where water is needed and (2) artificial water sources for Covered Species (particularly Peninsular bighorn sheep).

4.14.3.3 Planned Responses

If a climatic drought occurs, the Department shall notify the USFWS of this Changed Circumstance. Depending on the extent and severity of the damage within the Habitat Preserve, as determined by the Department in consultation with USFWS, the Tribe will take one or more of the following actions:

- Prepare a damage assessment report describing the condition of the Habitat Preserve (relative to previously monitored conditions), which will be used to determine if a monitoring program in addition to typical monitoring as described in section 4.12 is required for all or portions of the Habitat Preserve.
- Recommend actions to ameliorate the effects of the climatic drought on Covered Species; such actions may include provision of temporary artificial water sources for the benefit of Covered Species adversely affected by drought.
- Develop and implement a program to monitor conditions of Covered Species and their habitat in the area for a period of two to five years. The monitoring program will provide for site visits on a regular basis, as determined by the Department to be appropriate to the scope and severity of the damage.
- Should monitoring observations indicate that allowing habitat to re-grow without interference is resulting in increased opportunity for invasion by exotic species and/or increased potential for type conversion and that this is likely to affect Covered Species, the habitat management program in effect at that time will be modified to include a specific action plan.
- Response measures will be implemented through the Tribe's adaptive management program. Potential responses include providing temporary irrigation to strategic areas of the Habitat Preserve and controlling exotic species.
- The response of Covered Species and their habitats to the action(s) taken will be monitored for a period of at least two years.

4.14.4 Lowering of the Water Table

For the purpose of defining Changed Circumstances, lowering of the water table is defined as an increase in the depth to groundwater that significantly affects water availability to mesquite plants within portions of the off-Reservation Target Acquisition Areas that have been acquired and dedicated to the Tribe's Habitat Preserve.

4.14.4.1 Risk Assessment

Substantial lowering of the water table in areas that could significantly affect mesquite hummocks and associated Covered Species in the off-Reservation Target Acquisition Areas could result from groundwater withdrawals.

4.14.4.2 Preventive Measures

The Tribe would not engage in groundwater withdrawals on lands acquired in the Target Acquisition Areas for dedication to the Habitat Preserve. The lands adjacent to the off-Reservation Target Acquisition Areas are outside of the control of the Tribe. As a result, the Tribe does not have the ability to prevent lowering of the water table. The Tribe will, however, keep itself apprised of regional groundwater monitoring efforts, as early detection is expected to improve the chances of successfully addressing any threat posed by a substantial lowering of the water table. Should monitoring detect such a substantial lowering, adaptive management actions will be taken.

4.14.4.3 Planned Responses

As noted above, the Tribe will keep apprised of the results of a regional groundwater monitoring effort anticipated to be conducted under the auspices of CVAG with relation to the Coachella Valley MSHCP. If such monitoring does not occur and the Tribe has acquired mesquite hummocks within the off-Reservation Target Acquisition Areas for dedication to the Habitat Preserve, the Tribe will initiate its own monitoring program, which will include the use of appropriate methods and technology (which may change over time) to monitor groundwater levels in these areas. Should monitoring detect a substantial lowering of the water table or a decline in mesquite health, the Department shall notify the USFWS of this Changed Circumstance. Lowering of the groundwater table would be a regional issue, which would require a regional solution. Depending on the extent and severity of the damage within the Habitat Preserve, as determined by the Department in consultation with USFWS, the Tribe will take one or more of the following actions:

- Prepare a damage assessment report describing the condition of the Habitat Preserve (relative to previously monitored conditions).
- Develop feasible measures to ameliorate the effects of substantial lowering of the water table on mesquite hummocks and associated Covered Species.
- Response measures will be implemented through the Tribe's adaptive management program.

4.14.5 Invasion by New Exotic Species

For the purpose of defining Changed Circumstances, an invasion by exotic species is defined as an unanticipated occurrence of a new exotic plant or animal species within the Habitat Preserve.

4.14.5.1 Risk Assessment

With habitat disturbance often comes the introduction of non-native species. Non-native plant species known to occur on or near the Reservation include Saharan mustard, foxtail chess (*Bromus madritensis*), cheatgrass (*Bromus tectorum*), red brome (*Bromus rubens*), Bermuda grass (*Cynodon dactylon*), rabbitfoot grass (*Polypogon monspeliensis*), Russian thistle (*Salsola tragus*), Mediterranean schismus (*Schismus barbatus*), African fountain grass, and tamarisk. Brown-headed cowbirds and European starlings (*Sturnus vulgaris*) are two non-native bird species that occur throughout the Action Area. The Tribe is actively eradicating the last two plant species in this list. Although invasive and exotic species are currently present within areas identified for potential inclusion in the Habitat Preserve, new exotic species could disrupt normal ecological processes and pose a threat to the continued existence of one or more Covered Species within the Habitat Preserve. The spread of exotic species has the potential to increase as a result of the effects of global climate change (Lenihan et al. 2006). However, there is no empirical evidence available regarding the extent that this might occur in the Plan Area.

As called for in the Tribe's adaptive management program, assessment of the presence of non-native species will be made at the time lands are conveyed into the Habitat Preserve. Measures are incorporated into the adaptive management program to identify and control the effects of the expected presence of invasive species on Covered Species. Opportunities for introduction of new non-native species could occur as development occurs adjacent to the Habitat Preserve. To minimize this potential, as described in sections 4.8.4.3 (b) and (c) and 4.9.3.1(b), invasive plant species would not be permitted for use in landscaping and appropriate measures would be applied to discourage exotic plant and animal species invasion resulting from dust control or fuel modification activities. Monitoring will be used to identify existing exotic species in the Habitat Preserve so that new exotic species can be identified if they occur.

4.14.5.2 Preventive Measures

As part of documenting baseline conditions, the Tribe will identify existing exotic species. A tracking, assessment, and response program has been incorporated into the biological monitoring components of the Tribe's overall adaptive management program (section 4.13) to prevent non-native species from threatening the Habitat Preserve. This monitoring program increases the probability of detection of a new exotic species, which in turn improves the chances of successfully addressing any threat posed by the species. The monitoring program also will enable managers to evaluate the efficacy of whatever control tools are employed. Through implementation of these measures, non-native species will, under normal circumstances, be discovered and addressed prior to becoming a threat to Covered Species.

4.14.5.3 Planned Responses

If, as determined by the Department, an unanticipated invasion by a new species has occurred within the Habitat Preserve, the Department will notify USFWS. The Department shall assess the damage caused by the unanticipated invasion by the new exotic species and initiate the following actions:

- Prepare a damage assessment report.
- Should the damage assessment report indicate that the extent of the new exotic species invasion is likely (based on a conservative assessment) to adversely affect Covered Species, the habitat management program in effect at that time will be modified to include a specific action plan.
- The response measures will be implemented through the Tribe's adaptive management program. Potential responses with regard to exotic plant species include controlled burns, mowing, removal with hand equipment, chemical treatment, soil solarization, and replacement (through seeding and/or container planting) with native species. Potential responses with regard to exotic animal species include active removal and control of populations through management of habitat requirements. Chemical treatment is not a covered activity under the Tribal HCP, but is an allowable use.

- Develop and implement a monitoring program to monitor the response of Covered Species and their habitats to the actions taken for however long is required to establish a long-term trend towards recovery of the Covered Species in the affected area. The monitoring program will provide for site visits on a regular basis, as determined by the Department to be appropriate to the situation.

4.14.6 New Listings of Species not Covered by the Tribal HCP

The USFWS may list additional species as threatened or endangered under ESA, delist species that are currently listed, or declare listed species extinct. In the event of a new listing of one or more species that occurs or has the potential to occur within the Plan Area but is not covered by the Tribal HCP, the Tribe (subject to verification by USFWS) will identify actions that may cause take, adverse effects, jeopardy, or impacts to such species' habitat. If it is determined that Covered Activities would affect the species proposed for listing, USFWS and the Tribe may (at the Tribe's discretion) meet and confer regarding necessary modifications (if any) to the Tribal HCP required to amend the permit to cover the non-Covered Species. If the permit has not been amended to include the non-Covered Species at the time of its listing, the Tribe will implement the measures necessary in order to avoid take, jeopardy, or adverse modification of designated critical habitat until (1) the permit is amended to include the non-Covered Species; (2) the USFWS notifies the Tribe that such measures are no longer necessary; or (3) the Tribe has otherwise complied with the ESA requirements. If the USFWS determines that feasible modifications in the Tribe's adaptive management program or minor adjustments in the Covered Activities can be used to ensure that impacts are avoided, the Tribe shall implement those changes and no amendment will be necessary. If the USFWS determines that more substantial modifications are necessary, such modifications may be made through approval of an amendment to the Tribal HCP in accordance with the amendment procedures described in section 4.17. If incidental take of a wildlife species not currently covered by the Plan is to be permitted under the USFWS' permit and authorized under the Plan, then the major amendment procedures in section 4.17.4 shall be implemented and the necessary decision documents shall be revised or modified.

4.14.7 Changed Circumstances Not Provided for in the Tribal HCP

Pursuant to the No Surprises Rule, the USFWS may not require (1) any conservation or mitigation measures in addition to those provided for under section 4.14 in response to a Changed Circumstance or (2) additional conservation or mitigation measures for any Changed Circumstance that is not identified in section 4.14 without the consent of the Tribe, provided the Tribe is properly implementing the Tribal HCP. The USFWS, any federal, state or local agency, or private entity may take additional actions at their own expense to protect or conserve a Covered Species within the Habitat Preserve, provided that the Tribe first be consulted and consent to any such proposed action.

4.15 TRIBAL FUNDING AND ASSURANCES FOR PLAN IMPLEMENTATION

The Tribe is providing assurances that adequate funding will be made available for implementation of the Tribal HCP and that the conservation, mitigation, and management measures will be carried out as proposed. This section specifies the funding that will be made available to adequately implement the Tribal HCP, including funding for the measures to monitor, minimize, and mitigate impacts likely to result from the proposed taking of the Covered Species.

The Tribe will provide or cause to be provided, funding and/or funding mechanisms as set forth in this section of the Tribal HCP. The Tribe's obligations for funding this Tribal HCP are limited to the commitments described within this Plan or IA, or the measures described within the Section 10(a) Permit, unless otherwise approved by the Tribal Council at its sole discretion.

In committing to these funding obligations as described below, the Tribe has sought to balance competing interests, and to be consistent with policies and limitations on conservation, especially as they relate to the unique relationship between the Tribe and the USFWS.

The Tribe understands that the USFWS will:

1. Provide appropriate technical assistance to the Tribe, including providing assistance in identifying and securing outside sources of funding and/or necessary funding mechanisms to help in acquiring and managing Habitat Preserve lands.
2. Carry out its responsibilities under ESA in a manner that strives to ensure that neither the Tribe nor any Tribal member bears a disproportionate burden for the conservation of Covered Species.
3. Cooperate with the Tribe in the implementation of conservation measures within this Tribal HCP in a manner that minimizes the social, cultural, and economic impacts on the Tribe.
4. Apply for funding for complementary conservation to Habitat Preserve lands, to the extent that funds are available under the various programs the USFWS administers. Such complementary conservation may provide funding which may benefit the overall conservation goals and objectives of the Tribal HCP but shall not fund any mitigation requirements for Covered Activities.

The Tribal HCP and the funding obligations set forth herein have been designed to be consistent with the mandates and policies referenced above and to ensure that neither the Tribe nor any of its members is placed at an economic disadvantage with competing interests, particularly with respect to fees or costs associated with measures to avoid, minimize, or mitigate for impacts to Covered Species resulting from Covered Activities.

The Tribe anticipates that the USFWS and other federal agencies will provide to the Tribe, to the extent supported by the appropriations process, a proportionate share of any federal funds made available for conservation within the Coachella Valley; however, the Tribe's assurances to adequately fund the Tribal

HCP are established without reliance upon any federal funding. The Tribe recognizes that, consistent with the requirements of the Anti-Deficiency Act, any commitment of Federal funding is always subject to the availability of appropriated funds. As they are available, Federal funds will be used to acquire Habitat Preserve lands and/or engage in additional management activities that complement the strategies of this Plan, but shall not fund any mitigation requirements for Covered Activities.

The measures to be funded by, or under the direction of, the Tribe include:

- Administration of the Tribal HCP to implement avoidance, minimization, mitigation, management, and monitoring measures;
- Assembly of the Habitat Preserve including Land Acquisition and Land Improvements; and
- Adaptive Management of the Habitat Preserve including Adaptive Management, Monitoring, and Contingency/Changed Circumstances.

These funding elements are presented in Table 4-8 and are described in more detail below as obligations (section 4.15.1), costs (section 4.15.2), funding sources (section 4.15.3), and funding assurances (section 4.15.4). All costs and funding sources are presented in current dollars. Cash flow projections are detailed in Appendices H and I, and summarized in Table 4-8.

**Table 4-8
Tribal HCP Costs**

Tribal HCP Costs	
Administration/Plan Implementation	\$21,277,266
Habitat Preserve Assembly	
Land Acquisition	\$6,713,817
Land Improvement	667,936
Total Habitat Preserve Assembly Costs	\$ 7,381,753
Habitat Preserve Adaptive Management	
Adaptive Management Personnel & Outside Services	\$39,514,849
Monitoring	4,267,500
Contingency Fund Deposits	1,050,000
Total Habitat Preserve Adaptive Management	44,832,349
Subtotal Costs	\$73,491,328
Endowment Deposits Required	\$12,833,333
Total Tribal HCP Costs & Obligations	\$86,324,661

4.15.1 Tribal HCP Obligations

Implementation of the Tribal HCP carries certain funding obligations of the Tribe and Covered Activities. Such obligations include:

4.15.1.1 Administration/Plan Implementation Obligations

The Tribe has obligations to fund the administration of the Tribal HCP. The Tribe shall administer the Tribal HCP as necessary to implement the Plan, including those items as required for establishment and assembly of the Habitat Preserve (section 4.5), creation of conservation areas (section 4.6), application of land use controls including general design and mitigation requirements (section 4.7), initial assessment, inventory, and monitoring efforts (section 4.12), and Plan implementation requirements (section 4.15.5). These administration obligations include collection and administration of fees, as well as processing of Covered Activities to assure compliance with the Tribal HCP, including implementation of land use authority for Section 6 (Township 4 South, Range 5 East 9), Peninsular bighorn sheep-Sensitive VFPA Areas, and the MCCA Overlay Zone. This includes review and administration of biological surveys and implementation of species-specific avoidance, minimization, and mitigation measures. Administration obligations also include Tribal requirements as necessary to address record keeping and reporting requirements of the Tribal HCP, including Plan implementation, Existing Conditions Report, Annual Work Plans and reports, rough proportionality, monitoring, responses to Changed Circumstances, and other such reporting as specified in this Tribal HCP. All of these requirements will be tracked to ensure compliance since tracking and reporting are required for the life of the permit.

4.15.1.2 Habitat Preserve Assembly Obligations

The Tribe shall assemble the Habitat Preserve through acquisition and/or dedications as specified in the Tribal HCP including establishment and assembly of the Habitat Preserve (section 4.5), Creation of Conservation Areas (section 4.6), General Design and Mitigation Requirements for Covered Activities (section 4.7), and obligations specific to the MCCA and VFPA, including the MCCA Overlay Zone (section 4.8) and VFPA (section 4.9). The Tribe shall be obligated to assemble the Habitat Preserve through implementation of its land use authority and acquisitions as described in these sections. An additional obligation is the requirement for initial improvements of the Habitat Preserve (section 4.11.2.1, Item 1). The projected costs for Habitat Preserve assembly are anticipated to be lower than administration/plan implementation costs in part because approximately 63 percent of the Habitat Preserve (under the expected buildout scenario) would be dedicated and not purchased.

4.15.1.3 Habitat Preserve Adaptive Management Obligations

Once lands are assembled for the Habitat Preserve, Tribal staff shall be responsible to manage, or cause to have managed, the Habitat Preserve lands in perpetuity. These obligations include (a) Management (section 4.11), (b) Monitoring (section 4.12), (c) Adaptive management (section 4.13), and (d) Responses to Changed Circumstances (section 4.14).

4.15.1.4 No Further Obligations

The Tribe shall have no other obligations related to the Habitat Preserve.

4.15.2 Tribal HCP Costs

The costs to meet Tribal HCP obligations as set forth in section 4.15.1 (Tribal HCP Obligations) are described in detail below. All costs are presented in current dollars.

Two implementation scenarios were evaluated to assess the THCP adequacy of funding. Each scenario is a projection of future events; the actual costs and revenues will vary. The first scenario, Expected Buildout (Exhibit H), was based on development projected to occur within the MCCA over the 75-year life of the Plan, while the second scenario, Full Buildout (Exhibit I), is based on the maximum allowed development within the MCCA over the 75-year life of the Plan. The first scenario assumes that 3.75 acres of MCCA development would occur per year, while the second scenario assumes approximately 230 acres of MCCA development would occur per year. The first scenario is the one discussed throughout the text, because based on past development trends and development constraints within the MCCA, this is considered the more likely development scenario. Under either scenario (as demonstrated in Appendices H and I), funding would be adequate to fulfill the Tribe's funding obligations.

4.15.2.1 Cost Background

The Tribe currently administers land use controls, and manages Reservation lands for their cultural and conservation value. Existing Tribal Conservation Programs (described in section 2.1) and other current Tribal activities include access control, patrols, invasive species eradication, cooperative efforts to monitor Peninsular bighorn sheep, release of captive-bred Peninsular bighorn sheep, trails management, administration of land use controls, and consultation with the USFWS with respect to protected species. The Tribe's current efforts effectively manage MCCA lands south and west of Tahquitz Canyon. Access is controlled at Palm Canyon and Tahquitz Canyon thereby limiting human intrusion into the largest extent of the MCCA (approximately 20,000 acres of Reservation and non-Reservation lands). The Tribe also implemented several of the initial assessment, inventory, and monitoring efforts (section 4.12) upon adoption of the 2002-adopted Tribal HCP. These activities are related to, or are the same as, activities the Tribe will perform in implementation of the Tribal HCP including their obligations for administration, Habitat Preserve assembly and Adaptive Management. The projected costs to meet the Tribal HCP obligations are based upon the Tribe's historical costs to conduct these activities with consideration of the additional obligations set forth in the Plan.

The Tribe's current staff and administration costs to conduct these conservation activities are estimated at \$559,461 per year and comprise expenses for managers, administrative coordinators, rangers, maintenance crews, supplies and equipment, and other support staff. Other current activities include costs for contract biologists for habitat assessment and monitoring, which are estimated at \$100,000 per year.

To fulfill Tribal HCP requirements, the Tribe expects to utilize existing staff positions, add additional staff and to continue to contract with qualified consulting biologists. To meet staff responsibilities, it is estimated that additional staff will include a Tribal HCP Manager, a Staff Biologist, and support from an Administrative Coordinator. These additional costs are estimated at \$208,000 per year.

The costs, priorities and responsibilities of the staff and consulting biologists will change over time as the Tribal HCP is implemented. Initial activities will be directed to Tribal HCP administration and implementation of Initial Assessment, Inventory and Monitoring (section 4.12). As Covered Projects are proposed and THCP Mitigation Fees are collected, responsibilities are expected to shift more towards Habitat Preserve assembly. As the Habitat Preserve becomes more established, responsibilities are expected to shift more toward Adaptive Management. Cost projections and allocations of costs for staff and consulting biologists are estimated for administration and Adaptive Management based upon an average annual year. As the Tribal HCP is implemented, actual allocations of costs are expected to vary based upon priorities of the Plan requirements and responses to the Adaptive Management program.

4.15.2.2 Administration/Plan Implementation Costs

Administration is estimated to cost \$283,696 per year for a 75-year term of the THCP for a total of \$21,277,226 (Table 4-9). This includes the cost of administration, personnel, supplies and equipment, and outside services including biologist as may be needed to support administrative functions.

**Table 4-9
Administration/Plan Implementation Costs**

Position	Administration/ Plan Implementation*	Adaptive Management*	Total
Tribal HCP Manager	\$ 38,675	\$ 71,825	\$ 110,500
Staff Biologist	23,660	43,940	67,600
Admin Coordinator (FTE† 0.25)	4,550	8,450	13,000
Tribal Rangers	74,067	137,552	211,619
Maintenance	77,050	143,092	220,142
Supplies and Equipment	1,120	2,080	3,200
Other Personnel	43,575	80,925	124,500
Total Personnel	\$ 262,697	\$ 487,865	\$ 750,562
Outside Services	\$ 21,000	\$ 39,000	\$ 60,000
Total	\$ 283,697	\$ 526,865	\$ 810,562

*Actual allocation will vary over the life of the Plan

†FTE represents full time equivalents

Rounding variations occur in projection estimates

This calculation of personnel costs includes staff currently assigned to Existing Tribal Conservation Programs, additional staff, and outside services as may be required to facilitate the Tribe's administration obligations of the Plan.

4.15.2.3 Habitat Preserve Assembly Costs

The assembly of the Habitat Preserve is estimated to cost a total of \$6,713,817 over the 75-year term of the Plan (Table 4-11). This includes costs for acquisition of lands in the Valley Floor; other lands would be dedicated to the Habitat Preserve by Covered Project Proponents as part of the Conditional Use Permit process.

The acquisition acres are based upon the Tribe assembling 3,340 acres for the Habitat Preserve of which 1,222 VFPA acres shall be purchased and the remainder shall be dedicated as a result of compliance with Sections 4.8 (describing MCCA dedication requirements) and 4.9 (describing VFPA dedication requirements) of the Plan. No acquisitions are required for MCCA Habitat Preserve assembly. The figure of 1,222 VFPA acquisition acres was reached by determining that 5,818 acres in the VFPA would be subject to the 1:4 conservation ratio required for conservation in fulfillment of the VFPA Rough Proportionality Commitment. At this ratio, 1,455 acres of VFPA habitat are required to mitigate for VFPA impacts. VFPA development dedications total 524 acres, resulting in 931 acres needed to fulfill the Rough Proportionality Commitment. An additional 20 percent of the 1,455 acres, or 291 acres, is applied in the projections as an estimate for contingencies to calculate the total acquisitions of 1,222 acres (Table 4-10).

**Table 4-10
Total VFPA Acquisition Requirements**

	Acquired	Dedicated	Total
Stabilized or stabilized shielded sand fields minimum	364		364
Other sand field to meet 80% minimum	276		276
Section 6 on-site dedications		492	492
Section 6 off-site dedications (acquired by others)		32	32
Subtotal			1,164
Remaining Minimum VFPA Acquisitions	291		291
Total Minimum VFPA Acquisitions	931	524	1,455
Estimated Contingency Acreage (20%)	291		291
Total Estimated VFPA Acquisitions	1,222	524	1,746

**Table 4-11
Acquisition Cost Estimate for VFPA Land Acquisition**

HABITAT	Target Acquisition Area	Acres projected for Conservation	% of acquisitions required of Plan	Costs* (in dollars)			
				Low-Range	Mid-Range	High-Range	Total
Active/ephemeral sand fields	Whitewater Floodplain	276	22.6	69,018	434,810	552,140	1,055,968
Stabilized/shielded sand fields	Whitewater Floodplain	364	29.8	91,000	573,300	728,000	1,392,300
Mesquite Hummocks	Willow Hole	20	1.6	5,000	297,500	160,000	462,500
Desert scrub	Edom Hill	20	1.6	85,000	25,000	20,000	130,000
Sonoran creosote bush scrub	Thousand Palms	20	1.6	50,000	337,500	70,000	457,500
Sonoran mixed woody/succulent scrub	Thousand Palms	20	1.6	50,000	337,500	70,000	457,500
Balance of Other Habitat		211	22.7			1,159,260	1,159,260
Contingency Acreage		291				1,598,789	1,598,789
TOTAL		1,746	--	--	--	--	6,713,817

*Costs are based on a Market Study of Land Values, Related to Areas of Prospective Acquisition, associated with the Coachella Valley Multiple Species Habitat Conservation Plan (CVAG 2007)

The costs of the acquisitions are based upon the total number of acres to be purchased and multiplied by an estimated cost per acre. Preserve acquisition costs are based on a Market Study of Land Values, Related to Areas of Prospective Acquisition, associated with the Coachella Valley Multiple Species Habitat Conservation Plan (CVAG 2007). To arrive at a total acquisition cost, the above table was used, in which a range of costs per acre was applied to the habitat types within each Target Acquisition Area. An average cost per acre of \$5,494 was used to estimate acquisition costs for all other habitat acquisitions including contingency acres. The total projected acquisition cost is \$6,713,817.

The second part of the habitat preserve acquisition costs is the cost to improve acquired land (referred to as Land Improvements). The cost to improve the acquired land will include materials and labor. Labor costs are identified in the management responsibilities section (section 4.11), and are identified within the Adaptive Management Habitat Preserve Management Costs below. Materials and supplies for initial land improvements, including signage and access controls, are estimated to be \$200 per acre. Given that the Tribe will acquire 3,340 acres for the Habitat Preserve over the term of the Section 10(a) Permit, the land improvement cost of materials will be \$667,936.

4.15.2.4 Habitat Preserve Adaptive Management Costs

Habitat Preserve Adaptive Management is estimated to cost a total of \$44,832,349, including \$39,514,849 for Management Personnel and Outside Services, \$4,267,500 for Monitoring, and \$1,050,000 for a Contingency Fund. The annual Habitat Preserve Adaptive Management costs will be \$671,265 for

Years 1 through 12 of the Plan (which includes funding to establish a contingency fund of \$1,050,000) and \$583,765 for the rest of the life of the Plan.

4.15.2.5 Endowment Fund Deposits

The cost to establish the endowment fund balance necessary for the Habitat Preserve is estimated at \$14,392,523. This provides funding for the Tribe’s ongoing costs to administer, manage, and monitor the Habitat Preserve lands in perpetuity at an annual net earnings rate on the funds at 2.4 percent. The cash flow projects an equal annual deposit into the endowment account to achieve this fund balance in Years 1 through 40 as necessary to fund annual costs in excess of annual Tribal Funding. This amount is \$359,813 per year. This amount may vary from year to year based on funding priorities. For example, the Tribe may have priorities to fund a significant land acquisition in any one year and the endowment may be a lower priority in that year. Any net cash flow left over at the end of each year will be invested back into the Endowment Fund so as to further increase the endowment earnings (see section 4.15.3.3, Endowment Earnings, for more details regarding the endowment fund). While the endowment deposit may fluctuate from year to year, the Tribe’s commitment is to fund the endowment such that its balance will be sufficient to fund the post-permit management obligations in perpetuity.

4.15.3 Habitat Preserve Funding

Sources of funding for the above costs include the Tribe, THCP Mitigation Fees, endowment earnings, and Covered Project administration reimbursements. All funding revenues are presented in current dollars. Please see Table 4-12 for a summary of all funding sources.

**Table 4-12
Summary of Funding Sources**

Mitigation Fee Revenue	\$33,337,140
Tribal Funding	41,400,114
Proposed Project Administration Reimbursements	28,125
Endowment Earnings	44,844,820
Total Revenue	119,610,199
THCP Net Cash Flow	33,285,538

4.15.3.1 THCP Mitigation Fee

The primary funding source for acquisition and a portion of other obligations of the Tribe under the Tribal HCP is the THCP Mitigation Fee. The mitigation fee will initially be \$5,730 for each developed acre, collected prior to issuance of any permits allowing ground disturbance (typically grading permits or building permits). The Tribe has committed to requiring the THCP Mitigation Fee of \$5,730 per acre upon initial implementation of the Plan following issuance of the Section 10(a) Permit, which is equal to those fees currently proposed by CVAG, and it shall be adopted by the Tribe independent of the CVAG fee. The fee is

a continuation of the fees collected from the Tribe’s already adopted Interim HCP, which has resulted in revenue utilized for conservation of valley floor Covered Species. For the purposes of cash-flow analysis, it is assumed that the land developed over the life of the Plan would include 5,818 acres in the VFPA and 281 acres developed in the MCCA at a rate of 233 acres and 3.75 acres per year, respectively (Table 4-13). The THCP Mitigation Fee may apply to all developed land in the Plan Area. However, at the Tribe’s discretion, Habitat Preserve land dedications may be credited against the mitigation fee. Because of this potential credit, the cash-flow projections do not calculate the mitigation fee where habitat dedications are required in the MCCA, or in the Section 6 Target Acquisition Area or Indian Canyons portions of the VFPA.

**Table 4-13
Mitigation Fee Revenue**

Total Developable Acres subject to VFPA Mitigation Fee	5,818
THCP Mitigation Fee per Acre	\$5,730
Total THCP Mitigation Fee Revenue	\$33,337,140*

*Due to a rounding for the Total Developable Acres, the Mitigation Fee Revenue figure may be slightly different.

The proposed THCP Mitigation Fee is intended to provide adequate funding for the required mitigation, while ensuring that it would not result in a disproportionate burden to the Tribe and its members. Because it would (at the outset) be equal to what parties outside of the Tribal HCP Plan Area would be required to pay, the Tribe considers this fee to be the maximum amount practicable. Increasing the mitigation fee beyond what is being assessed in a similar HCP in adjacent areas would result in a disproportionate burden to the Tribe and its members.

The Tribe would periodically adjust the amount of the THCP Mitigation Fee as necessary to ensure that it fulfills the funding obligations described in section 4.15.1. For example, land acquisition costs over the life of the Plan could be different from those currently projected. If the Tribe determines in the future that it is necessary to increase the THCP Mitigation Fee in order to meet its funding obligations, it will consider the index used by the Coachella Valley MSHCP as one factor in determining the appropriate fee amount. It is possible that the Tribe’s costs associated with administration, Habitat Preserve assembly, and adaptive management may be somewhat different from those incurred by CVAG due to differences between the two organizations and differences in the land within their respective Action Areas. Additionally, the other revenue sources that the two organizations have available are different. As a result, the fees applied under the two plans may be disparate over time. Due to the similarity of the two plans, it is not anticipated that the difference in fees would be substantial. Regardless, each plan (assuming the Tribal HCP is approved) would be responsible for ensuring that its permit obligations are met; therefore, any difference in the fees would not result in a change in the level of impacts or conservation that would occur under either plan.

4.15.3.2 Tribal Funding

The Tribe will fund personnel administration and Habitat Preserve Adaptive Management consistent with their historical funding. Accordingly, the Tribe is projected to fund \$559,461 annually for these costs for Years 1 through 74 of the Plan. In Year 75 of the Plan, the Tribe will no longer fund the \$559,461 as the endowment earnings will be sufficient to fund such an amount.

4.15.3.3 Endowment Earnings

As further explained in section 4.15.2.5, regular annual deposits will be made to a non-wasting endowment sufficient in size at the end of Year 75 to fund the ongoing administration and Adaptive Management obligations of the Plan in perpetuity with interest earnings from the endowment principal. The amount funded is based upon the net revenue after considering the continued funding obligations of the Tribe as described above. Annual endowment earnings are combined with other revenues to meet cash flow requirements. In Year 26, when it is assumed that development on the Valley Floor will be completed and therefore Mitigation Fees are significantly reduced, the projections result in a negative cash flow. In such case, the negative cash flow would be funded from endowment earnings (in Year 26 the projected invested principal balance of the endowment account is \$23,284,899) to meet management obligations. Sufficient cash flow is projected to continue annual contributions to the endowment account until fully funded in Year 40.

Once the endowment account is fully funded, positive cash flow would be obtained each year thereafter and net revenues would be contributed to the endowment balance. Since a total of \$12,833,333 will be deposited into the endowment (in annual deposits for the first 40 years) along with net cash flow at the end of each year the 2.4 percent of the interest from the endowment is expected to generate \$44,844,820 in revenue over the life of the Plan, with estimated yearly revenue in Year 75 of \$1,101,333, which is well in excess of the projected annual cost requirement of \$867,461. At the end of the permit term all costs, including those hitherto paid for by Tribal Funding, would be funded from endowment earnings.

4.15.3.4 Covered Project Administration Reimbursements

Reimbursements for Covered Project administration are expected to provide an additional \$375 in annual revenue for the MCCA. These funds are to be derived from processing fees charged to Covered Activities as a reimbursement to the Tribe for administration of the Tribal HCP. This revenue totals \$28,125 for the life of the Plan.

4.15.4 Tribal HCP Funding Assurances

Below are the funding related assurances that the Tribe is providing in regards to the Tribal HCP.

4.15.4.1 General Funding Assurances

The Tribe is providing assurances that adequate funding will be made available for implementation of the Tribal HCP and that the conservation, mitigation, and management measures will be carried out as proposed. To support these assurances, the Tribe is including a cash flow projection for the 75-year term of the Plan (Appendix H, based on projected levels of development within the MCCA). Additionally, a cash flow projection for the second scenario discussed earlier, full allowable development within the MCCA, is provided in Appendix I.

Cash flow projections show that the THCP Mitigation Fee, combined with Tribal funding, endowment fund revenue, and Covered Project administration reimbursements, will be adequate to fund the endowment necessary to provide management funding from investment earnings as necessary for obligations in perpetuity (those obligations that extend beyond the term of the permit) and all costs associated with the Habitat Preserve (see section 4.15.3 and relevant subsections). The Tribe has committed to (1) funding administration costs in the amount of \$559,461 per year for a total of \$41,400,114 and (2) collecting a THCP Mitigation Fee, which is projected to fund \$33,337,140. These funding sources are intended to provide adequate funding for the required mitigation, while ensuring that the Tribal HCP would not result in a disproportionate burden to the Tribe and its members.

4.15.4.2 Habitat Preserve Funding Assurances

The Tribe will ensure that the Habitat Preserve lands will be acquired and legally protected in perpetuity as specified, and will ensure that necessary funding for these acquisitions will be provided in perpetuity as specified in section 4.15.4. Assembly of the Habitat Preserve shall be from land dedications and acquisitions. Acquisitions of the Habitat Preserve shall be funded primarily through the THCP Mitigation Fee. Land use designations, restrictions on development, the implementation of enforcement of development standards, requirements for dedication to the Habitat Preserve, and assessment of development mitigation fees provide assurances that approval of Covered Activities by the Tribe will result in assembly of the Habitat Preserve including dedications and acquisitions. The Tribe has committed to funding of conservation at the levels defined in this Plan to achieve the conservation goals of the Plan. Federal funding may also be used to complement Tribal actions in achieving the conservation goals of the Plan, although the Plan is not dependent upon such funding and such funds would not be used to reduce the mitigation requirements of any Covered Activity. In addition to Habitat Preserve lands acquired from Covered Projects and acquisitions funded by mitigation fees, lands may also be acquired

from willing sellers by the Tribe or through government or private partnerships and may be obtained in advance of development mitigation requirements as described in section 4.5.2.2.

The Tribe's assurances that there is adequate funding to assemble and manage the Habitat Preserve are as follows:

1. The Tribe shall collect and administer the THCP Mitigation Fee consistent with the Plan.
2. Tribal HCP funds including mitigation fees collected from Covered Projects or other assured funds available to the Tribe will be used in accordance with the Plan to administer the Tribal HCP, assemble the Habitat Preserve, manage and monitor Habitat Preserve lands, and shall be deposited in a non-wasting endowment account (described in detail in sections 4.15.2.5 and 4.15.3.3) that will track inflation and will be sufficient to fund monitoring and management of the Habitat Preserve lands in perpetuity.
3. The Tribe shall use its land use authority to assemble the Habitat Preserve as set forth in this section 4.15.
4. Dedication of mitigation lands to the Habitat Preserve shall be conditions of approval for MCCA Covered Projects as well as for VFPA Covered Projects within the Section 6 Target Acquisition Area and Indian Canyons. Such dedications shall be completed prior to habitat disturbance.

4.15.4.3 MCCA Specific Funding Assurances

The Tribe shall provide the following additional funding assurances specific to the MCCA that the funding provided by the Plan will be adequate to assemble Habitat Preserve from within the MCCA lands as specified in section 4.8:

1. The Tribe shall implement the planning requirements for avoidance, minimization, and mitigation of impacts as described in section 4.8.
2. The per-acre land contribution requirements shall be dedicated by Covered Projects in accordance with section 4.8.
3. Prior to any ground disturbance by a Covered Project, all land contribution requirements shall be dedicated to the Habitat Preserve as described in section 4.5.1.
4. The Tribe shall account for each acre of the land contribution requirements (a minimum 5.67:1 ratio) and shall be in conformance with these requirements of section 4.8. This is referred to as the "MCCA Acreage Dedication Commitment."

4.15.4.4 VFPA Specific Funding Assurances

Specific to the VFPA, the Tribe is providing assurances that the funding provided by the Plan will be adequate to assemble up to 1,455 acres of Habitat Preserve from within the VFPA Target Acquisition Areas and Indian Canyons. Roughly one acre from within the approved acquisition areas shall be

preserved and managed in perpetuity for every four acres impacted and not restored in the VFPA (with a 10 percent allowance). This is referred to as the “VFPA Rough Proportionality Commitment.” Verification that this commitment is being met will be provided annually following adoption of the Tribal HCP, or before disturbance of each 1,000 acres of the estimated 6,025 acres of undeveloped VFPA lands available for development, whichever occurs first.

If this Rough Proportionality Commitment is not achieved, then:

1. The Tribe shall evaluate the amount of the THCP Mitigation Fee (as described above) and will consider increasing the fee amount so long as this action is consistent with other Tribal policies, commitments, and restrictions, including the policies that the Tribe will not obligate itself or its members to a disproportionate share of the conservation requirements of any species, and will not disadvantage Tribal activities; or
2. The Tribe will dedicate additional funds following evaluation as necessary to meet the VFPA Rough Proportionality Commitment of the Plan; or
3. If, six months after determining that the VFPA Rough Proportionality Commitment is not achieved, and the above steps to rectify the imbalance have not been successful, the Tribe shall suspend incidental take authorizations for the VFPA (excluding Peninsular bighorn sheep-sensitive VFPA Areas) until such time as adequate funding (including but not limited to funding that may be provided by partnerships with private parties, or local, state, and/or federal agencies) can be provided to accomplish the VFPA Rough Proportionality Commitment.

4.15.5 Plan Implementation

To provide and receive assurances of compliance with the provisions of the Tribal HCP, the Tribe will enter into an IA with USFWS regarding implementation of the Tribal HCP and the authorizations and assurances being sought by the Tribe from the USFWS described in section 4.16 below. In addition, the Tribe will institute the following record-keeping and monitoring, annual reporting, and program review process.

4.15.5.1 Record-keeping and Monitoring

The Tribe will maintain written and/or electronic records as follows:

1. Files of surveys conducted in connection with Covered Activities;
2. Records of any habitat disturbance by acre, type, and location that occurs as a result of a Covered Activity, with the necessary information required to ensure that the maximum authorized acreage of disturbance is not exceeded;
3. Records of any habitat conserved or enhanced/restored by acre and type that occurs as a result of a Covered Activity or otherwise to ensure that the minimum percentages and acreage of conservation of

each habitat type required by the VFPA Rough Proportionality Commitment and MCCA Acreage Dedication Commitment is achieved;

4. Records on fees collected, monies spent (on acquisition, management, administration, etc.) including from what funding source/account, and interest earned in each fund;
5. Records documenting management actions and monitoring activities that occurred within the Habitat Preserve;
6. Records from periodic internal compliance audits; and
7. Use of any mitigation credits.

Map-based data will be tracked with the Tribe's GIS software. Mitigation fees will be collected and tracked using MAS 200 (or similar) accounting software. The Tribe has an Accounting Department that manages its financial records as part of the Tribe's larger Accounting Department. The Tribe is subject to, and will continue to be subject to, annual financial audits in accordance with generally accepted accounting standards.

4.15.5.2 Annual Reports

Twelve months following approval of the Tribal HCP and every 12 months thereafter, the Tribe will prepare a report on implementation of the Tribal HCP for review by USFWS. The report will be prepared in the same time frame as the Annual Work Plan for the upcoming year and be completed by December 31 of each year. The report shall include the following:

1. A summary of Covered Activities that were initiated, continued, or completed in the year past;
2. Documentation of habitat loss that occurred and Habitat Preserve lands that were conserved during the previous 12 months in connection with Covered Activities, along with a cumulative total since Plan approval;
3. An accounting of each of the seven record-keeping and monitoring items listed above, including an accounting of expended and available mitigation credits, if any;
4. A report of any measurable difference (compared with the previous year) in conditions in the Habitat Preserve, including the addition of new lands and/or programs or changes in the status of Covered Species, habitats, and/or invasive species;
5. Any minor/administrative amendments made to the Plan during the preceding year;
6. Species-specific information (e.g., status, survey results, etc.); and
7. A summary of management and monitoring activities, including a comparison of the measured results to the Tribal HCP's overall conservation goals and objectives; species-specific conservation goals and objectives; and the specific conditions or conservation measures that are outlined for specific areas, Covered Species, and/or their habitats.

4.15.5.3 Periodic Comprehensive Reviews

At the end of the fifth year of implementation of the Tribal HCP and every five years thereafter, the Tribe, in cooperation with USFWS, will undertake a comprehensive review of the success of Plan implementation.

4.16 USFWS AUTHORIZATIONS AND ASSURANCES

Implementation of this Tribal HCP is predicated on USFWS approval of the Plan, execution of an IA, and issuance of a Section 10(a) Permit for a term of 75 years authorizing the Tribe to permit or implement Covered Activities that may result in incidental take of covered wildlife species. The Tribe intends such approval to include the following authorizations and assurances, consistent with ESA.

4.16.1 Incidental Take of Covered Wildlife Species

The Tribe is seeking a federal permit for incidental take of covered wildlife species by Covered Activities, conditioned on proper implementation of the conservation and impact mitigation, avoidance, and minimization measures set forth in the Tribal HCP. Consistent with the USFWS' No Surprises Final Rule, no additional mitigation will be necessary for ESA incidental take permitting related to the covered wildlife species. Further, the Tribe seeks assurances that if a covered wildlife species that is not currently listed under ESA becomes listed in the future, incidental take will be authorized provided the impact minimization, mitigation, and conservation management measures identified in the Tribal HCP are being properly implemented. Additional assurances are sought that the provisions of the Tribal HCP meet the standards set forth in Sections 10(a)(2)(A) and (B) and that no additional mitigation will be necessary for the proposed Covered Species.

4.16.2 Critical Habitat Designations

The USFWS acknowledges and agrees that the Tribal HCP provides a comprehensive approach to the conservation of Covered Species. This approach is consistent with the overall purposes of the ESA (see 16 USC 1531(b)). Provided the Tribe is properly implementing its obligations under the Tribal HCP, Implementing Agreement, and Section 10(a) permit, USFWS will ensure that, to the maximum extent allowable after public review and comment, lands within the Tribal HCP Plan Area will not be designated as critical habitat for any Covered Species that is federally listed.

4.16.3 Annexations, Land Exchanges, and Changed Boundaries

The Tribe anticipates that, over the life of this Plan, the boundaries of the Plan Area may change through purchases, land exchanges, and/or other acquisitions. It is the Tribe's intent that, although such actions may not necessarily result in changes to the boundary of the Reservation, lands acquired by the Tribe through land exchange or otherwise be subject to the provisions, agreements, permits, and authorizations of the Tribal HCP.

As described in Section 2.2.1.1, an exchange of lands with the BLM currently is contemplated. If and when this land exchange is completed, the Tribe will coordinate with the Coachella Valley Conservation Commission and the USFWS regarding preparation of a Minor Amendment to adjust land ownership and conservation acreages in the Plan Area. USFWS concurrence will not be required for the Minor Amendment (see section 4.17.3.1).

If the Tribe acquires land outside of the Action Area, the Tribe could seek to extend appropriate conservation program components to such land and have it covered by the Plan and Section 10(a) Permit through the appropriate amendment process, as identified in section 4.17. If such land is acquired solely for conservation purposes, it is anticipated that a minor amendment process as described in section 4.17.3 would be appropriate. However, if an increase in incidental take or decrease in conservation would occur as a result of the revision, a major amendment as described in section 4.17.4 would be required. Additionally, if such land is found to contain listed or other sensitive species not at the time covered by this Plan, or their habitat, and the Tribe chooses to have such species covered by the Plan and Section 10(a) Permit, the Tribe shall consult with USFWS to determine appropriate additional conservation measures and shall utilize the major amendment process set forth in section 4.17.4. Regardless, should any proposed changes or modifications potentially result in (1) an increase in incidental take; (2) a decrease in conservation; or, (3) a change to any of the decision documents of the USFWS (e.g., permit, findings, biological opinion, NEPA document, etc.), then a major amendment is warranted.

4.16.4 Changed and Unforeseen Circumstances

The No Surprises Rule generally provides that as long as an HCP is being properly implemented, USFWS will not require additional land or money from the permittee in the event of Changed or Unforeseen Circumstances. The Final Rule effective March 25, 1998, added descriptions of *Changed Circumstances* and *Unforeseen Circumstances* that define potential future responsibilities based on whether future impacts to Covered Species could reasonably be foreseen.

Changed Circumstances are those events that may affect a Covered Species or geographic area that can reasonably be anticipated and planned for during development of an HCP, such as reasonably foreseeable flood or fire events. Such occurrences are anticipated by the Tribal HCP and are mitigated by the

ongoing monitoring and specific responsive measures outlined and planned for in section 4.14, the Adaptive Management Program set forth in section 4.13, and in the IA. The costs associated with such remedial measures are the obligation of the Tribe and will be funded as necessary. In accordance with the Habitat Conservation Plan (“No Surprises”) Assurances Rule (63 Federal Register 8859, as codified in 50 CFR Sections 17.3, 17.22[b] and 17.32[b]), it is acknowledged that the purpose of this Tribal HCP is to provide for the conservation of Covered Species and the mitigation, minimization, and compensatory measures required in connection with incidental impacts to the Covered Species in the course of otherwise lawful and permitted activities within the Action Area. Accordingly, no further mitigation or compensation shall be required by USFWS to address impacts of Covered Activities undertaken by or under the direct authority of the Tribe, pursuant to the ESA. Pursuant to 50 CFR sections 17.22(b)(5) and 17.32(b)(5), USFWS shall not require from the Tribe, or other individuals or entities receiving take authorization under the Section 10(a) Permit, the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources with regard to Covered Activities and their impact on Covered Species beyond that provided pursuant to the Tribal HCP, provided that the Tribe is properly implementing the Plan, the IA, and the Section 10(a) Permit.

Unforeseen Circumstances are events affecting a Covered Species or geographic area covered by the Plan that could not reasonably have been anticipated during planning, and that result in a substantial and adverse change in the status of a Covered Species. USFWS bears the burden of demonstrating that Unforeseen Circumstances exist, using the best available scientific and commercial data available and considering certain specific factors. The findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements for the affected species. In the event that USFWS makes a finding of Unforeseen Circumstances and such Unforeseen Circumstances warrant the requirement of additional mitigation, enhancement, or compensation measures, any such additional measures shall be restricted to modification of the management of the Habitat Preserve, and shall be the least burdensome measures available to address the Unforeseen Circumstances, maintaining the original terms of the conservation plan to the maximum extent possible.

Nothing in this section is intended to preclude USFWS or any federal, state, or local agency or private entity from taking additional actions at their own expense to protect or conserve a Covered Species within the Action Area, provided that the Tribe first be consulted and consent to any such proposed action within the Reservation or on Tribal Lands.

4.17 PLAN AMENDMENT PROCESS

The Tribe anticipates that modifications, refinements, and amendments to the Tribal HCP and accompanying agreements may be necessary over time, although they are not anticipated on a regular basis. Such changes may be initiated only by the Tribe; the USFWS may suggest changes for the Tribe’s

consideration. A written record of all such revisions, modifications, or amendments shall be maintained and included in the annual reporting documentation prepared by the Tribe and provided to the USFWS.

4.17.1 Modifications

4.17.1.1 Clerical Changes

Clerical changes to this Tribal HCP shall be made by the Tribe on its own initiative, or in response to a written request submitted by another party, which includes documentation supporting the proposed clerical change. Clerical changes shall not require any amendment to the Tribal HCP, the Section 10(a) Permit, or the IA. Clerical changes include corrections of typographical, grammatical, and similar editing errors that do not change the intended meaning, and corrections of any maps or figures to correct insignificant errors in mapping or to reflect previously approved changes in the Section 10(a) Permit and/or the Tribal HCP. Annual reports shall include a summary of clerical changes made to the Tribal HCP in the preceding year.

4.17.1.2 Adaptive Management Changes

Changes to avoidance, minimization, conservation, and Reserve management strategies developed through and consistent with the Adaptive Management Plan described in Section 4.13 of this Tribal HCP shall not require any amendment to the Tribal HCP, the IA, or the Section 10(a) Permit.

4.17.2 Minor Amendments

Minor Amendments are considered to be administrative changes to the Tribal HCP where the effect on Covered Species, the level of take, and the Tribe's ability to implement the Tribal HCP are not significantly different than those described in the Tribal HCP as adopted. Minor Amendments shall not require a publicly noticed application, review, and approval process, and shall not require amendments to the IA or the Section 10(a) Permit. Minor Amendments to the Tribal HCP that are associated with a specific public or private activity for which there is an individual review process shall be disclosed in the environmental documentation for that specific activity. No other environmental documentation shall be required for Minor Amendments. A written record of all approved Minor Amendments shall be maintained and shall be included in the annual reporting documentation prepared by the Tribe and submitted to the USFWS.

4.17.2.1 Minor Amendments Not Requiring USFWS Concurrence

The following Minor Amendments may be approved by the Tribe with notice to the USFWS:

- Corrections to land ownership;
- Adjustment of land ownership, Plan Area, and conservation acreages upon completion of the proposed BLM Land Exchange (refer to Section 2.2.1.1);
- Adjustment of land ownership and Plan Area acreages upon acquisition within the Target Acquisition Areas;
- Updates/corrections to the vegetation map and species occurrence data;
- Minor revisions to survey, monitoring, reporting, and/or management protocols that do not affect Covered Species or overall Habitat Preserve functions and values; and
- Minor revisions to Habitat Preserve assembly or funding strategies and schedules that do not result in effects that are more than minimal and could result in a reduction in the overall population and distribution of Covered Species, or overall reduction in functions and values of the Habitat Preserve.

4.17.2.2 Minor Amendments Requiring USFWS Concurrence

For Plan Refinements, the Tribe shall provide to the USFWS a request for concurrence including a statement for the reason for the proposed amendment and an analysis of its environmental effects.

The Plan Refinement Process described in this section may be used to amend the Tribal HCP provided that the modification would result in equivalent or biologically superior conservation of Covered Species, that all effects of such actions have been fully analyzed, and that there would be no increase in the level of anticipated incidental take; proposed modifications not determined to result in equivalent or superior conservation would require a Major Amendment to the Tribal HCP, as described in Section 4.17.3.

Plan Refinements may be initiated by the Tribe or, if applicable, private landowner or leaseholder. The initiating party shall provide a complete description and rationale for the Plan Refinement, including an equivalency analysis. The equivalency analysis shall draw conclusions regarding the degree to which the proposed Plan Refinement is considered to be biologically equivalent or superior to the Plan without the refinement. Specifically, the following information shall be assembled by the Covered Activity Proponent for review by the Tribe for projects requesting refinements to the Plan:

1. Definition of the planning area for the Covered Activity;
2. Narrative and graphic description of the Covered Activity;
3. Narrative and graphic description of biological information available for the Covered Activity site including current project-specific vegetation mapping and appropriate species surveys;
4. Narrative and graphic description of the project's efforts to be consistent with the Tribal HCP and explanation of the rationale why consistency has been determined to be infeasible;

5. Quantification and characterization of effects/benefits of the proposed Covered Activity (incorporating Plan refinements) on habitats, species and overall Habitat Preserve design and function; and
6. Any other information deemed necessary by the Tribe to make the appropriate findings.

Based on the assembled project information, an equivalency analysis shall be provided by the Covered Activity Proponent for review by the Tribe in narrative and graphic form comparing the effects/benefits of the proposed Covered Activity (incorporating Plan refinements) and a project on the same site not deviating from the Plan. The analysis may include site-specific project design features as well as on-site and/or off-site mitigation offered by the Covered Activity Proponent. The equivalency analysis shall address the following categories:

1. Effects on Habitats;
2. Effects on Covered Species;
3. Effects on Habitat Preserve configuration and management (such as connectivity and increases or decreases in edge);
4. Effects on ecotones (defined as areas of adjoining Natural Plant Communities, generally characterized by greater biological diversity) and other conditions affecting species diversity (such as invasion by exotics);
5. Equivalent or greater acreage contributed to the Habitat Preserve;
6. The Covered Activity Proponent must demonstrate agreements or control over mitigation property being offered under the equivalency analysis; and
7. Conservation objectives and species-specific conservation objectives.

Prior to approving a Plan Refinement, the Tribe shall notify the USFWS. Such written notice shall include the project description, appropriate maps, and findings as noted above. A 60-day review and response period shall be provided. In the event there is disagreement regarding a proposed Plan Refinement, the Tribe shall meet with the USFWS in an attempt to resolve the disagreement. If the disagreement cannot be resolved, a Major Amendment shall be required as described in the following subsection.

If the USFWS does not respond within 60 days of receipt of the request for concurrence, the Minor Amendment shall be deemed approved.

4.17.3 Major Amendments

Changes to the Tribal HCP not identified as minor/administrative amendments as noted above shall be regarded as Major Amendments. A Major Amendment requires the USFWS to modify at least one of the following decision documents: Biological Opinion, Findings, EIS, IA, or Incidental Take Permit. Such amendments may involve items such as the following:

- Changes to the boundary of the Plan Area that involve impacts not previously anticipated and therefore necessitate the imposition of additional conservation measures not currently set forth in the Plan (see section 4.16.4 above);
- Increases in the acreage of the Plan Area that would not result in a net increase in conservation values relative to that contemplated in the Section 10(a) Permit;
- Changes to the boundary between the MCCA and the VFPA;
- Addition of species to the Covered Species list; and
- Any other changes that do not meet the definitions for minor/administrative amendments.

In general, the Major Amendment process shall be initiated by the Tribe via written notification and request for concurrence from the USFWS. The request for concurrence shall include a description of the proposed amendment, including a statement of the purpose and need for the proposed amendment and an analysis of potential environmental effects (including its effects on operations under the Tribal HCP and on Covered Species). The Tribe and USFWS shall jointly determine the appropriate approval process including the need for any environmental compliance documentation. Except as otherwise described in the preceding sections, any proposed changes or modifications that would potentially (1) result in an increase in incidental take; (2) result in a decrease in conservation; or (3) require changes to any of the decision documents of the USFWS (permit, findings, biological opinion, NEPA document, etc.) will warrant a Major Amendment.

CHAPTER 5

ALTERNATIVES CONSIDERED

Section 10(a)(2)(A)(iii) of ESA requires that an HCP analyze alternative actions that would (1) not result in incidental take of listed species or (2) reduce such incidental take below levels anticipated for the proposed project, and state the reasons why such alternatives are not being proposed for implementation. In addition to adoption of the Tribal HCP as proposed herein, the Tribe has considered three additional alternatives: Alternative 1 (No Project Alternative), Alternative 2 (Other Incidental Take Permit Alternatives, including Participation in the Coachella Valley MSHCP or a Programmatic Section 7 Alternative), Alternative 3 (Increased Conservation Alternative, including Increased MCCA Conservation, Increased On-Reservation VFPA Conservation, and Increased THCP Mitigation Fee scenarios). These are described below, along with the reasons why they are not proposed to be utilized. Because the USFWS is the lead agency for the associated EIS, the alternatives analyzed in that document are slightly different than those contained in this Tribal HCP, for which the Tribe is the lead agency.

5.1 ALTERNATIVE 1: NO PROJECT ALTERNATIVE

Under the No Project Alternative, no Tribal HCP would be developed, and no incidental take permit would be issued by the USFWS to the Tribe authorizing the Tribe to undertake or permit development and other activities within the Plan Area, pursuant to the provisions of the Tribal HCP. This alternative is similar to EIS Alternative 3. Neither the Tribe nor third parties receiving development permits from or on behalf of the Tribe would receive authorization to impact federally listed fish or wildlife species in connection with otherwise lawful activities in the Plan Area. Under this alternative, individual activity proponents (including the Tribe) would avoid take of listed species, or seek take authorization under Section 7 if the proposed action has a federal nexus or under Section 10 if the proposed action has no federal nexus. Avoidance, minimization, or mitigation measures could be required by the USFWS as the projects undergo individual review if projects are determined to potentially impact federally listed wildlife species. However, the USFWS would not have the ability to impose restrictions requiring the conservation of the 13 Covered Species that currently are not listed. In addition, the USFWS would not have the ability to limit impacts to listed plant species since impacts to such species are not prohibited by Section 9.

The type of comprehensive biological assessment (i.e., determination of which lands are important for long-term conservation and which can be impacted with mitigation without significant impairment of long-term conservation value) that has been conducted for this Tribal HCP would not be developed if project proponents sought take authorization under Section 7 or Section 10 permits on an individual basis. Additionally, a comprehensive Habitat Preserve system would not result from individual project mitigation negotiation with non-Tribal regulatory agencies on a case-by-case basis. Such mitigation programs often end up with fragmented, dysfunctional preserves having comparatively low, long-term

benefits to Covered Species. Such an incremental approach also may limit the ability of the USFWS in partnership with the Tribe to address indirect impacts to listed species from development on lands adjacent to occupied habitat. These impacts typically include but are not limited to: habitat fragmentation; disruption of natural processes that sustain occupied habitats of sensitive species; and impacts from pets, illegal dumping, and increased risk of fire. Further, the No Project Alternative would provide minimal protection for unlisted species or for natural communities that do not provide habitats for listed species, as take authorization (under either Section 7 or 10) is not specifically required for impacts to unlisted species. Finally, while some conservation of remaining active blow-sand areas would likely be required as mitigation for impacts from Covered Projects, such conservation would not likely occur in a comprehensive fashion that ensures appropriate reserve configuration, as would be provided under the proposed Tribal HCP.

At the same time, development in the Plan Area would not be well served by the No Project Alternative, as some projects and other activities that would otherwise result in take or adverse effects to listed species would be subject to redesign to avoid take or be subject to lengthened and/or complicated processing associated with gaining project authorization and take coverage. Over time, additional species would likely become listed, and mitigation requirements for existing listed species could change, further complicating the problems encountered by development and other activities that would likely result in take or adverse effects to listed species. The No Project Alternative was not utilized because the Tribe desires a comprehensive and proactive solution to listed species issues in the Plan Area in a way that simultaneously accomplishes Tribal governance objectives and the balancing of essential conservation and development.

5.2 ALTERNATIVE 2: OTHER INCIDENTAL TAKE PERMIT ALTERNATIVES

Other choices are available for the Tribe to seek incidental take authorization. Two options described below are participation in the Coachella Valley MSHCP and completion of a programmatic Section 7 consultation with the USFWS.

5.2.1 Participation in the Coachella Valley MSHCP

Under this alternative (which was considered but not carried forward for detailed evaluation in the EIS), the Tribe would participate in CVAG's approved MSHCP. This alternative would allow for comprehensive habitat planning both within and beyond the Reservation. Although the process may be different than under the proposed Tribal HCP, the Tribe does not anticipate that the levels of take would be appreciably different.

As described in section 1.6, the Tribe is the ultimate authority on land use matters and conservation measures within the Reservation. While Indian tribes have sovereignty over their federally recognized territory, they also have a direct government-to-government relationship with U.S. government pursuant to which decisions about Tribal lands and people may not be made without their consent. It is the Tribe's belief that only a Tribal HCP is broad enough to provide the foundation for both resources conservation and land use planning within the Reservation and specific enough to meet the requirements particular to Tribal governance of the Reservation. The Coachella Valley MSHCP could not serve these functions for the Tribe and its members, not only because it would not reflect certain values that are unique to the Tribe, but also because the implementing parties do not have jurisdiction over many aspects of the Reservation. For these reasons, the Tribe chose not to restrict its exercise of sovereignty or the comprehensiveness of its conservation and land use planning within the Reservation by directly participating in the Coachella Valley MSHCP. It should be reiterated, however, that the Tribe has committed to coordinating its conservation efforts with those of the MSHCP to the extent practicable.

5.2.2 Programmatic Section 7 Consultation Alternative

Under this alternative (which was considered but not carried forward for detailed evaluation in the EIS), the Tribe would request a programmatic Section 7 consultation between the USFWS and BIA. The programmatic consultation would establish the standards, guidelines, and governing criteria for future actions. It is anticipated that these elements would be based upon the draft Tribal HCP. Following completion and receipt of a programmatic biological opinion that analyzes the general project descriptions, effects, and overall impacts of multiple projects over an extended timeframe (usually 10 years), the BIA would complete subsequent site-specific tiered biological assessments for each individual action authorized, funded, or carried out by the BIA. This tiered biological assessment would address all listed species in the site-specific project area, and the BIA would receive incidental take authorization for federally listed fish or wildlife species associated with that project. In the absence of new information that would change the environmental baseline or effects determination, the Tribe would expect that projects that conform to the pre-agreed protection and conservation elements in the programmatic consultation would receive a "not likely to adversely affect" determination or, at a minimum, an expedited Biological Opinion (and Incidental Take Statement, if appropriate). There would, however, be a need to update the environmental baseline continually, and additional project-specific conservation requirements could be imposed.

This alternative would not meet one of the Tribe's main purposes in preparing the Tribal HCP because it would not establish a comprehensive program for protecting natural resources while balancing the need for Tribal economic development and self-sufficiency. Specifically, whereas unlisted species can be addressed through the Section 10(a) process allowing for a comprehensive approach to protection of natural resources, species that are not federally listed, proposed, or candidate species could not be addressed through the Section 7 programmatic consultation process.

This alternative would not meet another of the Tribe's main purposes in preparing the Tribal HCP because it would not streamline compliance with ESA as effectively as would an HCP. The Tribe would commit to imposing substantial restrictions on lands under its jurisdiction without any assurances that additional restrictions would not be imposed during individual project review, and USFWS involvement through subsequent consultations would be required for each individual project. The process of obtaining take coverage through future consultations under Section 7 of ESA would be complicated by the fact that a BIA nexus would be unavailable to address potential impacts on fee lands within the Reservation and Tribally owned lands outside of the Reservation.

5.3 ALTERNATIVE 3: INCREASED CONSERVATION ALTERNATIVE

Consistent with ESA's guidance on required alternatives analysis, this alternative would reduce incidental take levels below those that would occur with the proposed Tribal HCP. Three scenarios were analyzed that included increased conservation measures: (1) increased MCCA conservation; (2) increased on-Reservation VFPA conservation; and (3) increased THCP Mitigation Fees. In the MCCA, required conservation would be increased to above the 85 percent overall threshold and 90 percent riparian habitats threshold identified in the proposed Plan. Conservation would likely focus on further increasing preservation of Peninsular bighorn sheep habitat. In the VFPA, two potential scenarios exist to increase conservation over that required under the proposed Plan: (1) increase the conservation required within the Reservation on the valley floor; and/or (2) adopt a higher fee for mitigation of impacts associated with Covered Projects occurring on the valley floor.

5.3.1 Increased MCCA Conservation

This alternative is similar to EIS Alternative 4. As described in section 1.6.3 of this Plan, the USFWS is required to carry out its responsibilities under ESA in a manner that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species. By prohibiting more than 85 percent of all development in the MCCA, this alternative would result in a disproportionate burden on the Tribe while not substantially increasing the conservation of Covered Species. Thus, it would violate Principle 3(C) of Secretarial Order No. 3206.

For comparison, the Coachella Valley MSHCP sets forth numerous conservation areas in which a maximum of 10 percent development is allowed. Local agencies comprise 16 percent of the total Plan Area. It also delineates areas within each permittee's jurisdiction that allow for 100 percent development. A full 53 percent of the Coachella Valley MSHCP Plan Area is federal- or state- managed lands that already had significant conservation restrictions in place prior to their inclusion in the Coachella Valley MSHCP. In comparison, 11 percent of the acreage within the Tribal HCP Plan Area is held by federal agencies (BLM, USFS).

Further, Page 2-7 of the MSHCP clearly notes that Level 1 lands that do not permit any development are exclusively held within established wilderness areas. No permittees have Level 1 lands in their boundaries. Permittees do have Level 2 lands that impact a portion of their jurisdictions but those do allow some existing uses as part of open space that typically is funded via state and/or federal monies.

Most importantly, the Tribe believes the conservation measures embodied in this Plan adequately address the conservation needs of the Covered Species based on the best currently available scientific information, and additional conservation in the Plan Area is not required to ensure their long-term survival and recovery. The conservation as proposed meets or exceeds the requirements of the ESA. To require the Tribe to increase the minimum conservation percentage from 85 to 90 percent is a disproportionate burden; thus, this alternative was rejected.

5.3.2 Increased On-Reservation VFPA Conservation

This alternative was considered but not carried forward for detailed evaluation in the EIS. The long-term biological value of the vast majority of the valley floor of the Reservation is considered to be low because of encroachment by existing development and lack of appropriate sand sources. Conservation of areas that are already fragmented would increase the management costs necessary to maintain habitat viability and would not result in an appreciable increase in the long-term conservation of Covered Species. The only area of active or ephemeral sand field habitat in the VFPA that is considered to have long-term viability is in Section 6, in which the proposed Plan allows limited development subject to the imposition of avoidance, minimization, and mitigation measures through the Tribe's land use review process. Section 6 is also identified as a Target Acquisition Area under the proposed Plan.

Within the Section 6 Target Acquisition Area, conservation of active and ephemeral sand field habitats beyond the requirements imposed by the Plan would provide an incremental biological benefit to Covered Species that use these habitats. Specifically, the differences would be that 47 acres of ephemeral sand field southwest of the levee that would be available for development (including structural development) under the Plan would be conserved under this alternative; 57 acres of active and 257 acres of ephemeral sand field habitat that would be retained as Fluvial Sand Transport Process Areas instead would not be available for any activities; and up to 32 acres of active and ephemeral sand field that would be available for development under a Specific Plan (and would be targeted, but not required, for conservation) instead would be conserved. The increased conservation requirement in the Section 6 Target Acquisition Area would represent an approximately five percent increase in the amount of active and ephemeral sand fields proposed for regional conservation (Coachella Valley MSHCP and Tribal HCP). The biological objectives that could be obtained by this incremental increase in on-site conservation could alternatively be attained by conservation of active or ephemeral sand field habitats within off-Reservation Target Acquisition Areas.

Eliminating these areas from development would also eliminate their contribution to the mitigation fee, resulting in a net reduction of funding. This would, therefore, direct funding away from the preservation and long-term management of habitat with higher conservation value elsewhere on the valley floor. It also should be noted that these areas represent some of the most developable and economically productive portions of the Reservation. Precluding their development would thus result in a substantial financial detriment to the Tribe and its members and likely result in a taking of property necessitating just compensation. Thus, while increased conservation in the Section 6 Target Acquisition Area would represent a biological benefit to species that occur there, the incremental benefit would be outweighed by the adverse effects on the Tribe and its members.

5.3.3 Increased THCP Mitigation Fee

This alternative was considered but not carried forward for detailed evaluation in the EIS. Requiring a higher fee at the outset for mitigation of impacts from Covered Projects in the VFPA would result in a disproportionate burden to the Tribe and/or Tribal members. As noted in section 2.3.2, the mitigation fee for development on the valley floor has already been increased from \$600 per acre with adoption of the Interim HCP in 1997 to \$2,371 per acre currently (a 295 percent increase), based on analysis of the amount of acquired habitat needed to mitigate for habitat loss through the implementation of Covered Projects. Under the proposed alternative, the mitigation fee will be further increased to match the fee amount adopted by CVAG (\$5,730 per acre upon adoption in 2008, subject to annual escalation). This would maintain the fee at a level comparable to that required of off-Reservation development and would ensure that the Tribe does not bear a disproportionate burden. Further, under the Tribal HCP, the Tribe will have the ability to review the fee periodically to ensure it is adequate to meet the Tribe's conservation commitments. The currently proposed fee has been specifically calculated to be adequate to achieve the level of conservation required by the Tribal HCP, and the Tribe will periodically adjust the fee as necessary. A fee higher than that imposed by CVAG would place the Tribe at a competitive disadvantage relative to others in the region. The Tribe has demonstrated that the proposed fee would be sufficient to achieve the conservation objectives for the species being considered for coverage, thus satisfying its funding obligations.

Because the elements of this alternative are not necessary to satisfy the Tribe's conservation obligations and would result in a disproportionate burden on the Tribe, this alternative was rejected.

CHAPTER 6
BIBLIOGRAPHY

Agua Caliente Band of Cahuilla Indians

- 1955 Constitution and Bylaws. June 28.
- 1978 Supplemental Agreement No. 1 to Agreement No. 1324 between the Tribal Council of the Agua Caliente Band of Cahuilla Indians and the Palm Springs City Council. March 20.
- 1984 City of Cathedral City/Agua Caliente Band of Cahuilla Indians Land Use Contract. January 17.
- 1987a Supplement No. 1 to Contract Regarding Land Use between the Agua Caliente Band of Cahuilla Indians and the City of Cathedral City, California. February 18.
- 1987b Supplement No. 2 to Land Use Contract between the City of Palm Springs and the Agua Caliente Band of Cahuilla Indians. February 4.
- 1989 Riverside County/Agua Caliente Band of Cahuilla Indians Land Use Contract. October 4.
- 1994 Supplement No. 3 to Land Use Contract between the City of Palm Springs and the Agua Caliente Band of Cahuilla Indians. December 22.
- 1995 Supplement No. 4 to Land Use Contract between the City of Palm Springs and the Agua Caliente Band of Cahuilla Indians. July 27.
- 1998a Agreement for Tribal/City Land Use Coordination on Certain Parcels. December 15 (City of Palm Springs).
- 1998b Agua Caliente Indian Reservation Land Status, map created by ACBCI Geographic Information Systems. December 10.
- 1998c Rancho Mirage/Agua Caliente Band of Cahuilla Indians Land Use Contract. June 22.
- 1999 Supplement No. 5 to Land Use Contract between the City of Palm Springs and the Agua Caliente Band of Cahuilla Indians. February 2.

Agua Caliente Band of Cahuilla Indians (cont.)

- 2000a Tahquitz Canyon Wetland Conservation Plan.
- 2000b Trail Plan: Master Plan Draft. October 1.
- 2002a Final Draft Tribal Habitat Conservation Plan for the Agua Caliente Indian Reservation, Palm Springs, California. November 12.
- 2002b Interim Agua Caliente Tribal Habitat Conservation and Management Plan. January, amended February 15.
- 2006 Draft Tribal Fire Management Plan. December.
- 2008 Indian Canyons Master Plan: 2007 Update. May.

Arizona Game and Fish Department

- 1988 *Threatened Natural Wildlife in Arizona.*

Atkinson, A.J., P.C. Trenham, R.N. Fisher, S.A. Hathaway, B.S. Johnson, S.G. Torres, and Y.C. Moore

- 2004 Designing monitoring programs in an adaptive management context for regional multiple species conservation plans. U.S. Geological Survey Technical Report. USGS Western Ecological Research Center, Sacramento, CA. 69 pages

Backlin, A., R. Hirsch, C. Brown, R.N. Fisher

- 2001 Angeles and San Bernardino National Forest mountain yellow-legged frog (*Rana muscosa*) surveys, 2000. Final report submitted to the Angeles National Forest, Supervisor's Office, Arcadia, California. 10pp. [Technical Report]

Backlin, A., C. Hitchcock and R. Fisher

- 2003 California red-legged frog (*Rana aurora draytonii*) and mountain yellow-legged frog (*Rana muscosa*) surveys for the Coachella Valley Association of Governments (CVAG). U.S. Geological Survey Western Ecological Research Center.

Barrett, S.L. and J.A. Humphrey

- 1986 Agonistic interactions between *Gopherus agassizii* (Testudinidae) and *Heloderma suspectum* (Helodermatidae). Southwestern Naturalist: 261-263.

Barrow, John

- 1979 Aspects of the ecology of the desert tortoise, *Gopherus agassizi*, in Joshua Tree National Monument, Pinto Basin, Riverside County, California. Desert Tortoise Council, eds. Desert Tortoise Council Proceedings of the 1979 Symposium. March 24-26, 1979; Tucson. Long Beach, CA: Desert Tortoise Council. p. 105-131.

Barrows, C.W.

- 1997 Habitat Relationships of the Coachella Valley Fringe-toed Lizard (*Uma inornata*). Southwestern Naturalist 42 (2): 218-223.
- 2001 Personal communication. In: Coachella Valley Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan, October 2004.
- 2003 Personal observation. In: Coachella Valley Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan, October 2004.

Baxter, R.J.

- 1988 Spatial Distribution of Desert Tortoises (*Gopherus agassizii*) at Twentynine Palms, California: Implications for Relocations. *Management of Amphibians, Reptiles, and Small Mammals in North America*. Eds. I.N. Szoro, R.C., K.E. Siverson, and D.R. Patton. USDA Tech. Serv.

Baxter, R.J. and G.R. Stewart

- 1990 Excavation of Winter Burrows and Relocation of Desert Tortoises (*Gopherus agassizii*) at the Luz Solar Generation Station Kramer Junction, California. Proceedings Symposium Desert Tortoise Council. 1990, 124-127. 90.

Bean, Lowell J.

- 1972 *Mukat's People: The Cahuilla Indians of Southern California*. Berkley and Los Angeles: University of California Press.

Beauchamp, B., B. Wone, S. Bros, and M. Kutilek

- 1998 Habitat Use of the Flat-tailed Horned Lizard (*Phrynosoma mcallii*) in a Disturbed Environment. *Journal of Herpetology* 32, 210-216.

Berger, J.

- 1978 Group size, foraging, and antipredator ploys: an analysis of bighorn sheep decisions. *Behavior Ecology and Sociobiology* 4: 91-99.

Berger, J. (cont.)

- 1991 Pregnancy incentives, predation constraints and habitat shifts: experimental and field evidence for wild bighorn sheep. *Animal Behaviour* 41:61-77.

Bighorn Institute

- 1997 Bighorn Institute Year-end Report. Report to the California Department of Fish and Game, Sacramento.
- 1998 Bighorn Institute Year-end Report. Report to the California Department of Fish and Game, Sacramento.
- 1999 Bighorn Institute Year-end Report. Report to the California Department of Fish and Game, Sacramento.
- 2000 Bighorn Institute Year-end Report. Report to the California Department of Fish and Game, Sacramento.
- 2001 Bighorn Institute Year-end Report. Report to the California Department of Fish and Game, Sacramento.
- 2005 Bighorn Institute Year-end Report. Investigations of Peninsular Bighorn Sheep in the San Jacinto Mountains of California.
- 2006 Wild Sheep of North America, <http://www.bighorninstitute.org/wildsheep.htm>. November 16.

Bleich, V.C., R.T. Bowyer, and J.D. Wehausen

- 1997 Sexual Segregation in Mountain Sheep: Resources or Predation? *Wildlife Monographs* No. 134. The Wildlife Society. 50pp.

Blong, B. and W. Pollard

- 1968 Summer water requirements of desert bighorn in the Santa Rosa Mtns., Calif., in 1965. *California Department of Fish and Game* 54: 289-296.

Boarman, W.I.

- 1993 When a native predator becomes a pest: a case study. *Conservation and Resource Management Pennsylvania Academy of Sciences*. Eds. S.K. Majumdar, et al. Easton, PA. Pp. 191-206.

Boyce, W.M., P.W. Hedrick, N.E. Muggli-Cockett, S. Kalinowski, M.C.T. Penedo, and R.R. Ramey II

- 1997 Genetic variation of major histocompatibility complex and microsatellite loci: a comparison in bighorn sheep. *Genetics* 145: 421-433.

Bradford, D.F.

- 1989 Allotopic Distribution of Native Frogs and Introduced Fishes in high Sierra Nevada Lakes of California: Implications of the Negative Effect of Fish Introductions. *Copeia* 1989: 775-778.

Bradford, D.F., F. Tabatabai, and D.M. Graber

- 1993 Isolation of Remaining Populations of the Native Frog *Rana muscosa*, by Introduced Fishes in Sequoia and Kings Canyon National Parks, California. *Conservation Biology* 7: 882-888.

Bureau of Land Management (BLM)

- 1996 Peninsular Ranges Desert Bighorn Sheep Interagency Recovery Plan. California Department of Parks and Recreation, U.S. Forest Service, California Department of Fish and Game. Unpublished report.
- 2002 Proposed Northern and Eastern Colorado Desert Coordinated Management Plan and Final Environmental Impact Statement.

Burgman, M.A., S. Ferson, and H.R. Akçakaya

- 1993 Risk assessment in conservation biology. Chapman and Hall, New York. 314pp.

Burt, W.H. and R.P. Grossenheider

- 1976 A Field Guide to the Mammals. Peterson Field Guide Series. 289pp. 76. Boston, MA, Houghton-Mifflin Company.

California Climate Change Center

- 2006 Our Changing Climate: Assessing the Risks to California.

California Department of Fish and Game (CDFG)

- 1995 Environmental Services Division. Staff Report on Burrowing Owl Mitigation. October 17. 8pp. plus attachments.
- 2004a California Natural Diversity Database (CNDDDB) Rarefind Version 3.0.3. Updated August 1.
- 2004b State and Federally Listed Endangered, Threatened, and Rare Plants of California. State of California, The Resources Agency, Habitat Conservation Division, Wildlife & Habitat Data Analysis Branch. CNDDDB. <http://www.dfg.ca.gov/whdab/pdfs/TEPlants.pdf>. October; updated biannually.
- 2004c State and Federally Listed Endangered and Threatened Animals of California. State of California, The Resources Agency, Habitat Conservation Division, Wildlife and Habitat Data Analysis Branch. CNDDDB. <http://www.dfg.ca.gov/whdab/pdfs/TEAnimals.pdf>. August; updated biannually.

California Department of Parks and Recreation

- 2004 *Mount San Jacinto State Park*. http://www.parks.ca.gov/default.asp?page_id=636.

California Native Plant Society.

- 2004a California Native Plant Society Relevé Protocol. CNPS Vegetation Committee. URL: http://www.cnps.org/cnps/vegetation/pdf/Releve_protocol.pdf. October 20, 2000; revised April 2.
- 2004b Vegetation Rapid Assessment Protocol. CNPS Vegetation Committee. URL: http://www.cnps.org/cnps/vegetation/pdf/rapid_assessment_protocol.pdf. November 5, 2001; revised September 20.

Carl, G.R. and Robbins, C.T.

- 1988 The energetic cost of predator avoidance in neonatal ungulates: hiding versus following. *Canadian Journal of Zoology* 66: 239-246.

Cayan, D., E. Maurer, M. Dettinger, M. Tyree, K. Hayhoe, C. Bonfils, P. Duffy, and B. Santer

- 2006 *Climate Scenarios for California*. California Climate Change Center. March.

City of Cathedral City

- 1988 *General Plan Cathedral City, California*, revised May.

City of Palm Springs

- 1993 *City of Palm Springs General Plan*, Douglas R. Evans, Director of Planning and Zoning and Richard E. Patenaude, Assistant Planning Director, adopted March 3.

City of Rancho Mirage

- 2005 *City of Rancho Mirage General Plan*. November.
- 2004 *Rancho Mirage California Chamber of Commerce*. <http://www.rancho Mirage.org>

Clutton-Brock, T.H., G.R. Iason, , S.D. Albon, and F.E. Guinness

- 1982 Effects of lactation on feeding behaviour and habitat use in wild deer hinds. *Journal of Zoology* 198:227-236.

Coachella Valley Association of Governments (CVAG) et al.

- 2003 Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP) and Natural Community Conservation Plan. Final Administrative Draft. December 1.
- 2006a Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP) and Natural Community Conservation Plan. Final. February.
- 2006b Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP) Final Environmental Impact Statement. February.
- 2007 Recirculated Draft Coachella Valley Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan. February.

Cornett, James W.

- 1992 Biological Inventory of the Lands Within the Palm Springs General Plan Update. June 10.

County of Riverside

- 1994 County of Riverside Comprehensive General Plan, Second Reprint, Fourth Edition Text, Updated through 1992.
- 1995 Western Coachella Valley Plan, adopted on December 31, 1985, amended through May 1995, Transportation and Land Management Agency, Riverside County Planning Department.

Cunningham, S.C. and R.D. Ohmart

- 1986 Aspects of the Ecology of Desert Bighorn Sheep in Carrizo Canyon, California. *Desert Bighorn Council Transactions* 30: 14-19.

The Desert Tortoise Council

- 1999 *Guidelines for Handling Desert Tortoises During Construction Projects*. Revised from 1994.

DeForge, J.R.

- 2003 Personal communications. In: Coachella Valley Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan, October 2004. <http://www.cvmshcp.org/prdplan/k-%20Literature%20Cited%20October%202004%20FINAL.pdf>

DeForge, J.R., D.A. Jessup, C.W. Jenner, and J.E. Scott.

- 1982 Disease investigations into high lamb mortality of desert bighorn in the Santa Rosa Mountains, California. *Desert Bighorn Council Transactions* 26:76-81.

DeForge, J.R., S.D. Ostermann, C.W. Willmott, K.B. Brennan, and S.G. Torres

- 1997 The Ecology of Peninsular Bighorn Sheep in the San Jacinto Mountains, California. *Desert Bighorn Council Transactions* 41: 8-25.

Dodero, Mark

- 1995 Biological Information Report: Palm Springs Ground Squirrel (PSGS) (*Spermophilus tereticaudus*). CVMSHCP Biological Surveys.

Dozier, Deborah

- 1998 *The Heart is Fire: The World of the Cahuilla Indians of southern California*. Berkeley: Heyday Books.

Dudek and Associates

- 2003 Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Final MSHCP, Volume I. Prepared for the County of Riverside Transportation and Land Management Agency. Approved June 17.

Elenowitz, A.S.

- 1984 Group dynamics and habitat use of transplanted desert bighorn sheep in the Peloncillo Mountains, New Mexico. *Desert Bighorn Council Transactions* 28: 1-7.

England, A. Sidney

- 1983 The Coachella Valley, an endangered ecosystem progress report on conservation and management efforts. *Cal-Neva Wildlife Trans.* pp. 148-156.

--- and Steven G. Nelson

- 1976 Status of the Coachella Valley fringe-toed lizard (*Uma inornata*). Inland Fisheries Administrative Report No. 77-1, The Resources Agency, California Department of Fish and Game.

Ernst, Carl H. and Roger W. Barbour

- 1972 *Turtles of the United States*. University Press of Kentucky, Lexington. 347 p.

---, J.E. Lovich, and R.W. Barbour

- 1994 *Turtles of the United States and Canada*. Washington, DC, Smithsonian Institution Press.

Ervin, E.L. and K.W. Merkel

- 2006 Surveys for the Mountain Yellow-Legged Frog (*Rana muscosa*) and California Red-Legged Frog (*Rana draytonii*), on the Agua Caliente Indian Reservation, Palm Springs, Riverside County. December 22.

Etchberger, R.C. and P.R. Krausman

- 1999 Frequency of birth and lambing sites of a small population of mountain sheep. *Southwest. Nat.* 44(3): 354-360.

--- and R. Mazaika

- 1989 Mountain sheep habitat characteristics in the Pusch Ridge Wilderness, Arizona. *Journal of Wildlife Management* 53: 902-907.

Festa-Bianchet, M.

- 1986 Seasonal dispersion of overlapping mountain sheep groups. *Journal of Wildlife Management* 50: 325-330.

- 1988 Seasonal range selection in bighorn sheep: conflicts between forage quality, forage quantity, and predator avoidance. *Oecologia* 75: 580-586.

Field, C.B., G.C. Daily, F.W. Davis, S. Gaines, P.A. Matson, J. Melack, and N.L. Miller

- 1999 *Confronting Climate Change in California: Ecological Impacts on the Golden State*. The Union of Concerned Scientists and The Ecological Society of America. November.

- Findley, J.S., A.H. Harris, D.E. Wilson and C. Jones
1975 Mammals of New Mexico. University of New Mexico Press, Albuquerque, NM. xxii + 360 pp.
- Franco, G., D. Cayan, A.L. Luers, M. Hanemann, and B. Croes
2005 Scenarios of Climate Change in California: An Overview – FINAL REPORT. California Energy Commission. Available at: <http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-500-2005-186-SF>. December.
- Gallegos, E.A., A.R. Backlin, and R.N. Fisher.
2005 Mountain yellow-legged frog (*Rana muscosa*) and California red-legged frog (*Rana aurora draytonii*) surveys on the Agua Caliente Tribal Habitat Conservation Planning Area, 2004. U.S. Geological Survey technical report prepared for the Agua Caliente Indian Reservation, Palm Springs, CA.
- Geist, V.
1971 Mountain sheep: a study in behavior and evolution. The University of Chicago Press. Chicago and London. 383pp.
- Germano, D.J., R.B. Bury, T.C. Esque, T.H. Fritts, and P.A. Medica
1994 Range and habitats of the desert tortoise. pp. 73-84 In Bury, R.B., and D.J. Germano (eds.), Biology of North American Tortoises. U.S. Department of the Interior National Biological Survey, Fish and Wildlife Research 13, Washington, D.C.
- Graham, H.
1980 The impact of modern man. Pages 288-309 in G. Monson and L. Sumner, eds. The desert bighorn, its life history, ecology and management. University of Arizona Press, Tucson.
- Green, D.M.
1985 Differentiation in amount of centromeric heterochromatin between subspecies of the red-legged frog *Rana aurora*. Copeia 1985: 1071-1074.
- Grinnel, J. and J. Dixon
1918 Natural History of the Ground Squirrels of California. Bulletin of California State Commission on Horticulture 7, 597-708 (1918).

Gulliford, Andrew

- 2000 *Sacred Objects and Sacred Places: Preserving Tribal Traditions*. Boulder: University Press of Colorado.

Haas, W. and C. Nordby

- 2006 Results of Riparian Bird Breeding Census in the Indian Canyons of the Agua Caliente Indian Reservation, Palm Springs, Riverside County, California.

Hall, E. Raymond. 1981. *The Mammals of North America*. New York: John Wiley & Sons.

Hamilton, K., S.A. Holl, and C.L. Douglas

- 1982 An evaluation of the effects of recreational activity on bighorn sheep in the San Gabriel Mountains, California. *Desert Bighorn Council Transactions* 26: 50-55.

Hansen, C.G. and O.V. Deming

- 1980 Growth and development. Pages 152-171 in *The desert bighorn: its life history, ecology and management*. G. Monson and L. Sumner, eds. University of Arizona Press, Tucson. 370pp.

Hayes, C.L., E.S. Rubin, M.C. Jorgensen, R.A. Botta, and W.M. Boyce

- 2000 Mountain Lion Predation of Bighorn Sheep in the Peninsular Ranges, California. *Journal of Wildlife Management* 64 (4): 954-959.

Hayes, M.P. and M.R. Jennings

- 1986 Decline of ranid frog species in western North America: are bullfrogs (*Rana catesbeiana*) responsible? *Journal of Herpetology* 20 (4): 490-509.

- 1988 Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylei*): Implications for management. Pages 144-158 in *Proceedings of the symposium on the management of amphibians, reptiles, and small mammals in North America*. R. Sarzo, K.E. Severson and D.R. Patton, technical coordinators). U.S. Department of Agriculture - Forest Service General Technical Report RM-166.

Heifetz, W.

- 1941 A review of the lizards of the genus *Uma*. *Copeia* 1941: 99-111.

Hicks, L.L. and J.M. Elder

- 1979 Human disturbance of Sierra Nevada bighorn sheep. *Journal of Wildlife Management* 43(4): 909-915.

Hoffmeister, D.F.

- 1986 *Mammals of Arizona*. The University of Arizona Press, Tucson, AZ. pp. 260-267.

Holling, C.S.

- 1978 *Adaptive Management Assessment and Management*. New York: John Wiley.

Jennings, M.R.

- 1988 Natural history and decline of native ranids in California. Pages 61-72 in *Proceedings of the conference on California herpetology*. H.F. DeLisle, P.R. Brown, B. Kaufman and B.M. McGurty, eds. Southwest Herpetologists Society, Special Publication (4): 1-143.

--- and M.P. Hayes

- 1994 *Amphibian and Reptile Species of Special Concern in California*. California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

Jones, F.L., G. Flittner, and R. Gard

- 1957 Report on a survey of bighorn sheep in the Santa Rosa Mountains, Riverside County. *California Fish and Game* 43: 179-191.

Jones & Stokes

- 2003 Surveys conducted for Agua Caliente Band of Cahuilla Indians.

Jorgensen, M.C. and R.E. Turner

- 1975 Desert bighorn sheep of Anza-Borrego Desert State Park. *Desert Bighorn Council Transactions* 17: 81-88.

Klauber, L.M.

- 1929 Range extensions in California. *Copeia* (170): 15-22.

Krausman, P.R., S. Torres, L.L. Ordway, J.J. Hervert, and M. Brown

- 1985 Diel activity of ewes in the Little Harquahala Mountains, Arizona. *Desert Bighorn Council Transactions* 29: 24-26.

- Lancia, R.A., C.E. Braun, M.W. Collopy, R.D. Dueser, J.G. Kie, C.J. Martinka, J.D. Nichols, T.D. Nudds, W.R. Porath, and N.G. Tilghman
1996 ARM! For the future: adaptive resource management in the wildlife profession. *Wildlife Society Bulletin* 24(3):436-442.
- LaPré, Lawrence F. and Jim Cornett
1981 Public Lands survey for the Coachella Valley fringe-toed lizard. Prepared for the Bureau of Land Management.
- Lenihan, J.M., D. Bachelet, R. Drapek, and R.P. Neilson
2006 *The Response of Vegetation Distribution, Ecosystem Productivity, and Fire in California to Future Climate Scenarios Simulated by the MCI Dynamic Vegetation Model*. California Climate Change Center.
- Leslie, D.M., Jr., and C.L. Douglas
1979 Desert bighorn of the River Mountains, Nevada. *Wildlife Monographs* 66: 1-55.
- Light, J.T. and R. Weaver
1973 Report on Bighorn Sheep Habitat Study in the Area for which an Application was Made to Expand the Mt. Baldy Winter Sports Facility. USDA Forest Service Cajon Ranger District, San Bernardino National Forest. 39 pp.
- Linsdale, Jean M.
1932 Amphibians and reptiles from lower California. *University of California Publications in Zoology* 38: 345-386.
1940 Amphibians and reptiles of Nevada. *Proceeding of the American Academy of Arts and Sciences* 73(8): 197-257.
- The Living Desert
2004 Mission Statement. http://livingdesert.org/about_us/mission_statement.asp.
- Luckenbach, R.
1982 Ecology and management of the desert tortoise (*Gopherus agassizii*) in California. In *North American Tortoises: Conservation and Ecology*. R.B. Bury. Washington, D.C., United States Department of the Interior Fish and Wildlife Service. *Wildlife Research Report* 12.

MacArthur, R.A., R.H. Johnston, and V. Geist

- 1979 Factors influencing heart rate in free-ranging bighorn sheep: a physiological approach to the study of wildlife harassment. *Canadian Journal of Zoology* 57: 2010-2021.
- 1982 Cardiac and behavioral responses of mountain sheep to human disturbance. *Journal of Wildlife Management* 46: 351-358.

McGill, T.J.

- 2003 Biological Constraints Letter Report for the Monte Sereno Development Project. January 29.

McQuivey, R.P.

- 1978 The desert bighorn sheep of Nevada. Nevada Department of Fish and Game, Biological Bulletin No. 6. 81pp.

Michael Brandman Associates

- 2001a Coachella Valley Milk-vetch Focused Survey Report for the Agua Caliente Band of Cahuilla Indians, Riverside County, California. 9 pp. August.
- 2001b Final focused surveys for the I-10 and Ramon Road Interchange Improvement Project. 14pp. November.

Miller, G.D., M.H. Cochran, and E.L. Smith

- 1984 Nighttime activity of desert bighorn sheep. *Desert Bighorn Council Transactions*. Pp. 23-25.

Mullally, D.P. and J.D. Cunningham

- 1956 *Ecological Relationships of Rana muscosa at Higher Elevations in Sierra Nevada*. *Herpetologica* 12: 189-198.

Muth, Allan and Mark Fisher

- 1992 Development of Baseline Data and Procedures for Monitoring Populations of the Flat-tailed Horned Lizard, *Phrynosoma mcallii*.

National Park Service

- 1996 General Management Plan and Development Concept Plan, Joshua Tree National Park. U.S. Department of Interior. 326 pages.
- 2000 Backcountry and Wilderness Management Plan, An Amendment to the 1995 General Management Plan. U.S. Department of the Interior. January.

The Nature Conservancy

- 1985 *Coachella Valley Fringe-toed Lizard Habitat Conservation Plan*. June.

Nicol, K.

2004. Personal communication. In: Coachella Valley Multiple Species Habitat Conservation Plan and Natural Community Conservation Plan, October. <http://www.cvmshcp.org/prdplan/k-%20Literature%20Cited%20October%202004%20FINAL.pdf>

Norris, Kenneth Stafford

- 1958 The evolution and systematics of the Iguanid genus *Uma* and its relation to the evolution of other North American desert reptiles. *Bulletin of the American Museum of Natural History* 114(3).

Ostermann, Stacey

- 2001 Personal communication. U.S. Fish and Wildlife Service Biologist.

---, J.R. DeForge, and W.D. Edge

- 2001 Captive breeding and reintroduction evaluation criteria: a case study of Peninsular bighorn sheep. *Conservation Biology* 15(3): 749-760.

Papouchis, C.M., F.J. Singer, and W. Sloan

- 1999 Effects of increasing recreational activity on desert bighorn sheep in Canyonlands National Park, Utah. Pages 364-391. In: Singer, F.J. and M.A. Gudorf. Restoration of bighorn sheep metapopulations in and near 15 national parks: conservation of a severely fragmented species. USGS Open File Report 99-102, Midcontinent Ecological Science Center, Fort Collins, CO.

Patencio, Chief Francisco (as told to Margaret Boynton)

- 1943 *Stories and Legends of the Palm Springs Indians*. Palm Springs, CA: Palm Springs Desert Museum

Rahn, Matthew

2006a Yellow Bat Monitoring Program: Annual Report. Prepared for Agua Caliente Band of Cahuilla Indians. February.

2006b Yellow Bat Progress Report. June.

Regional Environmental Consultants

1990 Short-term Habitat Conservation Plan for the Desert Tortoise in Las Vegas Valley, Clark County, Nevada.

Risenhoover, K.L. and J.A. Bailey

1985 Foraging ecology of mountain sheep: implications for habitat management. *Journal of Wildlife Management* 49: 797-804.

Robbins, C.T.

1993 *Wildlife Feeding and Nutrition*. Second edition. New York: Academic Press.

Robinson, J.J. and T.J. Forbes

1968 The effect of protein intake during gestation on ewe and lamb performance. *Animal Production* 10: 297.

Rogers, J.D.

2003 Say, What is a 100-year Flood? and Why Do We Have So Many of Them? <http://web.umn.edu/~rogersda/publications/floods/flood.htm>, downloaded September 8.

Rubin, E.

2000 Personal communication. In: USFWS 2000c Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California. Portland, OR. October 25.

Rubin, E.S., W.M. Boyce, M.C. Jorgensen, S.G. Torres, C.L. Hayes, C.S. O'Brien, and D.A. Jessup

1998 Distribution and abundance of bighorn sheep in the Peninsular Ranges, California. *The Wildlife Society Bulletin* 26(3): 539-551.

Rubin, E.S., Boyce, W.M., and V.C. Bleich

2000 Reproductive strategies of desert bighorn sheep. *Journal of Mammalogy* 81(3): 769-786.

Scott, J.E.

1986 Food Habits and Nutrition of Desert Bighorn Sheep (*Ovis canadensis cremnobates*) in the Santa Rosa Mountains, California. M.S. thesis. California State Polytechnic University, Pomona. 81pp.

Scarcella, M.J.

- 2005 Market Study of Land Values, Related to Areas of Prospective Acquisition, associated with the Coachella Valley Multiple Species Habitat Conservation Plan.

Stebbins, R.C.

- 1944 Some aspects of the ecology of the Iguanid genus *Uma*. *Ecological Monographs* 14(3): 497-505.

Storer, T.I.

- 1925 A synopsis of the amphibia of California. *University of California Publications in Zoology* 27: 1-342.

Thorne, E.T., R.E. Dean, and W.G. Hepworth

- 1976 Nutrition during gestation in relation to successful reproduction in elk. *Journal of Wildlife Management* 40: 330-335.

Tierra Environmental Consultants

- 2003 Surveys conducted for Agua Caliente Band of Cahuilla Indians.

Tribal Planning Department, Tribal Environmental Protection Office

- 2000 Trail Plan. Master Plan Draft.

Turner, J.C.

- 1973 Water Energy and Electrolytic Balance in the Desert Bighorn Sheep (*Ovis canadensis cremnabates*). Ph.D. dissertation. University of California, Riverside. 150pp.

- 1976 Bighorns. Eds. I.P Ting and B. Jennings. University of California, Riverside. 177pp.

--- and C.G. Hansen

- 1980 Reproduction. Pages 145-151 in *The desert bighorn: its life history, ecology and management*. G. Monson and L. Sumner, eds. University of Arizona Press, Tucson. 370pp.

Turner, F.B., D.C. Weaver, and J.C. Rorabaugh

- 1984 Effects of Windblown Sand on the Abundance of the Fringe-toed Lizard (*Uma inornata*) in the Coachella Valley, California. *Copeia* 1984, 370-378.

Turner, J.C. Rorabaugh, E.C. Nelson, and M.C. Jorgensen

- 1980 A survey of the occurrence and abundance of the flat-tailed horned lizard (*Phrynosoma mcallii*) in California. Laboratory of Nuclear Medicine and Radiation Biology, University of California, Los Angeles.

University of California, Riverside (UCR), Center for Conservation Biology

- 2003 Riparian Bird Observations in Support of the Coachella Valley Multiple Species Habitat Conservation Plan.

U.S. Department of Agriculture, Soil Conservation Service

- 1980 Soil Survey of Riverside County, California – Coachella Valley Area.

U.S. Fish and Wildlife Service (USFWS)

- 1993 Endangered and Threatened Wildlife and Plants: Proposed Rule to List the Southwestern Willow Flycatcher as Endangered with Critical Habitat. Federal Register 58: 39495-39522.
- 1994a Desert Tortoise (Mojave Population) Recovery Plan. June 28.
- 1994b National Policy Issuance No. 94-10: Native American Policy. June 28.
- 1995 Endangered and Threatened Wildlife and Plants: Final Rule Determining Endangered Status for the Southwestern Willow Flycatcher. Federal Register 60: 10694.
- 1997a Endangered and Threatened Wildlife and Plants: Notice of Reopening of Comment Period on Proposed Threatened Status for the Flat-tailed Horned Lizard. Federal Register 50: 59809-59811.
- 1997b Endangered and Threatened Wildlife and Plants: Withdrawal of the Proposed Rule to List the Flat-tailed Horned Lizard as Threatened. Federal Register 62, 37852-37860.
- 1998a *Draft Recovery Plan for the Least Bell's Vireo (Vireo bellii pusillus)*. Portland, OR.
- 1998b Final Rule. Endangered and Threatened Wildlife and Plants: Determination of Endangered or threatened status for Five Desert Milk-vetch Taxa from California. Federal Register 63: 53596-53615.

USFWS (cont.)

- 2000a 5 Point Policy Guidance. Federal Register 65: 35242. June 1.
- 2000b *Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California*. October 25.
- 2002a Southwestern Willow Flycatcher Recovery Plan. August 30.
- 2002b *Recovery Plan for the California Red-legged Frog (Rana aurora draytonii)*. May 28.
- 2002c Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the South California Distinct Vertebrate Population Segment of the Mountain Yellow-legged Frog (*Rana muscosa*). Federal Register 67: 44382-44392. 2004 U.S. Fish and Wildlife Service Threatened and Endangered Species Program. Available at <http://endangered.fws.gov/index.html>.
- 2002d Final Rule. Endangered and Threatened Wildlife and Plants: Designation of Critical Habitat for the Southern California Distinct Population Segment of the Mountain Yellow-Legged Frog (*Rana muscosa*). Federal Register 71: 54344-54386.
- 2007a Endangered Species Act Section 7 Consultation of the Army Corps of Engineers' Proposed Issuance of a Clean Water Act Permit to the Shadowrock Development Corporation (Corps File No. 200502136-DPS), City of Palm Springs, Riverside County, California. March 14.
- 2007b Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Peninsular Bighorn Sheep (*ovis Canadensis nelson*) and Proposed Taxonomic Revision; Proposed Rule. Federal Register 72:57740-57780.
- 2009 Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Peninsular Bighorn Sheep and Determination of a Distinct Population Segment of Desert Bighorn Sheep (*ovis Canadensis nelsoni*); Final Rule. Federal Register 17288-17365.
- 2010 Endangered and Threatened Wildlife and Plants; Listing the Flat-tailed Horned Lizard as Threatened. Federal Register 75:9377-9379.

--- and National Marine Fisheries Service

- 1996 *Habitat Conservation Planning and Incidental Take Permit Processing Handbook*. November.

U.S. Geological Survey (USGS)

- 2002a *Metropolitan Water District Inland Feeder Project: Mountain Yellow-legged Frog (*Rana muscosa*) and California Red-legged Frog (*Rana aurora*) Surveys*. Annual Report prepared for the San Bernardino National Forest. USGS Western Ecological Research Center.
- 2002b *Long-term Sand supply to Coachella Valley Fringe-toed Lizard (*Uma inornata*) Habitat in the Northern Coachella Valley, California*.
- 2005 Mountain yellow-legged frog (*Rana muscosa*) and California red-legged frog (*Rana aurora draytonii*) surveys on the Agua Caliente Tribal Habitat Conservation Planning Area, 2004. 29 pp.

U.S. President

- 1994 Memorandum from President of the United States William Jefferson Clinton to heads of executive departments and agencies. Subject: Government-to-Government Relations with Native American Tribal Governments. April 29.

U.S. Secretary of the Interior and U.S. Secretary of Commerce

- 1997 Secretarial Order No. 3206. Subject: American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act. June 5.

Varanus Monitoring/Tierra Environmental

- 2006 Interim Report: Riparian Bird Breeding Census (March-July 2005) of the Indian Canyons on the Agua Caliente Indian Reservation, Palm Springs, Riverside County, California. 36 pp. February 1.

Walters, C.J., and C.S. Holling

- 1990 Large-scale Management Experiments and Learning by Doing. *Ecology* 71(6): 2060-8.

Weaver, R.A.

- 1973 Burro vs. bighorn. *Desert Bighorn Council Transactions* 17: 90-97.
- 1975 Status of the bighorn sheep in California. *The Wild Sheep in Modern America*. Ed. J.B. Trefethen. Boone and Crockett Club. Alexandria, Virginia. Pp. 58-64.

Wehausen, J.D.

- 1980 Sierra Nevada bighorn sheep: history and population ecology. Ph.D. dissertation. University of Michigan. 243pp.

--- and M.C. Hansen

- 1988 Plant communities as the nutrient base of mountain sheep populations. University of California Symposium on Plant Biology of the White Inyo Range 2: 256-268.

Westerling, Anthony and Benjamin Bryant

- 2006 Climate Change and Wildfire In and Around California: Fire Modeling and Loss Modeling. California Climate Change Center. URL: <http://www.energy.ca.gov/2005publications/CEC-500-2005-190/CEC-500-2005-190-SF.PDF>. February.

Whitacker, D. and R.L. Knight

- 1998 Understanding wildlife responses to humans. Wildlife Society Bulletin 26:312-317.

Wilson, R.W., and R.D. Stager

- 1992 Desert Tortoise Population Densities and Distribution, Piute Valley, Nevada. Rangelands 14:239-42.

Wohlmuth, J.

- 2006 CVAG personnel. Personal communication to Tom Davis.

Zweifel, R.G.

- 1955 Ecology, Distribution and Systematics of Frogs of the *Rana boylei* Group. University of California Publications in Zoology. 54: 207-292.

THIS PAGE LEFT BLANK INTENTIONALLY

CHAPTER 7

GLOSSARY

Action Area: The geographic area addressed for the purposes of analysis in the Tribal HCP, including (1) 30,655 acres of the Reservation outside of Federal ownership; (2) 5,400 acres of off-Reservation lands owned by or held in trust for the Tribe; (3) 5,989 acres of BLM lands within the BLM Exchange Areas on and off the Reservation; and (4) 52,180 acres of off-Reservation lands within the Target Acquisition Areas.

Adaptive Management: The incorporation of the scientific method into the management process to reduce management uncertainty. Specifically, it is the formal integration of hypothesis testing and management action, with the purpose of achieving stated management objectives. The process proceeds iteratively, with the results of management decisions used to guide the support or rejection of previous hypotheses, and the updated hypotheses in turn direct future management actions (Lancia et al. 1996).

Allotted Trust Land: Land held by the United States government in trust for the benefit of one or more tribal member(s) and/or their successors.

Annual Work Plan: Document to be developed by the Department and adopted by the Tribal Council each year that specifies the Habitat Preserve management and other Tribal conservation activities to be undertaken pursuant to the Tribal HCP during the coming year.

BLM Exchange Areas: Preliminarily defined areas of land currently held by the BLM that the Tribe anticipates acquiring pursuant to the land exchange agreement between the Tribe and the BLM, and that, to the extent so acquired, are included in the Plan Area.

Bird of Conservation Concern (BCC): Migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the USFWS' highest conservation priorities. Report (Birds of Conservation Concern 2002) developed by the USFWS Division of Migratory Bird Management, Arlington, Virginia.

Changed Circumstances: Changes in circumstances affecting a Covered Species or geographic area covered by an HCP that can reasonably be anticipated and planned for in the HCP, pursuant to 50 CFR 17.22(b)(1)(iii)(C). For the purposes of this Plan, Changed Circumstances and the planned responses to those circumstances are defined and described in section 4.14.

Coachella Valley Association of Governments (CVAG): CVAG was formed in 1973 under California's Joint Powers Law to address issues of valley-wide significance. The CVAG is comprised of ten eastern Riverside County cities, three Indian Tribes, and Riverside County.

Conditional Use Permit: A discretionary entitlement that authorizes a specific use to be made of a specific property, subject to special requirements, different from those usual requirements for the zone in which the conditional use is located.

Conservation Agreement: Agreement to establish areas that are to remain in a naturally occurring state, for the purpose of protection and conservation of Covered Species.

Conservation Banking: The development and implementation of Conservation Bank Agreements, which allow for setting aside and/or enhancing lands with long-term conservation value and the subsequent dedication of those lands for project mitigation purposes.

Conservation Bank Agreement: Agreement between parties regarding the establishment and administration of certain lands that will be available as “credits” to developers who are seeking mitigation opportunities to compensate for project effects elsewhere.

Conservation Measures: Actions and methods used to protect Covered Species including preservation and management of habitat.

Construction: Erection of a structure or facility such as a building or road.

Core Habitat: A block of habitat of appropriate size, configuration and habitat characteristics to generally support the life history requirements of one or more Covered Species.

Covered Activities: Activities that are included in the Tribal HCP and addressed in a jeopardy analysis in the accompanying USFWS biological opinion. Thus, included incidental take of covered wildlife species as authorized under the terms of this Tribal HCP and accompanying Section 10(a) Permit, including Covered Projects, Covered Conservation Activities, and Covered Maintenance Activities.

Covered Activity Proponent: Applicant seeking discretionary approvals for a Covered Activity. A Covered Activity Proponent could be the Tribe or a Third Party Participant.

Covered Conservation Activities: Activities undertaken by the agents or employees of the Tribe, or any person acting under the direct guidance or authority of the Tribe, in the Plan Area for which incidental take of Covered Species of wildlife is authorized under the terms of this Tribal HCP and accompanying Section 10(a) Permit, including management and monitoring of the Habitat Preserve and management of Existing Tribal Conservation Programs, subject to certain provisions specified in section 4.2.

Covered Maintenance Activities: Activities undertaken by or at the discretion of the Tribe in the Plan Area for which incidental take of Covered Species of wildlife is authorized under the terms of the Tribal HCP and accompanying Section 10(a) Permit, including the following: (1) ongoing operation, use, and maintenance of existing public and private facilities within current disturbance footprints; (2) operation, use, and maintenance of public and private facilities developed in the future that are approved subject to the requirements of the Plan, within the approved Development Envelope; and (3) temporary maintenance activities outside of such areas that allow recovery of native habitats in the near term.

Covered Projects: Projects that are

- (1) undertaken by the Tribe within the Plan Area, or
- (2) undertaken by a Third Party Participant within the Reservation (including on non-Indian Fee Land to the extent authorized by law or provided for in an agreement between the Tribe and landowner) under a development permit issued by or under the discretion of the Tribe,

for which incidental take of Covered Species of wildlife is authorized under the terms of this Tribal HCP and accompanying Section 10(a) Permit, including new commercial, residential, industrial, disturbance/clearing for agricultural and/or horticultural development; surface mining; public and/or private streets; public utility infrastructure, facilities, and projects; cooperative projects undertaken between the Tribe and public or quasi-public agencies; and public access uses.

Covered Project Proponent: Applicant seeking discretionary approvals for a Covered Project. A Covered Project Proponent could be the Tribe or a Third Party Participant.

Covered Species: The 19 wildlife species, subspecies, and distinct vertebrate populations and 3 plant species and subspecies that are protected by this Tribal HCP. The incidental take of Covered Species of wildlife is authorized under the Section 10(a) Permit issued by USFWS to the Tribe in connection with approval of this Plan and the Implementing Agreement.

Critical Habitat: Specific areas (i) within the geographical area occupied by the species on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection and (ii) outside the geographical area occupied by the species upon a determination by the Secretary that such areas are essential for the conservation of the species as further defined at 16 USC 1532(5)(A).

Density Categories: Development standards that limit the number of dwelling units that can be built on each acre of land, based on the land's slope.

Density Transfer: Reduction of otherwise allowable development density on one parcel of land in exchange for an increase in the otherwise allowable development density on another parcel.

Development Clustering: Site design process in which building lots are sized to conform to the “footprint” of the structures and sited closer together than conventional development, usually in groups or clusters, provided that the total density does not exceed that permitted under conventional zoning and subdivision regulations. The additional land that remains undeveloped is preserved as open space, recreation land or to preserve environmentally sensitive features.

Development: Any ground-disturbing activities inclusive of activities such as agriculture and trail-building.

Development Envelope: The area in which any Covered Activity is planned or in progress, including all areas of contiguous land upon which structures are proposed, along with any access roads or driveways, fuel modification zones, non-native landscaping, and domestic animal use areas.

Endangered Species: Any species that is in danger of extinction throughout all or a significant portion of its range and is designated as endangered by the USFWS pursuant to 16 USC 1533.

Existing Tribal Conservation Areas: Indian Canyons Heritage Park and Tahquitz Canyon.

Existing Tribal Conservation Programs: The Tribe’s established conservation programs for Existing Tribal Conservation Areas, as well as the Tribe’s trails management and wetlands conservation programs.

Federal Endangered Species Act (ESA): 16 USC, Section 1531 et seq. and all rules and regulations promulgated thereunder, as amended.

Federally Listed Species: A species listed as threatened or endangered by the USFWS pursuant to ESA.

Fee Land: Land held in fee simple or other non-trust status by the Tribe, a Tribal member, or a non-Indian.

Fluvial Sand Transport Process Area: Within Section 6 (Township 4 South, Range 5 East), the Whitewater River channel and Mission Creek drainage channel, within which activities that would not disrupt water-borne sand transport (e.g., sand mining) would be authorized provided they comply with specified design and mitigation standards.

Habitat Preserve: Land that is dedicated by or on behalf of the Tribe for the benefit of the Covered Species within the Action Area and conserved and managed in perpetuity. Only upon formal dedication of lands through a conservation mechanism as described in section 4.5.1 of the THCP, shall these lands be considered part of the Habitat Preserve.

Implementing Agreement: The agreement between the Tribe and USFWS defines the roles and responsibilities of both parties in implementing the conservation measures and other conditions of the Tribal HCP.

Incidental Take: Take of an individual or individuals of a Covered Species of wildlife that results from but is not the purpose of carrying out an otherwise lawful activity, as defined in 40 C.F.R. 402.02, including, but not limited to, Take resulting from the modification of habitat of Covered Species.

Interim Habitat Conservation and Management Plan: The program adopted by the Tribe to coordinate efforts for the conservation of the Coachella Valley fringe-toed lizard within the Coachella Valley.

Land Improvements: Improvements, such as access controls and signage, to lands acquired for dedication to the Habitat Preserve and necessary for its management.

Land Use Agreements: Agreements entered into by the Tribe with the cities of Cathedral City, Palm Springs, and Rancho Mirage and the County of Riverside pursuant to which, among other things, the Tribe has adopted certain state and local land use laws and delegated to each of the non-Tribal jurisdictions the authority to act as the land use regulatory agent for the Tribe as to certain lands within the Reservation. The Tribe retains ultimate authority under each of these Agreements through an appeal process.

Linkages: Tracts of naturally occurring vegetation sufficient in size to allow for “live-in habitat,” providing connectivity between nearly disjunct habitats, thereby allowing movement of a species through and between connected habitats, ensuring genetic variability.

Major Amendment: A change in the Tribal HCP that requires the USFWS to modify at least one of the following decision documents: Biological Opinion, Findings, Environmental Impact Statement, IA, or Section 10(a) Permit.

Maximum Extent Practicable: Available and capable of being done after taking into consideration cost, technical constraints, and logistics in the light of overall project purposes. Considerations and the process for making this determination are further defined in section 4.8.4.

MCCA Acreage Dedication Commitment: Assurances provided by the Tribe that 5.67 acres of habitat shall be preserved for every 1 acre impacted in the MCCA.

Minor Amendment: Change to the Tribal HCP whereby the effect on Covered Species, the level of take, and the Tribe's ability to implement the Tribal HCP are not significantly different than those described in the Tribal HCP as adopted.

Mitigation Credits: Incremental net conservation value of every acre (or portion of an acre) enhanced or restored for the benefit of Covered Species that may be used by, or at the authorization of, the Tribe to offset mitigation requirements for Covered Projects.

Mountains and Canyons Conservation Area (MCCA): The western and southern regions of the Plan Area, including all portions of the San Jacinto and Santa Rosa Mountains within the Plan Area that are generally above the 800-foot elevation contour, in which certain development standards and conditions shall be imposed and a mitigation fee program shall fund acquisition and management of Habitat Preserve lands.

Multiple Species Habitat Conservation Plan (MSHCP): CVAG has adopted the Coachella Valley MSHCP. The MSHCP has received take permits from the U.S. Fish and Wildlife Service and California Department of Fish and Game, under both the ESA and the California Endangered Species Act.

Natural Plant Communities: The suites of plant species that have existed upon and evolved within a specific setting for thousands of years.

Overlay Zones: Land use designations that, in addition to other land use or zoning restrictions, set forth new development restrictions, processes, standards, and mitigation fees and provide for impact avoidance and minimization measures.

Peninsular bighorn sheep (PBS)-sensitive Valley Floor Planning Area (VFPA) Areas: Lands located within 500 feet of habitat for PBS that occur in the VFPA and are subject to impact restrictions for the benefit of that species.

Peninsular Bighorn Sheep Use Areas: Lambing areas (as identified based on a USFWS Biological Opinion) and use areas (as identified based on tracking data provided by the Bighorn Institute).

Plan Area: The lands upon which the Permit authorizes Incidental Take of Covered Species and the lands to which the Tribal HCP's conservation and mitigation measures apply, which includes (1) all non-federally owned lands within the Reservation; and (2) off-Reservation lands owned by or held in trust for the Tribe. Certain identified lands within the Action Area will fall within the Plan Area at the time such lands are acquired or regulated by the Tribe, including (1) off-Reservation lands within Target Acquisition Areas; and (2) the BLM Exchange Areas.

Plan Refinement Process: Process by which the Tribe may modify certain conservation requirements contemplated under this Plan, provided that the modification would result in equivalent or superior conservation of Covered Species, that all effects of such actions have been fully analyzed, and that there would be no increase in the level of anticipated incidental take.

Qualified Biologist: A Qualified Biologist may work directly for the Tribe or as a representative of the project applicant. The Qualified Biologist shall possess at least a four year degree in biology, ecology, or other related field, and shall have experience working in the region with the species covered under the THCP. Where specific permits are required, such as for handling the desert tortoise, the Qualified Biologist shall have all appropriate federal permits to do the work. The Tribe shall make the determination as to the qualifications of the Qualified Biologist.

Reservation: The Agua Caliente Indian Reservation located in the western Coachella Valley in Riverside County, which is home to the Agua Caliente Band of Cahuilla Indians.

Riparian Habitat: Plant community types that include desert fan palm oasis woodland, Sonoran cottonwood-willow riparian forest, and southern sycamore-alder riparian woodland.

Section 6 Specific Plan Area: The portion of Section 6 (Township 4 South, Range 5 East) located northeast of the Whitewater River and west of the Mission Creek drainage channel, within which development may be authorized only with the preparation of a Specific Plan, which must meet certain specified requirements.

Section 10(a) Permit: The permit issued by USFWS pursuant to 16 USC 1539(a), authorizing Take of Covered Species of wildlife in conformance with the Tribal HCP and Implementing Agreement.

Slope/Density Ratios: The relationship between the grade of the hillside and concentration of dwelling units. Permitted densities may decrease pursuant to the slope density ratios established in a slope ordinance.

Target Acquisition Areas: Areas identified within the floor of the Coachella Valley, both on and off of the Reservation, within which, for mitigation of impacts to Covered Species within the VFPA, acquisition, dedication to the Habitat Preserve, and management in perpetuity is targeted to occur.

Take: Harass, harm, pursue, hang, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct with regard to endangered species (16 USC 1532(19)). Harm may include significant habitat modification where it actually kills or injures a listed species through impairment of essential behavior including breeding, feeding, or sheltering (50 CFR 17.3). The Take of listed species that are plants is not prohibited under the ESA, and therefore, Take authorization for listed plants is not required.

Plant species included on the list of Covered Species will be listed on the Section 10(a) Permit in recognition of the conservation measures and benefits provided for those plants under the Tribal HCP.

Third Party Participant: A non-Federal party other than the Tribe that is acting under authorization of the Tribe and qualifies for and receives take authorization in exchange for compliance with the terms and conditions of this Tribal HCP, the Implementing Agreement, and the Section 10(a) Permit.

Threatened Species: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range and is designated as threatened by the USFWS pursuant to 16 USC 1533.

Tribal Biologist: The biologist either working directly for the Tribe or as a consultant to the Tribe who will be responsible for review and providing input to the Department regarding consistency of Covered Activities with the Tribal HCP, implementation of management activities, and other tasks as defined in the Tribal HCP.

Tribal Council: The Agua Caliente Band of Cahuilla Indians' governing body.

Tribal Environmental Policy Act (TEPA; Ordinance No. 28): This Act sets forth the environmental policy of the Agua Caliente Band of Cahuilla Indians and establishes a basic process for conducting environmental review of major Tribal actions which potentially affect the quality of the environment.

Tribal Habitat Conservation Plan (HCP): The habitat conservation plan adopted by the Agua Caliente Band of Cahuilla Indians, as amended, and proposed for approval by USFWS for the long-term conservation of Covered Species and their habitats occurring or having the potential to occur within the Plan Area.

THCP Mitigation Fee: Fee collected by the Tribe for development activities within the Plan Area, which will be used for acquisition and management of lands within the Habitat Preserve.

Tribal Lands: Lands owned by or held in trust for the Tribe or Tribal members.

Tribal Sensitive Species: Species considered by the Tribe to be sensitive species, but not yet listed under ESA.

Tribal Trust Land: Land held by the United States in trust for the benefit of the Tribe.

Tribe: The Agua Caliente Band of Cahuilla Indians, a federally recognized Indian tribe.

Unforeseen Circumstances: Events affecting a Covered Species or geographic area covered by an HCP that could not reasonably have been anticipated during planning, and that result in a substantial and adverse change in the status of a Covered Species, pursuant to 50 CFR 17.3.

Valley Floor: The Valley Floor Planning Area and the off-Reservation Target Acquisition Areas.

Valley Floor Planning Area (VFPA): The northern and eastern portions of the Plan Area on the floor of the Coachella Valley, in which certain impact restrictions apply to active and ephemeral sand fields, and PBS-sensitive VFPA Areas; portions of Indian Canyons shall be conserved; and a mitigation fee program shall fund acquisition and management of Habitat Preserve lands within specified Target Acquisition Areas.

VFPA Rough Proportionality Commitment: Assurances provided by the Tribe that roughly 1 acre from within the Target Acquisition Area shall be preserved for every 4 acres impacted in the VFPA, as measured every 3 years following adoption of the Tribal HCP or before disturbance of each 1,000 acres of undeveloped VFPA lands available for development, whichever comes first.

THIS PAGE LEFT BLANK INTENTIONALLY

TRIBAL ORDINANCE 5

Chapter 9.20

APPEAL OF LAND USE DECISIONS

Sections:

9.20.010	Title.
9.20.020	Purpose.
9.20.030	Definitions.
9.20.040	Appeals.
9.20.050	Tribal Council action on appeals.

9.20.010 Title.

The ordinance codified in this chapter shall be titled and quoted as the “tribal land use appeal ordinance.” (Ord. 5 Am. 1 § 1 (part), 1991)

9.20.020 Purpose.

It is the purpose of this chapter to establish and define procedures whereby the Tribal Council of the Agua Caliente Band of Cahuilla Indians will receive and consider the appeal of an appellant, as such party is hereinafter defined, who is aggrieved by a final decision of a tribal land use agent which affects the planning, zoning, development, or use of Indian trust land within the exterior boundaries of the Agua Caliente Indian Reservation, and, after consideration of said appeal, will affirm, modify, or reverse the decision of said tribal land use agent which is the subject of the appeal, all pursuant to the various land use contracts between the Tribe and its tribal land use agents. (Ord. 5 Am. 1 § 1 (part), 1991)

9.20.030 Definitions.

For the purpose of carrying out the intent of this chapter, words, phrases, and terms shall be deemed to have the meaning ascribed to them in the following paragraphs covering definitions.

When not inconsistent with the context, words used in the present tense include the future; words in the singular include the plural; and those in the plural number include the singular; words in the masculine gender include the feminine; and those in the feminine gender include the masculine; “or” includes “and” and “and” includes “or.” The word “shall” is mandatory; the word “may” is permissive.

“Appellant” means and includes any individual(s) or entity aggrieved by a final decision of a tribal land use agent affecting the planning, zoning, or development of trust land located within the Agua Caliente Indian Reservation who is: (1) a member of the Agua Caliente Band of Cahuilla Indians; (2) a member or a current Tribal Council of the Agua Caliente Band of Cahuilla Indians; (3) a holder of a beneficial or possessory interest in Indian trust land within the boundaries of the Agua Caliente Indian Reservation, including but not limited to heirs, devisees, or successors in interest to original allottees; or (4) the lessee or authorized agent of an individual(s) described in subsections (1), (2), or (3) of this definition.

“Governing body” means the governing body of a tribal land use agent. In the case of a tribal land use agent which is an incorporated city, the “governing body” is that city’s city council. In the case of Riverside County, the “governing body” is that county’s board of supervisors.

“Indian Planning Commission” means the planning commission appointed by the Tribal Council, Agua Caliente Band of Cahuilla Indians.

“Indian trust land” means any real property, including water rights, belonging to the Agua Caliente Band of Cahuilla Indians, or to any member of said Band, that is held in trust by

the United States or is subject to a restriction against alienation imposed by the United States, as well as any structures or improvements erected or maintained on such realty.

“Planning commission” means the planning commission of a tribal land use agent.

“Tribal council” means the Tribal Council of the Agua Caliente Band of Cahuilla Indians.

“Tribal land use agent” means a local government, whether a city or a county or similar entity existing under the law of the State of California which has entered into a land use contract with the Tribe. At the present time, the Tribe’s tribal land use agents are (1) the City of Palm Springs under a contract (with amendments) approved by the Assistant Secretary of the Interior on May 13, 1987, (2) the City of Cathedral City under a contract (with amendments) approved by the Assistant Secretary of the Interior on May 13, 1987, and (3) Riverside County under a contract approved by the Area Director of the Sacramento Area Office of the Bureau of Indian Affairs of the U.S. Department of the Interior on October 7, 1989.

“Tribe” means the Agua Caliente Band of Cahuilla Indians. (Ord. 5 Am. 1 § 1 (part), 1991)

9.20.040 Appeals.

A. Appealable Matters. Notwithstanding any provision of the zoning ordinance or similar enactment of any tribal land use agent to the contrary, the Tribal Council on appeal may affirm, modify, or reverse any decision of the governing body in the following matters relating to the use, proposed use, or development of Indian trust land:

1. Building and utility permits;
2. Changes of zone;

3. Variances from applicable zoning requirements;

4. Conditional use permits;

5. Planned development district permits;

6. Tentative and final tract and parcel maps;

7. Changes or amendments to the general plan, or to the zoning ordinance of the tribal land use agent;

8. Enforcement of zoning and building codes;

9. Interpretation of state and federal environmental regulations; and

10. Related matters to the above.

B. Form and Period for Filing Appeals.

1. Appeals from a final decision of a governing body must be initiated by an appellant by the appellant filing in triplicate a notice of appeal form, as prescribed by the Tribal Council, which is completely filled out.

2. The notice of appeal must be filed in the office of the Tribal Council within a period of ten (10) days from the date of receipt by an appellant of the written decision of the governing body being appealed, and said notice being accompanied by a filing fee of two hundred fifty dollars (\$250.00), in cash, personal check, cashiers or certified check, money order, or bank draft, payable to the Tribe. Unless the appellant can demonstrate to the contrary to the satisfaction of the Tribal Council, receipt of such a written decision by an appellant shall be deemed to have occurred three days after the date appearing on the face of said written decision.

3. The notice of appeal shall clearly identify the facts and circumstances which, in the opinion of the appellant, indicate error or abuse of discretion by the governing body in the matter on appeal, and wherein the modification or reversal of the governing body’s decision would conform to acceptable plan-

ning and zoning standards, and assist in promoting public health, safety, convenience and general welfare.

4. Within a period of thirty (30) days of the date of filing a notice of appeal, the appellant of record thereon shall file, in the office of Tribal Council, the following informational documents:

a. A complete duplicate copy of the record and material previously considered by the governing body, including maps, exhibits, photographs, reports, etc.;

b. Transcripts of any and all proceedings before the governing body, including study sessions, at which the subject matter on appeal was considered or discussed. A certified copy of the governing body's minutes will be acceptable, in lieu of stenographic transcripts, provided that such minutes are in sufficient detail to demonstrate that all points raised by the appellant were thoroughly understood by said governing body;

c. A written statement by the appellant indicating where, in his or her opinion, the material required in subsections (B)(4)(a) and (b) of this section, supports the modification or reversal of the decision of the governing body. This written statement may be of any length the appellant desires, but shall be accompanied by a one-page summary thereof if the length of the principal statement exceeds three pages.

5. Any notice of appeal, or duplicate copies of the record, transcripts or minutes, and the statement by appellant, not filed within the time limits specified in subsections (B)(2) and (4) of this section, shall be dismissed by the Tribal Council with notice being sent to the appellant and the governing body of such action and the reason therefor. The time in which any act provided by this chapter is to be done shall be computed by

excluding the first day and including the last day, unless that last day falls on a day on which the offices of the Tribal Council and Bureau of Indian Affairs, now located at 901 Tahquitz Canyon Way, Palm Springs, California, are not open for regular business, in which case the last day for performing such an act shall be the first day after that last day when the offices of the Tribal Council and the Bureau of Indian Affairs are open for regular business. (Ord. 5 Am. 1 § 2, 1991)

9.20.050 Tribal council action on appeals.

A. Referral and Study. When an appeal is complete and filed in full compliance with the provisions of Section 9.20.040(B), the Tribal Council may refer said appeal to the Tribal planning consultant, and to the Indian Planning Commission for report or comment, except as follows:

1. When the Tribal Council determines that additional specialized studies are desirable to resolve the issues of an appeal, said Tribal Council may direct the appellant to provide additional data and conclusions from qualified experts in particular fields, and within a period of sixty (60) days of the date of such direction, with said appellant bearing the full and total cost of such additional data and conclusions.

2. The Tribal planning consultant and the Indian Planning Commission shall have the benefit of review of additional specialized studies, prior to submitting final reports or comments to the Tribal Council.

B. Formal Consideration.

1. The Tribal Council is not a "public agency," or a "quasi-public agency." However, for purposes of this chapter, after receipt of the final report and comment of the tribal planning consultant and the Indian Planning

Commission, said Tribal Council shall schedule and attend at least one joint public meeting with the governing body whose final decision is being appealed, at which time the appellant, the appellant's counsel or representative may be heard, and where comments of the general public on the issues may also be heard, provided that such public comment supplies new and pertinent information not previously included in the governing body's record. Comments of the general public shall be subject to reasonable restrictions which might be imposed by the Tribal Council to limit the length of the meeting and to avoid repetition of information already in the record.

2. The governing body shall cause to be published the date, time, place, and purpose of the joint public meeting with the Tribal Council, at least one time in a newspaper of general circulation in the area of jurisdiction of the tribal land use agent, and at least ten (10) days prior to the date of said meeting.

C. Decision by Tribal Council. The Tribal Council shall make a decision, either affirming, modifying, or reversing the prior decision of the governing body on appeal, either at the required joint public meeting with the governing body, or within a period of thirty (30) days thereafter.

1. The decision of the Tribal Council shall be in writing, and effective on the date thereof, with copies being mailed to the appellant, and to the affected governing body.

2. Any decision of the Tribal Council which modifies or reverses the previous decision of the governing body on appeal shall specify wherein there was error or abuse of discretion on the part of said governing body, and wherein such modification or reversal will conform to acceptable planning and zoning standards, and promote public health, safety,

convenience and general welfare through productive use of Indian trust land.

3. In proper cases, the Tribal Council decision on an appeal may include conditions affecting use, and development of the Indian trust land involved.

4. The decision of the Tribal Council shall be final on any appeal from a decision of the governing body of a tribal land use agent. Thereafter, any permits or other similar entitlements or measures necessary to the use of the land in accordance with the decision of the Tribal Council shall be issued by the tribal land use agent. (Ord. 5 Am. 1 § 3, 1991)

INDIAN CANYONS MASTER PLAN

2007 UPDATE



MAY 2008

Prepared by:

TRIBAL PLANNING & DEVELOPMENT
777 E. Tahquitz Canyon Way, Suite 301
Palm Springs, CA 92262



INDIAN CANYONS MASTER PLAN

TABLE OF CONTENTS

SECTION 1: OVERVIEW	1
1.1 Background.....	1
1.2 Purpose and Scope.....	7
1.3 Proposed Boundary.....	8
SECTION 2: GOALS & OBJECTIVES	13
SECTION 3: EXISTING CONDITIONS	15
3.1 Land.....	15
3.2 Visual Quality.....	16
3.3 Ecology and Natural Systems.....	20
3.4 Archeological & Historic Resources.....	23
3.5 Existing Recreation Opportunities.....	23
3.6 Trails.....	24
SECTION 4: CONSERVATION STRATEGY & COMPATIBLE RECREATION	27
4.1 Land Acquisition.....	27
4.2 Tribal Habitat Conservation Plan.....	28
4.3 Cultural Resources Preservation.....	28
4.4 Compatible Recreation Improvements.....	33
4.5 Access and Circulation.....	33
4.6 Indian Canyons Preservation Plan.....	34
SECTION 5: LAND USE REGULATIONS AND DESIGN GUIDELINES	35
5.1 Land Use Categories & Permitted Uses.....	35
5.2 Property Development Standards.....	35
5.3 Architectural Guidelines.....	36

LIST OF FIGURES

Figure 1	Local Map.....	3
Figure 2	Tribal Reserves and Heritage Park Boundaries.....	5
Figure 3	Regional Map.....	9
Figure 4	Indian Canyons Planning Area.....	11
Figure 5	Land Ownership.....	17
Figure 6	Visual Quality.....	21
Figure 7	Local Trails.....	25
Figure 8	Land Acquisition Priorities.....	29
Figure 9	Tribal Habitat Conservation Overlay Map.....	31
Figure 10	Land Use Plan.....	37

LIST OF APPENDICES

APPENDIX A	Indian Canyons Preservation Plan
APPENDIX B	Architectural Guidelines

INDIAN CANYONS MASTER PLAN

LIST OF ACRONYMS

ACBCI	Agua Caliente Band of Cahuilla Indians
ACIR	Agua Caliente Indian Reservation
BIA	Bureau of Indian Affairs, U.S. Department of the Interior
BLM	Bureau of Land Management, U.S. Department of the Interior
CDFG	California Department of Fish and Game
CDPR	California Department of Parks and Recreation
CVMC	Coachella Valley Mountains Conservancy
NPS	National Park Service, U.S. Department of the Interior
T5S, R4E	Township 5 South, Range 4 East of the San Bernardino Base and Meridian
T5S, R5E	Township 5 South, Range 5 East of the San Bernardino Base and Meridian
THCP	Tribal Habitat Conservation Plan
THPO	Tribal Historic Preservation Office
USFS	U.S. Department of Agriculture Forest Service
USFWS	U.S. Fish and Wildlife Service, U.S. Department of the Interior

INDIAN CANYONS MASTER PLAN

SECTION 1: OVERVIEW

1.1 Background

Located near the southern boundary of Palm Springs along the eastern side of the San Jacinto Mountains, the Andreas, Murray, and Palm Canyons (Indian Canyons, see Figure 1) have long been recognized as among the most significant natural and cultural sites in the California desert, and are internationally known for their unique desert environments. The significance of the Indian Canyons is created and further enhanced by the outstanding natural and pre-Columbian cultural and historic resources found there, in combination with the descendants of those who created this history still settle in the area.

Today, the Indian Canyons represent a site of profound ancestral heritage to the Agua Caliente Band of Cahuilla Indians (ACBCI or Tribe). Many traces of pre-historic villages exist in the area including rock art, house pits and foundations, irrigation ditches, ceremonial sites, trails, and food processing areas. The Tribe takes great pride in the fact that the Indian Canyons remain intact and are available for public access and enjoyment.

The mouths of Andreas, Murray, and Palm Canyons are nationally recognized by their listing on the National Register of Historical Places. The palm oases in the Palm and Andreas Canyons are known to contain the most numerous and second most numerous naturally occurring "Washingtonia filifera" palms in the Americas, with the oasis in Murray Canyon noted as fourth.



Palm Oasis

In 1928, the Indian Canyons area was proposed as a State Park in the original California State Park survey conducted by Fredrick Law Olmstead. The Indian Canyons were also recommended as a top priority site in the California desert; consequently, on three separate occasions the State of California attempted to acquire them as a unit of the State Park System. Around that same time the federal government also tried on several occasions to create a national park or national monument in the area. Although these efforts could have placed approximately half of the canyon lands that were privately held (lands originally part of the checkerboard land grants to the railroad) in public ownership, the proposals also provided for state or federal purchase of Tribal properties as well.

The proposed government acquisition of the Indian Canyons area was unacceptable to the Tribe, so instead they chose, starting in the 1930's, to make the area available to the public. In the 1950's, the federal government mandated a process of allotting parcels within the Agua Caliente Indian Reservation (ACIR or Reservation) to individual Tribal members. Although significant portions of the Indian Canyons were so allotted, the Tribe was able to retain approximately 1,300 acres in three parcels as a "Tribal Reserve(s)" for the benefit and use of the Tribe. These parcels are centrally located in the palm oasis portions of the three canyons, enabling the Tribe to continue to allow public access to the area.

From the late 1970's through the 1980's, a developer pieced together approximately 550 acres of Allotted Trust lands at the entry to the Indian Canyons area, partially through purchases and partially through long term leases from individual Tribal members. The developer then proposed a hotel, golf, and tennis resort along with a companion residential development located inside the traditional entryway to the Indian Canyons. The development would have occupied all the relatively level flood plain lands connecting the three canyons and the Tribal Reserve lands.

This proposal touched off a considerable effort to preserve the Indian Canyons area in its natural state. Ultimately, three of these parcels (356 acres) were acquired in 1993 with funds from the 1988 California Wildlife, Coastal, and Park Land Conservation Act (1988 Bond Act), which provided money for the acquisition of land in the Indian Canyons area for a park for the preservation of Indian heritage and native palms (Heritage Park). The title of this land was then conveyed to the Tribe as part of the Reservation.

In 1995, an additional 40 acres was acquired as an addition to the Tribal Reserves, and in 2000, through an agreement with the County of Riverside, an additional 52 acres north of Heritage Park was placed under Tribal control.

Therefore, as shown on Figure 2, lands in the Indian Canyons area fall under two designations within the Tribal management structure: i) those areas designated as Tribal Reserve (Tribal Trust), Allotted Trust, and Fee lands which fall under the regulations and management guidelines established by the Tribe; and ii) the Heritage Park area which is managed under guidelines established in the Management Agreement (May 1992) between the Tribe and the California Department of Parks and Recreation (CDPR).

The 1988 Bond Act required that the focus of Heritage Park's management be on the preservation of Indian heritage and native plants. The Act further stipulated that: "[a]fter that acquisition, the state shall convey title to all those lands to the United States in trust for the [ACBCI] as part of the [ACIR] on the conditions that

- (1) the lands be administered by the [ACBCI] as additions to the existing tribal reserves established by Section 3(c) of the act of September 21, 1959 (73 Stat. 603, P.L. 86-339),
- (2) the lands be open to the public, subject to reasonable restrictions such as those presently in effect for the above existing [T]ribal [R]eserves, and
- (3) the lands be used for protection of wildlife habitat and other resources, preservation

of open space, recreation, preservation of the native palms and other plants and animals native to the area, and the preservation in place or respectful public display, at the option of the [ACBCI], of the archeological and cultural resources of the lands."

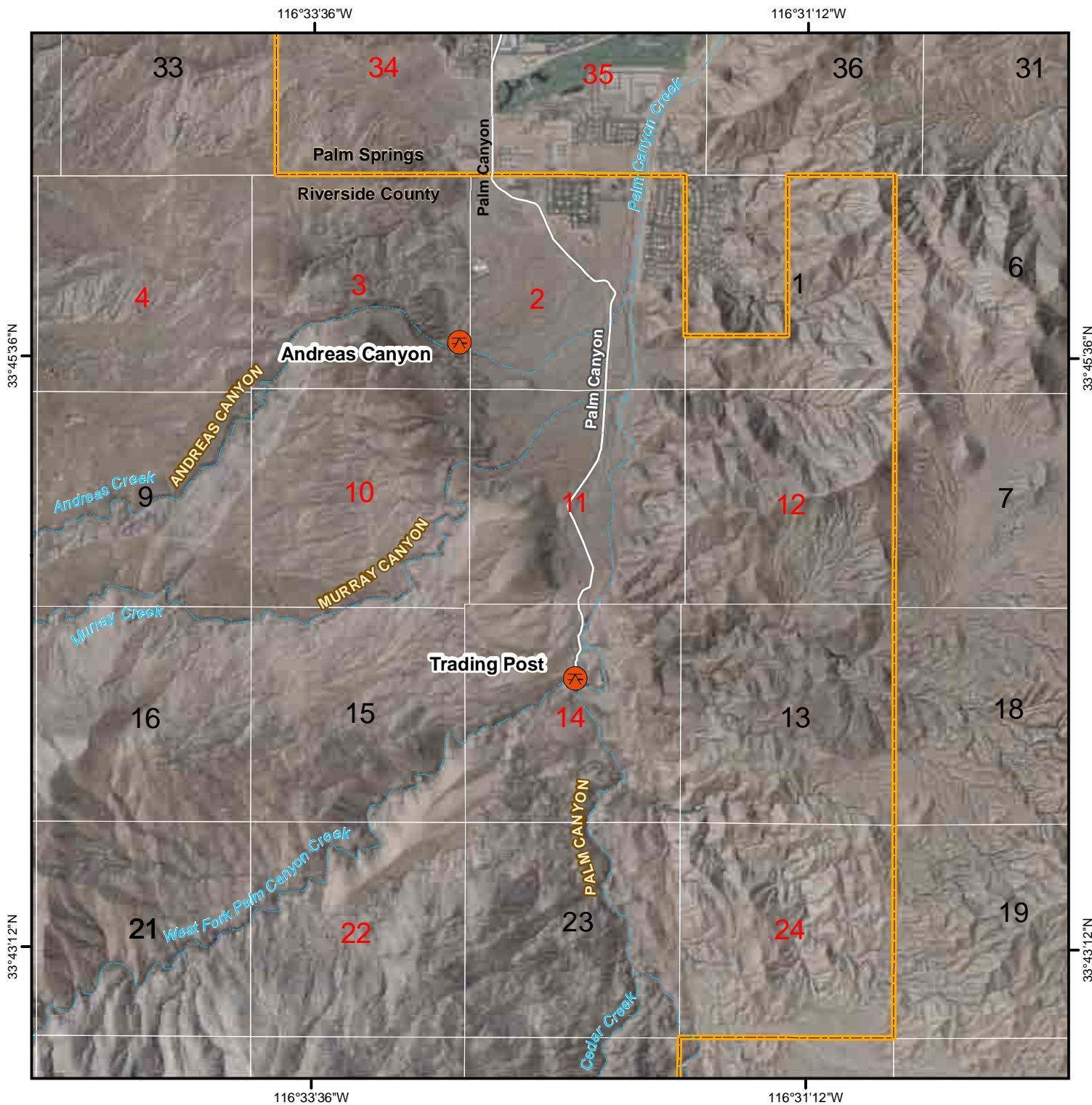


Desert Flora

The additional 40 and 52 acres acquired by the Tribe in 1995 and 2000 were conveyed subject to the same conditions as those identified for Heritage Park.

The primary objective of Heritage Park is to provide for long-term preservation of major natural and cultural resources in the Indian Canyons area. Secondary objectives are: to preserve the ecological setting for the unique palm oases already under Tribal control; to preclude any development in the Heritage Park area that would have negative impacts on the cultural/ecological continuity of the greater area or the pristine aesthetics of the viewshed; and to delineate a logical management framework to ensure long-term resource preservation and subsequent public enjoyment.





Other objectives are: to restore the palm oases to their pristine ecological condition; to allow public access in such a manner that the oases may be preserved and interpreted for public education; to provide adequate interpretation of the cultural resources so the uniqueness of the culture may be understood and appreciated by the public; and to provide adequate vehicular, foot, and equestrian access to the Indian Canyons area

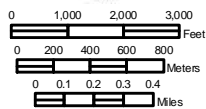


AGUA CALIENTE INDIAN RESERVATION

INDIAN CANYONS MASTER PLAN

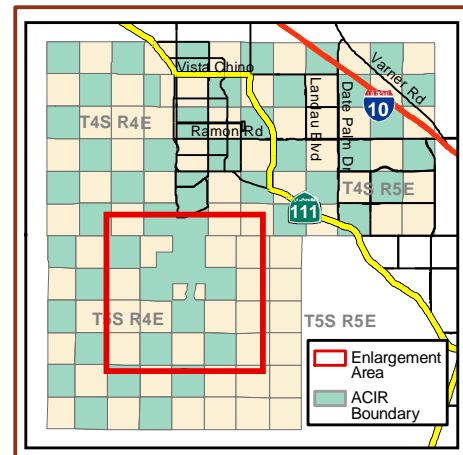
FIGURE 1: LOCAL MAP

-  Use Areas
-  Intermittent Streams
-  Reservation Sections
-  Political Jurisdictions



Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883-1911/Fax (760) 883-1937

Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gs01/Project_Files/mxd/Planning/ICMP/Updated_3_07/ICMP Terrain.mxd
 Map Origination Date: 3/19/2007
 This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
 Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - All other layers provided by ACBCI Planning & Development Department



116°33'36"W

116°31'12"W

33°45'36"N

33°45'36"N

33°43'12"N

33°43'12"N

116°33'36"W

116°31'12"W

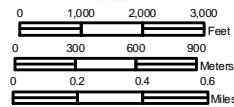


AGUA CALIENTE INDIAN RESERVATION

INDIAN CANYONS MASTER PLAN

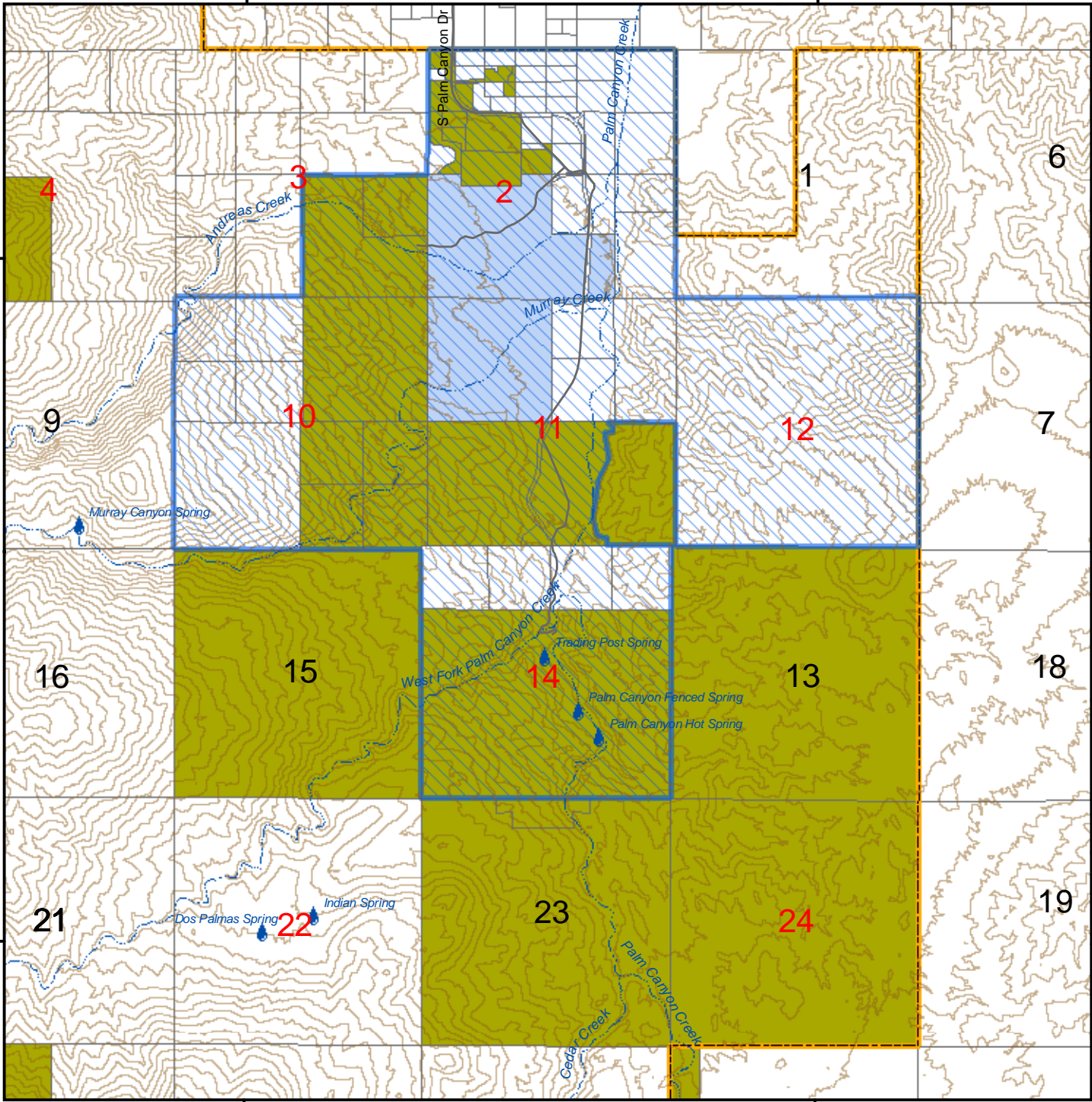
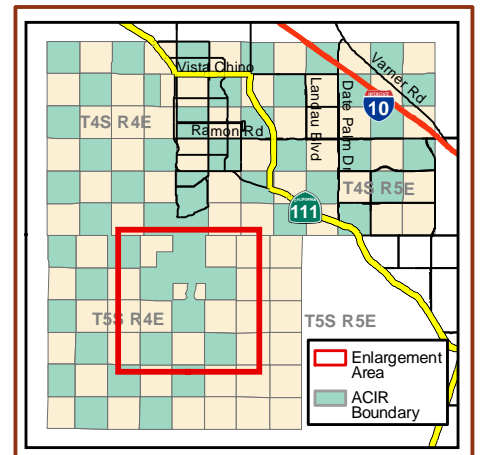
FIGURE 2: TRIBAL RESERVES AND HERITAGE PARK BOUNDARIES

- Elevation Contours 100 ft.
- Intermittent Streams
- Tribal Reserve
- Heritage Park
- Reservation Sections
- Political Jurisdictions



Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883-1911/Fax (760) 883-1937

Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Planning/ICMP/Updated_3_07/ICMP Existing Boundaries.mxd
 Map Origination Date: 3/16/2007
 This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
 Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - This map contains geographic information owned by the County of Riverside.
 - All other layers provided by ACBCI Planning & Development Department



without further affecting the ecology. Collectively, the Tribal Reserve lands and Heritage Park are owned and managed by the Tribe, both as a cultural heritage site and a public recreational access area. Adjacent to the urban environment of Palm Springs, the Indian Canyons provide a complementary recreation amenity by setting aside an area of unique ecological environments and historic/archeological importance for those in search of experiencing the quintessential desert landscape of the region.



Murray Canyon

In addition to the Tribal Reserves and Heritage Park, lands adjacent to and intermingled with the Indian Canyons consist of a diverse mix of private land and individual Allotted Trust owners. The lands immediately surrounding the Indian Canyons include ownerships by The City of Palm Springs, California Department of Fish and Game (CDFG), Bureau of Land Management (BLM) and the U.S. Forest Service (USFS). Tribal Reserve lands and

Heritage Park are not all contiguous, and are separated by private fee and Allotted Trust owners. As a result, some private holdings must be crossed to access the Tribal Reserve lands and their associated attractions.

Regional recreation destinations in the vicinity of Indian Canyons include many well known desert parks such as the Santa Rosa and San Jacinto Mountains National Monument, Anza Borrego State Park, San Bernardino National Forest, Joshua Tree National Park, and the Mojave National Preserve. Each of these recreation destinations provides unique desert attractions within a few hours drive of the Indian Canyons area (see Figure 3). The Santa Rosa and San Jacinto National Monument, which includes the Indian Canyons, is managed by the USFS and BLM in cooperation with the Tribe.

1.2 Purpose and Scope

Under the Management Agreement with the CDP, the Tribe agreed to operate Heritage Park in accordance with the Agreement's accompanying Cooperative Management Plan (February 1992). The Tribe further agreed to allow a general plan to be prepared for Heritage Park and surrounding lands. The Tribe would consider the general plan as an advisory document in its management of the Tribal Reserves portion of the Indian Canyons area; however, the Tribe would not be bound by its dictates. Nevertheless, the Tribe agreed to develop, operate, protect and maintain Heritage Park in accordance with the general plan.

Additionally, at no cost to the State, the Tribe has agreed to develop, operate, control and maintain Heritage Park as a public park to be accessible and subject to the reasonable use and enjoyment by the general public. Such development and operation shall be conducted in accordance with the 1988 Bond Act, the Cooperative Management Plan (until superseded by an approved general plan), and applicable federal, state, and local government statutes, laws, and regulations.

In January 2002, the original Indian Canyons Master Plan (the Master Plan or Plan) was

adopted to act as the general plan for Heritage Park and to provide a land use master plan for all surrounding Allotted Trust and Fee properties within the Tribe's land use jurisdiction. The Tribe, along with other various interest groups, recognized that a comprehensive plan was needed to lay out a clear vision for the area so that the Indian Canyons unique and fragile resources would remain intact for future generations.

This Master Plan outlines the Tribe's goals and objectives for the Indian Canyons and establishes a framework by which to guide future land acquisitions, natural and cultural resource conservation efforts, recreation improvements, and development within Heritage Park and the surrounding lands (the Indian Canyons Planning Area or Planning Area).

1.3 Proposed Boundary

When determining the potential boundaries of the Indian Canyons Planning Area, two key objectives were considered: 1) prevent the introduction of incompatible land uses within the prime resource area of the park; and 2) protect the valuable natural, cultural, and scenic resources. Specifically, this Master Plan recommends that key properties be acquired to prevent potential incompatible development in the area, compromising the lands natural integrity and degrading cultural resources (see Section 4.1). Acquiring lands within the Planning Area will strengthen the ability of the Tribe to protect and manage these park lands as a single entity.

The physical boundaries of the Indian Canyons Planning Area are based on the following criteria:

1. Protect prime resource areas of the palm oases, sensitive cultural sites, and viewsheds.
2. Connect existing Tribal Reserve lands.
3. Anticipate and encourage additional land acquisitions in cooperation with the USFS and BLM.

4. Create a strong, defined separation from urban development along the northern boundary.

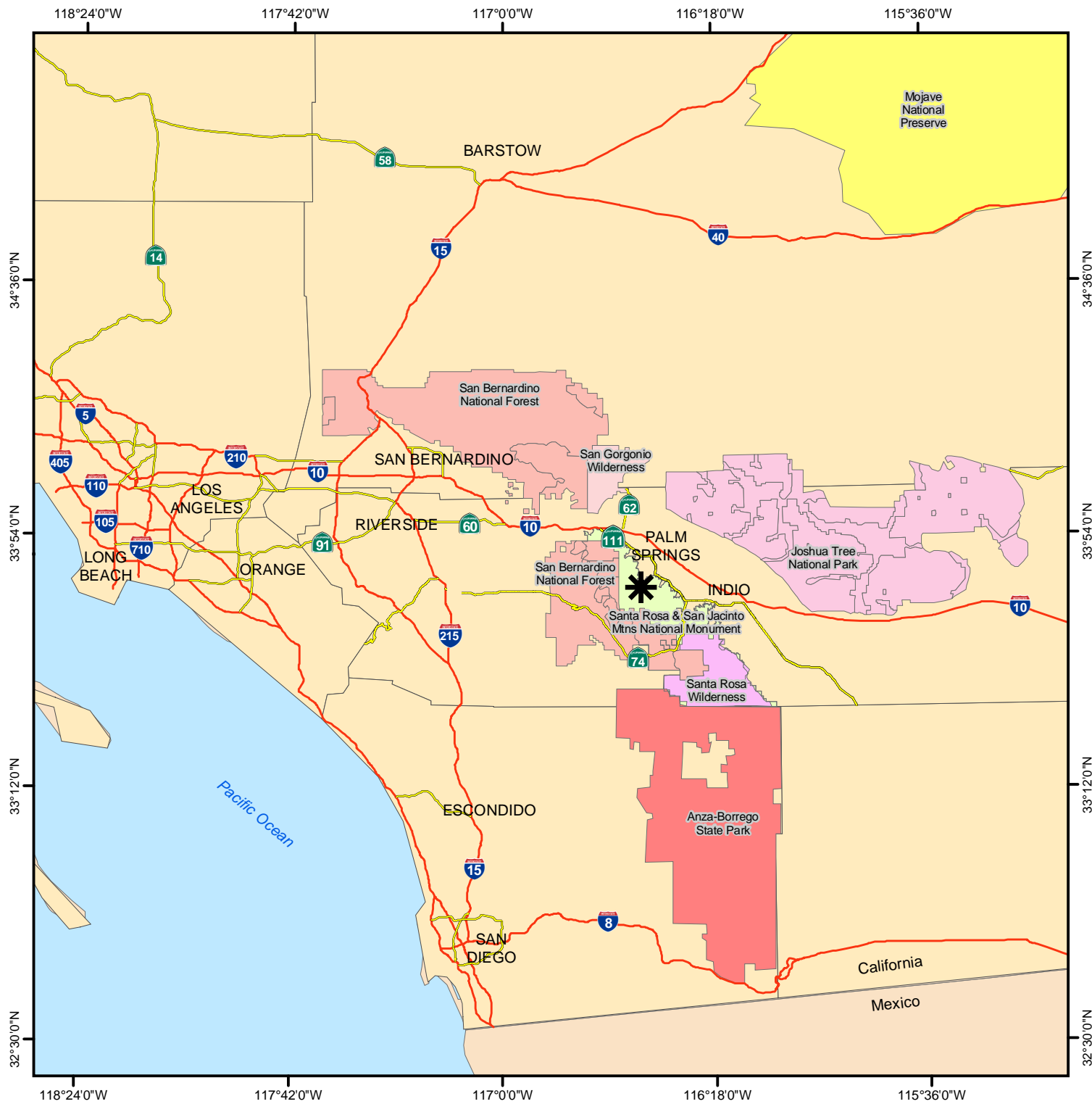
Based on these criteria, the ultimate boundaries of the Indian Canyons Planning Area include all of T5S, R4E (see Figure 4). The concept being that all undeveloped lands within the boundary would ultimately remain Allotted Trust land or become Tribally held. To the south, east, and west of the Planning Area, the Coachella Valley Mountains Conservancy and the BLM already own several properties and are endeavoring to acquire more. Locating the boundary as shown encourages their continued activity in cooperation with the Tribe.

The location of the northern boundary was selected considering the following three factors:

1. With the exception of the existing low-density residential development in the northwest quarter of Section 1 and the north half of Section 2, the entire area included within T5S, R4E is in a natural state.
2. The northern boundary would generally border the City of Palm Springs.
3. Even though the present ownership of the Andreas Canyon Club is not considered a development threat due to their stated objectives, density, and architectural style of existing structures, it should be included in order to avoid creating a disjointed planning area.






Andreas Canyon Club



AGUA CALIENTE INDIAN RESERVATION

INDIAN CANYONS MASTER PLAN

FIGURE 3: REGIONAL MAP

-  Indian Canyons Park
-  US Counties
-  Mexico

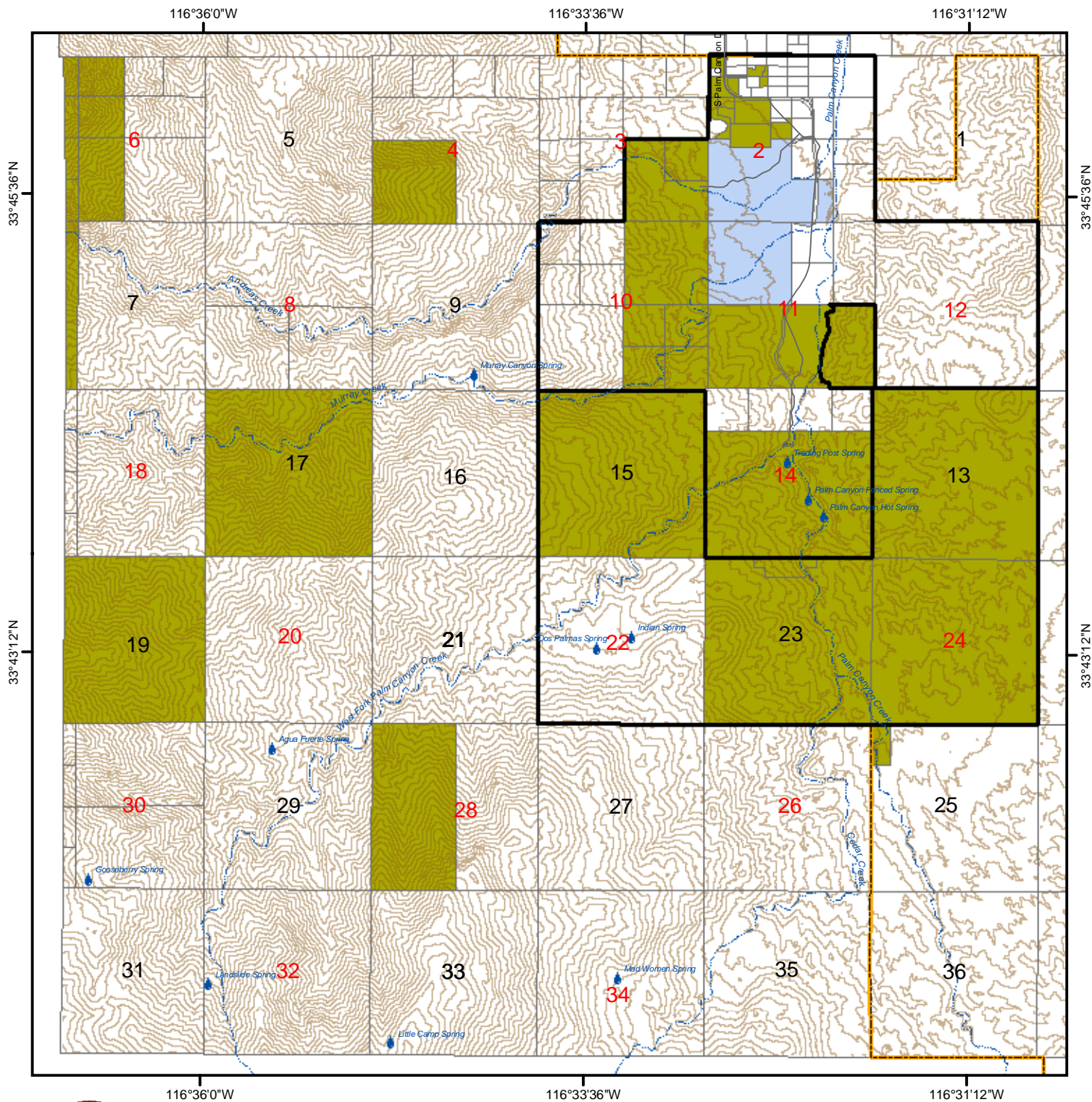


0 5 10 15 20
Miles

Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883-1336/Fax (760) 883-1937

Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/
 Planning/ICMP/Updated_3_07/ICMP Location Map.mxd
 Map Origination Date: 3/21/2007
 This map does not cover questions of location, boundary,
 or area to the accuracy of a survey map.
 Data Source:
 - The material contained herein
 includes proprietary and copyrighted
 data of Geographic Data Technology,
 Inc./Tele Atlas
 - All other layers provided by ACBCI Planning &
 Development Department



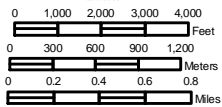


AGUA CALIENTE INDIAN RESERVATION

INDIAN CANYONS MASTER PLAN

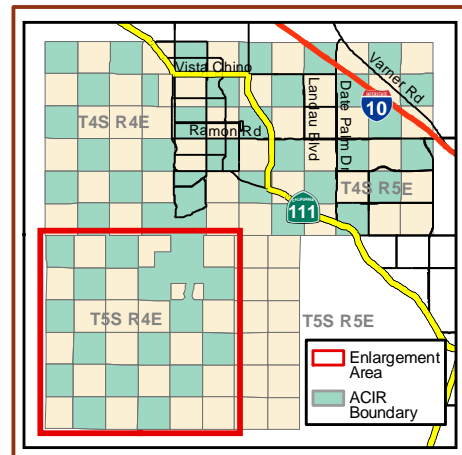
FIGURE 4: INDIAN CANYONS PLANNING AREA

- Elevation Contours 100 ft.
- Intermittent Streams
- Indian Canyons Planning Area
- Reservation Sections
- Political Jurisdictions
- Tribal Reserves
- Heritage Park



Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883-1911/Fax (760) 883-1937

Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Planning/ICMP/Updated_3_07/ICMP Existing Boundaries.mxd
 Map Origination Date: 3/16/2007
 This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
 Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - This map contains geographic information owned by the County of Riverside.
 - All other layers provided by ACBCI Planning & Development Department



INDIAN CANYONS MASTER PLAN

SECTION 2: GOALS & OBJECTIVES



Rock Art

The following are the Tribe's goals and objectives for the Indian Canyons Planning Area:

1. Preservation and restoration of cultural, natural, and scenic values.
 - Avoidance, protection, and restoration of sensitive cultural sites.
 - Protection and restoration of natural resources consistent with the Tribal Habitat Conservation Plan (see Section 4.2).
 - Preservation of unimpacted desert and mountain views.
 - Prohibit development that is not compatible with the natural and cultural resources of the Indian Canyons, or does not meet the objectives of Heritage Park.
2. Creation of a strong "sense of place" that reflects the cultural and natural history of the Tribe.
 - Minimize impacts associated with increased visitation.
 - Design functional facilities and spaces for the Tribal community's use.
 - Develop an identifiable arrival statement for the Indian Canyons that facilitates an obvious transition from urban to park environment.
 - Screen and buffer undesirable views of the urban edge while enhancing distant views of the Coachella Valley and the Santa Rosa, San Jacinto, and Little San Bernardino Mountains.
 - Land use and site design should reflect the cultural heritage of the Tribe and the environmental conditions of the area.
3. Interpretation of Native American History and Culture.
 - Increase interpretive opportunities for visitors.
 - Create a setting that tells the story of the Agua Caliente people up to the present.
 - Highlight the unique cultural heritage of the Tribe and Cahuilla people.

INDIAN CANYONS MASTER PLAN

SECTION 3: EXISTING CONDITIONS

3.1 Land

Regionally, lands surrounding the Indian Canyons Planning Area are held primarily by the BLM. The CDFG and the USFS, along with a mix of private (fee) and Allotted Trust owners, also control large tracts in the area. The BLM remains active in acquiring lands in the greater Santa Rosa and San Jacinto Mountains National Monument area, and it is anticipated that future acquisitions will continue to be made for conservation and scenic purposes.

Significant regional boundaries that affect the Indian Canyons Planning Area include: the City of Palm Springs to the north, BLM lands to the east, and USFS land to the south and west.

Land ownership patterns in the northern portion of the Indian Canyons Planning Area near the entrance to the park consist of relatively smaller parcels, a majority ranging from 2 to 40 acres. Along the northern edge some of these parcels are developed, while the remainder of the Planning Area remains unimproved. The mid and southern portions of the Planning Area consist of larger blocks of land ranging from 40 acres to entire 640 acre sections. Since the adoption of the original Master Plan, the Tribe has acquired 4,946 acres of land in Sections 2, 6, 7, 11, 13, 15, 17, 23, and 25 of Township 5 South, Range 4 East (T5S, R4E) and Sections 7, 19, and 20 of Township 5 South, Range 5 East (T5S, R5E) (see Figure 5).



Andreas Canyon

Analysis

Smaller fee and Allotted Trust parcels on the northern end of the Heritage Park boundary are of primary concern, as they represent lands most likely to develop non-compatible land uses in the future. These land uses could seriously degrade resources and visitor experience to the Indian Canyons area. Larger parcels located through the mid and southern portion of the Indian Canyons Planning Area are situated on steep terrain and represent a lesser concern when considering potential future non-compatible land use development.

The Andreas Canyon Club, located directly west of Andreas Canyon, is an exception to the smaller owners that make up the northern portion of Indian Canyons area. This group of owners currently holds 2200+ acres of mountainous terrain adjacent to Heritage Park. The Andreas Canyon Club is considered compatible with the planning objectives since they intend to merely retain their existing 20+ cabins. The group is also viewed as having similar resource protection goals with regard to their undeveloped properties.

In addition to exchanging the Tribally owned land in T5S, R5E for BLM land in T5S, R4E, it is anticipated that the Tribe will continue to acquire land to the south and west of current Tribal Reserve lands (see Section 4.1). This assumption has led to the development of the proposed Planning Area boundary identified in Section 1.3 as part of the Master Plan's conservation strategy for the Indian Canyons area.

3.2 Visual Quality

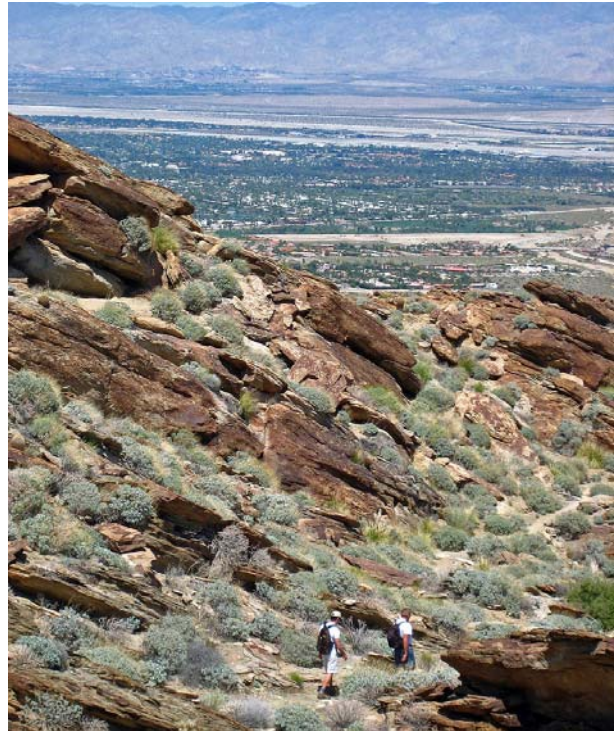
A visual survey and analysis of the Indian Canyons Planning Area was conducted during the preparation of the original Master Plan to determine which critical views within the recreation area warranted preservation.

In desert landscapes, individuals experience the landscape on several visual levels including the views of vast open landscapes, views of large topographic enclosures such as valleys and wide canyons, and small scale enclosures such as narrow gorges. The Indian Canyons contain all these visual levels within a relatively small area, which adds to the dramatic nature of the area's landscape.

Visitors to the Indian Canyons enter the recreation area from the north along South Palm Canyon Drive. As they leave behind the more densely populated part of southern Palm Springs, development becomes more sparse and open. Once past Acanto Drive, visitors begin to sense that the mountains and landscape on either side are becoming a more dominant feature. Approaching the toll gate the landscape still appears urbanized on the northeast side, but on the south and west the landscape begins to transition into unique views of the Indian Canyons, with magnificent views of San Jacinto and the Santa Rosa Mountains in the distance. Once south of the toll gate, the feeling of being within a natural park environment takes hold and the views open up to reveal the unobstructed landscape of desert floor and mountains.



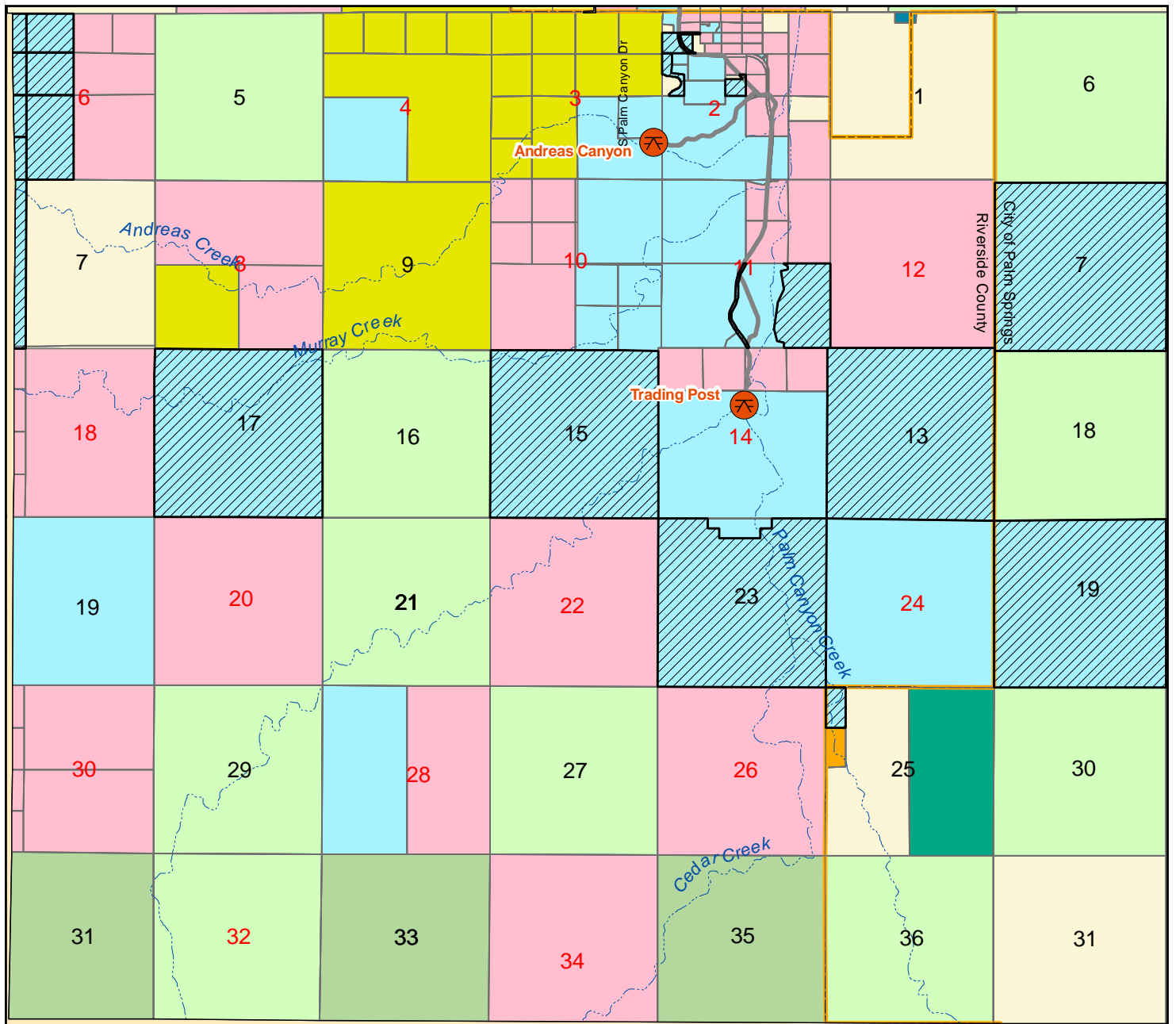
Palm Oasis



West Fork Trail

As visitors drive up to Andreas Canyon day use area, the mountains become closer and the canyon begins to reveal itself with palm trees at its mouth acting as an entry. Then abruptly, visitors enter an enclosed sheltered area within the canyon surrounded by rock and palms. Views are contained within the canyon at this point unless visitors climb to one of the rocky outcroppings above; from this vantage point spectacular views out over Palm Springs and the Coachella Valley beyond can be seen. The undesirable views of subdivision development from the entrance road are now softened by the distance and larger context of the landscape.

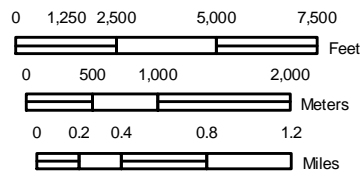
The Palm Canyon approach is different in the sense that the feeling of enclosure happens along the drive up to Hermit's Bench. The canyon narrows from its wider state to the extreme of a single car lane between a giant split boulder. Again the sense of enclosure changes as visitors arrive at the top of Hermit's Bench revealing one of the most dramatic views found anywhere. The giant palm lined canyon spreads out below, winding its way into a seemingly dry and barren mountainous



AGUA CALIENTE INDIAN RESERVATION INDIAN CANYONS MASTER PLAN

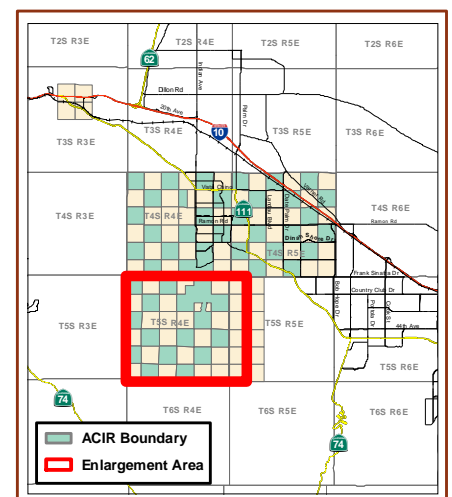
FIGURE 5: LAND OWNERSHIP

- Use Areas
- Intermittent Streams
- Reservation Sections
- Tribal Lands Acquired Since 2002
- Political Jurisdictions
- Land Ownership**
- Tribal
- Allotted Trust
- Bureau of Land Management
- U.S. Forest Service
- Coachella Valley Mountain Conservancy
- Andreas Canyon Club
- Private
- City of Palm Springs
- Desert Riders Trail Fund
- Desert Water Agency



Agua Caliente Band of Cahuilla Indians
Planning & Development Department
777 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1911/Fax (760) 883 - 1937

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/Planning/ICMP/Updated_3_07/ICMP Land Ownership.mxd
Map Origination Date: 3/16/2007
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



setting to the south. Once again, as visitors follow the small switchback trail down into the canyon they feel a strong sense of enclosure with the intricate details of the palm oasis and stream bed to explore.

These experiences are undeniably a major attraction to this recreation area. This coupled with the unique flora, fauna, and rich cultural history makes the Indian Canyons an extremely desirable setting; views and visitor experience are closely tied.



West Fork Waterfall

Analysis

Based on the visual survey and analysis (see Figure 6), the following views are critical to the area's scenic values and should be considered as high priorities for preservation:

- Views of the wide canyon floor entering and exiting the Toll Gate along the main access road. These views are critical and define the visitor's first impressions of the area.
- Views up to the alluvial fans, canyons, foothills, and mountain slopes of the Santa Rosa and San Jacinto Ranges. Land uses that interfere with these views should be considered a significant adverse impact.
- Views down to the canyons from surrounding mountain trails. Views of the desert landscape from mountain trails are a key asset to the area and should be preserved.
- Distant views of the City of Palm Springs and the greater Coachella Valley from elevated vantage points within the recreation area. Distant views of the City and valley below add scale and perspective to visitors using the area and enhance the overall experience.
- Diverse views of the pristine natural flora and fauna throughout the landscape.

Views that degrade visitor experience to the area should be considered adverse impacts to visual quality and efforts should be made to screen these views:

- Views of subdivision development along entry road before and after Toll Gate. Foreground views of homes and disturbed lots seen from the main access road should be screened wherever possible.
- Views of the concrete drainage channel to the east. Views of this feature should be screened wherever possible.

3.3 Ecology and Natural Systems

The Indian Canyons represent a highly unique desert landscape unlike any other in the United States. Several geologic, botanical, and climactic factors come together to create this special landscape. Hydrologic patterns have shaped this dramatic landscape and have led to its ability to support unique and diverse habitats. The natural diversity of the area is primarily due to the presence of perennial water from higher elevations, which supports a rich biotic community of plants and animals. The area is known to contain many rare and unique species of flora and fauna found only in this small geographic location. For the visitor, the Indian Canyons represent a special destination to appreciate desert plant and wildlife.

The physical formation of the land and its location make it critical for wildlife movement in the area. The canyons and desert washes act as conduits for a variety of species that rely on their water for survival and vegetation for cover. Movement between the two mountain ranges through the Indian Canyons is well documented.



Least Bell's Vireo

A comprehensive Tribal Habitat Conservation Plan (see Section 4.2) for the entire ACIR was approved in November 2002. The document considers the preservation of key habitats which support sensitive and/or endangered species found in the area including:

1. Wetland and riparian habitats found in Indian Canyons. (Such areas need to be

considered not only for preservation, but also restoration needs including the removal of Tamarisk and other exotic species.)

2. Desert Scrub communities at the mouth of Palm Canyon in the northern reaches of the Heritage Park boundaries.
3. Peninsular Bighorn Sheep migration corridor that runs east/west between the San Jacinto and Santa Rosa Mountains.



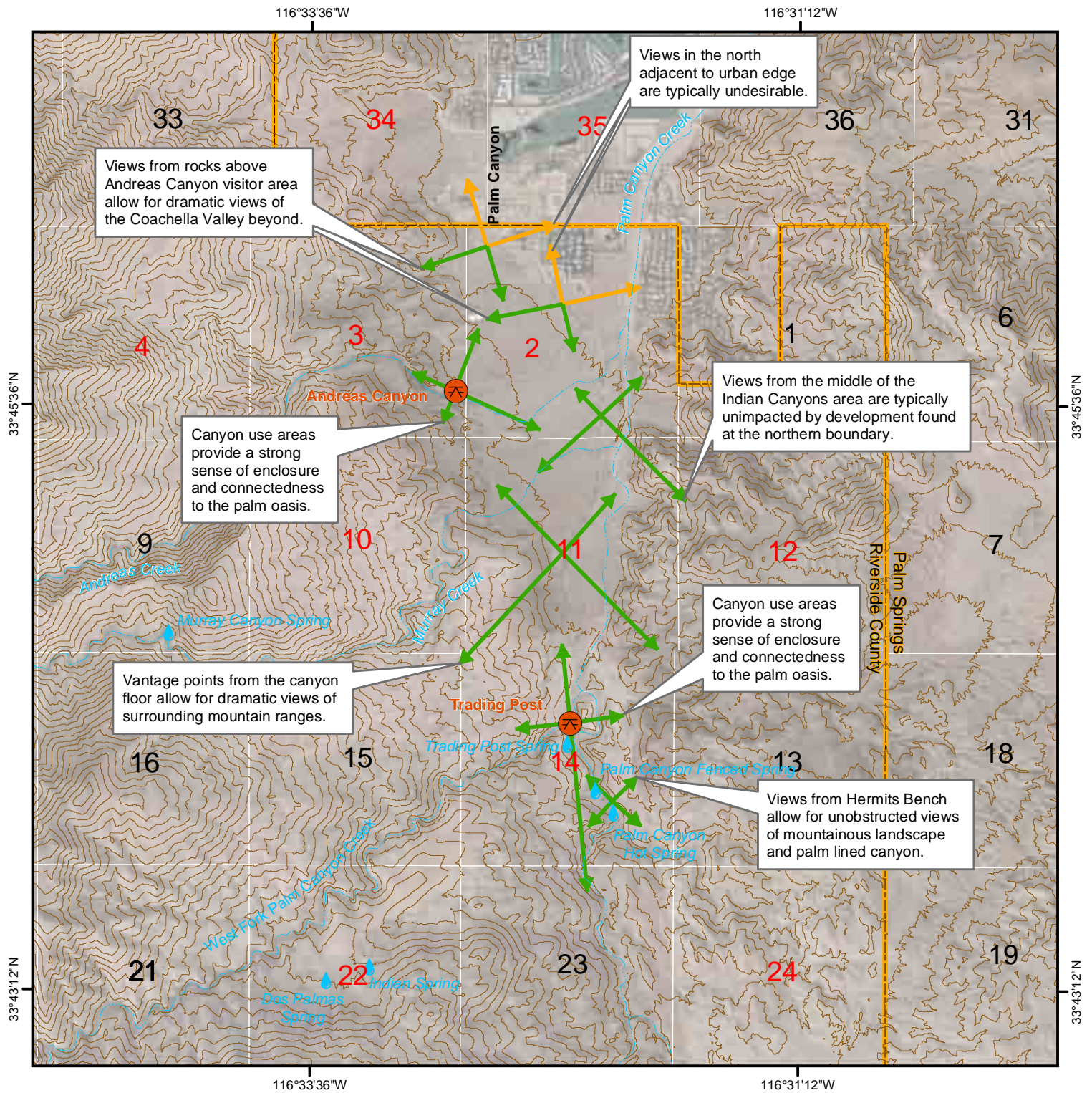
Peninsular Bighorn Sheep

Analysis

Any improvements to the area should honor and enhance the natural wonders that exist, and at the same time attempt to reduce any impacts that might adversely affect the quality of the natural landscape.

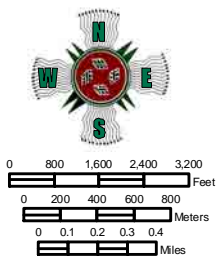
It is important to view the canyons, desert washes, and upland scrub communities as an entire system. Future planning and acquisition efforts should consider the importance of eventually managing the entire watershed in cooperation with other agencies. Especially important is the comprehensive management of the confluence of drainages that make up the area's landscape.

Any modifications to natural systems and landforms in the area carry with it the potential of adversely impacting the sensitive and endangered species as well as their habitats. Of special concern is the issue of flooding and excessive erosion through the area.



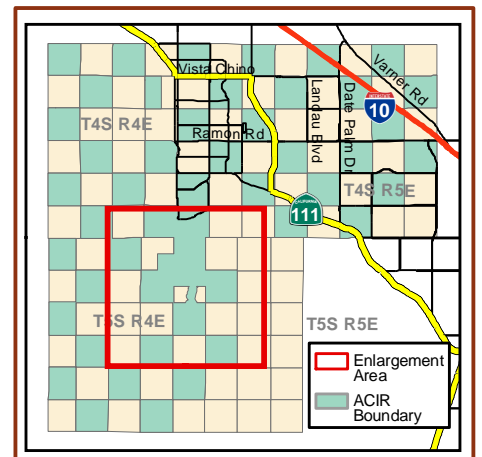
AGUA CALIENTE INDIAN RESERVATION INDIAN CANYONS MASTER PLAN FIGURE 6: VISUAL QUALITY

- Use Areas
- Elevation Contours 100 ft.
- Intermittent Streams
- Undesirable Views
- Desirable Views
- Reservation Sections
- Political Jurisdictions



Agua Caliente Band of Cahuilla Indians
Planning & Development Department
777 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883-1911/Fax (760) 883-1937

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/Planning/ICMP/Updated_3_07/ICMP_Visual_Quality.mxd
Map Origination Date: 3/19/2007
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
Data Source:
- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- All other layers provided by ACBCI Planning & Development Department



3.4 Archeological & Historic Resources

The Indian Canyons represents a site of great ancestral importance to the Agua Caliente people. One of the goals of the Tribe is to preserve the natural and cultural resources associated with Indian Canyons for future generations.

The area is rich in traces of the communities that once lived in this landscape. Artifacts including rock art, house pits and foundations, irrigation ditches, ceremonial sites, trails, and food processing areas are found throughout. The rich concentration of remnants from the past adds a positive dimension to the available recreation opportunities; however, it also presents a problem when dealing with vandalism and illegal collection of artifacts.



Rock Mortar and Pestle

Analysis

When considering recreation improvements and acquisition of additional land, archeological resources should be a key factor in decision making. Thorough inventories and analysis should guide prioritization of future land acquisitions within the area and before any recreation enhancements are initiated.

Any recreation improvements should attempt to avoid known archeologically sensitive areas, improve interpretation of archeological resources, protect resources from vandalism or theft, and attempt to minimize any impacts associated with development.

3.5 Existing Recreation Opportunities

Heritage Park and the surrounding lands now offer a limited range of recreation opportunities to visitors. The various types of recreation opportunities in the Indian Canyons area are all relatively low impact, and represent appropriate uses for the fragile desert ecosystem. Current recreation opportunities include:

- Hiking (informal and guided)
- Horseback Riding
- Nature Interpretation
- Limited Sales of Food and Gifts
- Picnicking
- Scenic Drives
- General Sightseeing



Trail Riding

Hours of operation are normally limited from 8:00 am to 5:00 pm. The tollgate is closed after hours to prevent trespassing.

Analysis

Adjacent to the urban environment of Palm Springs, the Indian Canyons area provides a complementary recreation amenity by adding elements of historic and archeological importance, unique ecological environments, and outdoor recreation opportunities for those in search of experiencing the quintessential desert landscape of the region.

The majority of visitors that recreate in the Canyons come to enjoy the natural beauty and cultural history that the area offers. Any recreation improvements associated with the planning area should preserve and enhance the prime resources that make the area so special to visitors.

3.6 Trails

Trails are a common method for visitors to experience the Indian Canyons and surrounding lands. Upon arrival, guests are exposed to a variety of trail options including hiking and equestrian trails (see Figure 7). This extensive trail system accommodates a diversity of users, thus increasing the attractiveness of the area as a multi-use recreational setting. Trails allow visitors to experience the true beauty of the desert by allowing access to out-of-the-way locations in which to enjoy the serenity and spectacular views of mountains, valleys, canyons, and oases.

Trails are key in connecting the Indian Canyons to surrounding state and federally protected lands adjacent to Heritage Park. The fact that visitors are given an opportunity to explore large tracts of land, whether on horseback or on foot, make the area a desirable destination for trail users.



Andreas Canyon Trail (South Loop)

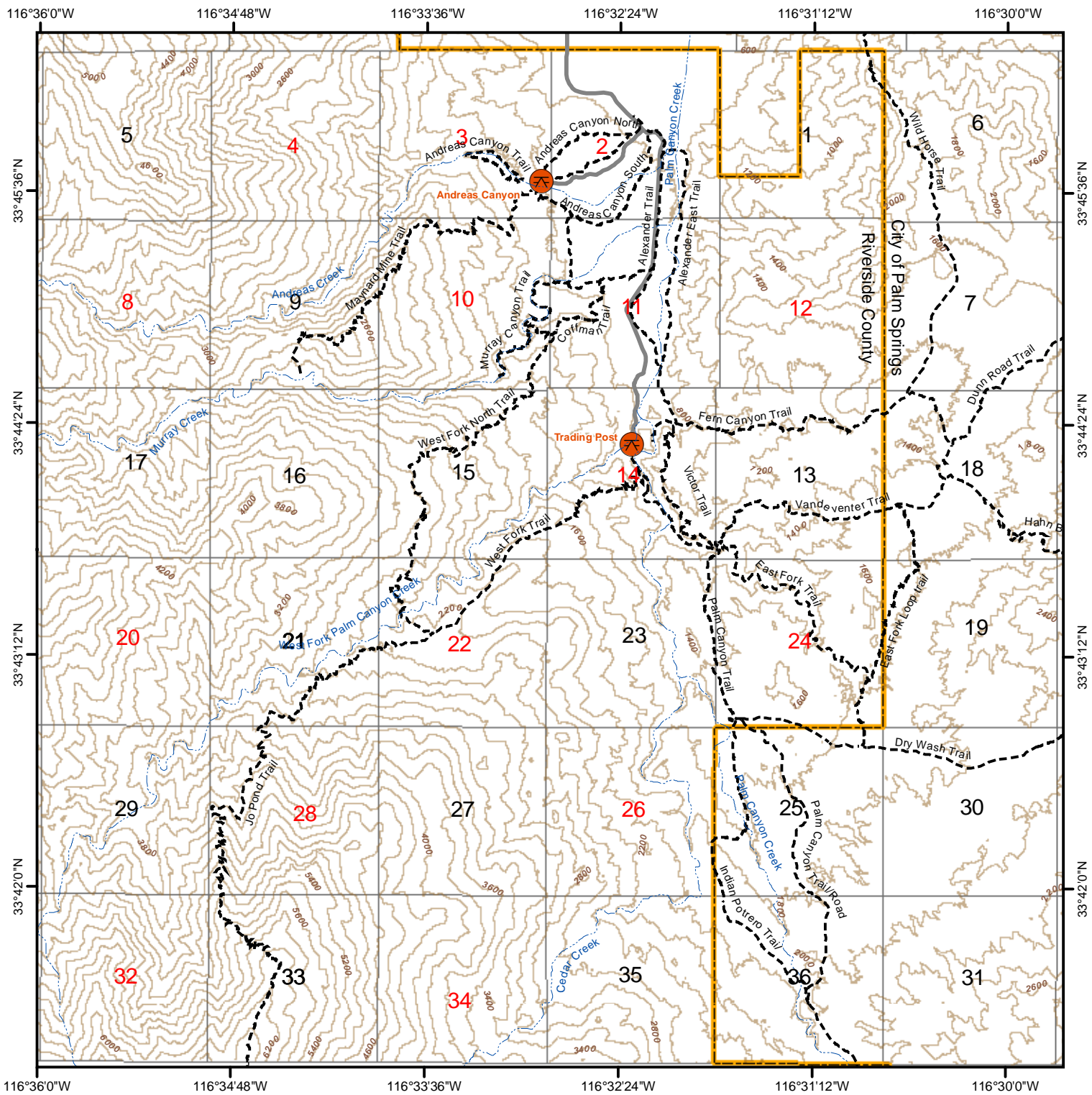


Palm Canyon Trailhead

Analysis

An extensive trail system currently exists in the Indian Canyons and surrounding lands, at this time expansion of trails is not considered necessary; however, future proposals for new trails that provide connectivity to adjacent public lands should consider management prescriptions established for those lands through the Trails Management Plan for the Santa Rosa and San Jacinto Mountains. Trail maintenance occurs on an “as needed” basis by both Tribal staff and local equestrian clubs and appears to be adequate for the current level of use.

Since a significant number of trails in the area must cross private property, the continued acquisition of key parcels and trail easements should be considered in conjunction with any future recreation improvements.

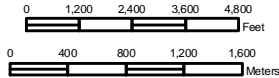


AGUA CALIENTE INDIAN RESERVATION

INDIAN CANYONS MASTER PLAN

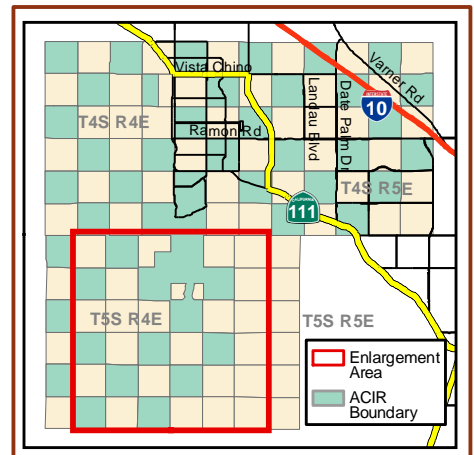
FIGURE 7: LOCAL TRAILS

- Use Areas
- Elevation Contours 200 ft.
- Intermittent Streams
- Indian Canyon Trails
- Reservation Sections
- Political Jurisdictions



Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883-1911/Fax (760) 883-1937

Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //tb05gis01/Project_Files/mxd/Planning/ICMP/Updated_3_07/ICMP Local Trails.mxd
 Map Origination Date: 4/18/2007
 This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
 Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - All other layers provided by ACBCI Planning & Development Department



INDIAN CANYONS MASTER PLAN

SECTION 4: CONSERVATION STRATEGY & COMPATIBLE RECREATION

4.1 Land Acquisition

This Master Plan identifies that all non-Tribally held lands within the Indian Canyons Planning Area are of key interest for acquisition; however, the undeveloped private and Allotted Trust parcels within Section 2 are of particular interest. Given their location and land use potential, future developments could occur on these parcels that are not compatible with the overall character of the Indian Canyons area. These parcels are also of interest to the Tribe because they contain sensitive archeological resources sacred to the Agua Caliente.

Acquisition priorities are divided into the following three levels (see Figure 8):

1. *Level One*: lands represent the highest priority for acquisition. These lands, located in the northwestern portion of the Indian Canyons Planning Area (Sections 1, 2, 11, 12, and 14), contain valuable cultural, natural, and scenic resources and have the highest potential for future development plans that are incompatible with the resource protection goals of this Master Plan.
2. *Level Two*: lands in Sections 3, 4, 9, 10, 16, 21, 22, and 25 through 28 are important in expanding and linking existing Tribal Reserve boundaries.
3. *Level Three*: the remainder of land around the southern and western perimeter of the Indian Canyons Planning Area boundary (Sections 5 through 8, 18, 20, and 29 through 36). These properties are typically located on rugged terrain, with very limited development potential.

Opportunities to acquire additional lands should be based on a policy of acquiring lands from willing sellers as they become available. Acquisition possibilities are intended for long range planning purposes only, and are not a commitment for acquisition. Prioritization of acquisitions is not intended to interfere with the property rights of the landowners.

Potential Outside Funding for Land Acquisition

Potential outside funding for land acquisition purposes is available through an array of sources. The following summary highlights some key resources that could assist the Tribe in the acquisition process.

County of Riverside

The County from time to time considers approval of rubbish disposal site proposals and has established a policy of charging a tipping fee for park and habitat acquisitions. In addition, the County collects development impact fees for both habitat and park acquisition in regions where impacts have occurred. The County typically has a small fund available for projects, the distribution of which is largely at the discretion of the representative County Supervisor.

State of California

In 1990, the Coachella Valley Mountains Conservancy (CVMC) was expressly created by the legislature to find methods of acquiring scenic and high resource lands within the mountains surrounding the Coachella Valley. Since its inception, the CVMC has acquired 4,573 acres within the Coachella Valley and the Santa Rosa and San Jacinto Mountains for the public's enjoyment and for use consistent with the protection of cultural, scientific, scenic, and wildlife resources. In addition, the CVMC has made grants for the acquisition of an additional 23,520 acres by other entities. The CVMC's five-year infrastructure plan calls for the acquisition of an additional 20,614 acres. The CVMC might be persuaded to allocate a portion towards additional land acquisitions within the Planning Area.

Federal

The Santa Rosa and San Jacinto Mountains National Monument Act of 2000 (P.L. 106-351) (16 U.S.C. 431) established the Santa Rosa and San Jacinto Mountains National Monument to be jointly managed by the BLM and USFS in consultation and cooperation with the Tribe, other Federal agencies, State agencies and local governments to protect the National Monument's biological, cultural, recreational, geological, educational, scientific, and scenic values.

In concert with the Act, on October 13, 1999, a Cooperative Agreement was entered into between the Tribe and the BLM that provides the mechanism to coordinate land use planning, budget priorities, cooperative allocation of resources, and development of long-term resource management and programmatic goals between the Tribe and the BLM. The intent of the Agreement is to provide for more consistent, effective, and collaborative management of federal lands in the National Monument within and outside the exterior boundaries of the Reservation. The Agreement provides the foundation for a Memorandum of Understanding that was also approved that day between the Tribe and the BLM regarding the acquisition and exchange of lands within the National Monument.

4.2 Tribal Habitat Conservation Plan

The Reservation, including the Indian Canyons, contains a wealth of valuable natural resources and habitat that provide homes for many species of plants and animals deemed by the U.S. Fish and Wildlife Service (USFWS), as well as the Tribe, to require protection. In November 2002, the Tribe adopted a Tribal Habitat Conservation Plan (THCP) to formalize its traditional balanced approach to land use and resource management. Any future development on property within the Indian Canyons Planning Area under the Tribe's jurisdiction would be subject to the requirements of the THCP, as well as the land use regulations and design guidelines identified in Section 5 of this Master Plan.

The THCP provides the means to protect and contribute to the conservation of species that are federally listed or deemed by the Tribe and USFWS to be sensitive and potentially in need of listing in the future (collectively, Covered Species). It provides mechanisms to permit and guide development, and serves as an adaptive tool to allow the Tribe to update and/or revise baseline biological resource information, manage conservation goals and priorities, and compliment other existing and planned conservation efforts in the region. The general approach and specific measures set forth in the THCP reflect the Tribe's demonstrated traditional strategies for managing

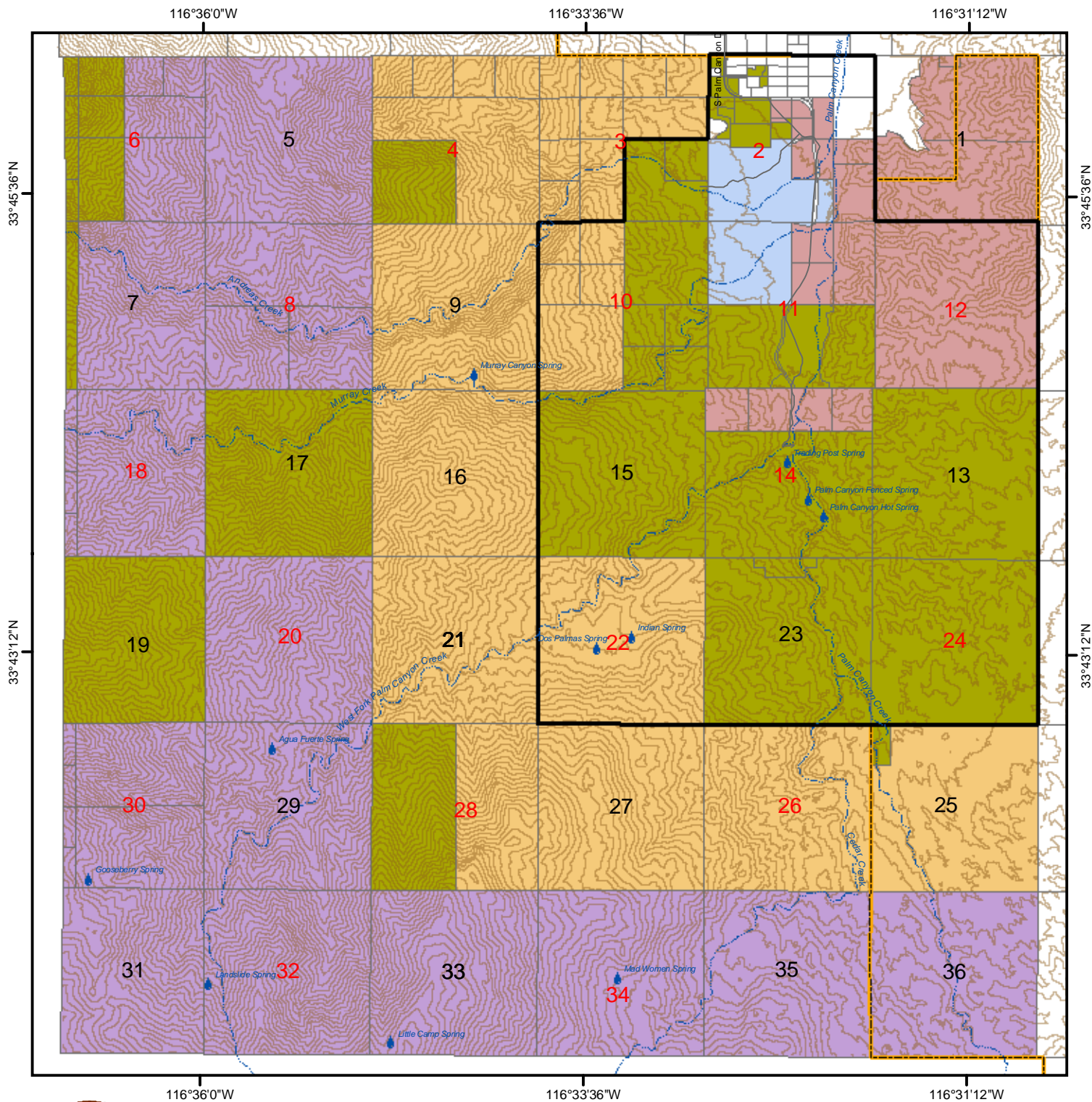
land use and natural resources within the THCP Area.

Although there is some overlap, sensitive species occurring within the THCP Area are typically associated with either features on the valley floor or features of the mountains and canyons; therefore, the THCP divides land into a Mountain and Canyons Conservation Area (MCCA) and a Valley Floor Conservation Area (VFCA). The MCCA includes all portions of the San Jacinto and Santa Rosa Mountains within the THCP Area, generally above the 800-foot elevation contour. A majority of the Indian Canyons Planning Area, including portions of Heritage Park, is located within the MCCA (see Figure 9). The VFCA consists of the balance of the THCP Area, generally lands below the 800-foot elevation level.

Building upon the Tribe's existing conservation programs, the primary conservation mechanism provided by the THCP is the protection of significant areas of critical habitat through the adoption of new development standards and the creation of a "Habitat Preserve" to be managed by the Tribe. Land dedication/acquisition for the Habitat Preserve will be accomplished by either: (1) allowing certain activities, including development, subject to land conservation measures (i.e. land dedication) and other general and species-specific guidelines, standards, and mitigation measures; or (2) project proponents will pay a mitigation fee that will be used to purchase and manage Habitat Preserve lands.

4.3 Cultural Resources Preservation

The Indian Canyons area has an overwhelming abundance of cultural resources, some of which are extraordinary in nature. Designated by the National Park Service (NPS) in 2005 pursuant to the National Historic Preservation Act, the Tribal Historic Preservation Office (THPO) is charged with preserving these cultural resources for current and future generations. The THPO is responsible for documenting and managing cultural resources significant to the Tribe, such as archaeological sites, burials, trails, buildings or other structures, resource gathering areas, and sacred places.



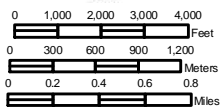
AGUA CALIENTE INDIAN RESERVATION

INDIAN CANYONS MASTER PLAN

FIGURE 8: LAND ACQUISITION PRIORITIES

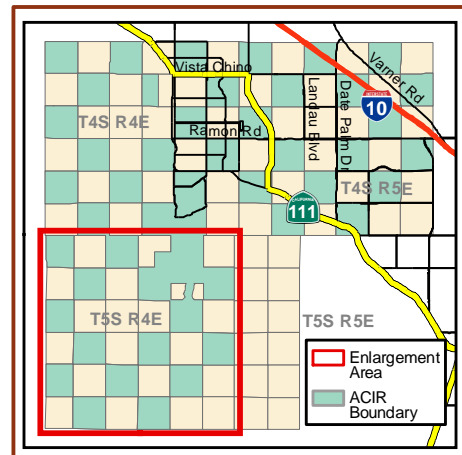
Land Acquisition Priorities

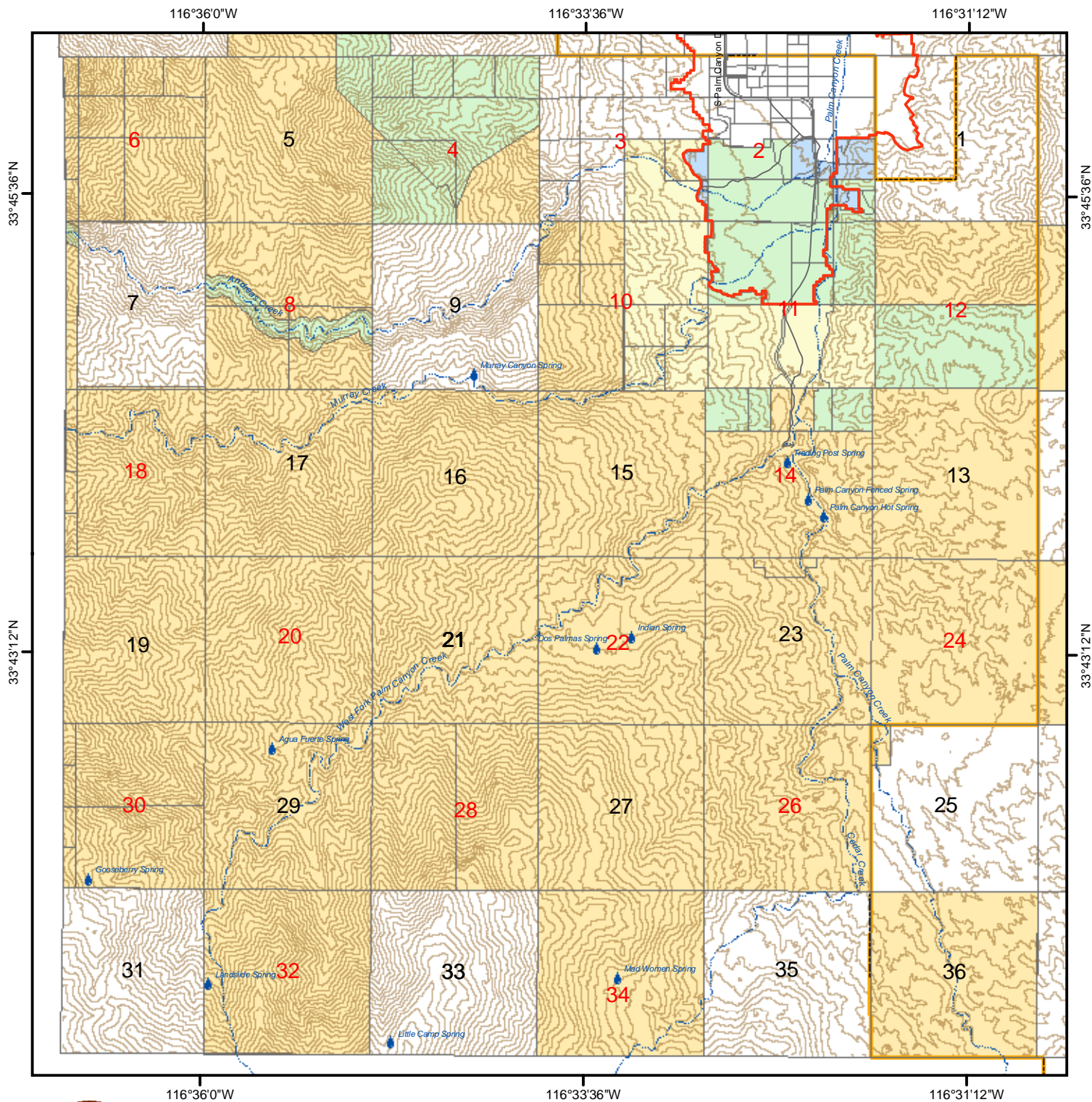
- Level One
- Level Two
- Level Three
- Elevation Contours 100 ft.
- Intermittent Streams
- Indian Canyons Planning Area
- Reservation Sections
- Political Jurisdictions
- Tribal Reserves
- Heritage Park



Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883-1911/Fax (760) 883-1937

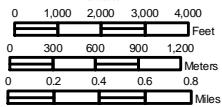
Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Planning/CMP/Updated_3_07/CMP Land Acquisition Priorities.mxd
 Map Origination Date: 5/4/2007
 This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
 Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - This map contains geographic information owned by the County of Riverside.
 - All other layers provided by ACBCI Planning & Development Department





AGUA CALIENTE INDIAN RESERVATION INDIAN CANYONS MASTER PLAN FIGURE 9: TRIBAL HABITAT CONSERVATION OVERLAY MAP

- MCCA Boundary
 - Elevation Contours 100 ft.
 - Intermittent Streams
 - Indian Canyons Planning Area
 - Reservation Sections
 - Political Jurisdictions
- THCP Development Plan Areas**
- 100% Conservation
 - 100% Take
 - 85% Minimum Conservation
 - 95% Conservation

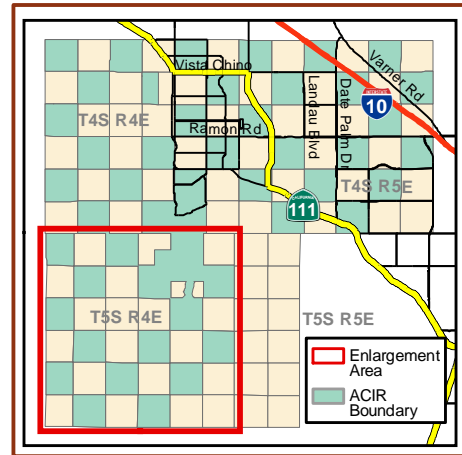


Agua Caliente Band of Cahuilla Indians
Planning & Development Department
777 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883-1911/Fax (760) 883-1937

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/Planning/ICMP/Updated_3_07/ICMP_THCP.mxd
Map Origination Date: 3/16/2007
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



Protecting and preserving cultural resources in the Indian Canyons area requires long term planning and cooperation on the part of the Tribe, private landowners, and visitors to the Indian Canyons area. The following conservation efforts should be employed as part of this Master Plan's cultural resource preservation strategy:

- The Tribe should acquire land containing high value cultural resources as opportunities become available according to the land acquisition strategy identified in Section 4.1.
- Protect cultural resources by clustering any future development away from archeologically sensitive areas.
- Ensure that cultural resource preservation is considered during the development review process and that the THPO is consulted prior to any future development within the Indian Canyons area.

4.4 Compatible Recreation Improvements

During the preparation of this Master Plan, a series of Indian Planning Commission and Tribal Council study sessions/workshops were held with Tribal membership and affected Allottees to seek community input on the Master Plan and the Indian Canyons area. Based on the comments received regarding the recreation elements contained in the original Master Plan and the goals and objectives of the Tribe, the following recreation program elements are recommended as future improvements to the Indian Canyons area:

Trading Post

Located in one of the most breathtaking sites in the California desert, the Trading Post should add value to the visitor's experience to the Indian Canyons. In addition to periodic maintenance and repairs to the existing facility, this Master Plan calls for limited improvements to the Trading Post including additional interpretive exhibits and the incorporation of solar power as practical; however, any improvements made to the structure should blend into the site and surroundings.

Andreas Canyon Day Use Area

Enhancements to the Andreas Canyon day use area intended to protect the sensitive cultural and natural resources found there. Improved interpretive exhibits and trailhead signage will enhance visitor experience and reduce damage to sensitive cultural resources found in the canyon.

Palm Canyon Day Use Area

As with Andreas Canyon, enhancements to the Palm Canyon day use area will improve the visitor experience and protect sensitive resources. Signage should clearly identify use areas and trails in order to minimize impacts such as degraded stream edges and overly denuded and compacted soils. Interpretive panels along the first several hundred feet of the Palm Canyon Trail can educate visitors about the fragile ecology and cultural significance of the canyon. Additional opportunities for interpretation could include a Cahuilla Indian village similar to the one located in Andreas Canyon.

4.5 Access and Circulation

South Palm Canyon Drive remains the primary entry into the Indian Canyons area and the Master Plan Update maintains this road as the primary access route and auto transportation artery through the park. Road improvements may be required to accommodate increased future usage; however, the road should not be over engineered and should remain a minimal width as narrow roads add to the rural character of the park. Additional gravel pullouts at strategic locations through the park are a suggested possibility, allowing for improved viewing and interpretative opportunities.

An opportunity exists to improve visitors' arrival experience to the park by using berms, plantings, and/or boulders along the edges of South Palm Canyon Drive between Acanto Drive and the Toll Gate. Steps should also be taken to screen views of the concrete lined drainage channel and development to its east using berms, plantings, and/or boulders along the main access road between the toll

gate to just south of the turnoff to Andreas Canyon.

As mentioned, pullouts along the road for interpretive purposes provide visitors the opportunity to exit their vehicles and feel a part the surrounding landscape. Careful consideration must be given as not to impose too many vehicle stops along the main access road as this could diminish the visitor experience by cluttering the landscape with autos. The road to Andreas Canyon should remain narrow to slow traffic and maintain a rural feel leading to the use area. The single lane road between the split boulder below Hermits Bench should remain as it is – a landmark of the park adding to its character.

Parking

Limited auto parking should remain in existing locations. Other than on Christmas Day, when number of visitors to the park spikes dramatically, there is an adequate number of existing parking locations in the Indian Canyons area to serve the needs of daily visitors.

4.6 Indian Canyons Preservation Plan

The Indian Canyons Preservation Plan (see Appendix A) was developed by the Ranger Director in collaboration with the Canyon Foreman to identify short- and long-term action items intended to: i) protect, restore, and preserve the natural and cultural resources and scenic beauty of the Indian Canyons; and ii) share with the public the natural and cultural history of the Indian Canyons. Short-term action items will be implemented immediately, while long-term action items will be implemented over the next five years provided adequate funds and personnel are directed to these efforts.

INDIAN CANYONS MASTER PLAN

SECTION 5: LAND USE REGULATIONS AND DESIGN GUIDELINES

5.1 Land Use Categories & Permitted Uses

As a result of additional land acquisitions by the Tribe since the adoption of the original Master Plan, the area now subject to the Tribe's land use jurisdiction under this Plan (the Master Plan Area) has expanded to include Sections 13, 15, and 23 in T5S, R4E, (see Figure 10). The remainder of the Master Plan Area contains a mix of Tribal, Allotted Trust, and private Fee land.

Criteria for establishing the land use categories identified in this Master Plan are consistent with the Tribe's goals and objectives for the Indian Canyons area; however, existing development plays an important role as well. The Master Plan Area begins at the very north of the greater Indian Canyons Planning Area at Acanto Drive. From there south, the physical environment changes gradually from low density semi-rural surroundings to pristine natural canyon surroundings. In order to be consistent with and preserve this experience, the baseline land use for this area reflects the gradual transition from low-density residential development in the north to very low-density residential and restricted development in the south.

The following land use categories identify the absolute maximum residential density permitted; other uses are conditionally permitted subject to review by the Indian Planning Commission and approval by the Tribal Council. The land use categories for the Master Plan Area are as follows:

- Low Density Residential (LDR): two (2) single family dwellings per acre.
- Open Space – Rural (OS-R): one (1) single family dwelling per 40 acres. *Additional conditions may apply per the THCP.*

Other uses may also be permitted subject to review and application of specific conditions applied by the Tribal Council by way of a Tribal Conditional Use Permit. Such uses may include, but not be limited to:

- Picnic grounds;
- Commercial recreation, complimentary or accessory to the area;
- Tourist facilities;
- Passive/active recreation

Other uses which are deemed compatible with the Indian Canyons environment may be permitted by the Tribal Council.

Use of specific properties will be further constrained and limited by the following criteria:

- Access
- Compatibility with park uses
- Visual impact to park areas
- Preservation of cultural resources
- Preservation and protection of natural systems
- Maintenance of recreational uses
- Flood protection
- Design compatibility

Clustering of residential development is strongly encouraged as long as the overall purpose and intent of the Master Plan is adhered to. An example of clustering would be to take the baseline allowed density over a tract of land and cluster the residential units allowed by the entire property into one portion of the property in order to preserve and protect the unique natural environment of the Indian Canyons area. The Andreas Canyon Club is an excellent example of compatible design and clustering.

Procedures for application of any development proposed in the Master Plan Area can be obtained from the Planning and Development Department.

5.2 Property Development Standards

The following property development standards shall apply to all single family homes:

1. Building height: buildings and structures erected for single family residential uses

shall have a height not greater than twenty-two (22) feet above approved finished grade, and shall not exceed more than one (1) story in height, except as follows:

- a. Chimneys and roof structures for the screening of mechanical equipment may be erected above the height limit;
- b. Two story development no greater than 22 feet in height, subject to approval of a conditional use permit; and
- c. On hillside lots height may exceed 22 feet subject to approval of a conditional use permit.

Single family residential applications requesting exceptions b. and/or c. above shall comply with the following requirements as part of the conditional use permit approval process:

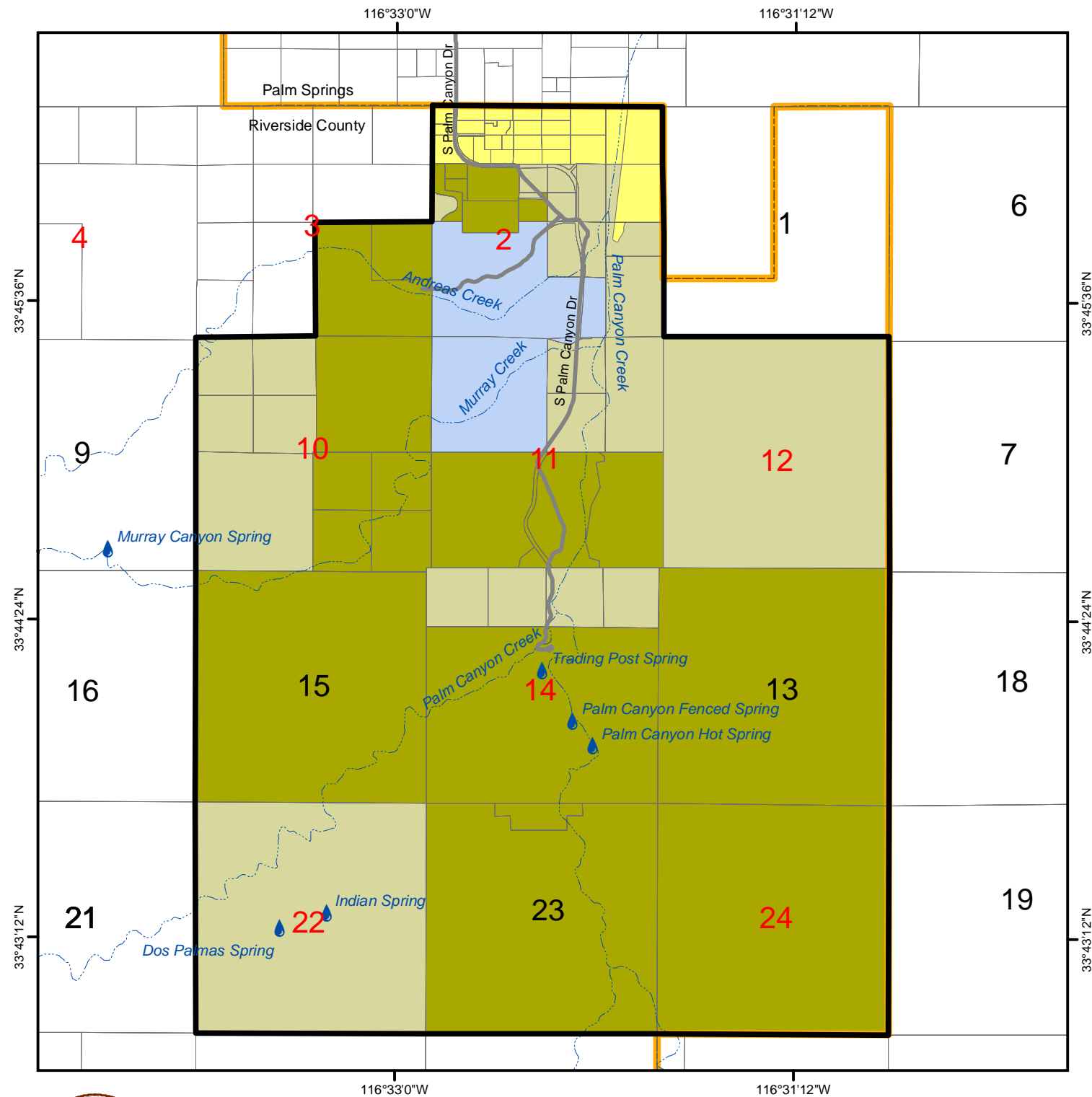
- i) Setbacks shall be increased a minimum of two feet for each foot of additional structure height above 22 feet; the Tribal Council may require additional setbacks on a case by case basis;
 - ii) Enhanced screening/buffering of the structure towards adjacent properties shall be incorporated;
 - iii) A visual and spatial analysis relating to structure proportions, massing, height, and setbacks shall be conducted to ensure that the structure will not have a detrimental effect upon adjacent properties or the viewshed of the Indian Canyons area;
 - iv) The need and appropriateness of the additional height and/or story shall be demonstrated; and
 - v) Compatibility and harmony with surrounding land uses and zoning shall be demonstrated.
2. Walls and fences: no more than one (1) acre of land per lot shall be enclosed by any wall or fence subject to the following additional restrictions:

- a. Front and front side yards: walls and fences shall not exceed four and one-half (4 ½) feet in height; provided, such wall or fence is constructed of decorative masonry or metal; provided, such wall is no closer than five (5) feet to the property line. Such walls and fences may be permitted on the property line if, in the opinion of the Tribal Council, a hardship exists in setting back the wall or fence from the property line.
 - b. Rear and rear side yards: walls and fences shall not exceed six (6) feet in height along side and rear lot lines.
 - c. Walls and fences may be permitted to exceed the above height limitations if, in the opinion of the Tribal Council, a hardship exists such as traffic noise or topography.
3. Lot coverage: on lots greater than one (1) acre the area covered by buildings or structures shall not exceed twenty (20) percent of the total lot area.
4. Distance between buildings: the minimum distance between buildings shall be fifteen (15) feet.

Property development standards for single family homes in the Bella Monte and Park Andreas communities will conform to the standards set forth by their respective Homeowners Associations and subject to the final approval of the Tribal Council.

5.3 Architectural Guidelines

The Indian Canyons area is truly a special place, unique in its natural beauty and history. This Master Plan is mindful of the importance of the area's history and the beauty of its natural surroundings. Therefore, the overall goal of the architectural guidelines included as Appendix B is that all landscaping and architecture respect the Indian Canyons history and weave harmoniously into the area's natural environment. The architectural guidelines should be considered on all future single family development within the Master Plan Area.

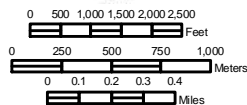


AGUA CALIENTE INDIAN RESERVATION

INDIAN CANYONS MASTER PLAN

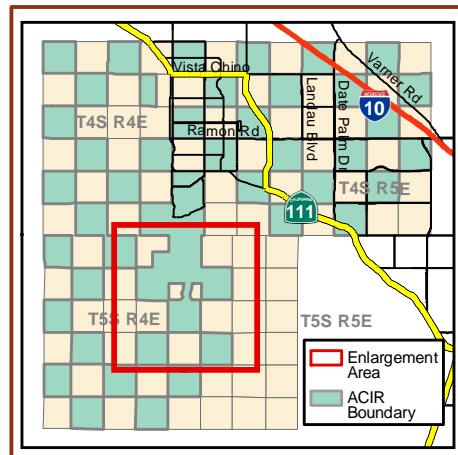
FIGURE 10: LAND USE PLAN

- Intermittent Streams
- Indian Canyons Master Plan Area
- Low Density Residential (LDR) - 2 DU/acre
- Open Space - Rural (OS-R) - 1DU/40 acres
- Tribal Reserve
- Heritage Park
- Reservation Sections
- Political Jurisdictions



Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883-1911/Fax (760) 883-1937

Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Planning/ICMP/Updated_3_07/ICMP_Land Use Plan.mxd
 Map Origination Date: 11/14/2007
 This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
 Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - This map contains geographic information owned by the County of Riverside.
 - All other layers provided by ACBCI Planning & Development Department



APPENDIX A

INDIAN CANYONS PRESERVATION PLAN	PRIMARY GOAL			SECONDARY GOAL
	Protect	Restore	Preserve	Share
SHORT-TERM (ST) ACTION ITEMS				
ST-1: Prohibit the construction and development of land in the Indian Canyons area that does not meet the goals of the Indian Canyons Master Plan.	X		X	
ST-2: Expand the boundaries of the Indian Canyons Planning area to include all of Township 5 South, Range 4 East in order to protect cultural resources in Sections 21 & 35.	X		X	
ST-3: Devise an acquisition plan for all non-Tribal lands within the Planning Area, such as the old Gilligan property.	X	X	X	
ST-4: Prohibit any future development of lands within the Indian Canyons area that does not support the objectives of this Preservation Plan.	X		X	
ST-5: Ensure that any new construction within the Indian Canyons area be designed in such a way that they are: functional, low profile, and unobtrusive.	X		X	
ST-6: Maintain and acquire the necessary easements for the existing road to the Indian Canyons and restore the area cleared for the new road alignment to its natural state.		X		
ST-7: Install "Tow Away Zone" signs along road to Indian Canyons to discourage trespassers.	X			
ST-8: Install "No Trespassing" sign on gate to the old museum site along road to Indian Canyons to discourage trespassers.	X			
ST-9: After Park hours only, install barricades and/or signage across the entrance to the Indian Canyons Area just south of Acanto Drive reading: "Do Not Enter, Residents Only."	X		X	
ST-10: Establish an exotic weed removal/management program for riparian habitat within the front country areas of the Indian Canyons.		X		

INDIAN CANYONS PRESERVATION PLAN	PRIMARY GOAL			SECONDARY GOAL
	Protect	Restore	Preserve	Share
ST-11: Establish a fuels suppression program within the front country areas of the Indian Canyons.		X		
ST-12: Establish program to control the growth of wild grape vines in the front country areas of the Indian Canyons.		X		
LONG-TERM (LT) ACTION ITEMS				
LT-1: Establish a two-man trails crew dedicated to maintaining all trails in the Indian Canyons.	X	X	X	
LT-2: Establish an exotic weed removal/management program for riparian habitat within the backcountry areas of the Indian Canyons.		X		
LT-3: Begin restoration of front country areas using native plants not seen in the Indian Canyons in the recent past, including white sage and desert tobacco.		X		
LT-4: Establish a fuels suppression program within the backcountry areas of the Indian Canyons.		X		
LT-5: Renovate or replace the Tollbooth to the Indian Canyons.				X
LT-6: Establish a fulltime Trading Post/Information Center at the old Gilligan property.				X
LT-7: Increase Ranger patrols in the backcountry to ensure that guests are safe and in compliance with Canyon regulations.				X
LT-8: Develop educational self-guided hikes in Palm and Andreas Canyons. Self-guided hikes would include a brochure with a map of the trail and descriptions of points of interest corresponding to markers along the trail. (Palm Canyon Trail-1/2 mile and Andreas Canyon Trail-1 mile).				X
LT-9: Develop Ranger led-hikes into the backcountry for the more advanced hikers. For example, guests can sign up for hikes with a Ranger into Murray Canyon (4 miles), West Fork (5 miles), or Palm Canyon (6 miles).				X

INDIAN CANYONS PRESERVATION PLAN	PRIMARY GOAL			SECONDARY GOAL
	Protect	Restore	Preserve	Share
LT-10: Develop interpretive signage turnouts along South Palm Canyon Road.				X
LT-11: Replace guard rail and improve rock wall from Trading Post parking area.				X
LT-12: Replace asphalt and hand cable from trail leading into Palm Canyon from Trading Post.				X
LT-13: Replace old fencing along northern perimeter of the Indian Canyons.				X
LT-14: Adopt Cahuilla names for trails and canyons in Indian Canyons that are named after Desert Riders and other pioneers.				X
LT-15: Renovate the exterior of the old gas station.		X		X
LT-16: Renovate the exterior of the old Siva Family house.		X		X

APPENDIX B

ARCHITECTURAL GUIDELINES

Architectural Design

Architectural inspiration should come from the best examples found in the surrounding desert environment and be consistent with the Tribe's rich history and tradition. Design the form and massing of the home with respect for the existing landforms. The height of the home should be kept as low as possible without losing sculptural qualities and the integrity of the concept.

Four-Sided Architecture

Four-sided architecture is required. In other words, the side or rear of a home should have the same design integrity as the front of the home. The same level of detail, window type and trim or accent materials should be used, thereby enhancing near and distant views of the home.

Two Story Development

To protect neighborhood privacy, the following guidelines should be followed to minimize the impact of two story development on adjacent properties.

Preferred Two Story Design Features

- Overall building height should be compatible with the existing neighborhood height patterns, specific sensitivity should be paid to the structures' relationship and transition to adjacent residences.
- Second floor setbacks should be increased on walls that face the street or that face adjacent building walls.
- Second floor windows facing adjacent properties should be offset or staggered to prevent direct views into neighboring windows.
- Balconies and decks should avoid direct sight lines to neighboring windows or livable outdoor areas.

Two Story Design Features that Should be Discouraged

- Locating high activity spaces adjacent to low-activity spaces on adjacent properties (such as a backyard patio that is adjacent to neighboring bedroom windows).
- Creating large blank walls as a result of trying to address privacy concerns.

Features of two-story design that should be prohibited:

- Dramatic variations in building height between adjacent residences and the existing neighborhood pattern.
- Windows, balconies, or decks that face directly into a neighboring home or livable outdoor space.

Garages

In order to reduce the impact of garages on the streetscene, they should be limited to less than 50 percent of the front elevation of a home, whenever possible. Likewise, the exposure of garage doors should be minimized. When garage doors are visible from

the street or from a high visibility public viewpoint, mitigate their appearance by incorporating deep recessed doors in the wall plane, adding overhead trellis structures or providing porte-cochères.

Landscaping

Designers should provide integrated floor and conceptual landscape plans as part of the architectural design package submitted for approval. The purpose of submitting both plans together is to demonstrate how the home design and the lot landscape design are interwoven.

All landscape development should respect, not dominate the natural environment. Landscaping should be provided at the front of the home and between privacy walls and common street edges with plants that are native to the desert environment; natural plants and natural landforms should be left in an undisturbed state. It is equally important that the built environment is natural in appearance. Toward this end, post construction revegetation should include salvaging as much as possible of the natural material, vegetation, and rocks found on the site.

Character and Goal

The following describes the community-wide character and goal for the Indian Canyons area which will guide any future development in the area.

Preservation and Conservation

The mandate from the Tribe is to preserve as much meaningful open space as practical, including common contiguous open space and private open space. Topography, slopes, washes, wildlife corridors, and natural features should be carefully considered during the design and development of any structure. Deferential studies and careful design decisions guarantee that open spaces and community elements will be situated where they belong to protect natural resources.

Site Design

Architecture and its corresponding elevations must be considered simultaneously with and, in context to, grading and building-pad planning. On sloping land parcels, the ability to incorporate grade changes within the structure's architecture will minimize the need for retaining or privacy walls to successfully develop the home.

Water and Energy Conservation

The Tribe is committed to energy conservation and environmental excellence. The Planning and Development Department is happy to work with individual lot owners, builders, and architects to achieve high standards of energy efficiency and water conservation. Programs, solutions and design techniques to achieve these goals will be discussed during meetings as part of the residential design approval process.

Exterior Materials

Use durable exterior materials; the concern has to do with the durability and aesthetic appropriateness in a desert setting.

Walls

Exterior walls can be stucco, stone or a variety of masonry types. Smooth steel trowel finish, fine to medium sand finish, or textured finish stucco is acceptable.

Decorative Color Tiles

Color tile used as accents maybe considered if the color impact is subtle.

Wood

Wood is desirable but should be used with great care due to the harshness of the desert climate. Heavy timber is acceptable.

Exterior Accent Materials

Accent materials should be three-dimensional. Stone piers or expanses of stone on walls should wrap the wall mass and continue to a point on the home where it can terminate on an inside corner. Fully wrap all four sides of a form. No material change, color change, or detailing on a home should ever terminate on an outside corner.

Roofs

Acceptable sloped roofing material should have earth-tone colors. Clay tiles, natural slate stone shingles, and flat concrete tiles are acceptable. Accent roof materials may include copper with a patina to eliminate the initial shiny appearance; corten steel, standing seam metal, and enamel-coated metal, which do not have a shiny surface, are also acceptable.

Exterior Lighting

The overriding objective is to minimize any unintended harsh lighting or hot spots when viewed from a neighboring property or the greater Indian Canyons area. Quality of life means, in this sense, the ability to enjoy the star filled nights in the desert without conventional ambient lighting or street lighting interference; therefore, the following exterior lighting standards apply:

- Spotlights and floodlights are prohibited, except for those activated by a motion detector and only when specifically approved;
- Exterior wall, fence, and building mounted light fixtures should be integrated into the architecture of the home;
- Wall, soffit, or pathway light fixtures shall be minimized and enclosures designed to conceal the light source and light must be directed downward;
- Photocell lighting is encouraged to contribute to energy conservation and the ambience of streetscape lighting where appropriate;
- Intense or concentrated lighting against walls or architectural features, or as part of any landscape-element uplighting, should be avoided.
- Additional exterior lighting standards may apply per the THCP.

Color Palette

The goal is to select a color palette for homes within the Indian Canyons area based on the colors and tonalities of the desert geology and vegetation; therefore, the following standards apply:

- There should be no discordant changes in color between neighboring houses;
- Color palette requirements will apply to the home, to all exterior surfaces, walls, parapets, flat and sloping roofs, and to all fences and privacy walls; and
- Ornamental metal works will be part of the color palette solution, as will vents, louvers, chimney caps, railings, utility boxes, mailboxes, flues, and flashing or any other appendage to the home.

Additional Design Elements

- Skylight lens material should be clear, bronze or gray, not white or mirror finish to avoid high-reflectivity hot spots. Interior lighting around the edge of the skylight should be focused downward or oriented away from the lens of the skylight.
- Flagpoles and exterior sculptures may be used, but should not be made of reflective surfaces that create glare or hot spots.
- Freestanding storage structures that protrude above walls or are visible through fences are discouraged.
- Simple, small-scale address-sign numbers may be attached to the home or to the related garden or courtyard walls; avoid oversized address signs, family names, or any other special identification.
- Swimming pools should be placed on the lot to avoid high visibility exposure and nuisance noise to adjacent properties.
- Seasonal decoration used at appropriate times during the year should comply with the general rules applying to outdoor lighting ambiance – avoid uplighting and nuisance hot spots.
- All vehicles permanently parked or stored on the property should be screened from view by providing additional landscaping and inconspicuous privacy walls when appropriate.

TAHQUITZ CANYON WETLAND CONSERVATION PLAN

Agua Caliente Band of Cahuilla Indians



Tahquitz Canyon Wetland
Conservation Plan • 2000

Acknowledgements

The Agua Caliente Band of Cahuilla Indians wishes to acknowledge and thank the following agencies, organizations and individuals for generously contributing their time and assistance in researching and writing this document:

U. S. Environmental Protection Agency
U. S. Bureau of Land Management
U.S. Bureau of Indian Affairs
U. S. Department of Agriculture Natural Resources Conservation Service
U. S. Fish & Wildlife
California Department of Fish & Game
Coachella Valley Mosquito & Vector Control
The Living Desert
Desert Cities Bird Club
College of the Desert Instructor, Kurt Leuschner
Connolly & Associates Environmental Consulting
Springer and Anderson Environmental Consulting
Ron Cordes
Tom Davis
Ron Deluna
Ralph Kato
Michael Kellner
Donna Largo
Dana Prieto
Bill Reis
Ginger Ridgeway
Jim Taylor
Barbara Wicker

Prepared
for
The Agua Caliente Band of Cahuilla Indians

By
Connolly & Associates
Tribal Environmental Consultants
1600 Buckman Springs Rd.
Campo, California 91906
(619) 478-2177

Table of Contents

Location Map.....	4
Introduction.....	5
3-D Terrain View of Tahquitz Creek.....	6
History of the Desert Cahuilla & The Agua Caliente Band.....	7
Tribal Government & Administrative Structure.....	9
Tahquitz Canyon: Aerial View.....	10
Tahquitz Canyon Geology.....	11
Mean Water Flow of Tahquitz Creek.....	12
Wetlands.....	13
Long-Term Wetland Protection Approach.....	15
Palm Springs Rainfall: 1927-1996.....	16
Tahquitz Wetlands Conservation Area	18
Native Plants of Tahquitz Canyon.....	19
Exotics: Non-Native Plants of Tahquitz Canyon.....	21
Tahquitz Canyon Wildlife.....	23
Endangered Species of the Coachella Valley.....	24
Bighorn Sheep Habitat Map.....	25
Public & Recreational Uses.....	26
Summary and Recommendations.....	27
References.....	29
Appendix 1 and 2	

Agua Caliente Indian
Reservation

RIVERSIDE COUNTY, CALIFORNIA

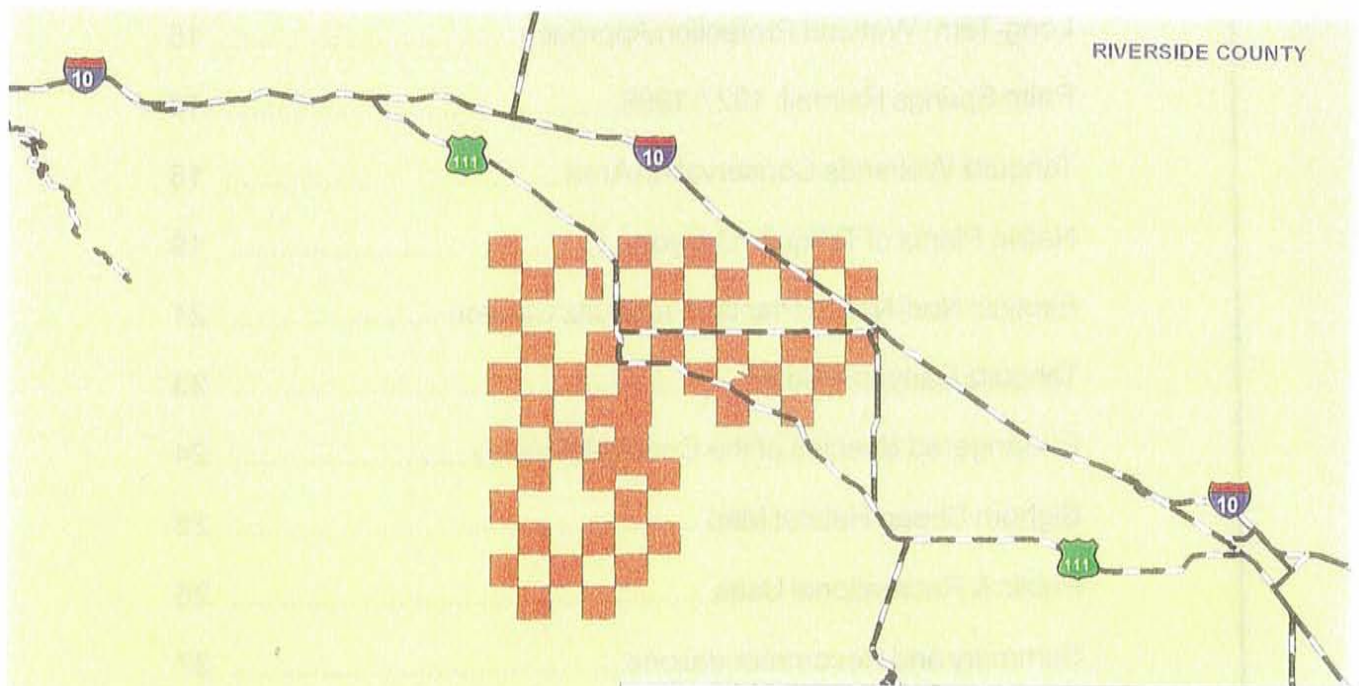
SAN DIEGO COUNTY, CALIFORNIA

Salton
Sea

CALIFORNIA



20 0 20 Miles



RIVERSIDE COUNTY

5 0 5 10 Miles



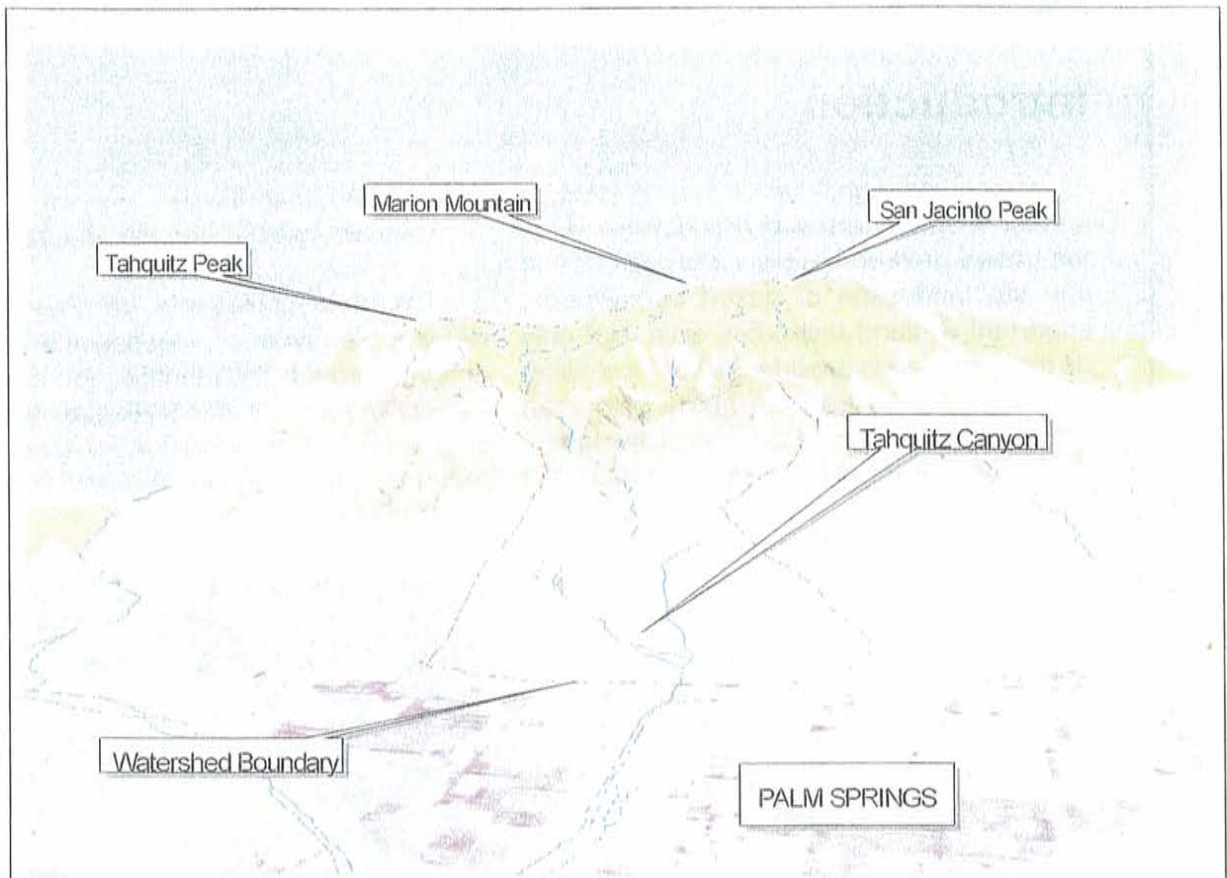
AGUA CALIENTE BAND OF CAHUILLA INDIANS
TAHQITZ CANYON WETLANDS CONSERVATION PLAN

LOCATOR / VICINITY MAP

Source: USGS, EPA



Connolly & Associates



3-D terrain view of Tahquitz Canyon looking west from Palm Springs. A terrain model was used with digital USGS topographic maps to model the topography in the canyon.



TAHQUITZ CANYON WETLANDS CONSERVATION PLAN



Connolly & Associates



Springer & Anderson, Inc.

Introduction

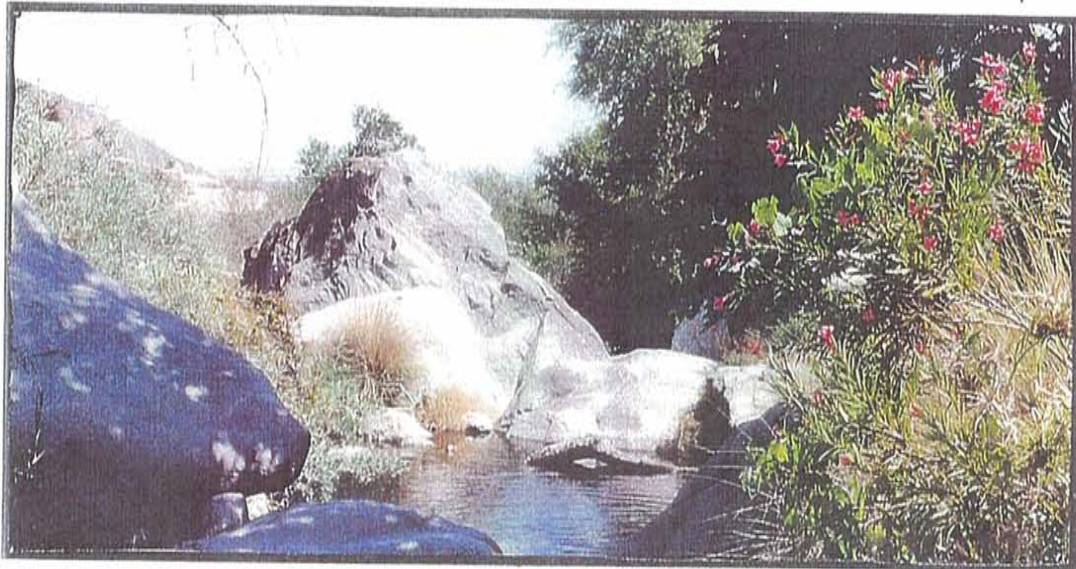
The most significant factor in limiting habitat development and productivity within the desert environment is water. Yet, within the arid landscape of desert ecosystems, important wetland resources exist. Not only do these wetlands provide habitat for wildlife, but they contribute to the ability of human societies to thrive in otherwise hostile lands.

For the Agua Caliente Band of Cahuilla Indians, the wetland areas possess an additional and equally important dimension.

- Improve woodlands
- Secure against erosion effects

The accomplishment of these goals requires a dynamic, responsive plan of action. Through the identification of current and past conditions, the development of plans to preserve or improve each aspect of the resource that is Tahquitz Canyon may be accomplished.

This plan focuses on the lower portion of



Wetlands are, to the Cahuilla people, historic regions which link the culture and traditions of the past with the economic necessities and culture of today.

Through mitigation, restoration and enhancement of the stream, this plan contains the following goals for Tahquitz Canyon:

- Reduce erosion
- Improve soil and water quality
- Improve and conserve wetlands
- Enhance fish and wildlife habitat
- Improve and maintain air quality
- Improve pasture and range conditions
- Reduce upstream flooding

the Canyon below the falls, which is quite different from the steep topography and rocky stream bed which give rise to dramatic changes in the upstream ecosystems.

This plan is the start of a conservation program that will incorporate further studies of Tahquitz Canyon, as well as more comprehensive studies and plans for other lands of the Agua Caliente people.

It represents a starting point from which the Tribe can begin the restoration and protection of its vital wetland resources. This plan will be subject to periodic review and update to include program successes and changing environmental conditions.

History of the Desert Cahuilla & The Agua Caliente Band

Consisting of many small communities located in and around Palm, Murray, Andreas, Tahquitz, and Chino Canyons, the Agua Caliente Band of Cahuilla Indians possessed a complex and well defined society long before the first Europeans reached North America. With as many as 200 residents in each village, several Cahuilla villages formed a larger territorial unit known as a "tribelet." Each triblet recognized and divided its membership into lineages of both nuclear and extended family groups, with each branch receiving equal recognition in tribal and ceremonial life.

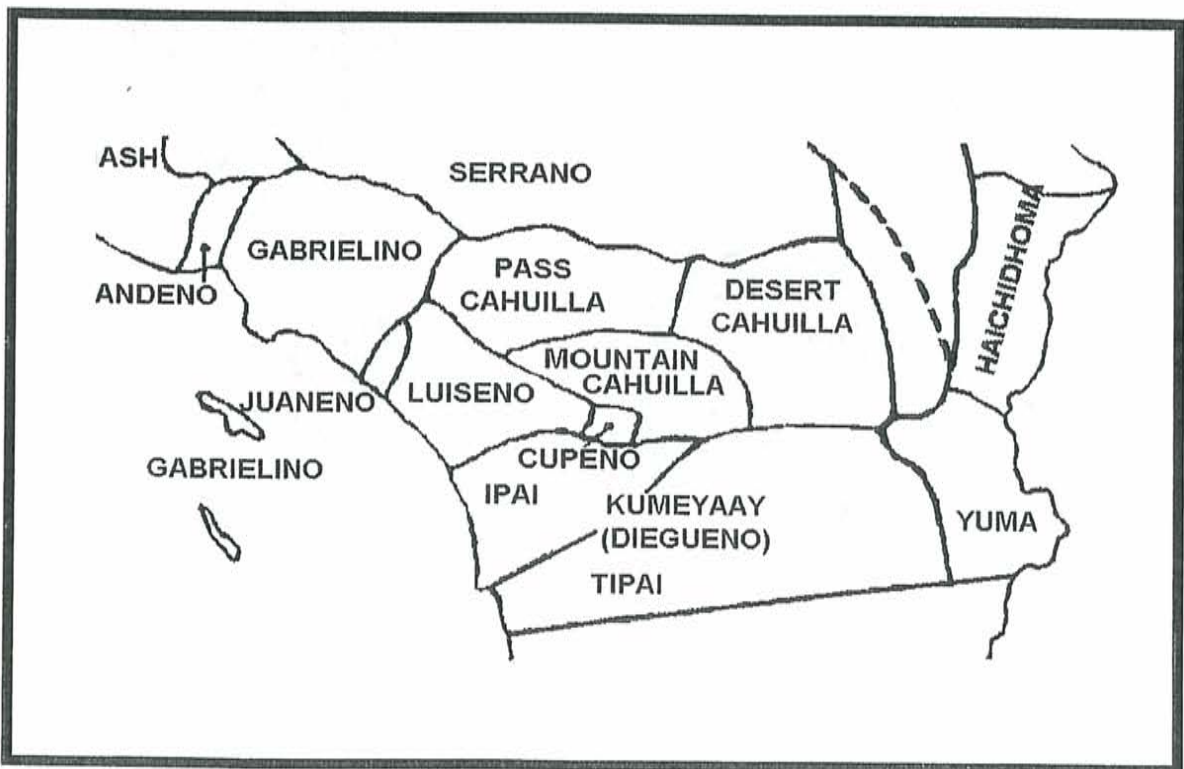
The traditional language of the Cahuilla has its roots in the Shoshonean branch of the Uto-Aztecan language family, which extends from the American Southwest far into central Mexico.

Always an independent people, the

Cahuilla enjoyed a rich and active ceremonial life noted for an emphasis on peace and individual integrity.

Native palm trees provided dates which, along with pinon nuts, acorns, and mesquite beans served as staples of the Cahuilla diet. Agriculture also played an important role, primarily with the cultivation of melons, corn, squash and beans. When possible, this vegetarian fare was supplemented with rabbit, mountain sheep, deer, quail and squirrel. The agave plant served not only as a source of nutrition, but its fiber was used in the manufacture of fishing nets, sandals and many other useful items.

Until the later half of the 19th Century, due to the relative isolation of their desert homeland, the Cahuilla Indians were largely spared from the domination and abuses visited upon other California tribes.



Agua Caliente Band of Cahuilla Indians

Spanish colonization and the encroachment of non-Native American settlers brought many miseries to the Cahuilla.

Along with changes in diet and mistreatment by whites, measles and smallpox took a terrible toll on the Native population. There are only about 2,000 individuals living today who may properly claim Cahuilla descent. These survivors are scattered throughout Southern California, living not only on the Agua Caliente Reservation but on the Augustine, Cabazon, Cahuilla, Los Coyotes, Morongo, Ramona, Santa Rosa, Soboba, and Torres Martinez Reservations as well.



Tribal Government & Administrative Structure

Under a constitution and bylaws adopted on June 28, 1955 and last amended in 1992, the Agua Caliente Band of Cahuilla Indians is governed by a Tribal Council. The Council consists of five members including the Chairman, Vice-Chairman and Secretary who serve two-year terms and, two General Council members who are elected annually. Elections are held each March and are conducted by the general membership of the Agua Caliente Band. All tribal members aged 18-years and older are eligible to vote and run for office.

The Tribal Council is empowered, via the Constitution, to protect and preserve all Tribal property including wildlife and natural resources. The Constitution also mandates that the Council ensure the rights of all Tribal members to practice traditional cultural arts, crafts and religious activities.

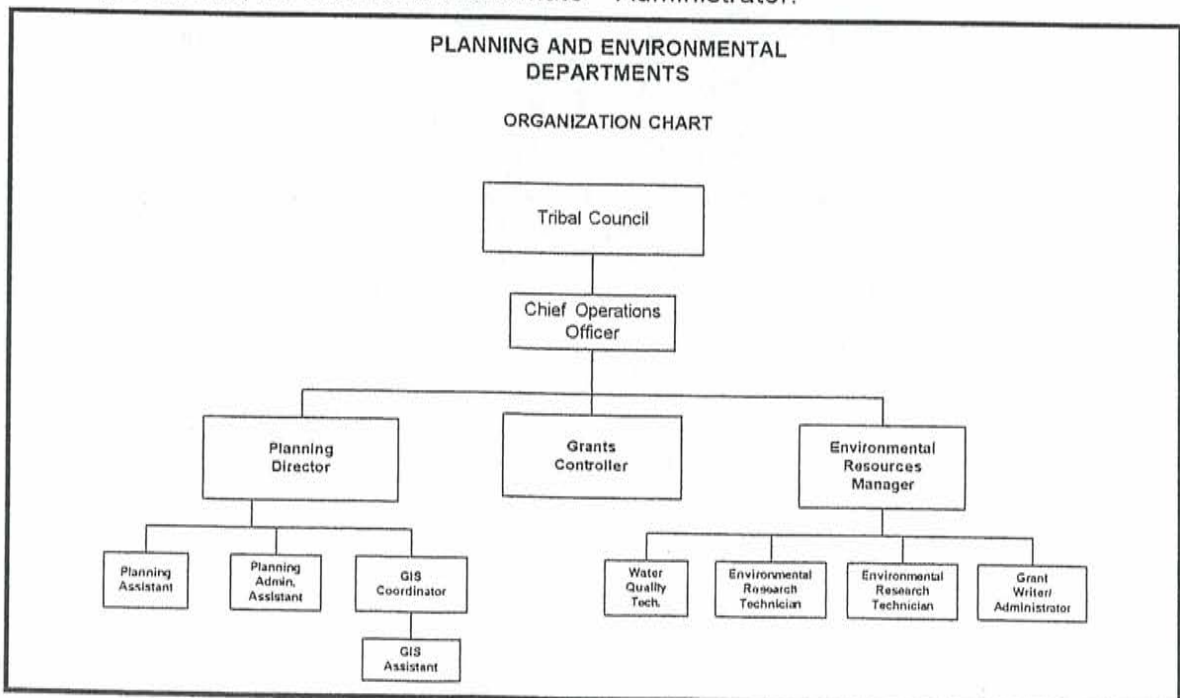
The Council is the Tribe's representative in all dealings with outside governments. Overseeing various land-use contracts and other agreements, the Council is the ultimate

arbitrator in all matters that may affect Agua Caliente Tribal Trust lands.

Additionally, the Council maintains financial oversight of the Agua Caliente Band and all programs administered by the Tribal government.

Planning & Environmental Departments

The Planning and Environmental Departments of the Agua Caliente Band serve as the lead agencies in matters of development and environmental concern on the Reservation. The Planning and Environmental Departments, and Grants Controller report to the Tribal Council through a Chief Operations Officer. The Planning Department consists of the Director, a Planning Assistant, Planning Administrative Assistant, Geographic Information Systems (GIS) Coordinator and GIS Assistant. The Environmental Resources Department is made up of a Manager, a Water Quality Technician, two Environmental Research Technicians, and a Grant Writer/Administrator.





Tahquitz Canyon: Aerial View

Tahquitz Canyon Geology

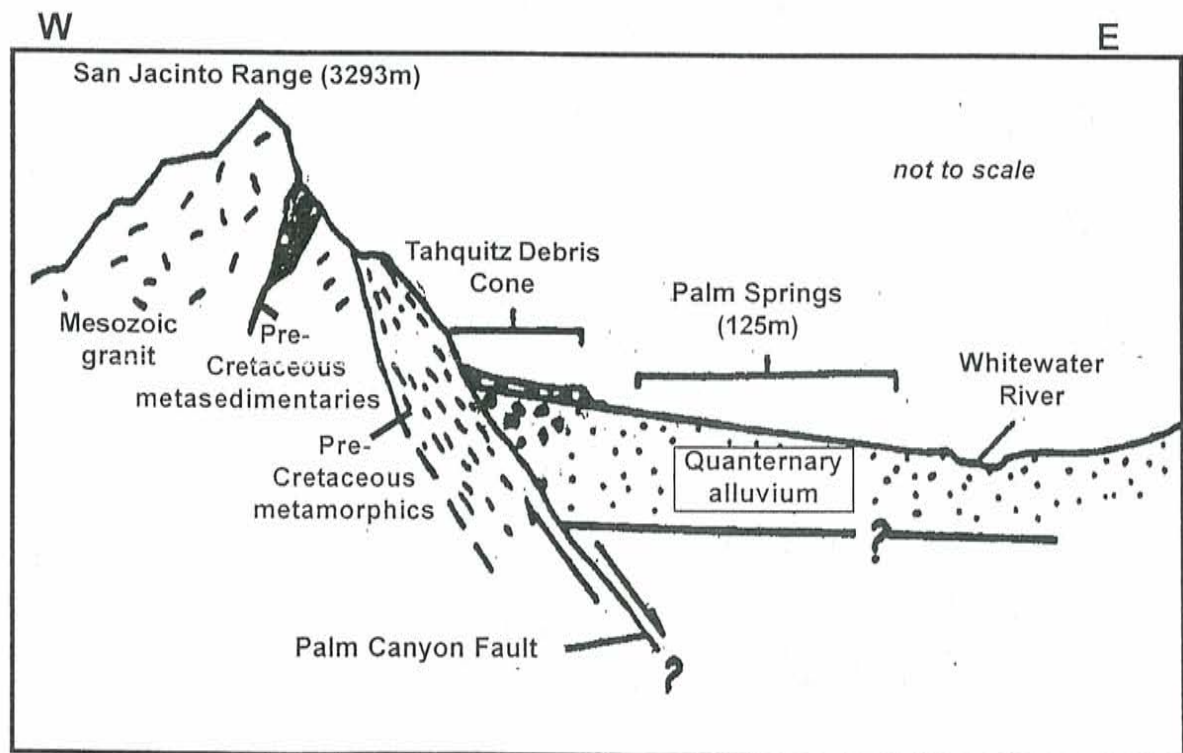
Tahquitz Canyon owes its existence to an unusually varied confluence of natural geologic and climatic features, not the least of which is its proximity to the intersection of two major geographic areas — the Peninsular Mountain Ranges and the Colorado Desert.

Towering above Tahquitz Canyon, the steep slopes of the San Jacinto Mountains, along with earthquakes, temperature extremes and other factors, have all contributed to the area's unique geology.

Sheering along the eastern face of the San Jacinto Mountains has produced bedrock at the mouth of the Canyon which is composed primarily of schist and gneiss. However, the most significant factor shaping the geology of Tahquitz Canyon is Tahquitz Creek.

Alluvial deposits are commonly formed when steep mountain creeks flow out onto relatively flat surfaces. When these deposits take the shape of a cone, as they do at Tahquitz Creek, they are called alluvial fans. This Creek carries various sediments from the steep upper watershed and deposits them in the Tahquitz alluvial fan, which extends from the mouth of Tahquitz Canyon to the Whitewater River floodplain. Soils adjacent to the Creek include Carrizo stony sand and Carsitas cobbly sand, which are both very permeable.

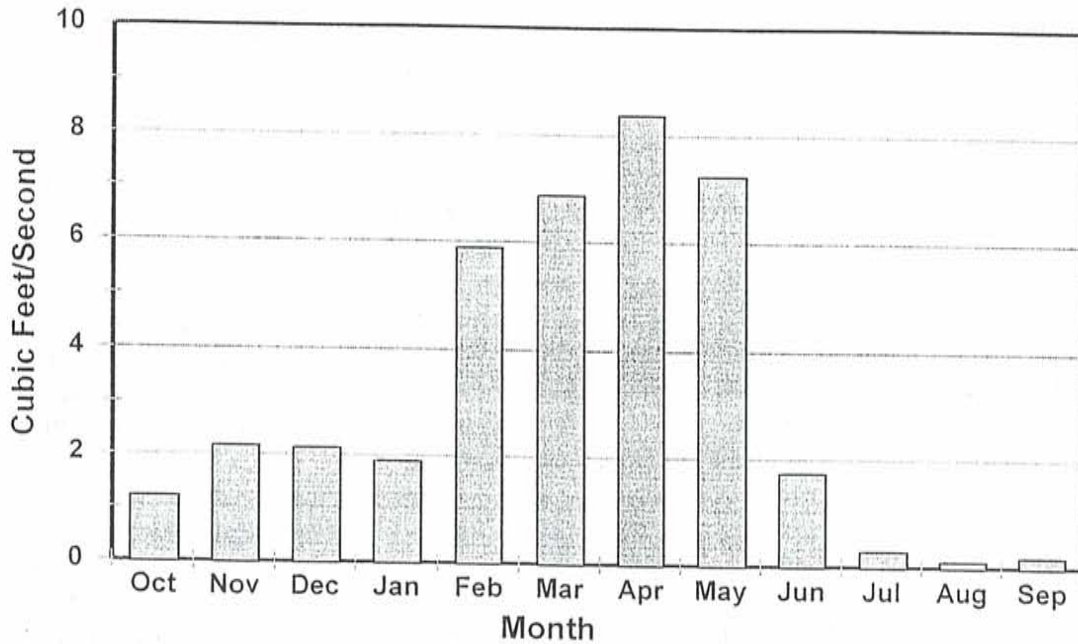
Tahquitz Creek does not normally discharge to another body of water. Although a part of the Coachella Valley drainage into the Salton Sea, water from Tahquitz normally sinks into the alluvial fan at the canyon mouth.



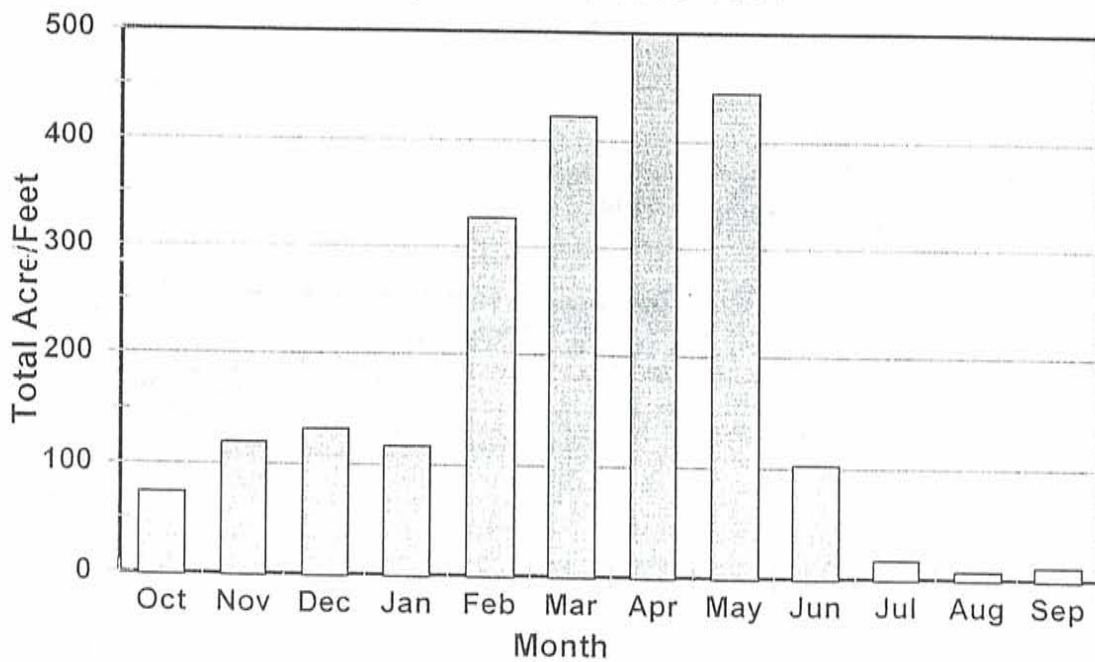
Cross Section of Tahquitz Canyon Area

Agua Caliente Band of Cahuilla Indians

**Mean Water Flow of Tahquitz Creek
1993-1994**



**Monthly Total Water Flow
Tahquitz Creek 1993-1994**



Wetlands

In general, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. The single feature that most wetlands share is soil or substrate that is at least periodically saturated with or covered by water.¹

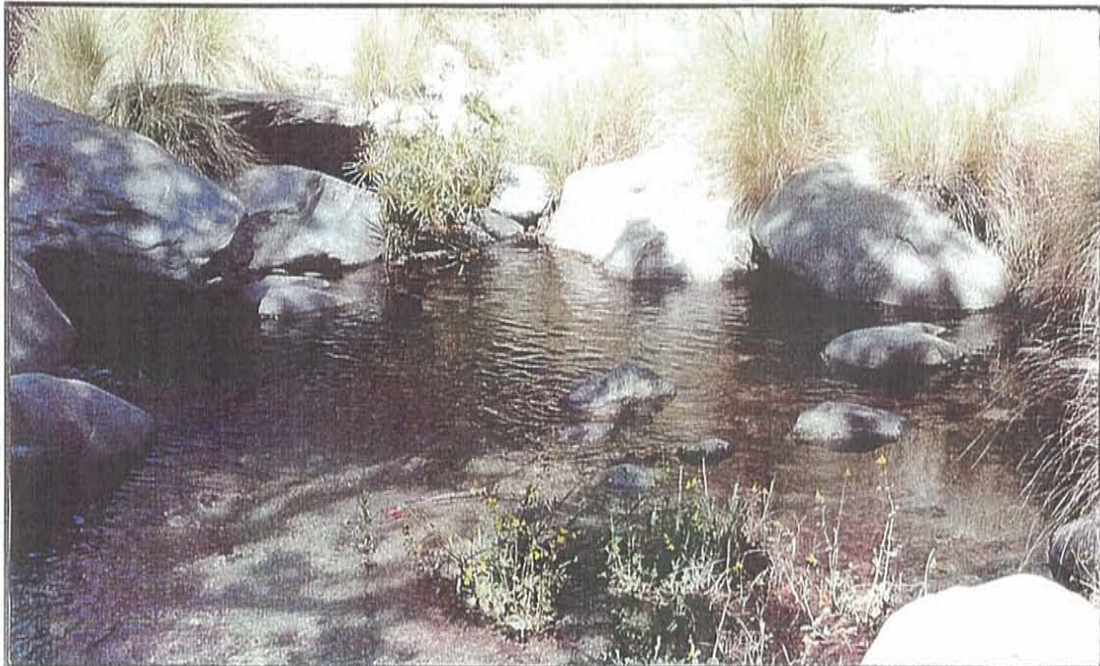
Among the many important ecologic functions of wetlands is the provision of habitat for mammals, amphibians, songbirds, fishes and migratory waterfowl. Wetland areas provide water, forage, and shade for animals, and also serve to purify the water as it moves through the area.

The cooling effect caused by evaporation and vegetation growing around the banks of wetlands helps many animals survive during periods of high temperatures. Additionally, wetlands are irreplaceable sources of ground water recharge and flood control.

These essential wetlands functions are of vital concern and are subject to the protections contained in this plan.

Under the Cowardin System (as described in "Classification of Wetlands and Deepwater Habitats of the United States by Lewis M. Cowardin, U.S. Fish and Wildlife Service, December 1979), Tahquitz Creek could generally be described as a Riverine System, Upper Perennial and/or Intermittent Subsystem, Rock Bottom Class. Riverine systems are bounded by the upland and by the channel bank and normally discharge to an ocean or lake. Unfortunately, the Cowardin System has some limitations. It's classification categories do not always cover terms of wetland function, basin size and shape, and water source.

¹Classification of Wetlands and Deepwater Habitats of the United States by Lewis M. Cowardin, U.S. Fish and Wildlife Service, December 1979.



Agua Caliente Band of Cahuilla Indians

Tahquitz Canyon wetlands are primarily riparian in nature, occurring on the banks and floodplain of the stream. Flooding, along with the erosion and deposition of sediment, are common characteristics of riparian wetlands such as those found in Tahquitz Canyon.

Upstream from the mouth of the canyon, Tahquitz Creek generally flows year-round. Winter rains and the runoff from melting snows in the springtime allow the Creek to flow far to the east across the alluvial fan. As it spreads out over the fan much of the water in Tahquitz Creek seeps into the ground. During summer months the Creek carries only enough water to extend to the mouth of Tahquitz Canyon.

Domestic animal grazing, tree cutting and the erosion caused by water diversion are all past activities which have contributed to a decline in the quality of the Tahquitz riparian habitat. In many areas of the Canyon, exotic

plants supplanted native vegetation and years of uncontrolled human intrusion took their toll. Litter, vandalism and other assaults on the ecosystem contributed greatly to the degradation of the stream.

In the 1990's, the Agua Caliente Band commenced a program aimed at the restoration of Tahquitz Canyon. Litter and other debris was removed, the effects of vandalism were mitigated, and human access to the area was controlled through regular patrols by Tribal Rangers.

To ensure the continued protection and restoration of the Tahquitz Canyon area, the Agua Caliente Band has prepared this wetlands conservation plan. With this plan's adoption, the Band seeks to formalize its goals toward the restoration and preservation of the unique Tahquitz Canyon wetland environment.



Long-Term Wetland Protection Approach

Wetland delineation is normally based on three factors:

- **Hydric Soils**
- **Water**
- **Wetland Plants**

The presence of any two of these attributes is generally considered an indication of the presence of a wetland area.

While this approach to wetland delineation may work in many areas, for the desert habitats of the Agua Caliente lands it may provide insufficient protection of Tribal resources.

Long-term climatic cycles may obliterate

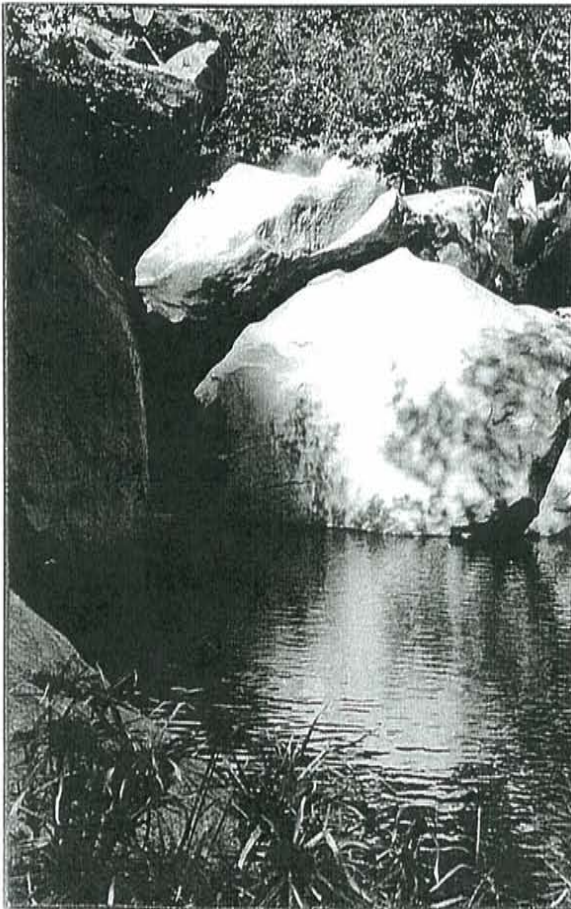
all traces of a wetland area. However, subsequent wet climatic cycles may cause the re-emergence of these wetlands.

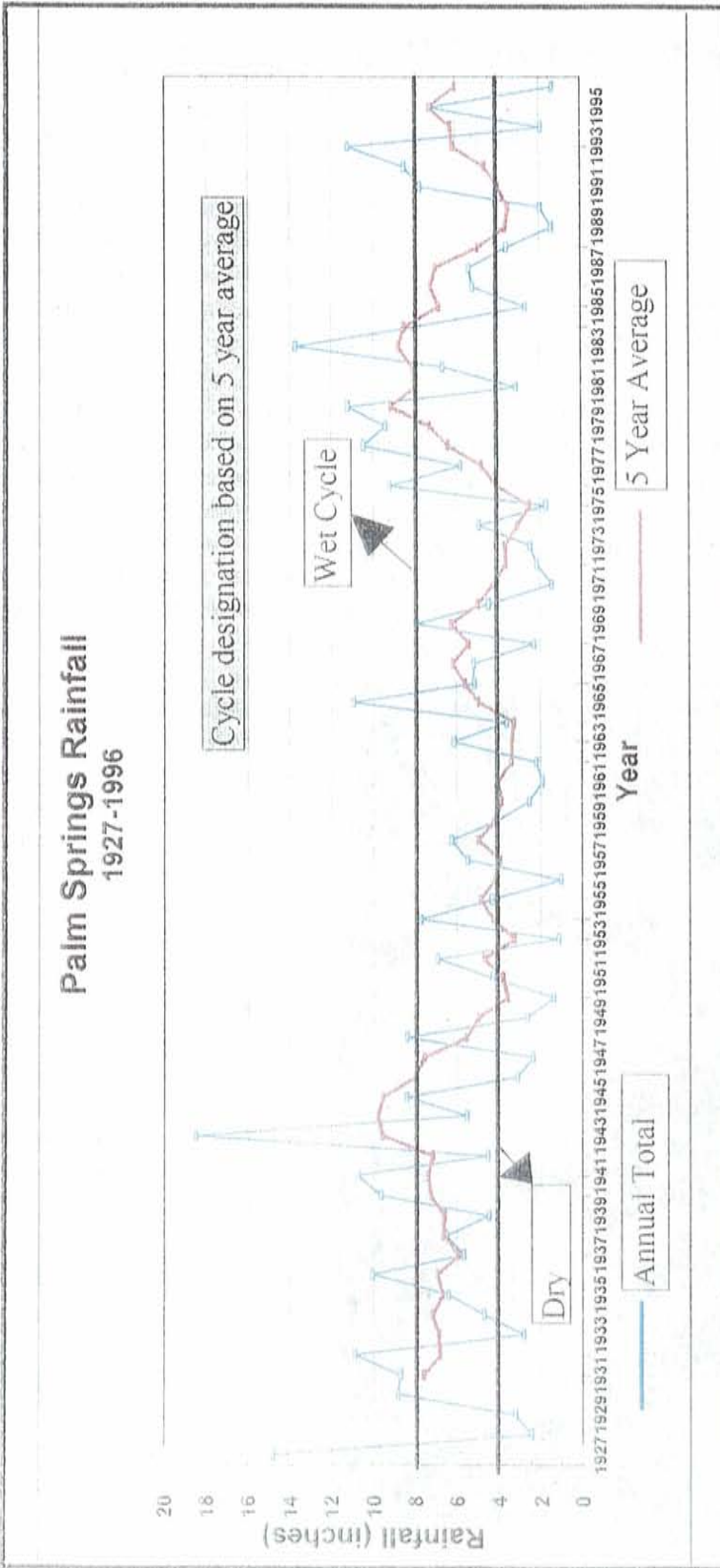
Rainfall patterns for the Palm Springs area show annual fluctuations from under two inches to over 10 inches since 1927. Long term trends appear to follow a 40-year pattern (although data is insufficient to make a definitive determination). We can, as a first step, characterize rainfall in broad categories of wet cycle, moderate cycle, and dry cycle of annual rainfall. Within these long term annual cycles we can identify the emergence and/or disappearance of wetland areas and correlate linkages to long-term precipitation patterns.

Monthly fluctuations over 70 years show a general pattern of rainfall. Wet season rainfall (and snow at the higher elevations) is certainly the greatest contributor to the Tahquitz Canyon system. These rains are the result of cold fronts moving in from the Pacific Ocean. Secondary, but important contribution to the rainfall picture are the summer thunderstorms and monsoon rains. Thunderheads build over the mountains during the summer and move out over the desert in unpredictable patterns. Monsoon rains are the remnants of hurricanes and tropical storms pushing up from the south.

The Agua Caliente Band seeks to ensure that dry cycle wetlands receive the highest protections and that wet cycle wetlands are not overlooked. To meet this challenge, the Band will establish the following approach to wetlands identification:

Dry Cycle Wetlands — those wetlands that exist continuously, even in the worst drought cycles. These wetlands represent the most critical resources and are accorded the highest level of protection.





Agua Caliente Band of Cahuilla Indians

Moderate Cycle Wetlands — those wetlands that exist only during periods when the five-year running average rainfall is between 4 and 8 inches.

Wet Cycle Wetlands — those wetlands that exist only during periods of rainfall when the five-year running average is greater than 8 inches.

Seasonal Wetlands — seasonal affects on wetlands will be evaluated over time within the context of the general wet/mod/dry cycles. Some wetlands may appear only during the rainy season. Others may also appear during summer monsoon rains. Vernal pools, seeps and springs may result from localized periodic rainfall patterns. Many of these wetland areas may not fall into the standard definition of wetlands, yet may serve an important role in the life-cycle of some desert wildlife.

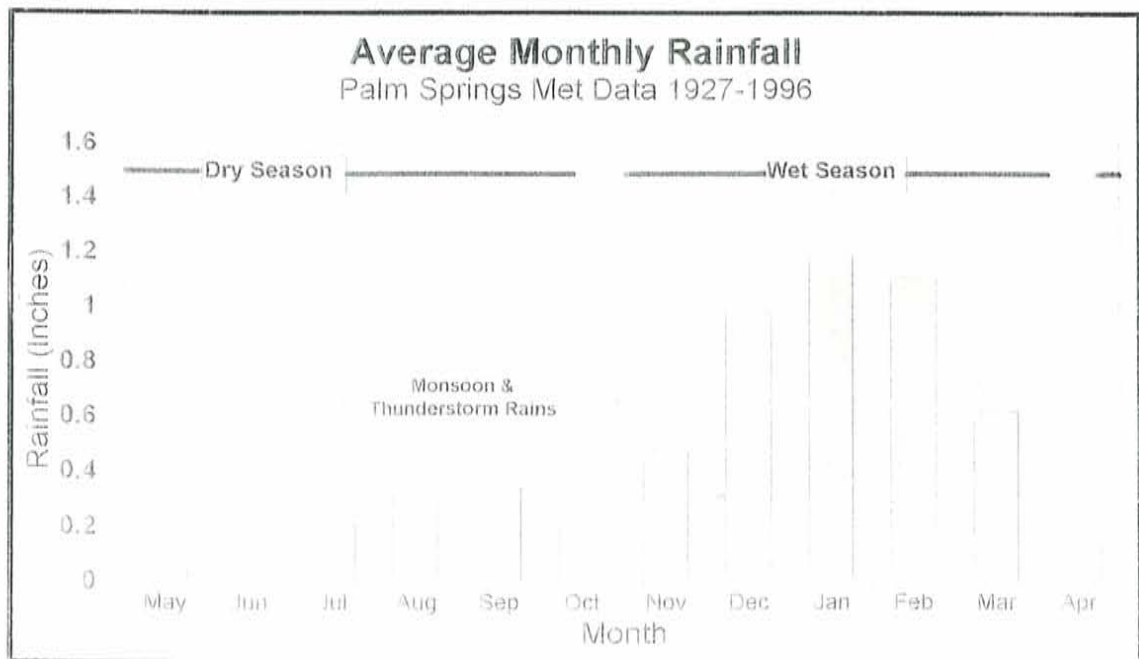
As a long-term standard, seasonal appearances of these wetland types will be recorded and incorporated into the overall protective plans for Tahquitz Canyon.

While all wetlands receive the protections mandated by federal law, wetlands will ben-

efit from additional protection based on their priority classification. This tier system will also establish the basic classification system for any future wetland market trading program. This will ensure that wetlands are in the same classification to establish eligibility for offsetting development.

In keeping with its desire to exercise sovereign authority over its resources, the Agua Caliente Band is developing a comprehensive water quality management program to protect the existing high quality of waters in Tahquitz Canyon, and all Tribal surface and ground waters. This program includes development of water quality standards and long-term water quality monitoring and assessment, and laboratory capabilities, in accordance with the Clean Water Act.

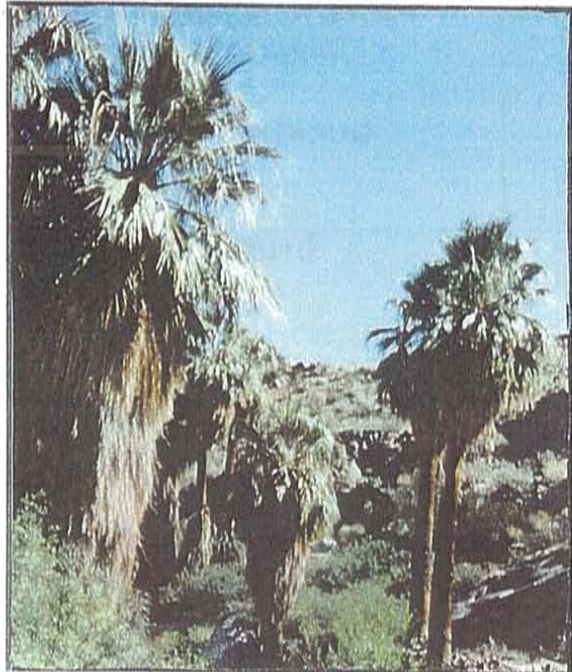
The Band also intends to develop watershed protection, wetlands management, and water conservation plans, and may also assume elements of the U.S. Environmental Protection Agency Section 401 water quality standards certification process and the U.S. Army Corps of Engineers Section 404 dredge and fill program.



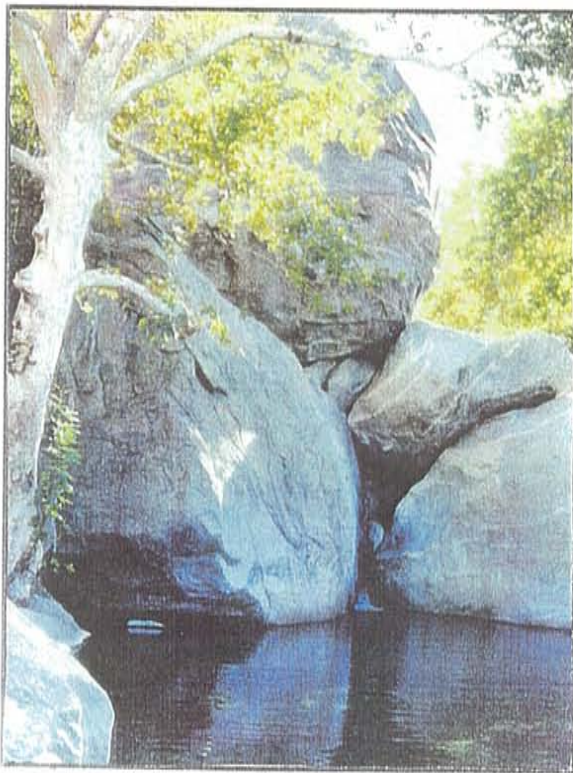
Native Plants of Tahquitz Canyon

Acre for acre the variety of plant life found in wetland areas rivals or surpasses that of almost any other type of habitat. The value of these plants to birds and other animals is without question. Of the approximately 140 species of birds found in California riparian areas, 88 are considered to be totally dependant on wetlands for their existence.

Unfortunately the most recognizable plant native to the area -- the California Fan Palm (*Washingtonia filifera*) -- has been virtually eliminated from the Tahquitz Canyon area, largely due to its use as a source of fuel and building materials by early settlers. Also known as the Desert Palm and the California Washingtonia, the California Fan Palm ranges from 20 to 60 feet tall. Valued as a food source by the early Cahuilla, the palm produces black berries with a large seed surrounded by a



California Fan Palm



Sycamore

sweet pulp. The seeds were ground into flour and the pulp was eaten fresh or dried for later consumption. Fossil evidence indicates that the California Fan Palm once thrived throughout North America's western deserts and ranged as far as California's Pacific Coast. Now, the majestic palms are found primarily in southeastern California.

Another of Tahquitz Canyon's native trees is Fremont's Cottonwood (*Populus fremontii*). Named for early western explorer Major John Fremont, these trees were known as a sure indicator of water due to their propensity to grow in watersheds along streams. Fremont Cottonwoods are easily identified by their broad, triangular shaped leaves edged with coarse, rounded teeth. These trees are an important source of nutrition for browsing animals such as mule deer, which find the foliage and twigs of the Cottonwood irresistible.

Agua Caliente Band of Cahuilla Indians

*Plants found to occur in lower
Tahquitz Canyon:*

buckthorn cholla

cattail

brittlebush

oak

creosote

Fremont cottonwood

buckwheat

desert lavender

yerba santa

catclaw acacia

chuparosa

desert apricot

desert almond

desert mistletoe

jojoba

sycamore

wild grape

sweetbush

apricot mallow

monkey flower

California fuschia

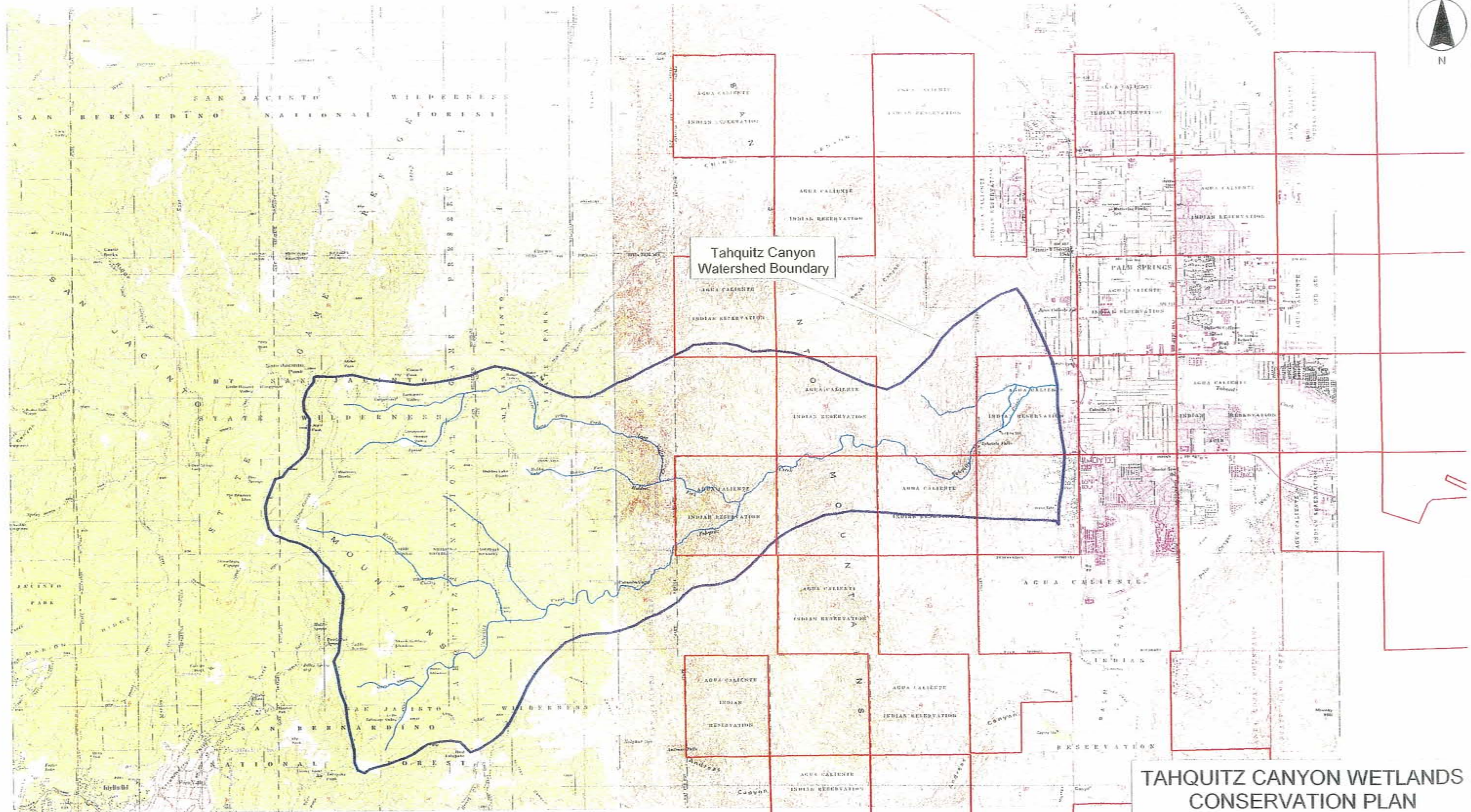
goldenbush

willow

honey mesquite



² Casual survey conducted April 9, 1999 by K. Leuschner, Desert Cities Bird Club, C.O.D., D. Walker, College of the Desert, and M. Clayton, Coachella Valley Wild Bird Center



Tahquitz Canyon
Watershed Boundary



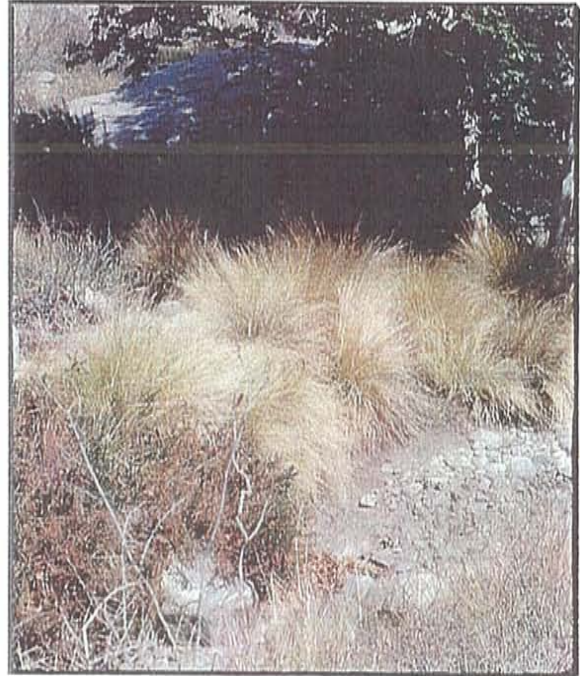
TAHQUITZ CANYON WETLANDS CONSERVATION PLAN



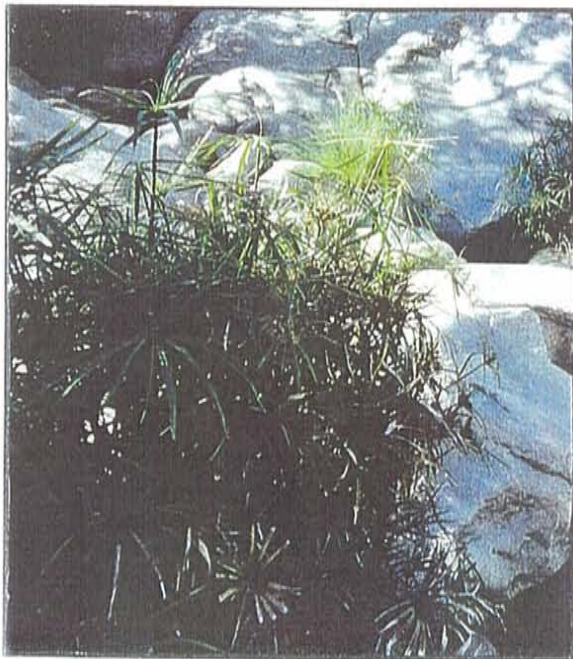
Exotics: Non-Native Plants of Tahquitz Canyon

Plants which are not considered native to Tahquitz Canyon are referred to as "exotics." While many so-called exotic plants present little or no threat to the natural habitat, others may be extremely intrusive, often crowding and severely limiting the growth of native vegetation. In the Canyon area three plants, fountaingrass, umbrella flat sedge and tamarisk, are considered to be of primary concern due to their extremely invasive characteristics. Results of a vegetative survey for Tahquitz are found in Appendix 1.

Various control measures are utilized by the Agua Caliente Band to keep the influx of exotics in check. Control techniques are largely physical, relying for the most part on manual cutting or extraction of the plants and frequently checking for renewed growth. When necessary, the removal of persistent exotics may require the minimal and carefully monitored application of herbicides.



Fountaingrass



Umbrella Flat Sedge

Fountaingrass

One plant invader is fountaingrass (*Pennisetum setaceum*). Native to tropical Africa, southwestern Asia, and Arabia, fountaingrass has a host of traits which make it a very real threat to the Tahquitz Canyon habitat. Fountaingrass has long been used in Southern California gardens as an ornamental requiring very little water. Unfortunately, its seeds are easily dispersed by wind, water, and birds, allowing it to establish itself in delicate habitats. When fountaingrass finds its way into areas like Tahquitz Canyon, it quickly supplants native grasses and becomes a persistent pest. Control of this plant is exacerbated by the ability of its seeds to lie dormant in the ground for up to seven years.

Agua Caliente Band of Cañuilla Indians

Umbrella flat sedge

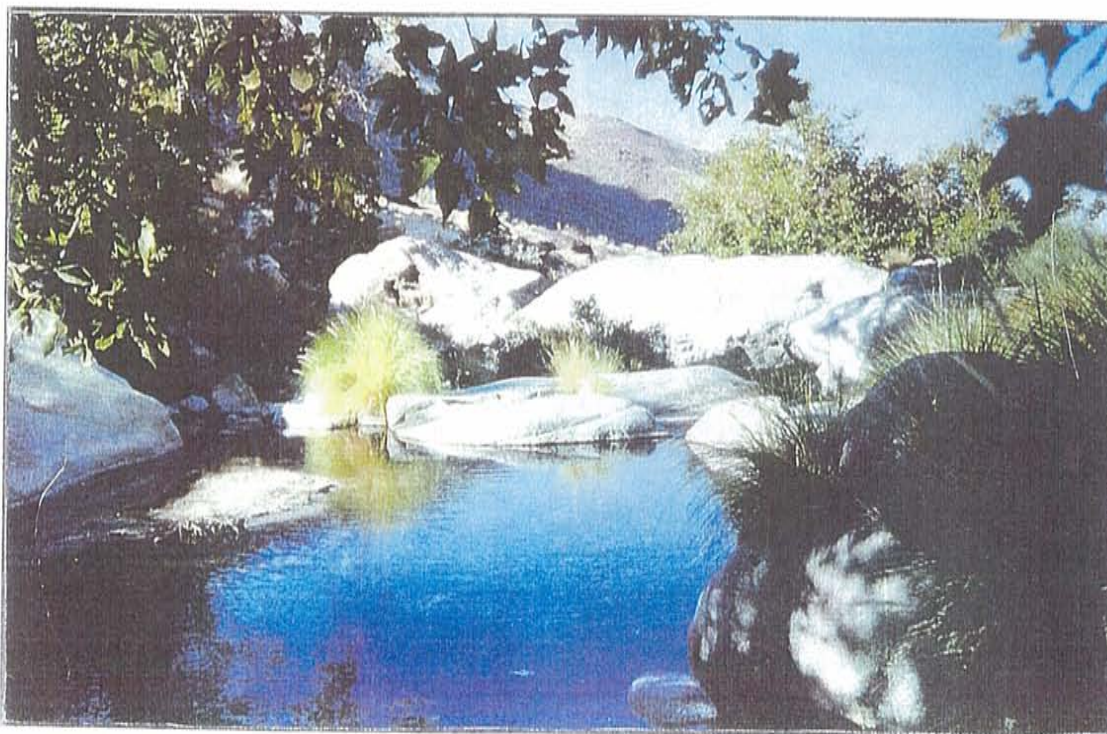
Another non-native intruder in the Tahquitz Canyon area is Umbrella flat sedge (*Cyperus alternifolius*), a plant native to Madagascar and the Philippines. This plant, characterized by its long, narrow pointed spikelets, was first cultivated in the Southwest as an ornamental garden plant. Umbrella flat sedge is quite invasive in warm climates, and if its roots are not confined, it will take the place of delicate riparian species.



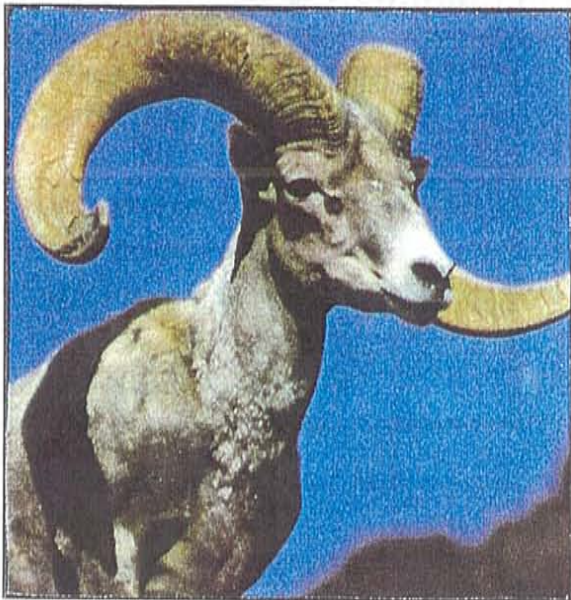
Tamarisk

Tamarisk

Often referred to as salt cedar, due to a tendency to ooze salt from its leaves, tamarisk (*Tamarix spp.*) is a particularly aggressive exotic intruder in the Tahquitz Canyon ecosystem. Native to China and Japan, tamarisk is difficult to control, and it is particularly harmful to sensitive riparian areas because it extracts large amounts of water from the ground, transforming valuable desert streams into dry, salty basins.



Tahquitz Canyon Wildlife



The Peninsular Bighorn Sheep: Officially listed as an Endangered Species in 1998 by the U.S. Fish and Wildlife Service.

Riparian habitats have been vanishing from the Southern California landscape at an alarming rate. It is estimated that more than 90-percent of the wetlands in California have disappeared in the past 100 years. This extreme loss of wetland habitat makes preservation of the remaining 10-percent all the more imperative.

To the casual observer of Tahquitz Canyon, the quantity and diversity of animal life may not be readily apparent. However, a close inspection of the riparian and non-riparian areas of Tahquitz reveals an abundance of creatures — all specially adapted to the unique environment and all dependent on the maintenance of that environment for their continued survival.

While each living creature has unique requirements to ensure its continued existence, all share common necessities such as food, water and shelter. Tahquitz Canyon pro-

vides these resources for a multitude of creatures.

The diversity of animal life found in Tahquitz Canyon may be traced to the complexity of the habitats it provides and the ability of wildlife species to exist in different niches in the same location. Evidence of such niche overlap is displayed by the maps in Appendix 2. The evolution of animal behavior and needs allows wildlife in the same habitat to share common resources and to use different resources in the same locale, in a non-competitive and mutually beneficial manner.

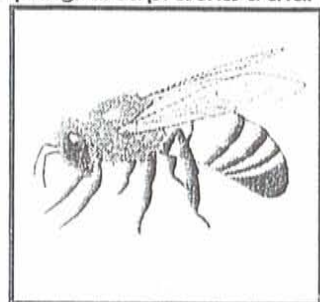
Many of the animals which depend on habitats found in Tahquitz Canyon are listed as rare or endangered. Others may approach these unfortunate designations without the continued efforts of groups such as the Agua Caliente Band of Cahuilla Indians to restore these threatened areas.

An unwanted intruder:

Africanized Honey Bees

More of a nuisance to human visitors than a threat to the habitat, the arrival of so-called "killer bees" in the Palm Springs area presents a challenge to those wishing to enjoy the recreational aspects of the area.

While the sting from a single Africanized bee is no more harmful



than that of the common European honey bee, the tendency of killer bees to attack in large numbers and to defend their nests aggressively has earned them the respect of cautious outdoor recreation enthusiasts.

Agua Caliente Band of Cahuilla Indians

**Endangered Species of Coachella Valley which
may occur in Tahquitz Canyon**

Endangered Mammals:

Peninsular Bighorn Sheep
Palm Springs Ground Squirrel
Palm Springs Pocket Mouse
Southern Yellow Bat

Endangered Reptiles:

Coachella Valley Fringe-toed Lizard
Flat-tailed Horned Lizard
Desert Slender Salamander
Arroyo Toad
Desert Tortoise

Endangered Birds:

Burrowing Owl
Crissal Thrasher
Gray Vireo
Ash-Throated Flycatcher
Le Conti's Thrasher
Southwestern Willow Flycatcher
Summer Tanager
Yellow Breasted Chat
Least Bell's Vireo
Yellow Warbler

Endangered Plants:

Coachella Valley Milk-Vetch
Triple-Ribbed Milk-Vetch
Little San Bernadino Gilia
Mecca Aster
Orocopia Sage

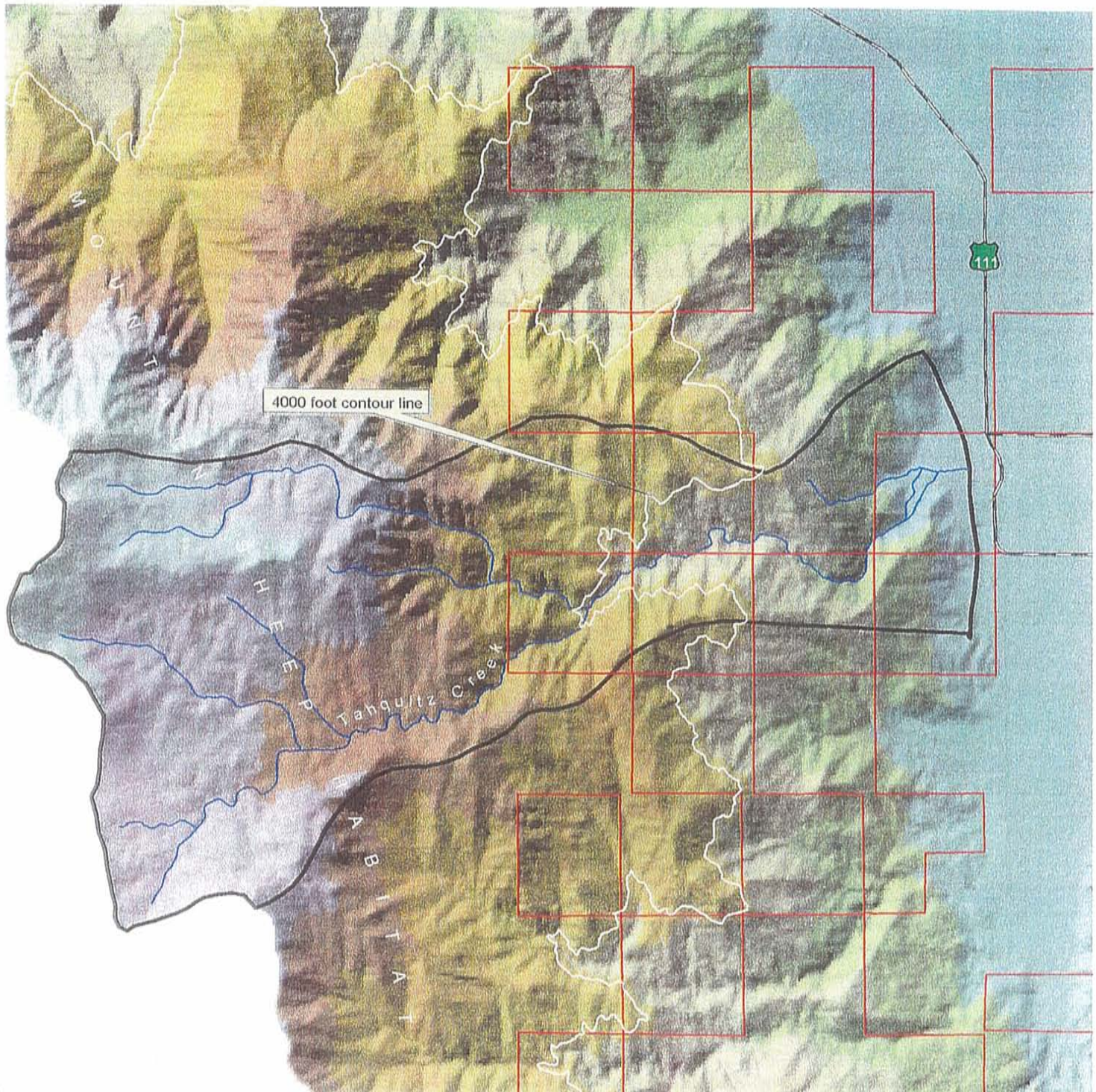
Endangered Insects:

Casey's June Beetle
Coachella Valley Grasshopper
Coachella Valley Jerusalem Cricket
Coachella Giant Sand Treader Cricket

***An unwanted intruder:
Red Imported Fire Ants***

The red imported fire ant has invaded the warm, moist Palm Springs environment. Known for their aggressive behavior, fire ants interfere with outdoor activities and, most importantly, harm native wildlife.

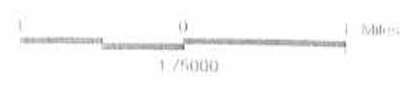













4000 foot contour line

H
E
E
P
T
A
H
Q
U
I
T
Z
C
R
E
E
K

-  Streams
-  Highway
-  Aqua Caliente Reservation Boundary
-  Tahquitz Canyon Watershed Boundary



Terrain Model

	-74 - 323 meters
	324 - 720
	721 - 1117
	1118 - 1514
	1515 - 1912
	1913 - 2309
	2310 - 2706
	2707 - 3103
	3104 - 3501

TAHQUITZ CANYON WETLANDS CONSERVATION PLAN

 Connolly & Associates

 Springer & Anderson, Inc

Public & Recreational Uses

Although the area is currently closed to public visitation, the Agua Caliente Band plans to develop a 26-acre park in and around Tahquitz Canyon. The park will include an interpretive center, as well as equestrian, picnicking, and hiking facilities, which will allow visitors the chance to experience Tahquitz Canyon with little impact on the natural ecology.

For those wishing an experience away from the glitter and golf courses more commonly offered at desert resorts, the 1,200-square foot visitor's facility will offer guests a glimpse into another culture. Located at the entrance to the Canyon, the interpretive center will include a 600-square-foot observation deck offering spectacular views of the natural beauty in Tahquitz Canyon. Along with exhibits of Tribal artifacts, visitors to the Center will have the opportunity to study

rock art, examine the intricacies of ancient irrigation systems, and learn more about the Cahuillas' way of life. Educational exhibits will depict the natural ecology, wildlife, plants, and geology of the Canyon and a theater area will stage a narration on the rich cultural history of the Agua Caliente Band.

A system of hiking and equestrian trails, with appropriate signage, lighting and environmental controls, will lead out into the Canyon from the interpretive center facility. Plans include a trail through a reconstructed Indian village, with signs along the way to identify and explain the use of various Cahuilla tools and handicrafts.

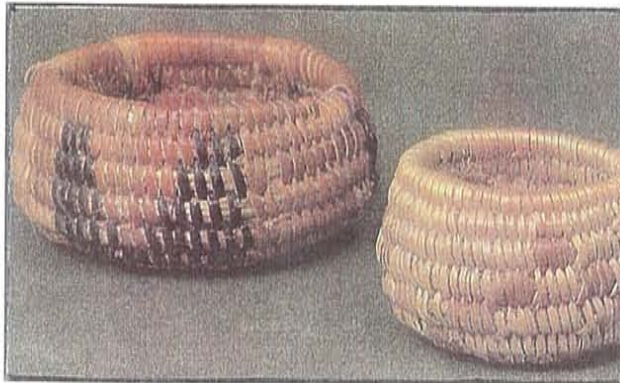
Hikers and riders will also be able to view

traditional Indian shelters, along with demonstrations of sacred rituals and ceremonies.

An interpretive garden trail, located near the Visitor's Center, will give hikers the opportunity to study important native plants and to see how they were once used by the Cahuilla. Many of the plant species which have disappeared from the area will be propagated from seed and reintroduced.

An area for picnickers is planned adjacent to the Visitor's Center. Able to accommodate several small groups, the picnic area will also allow for large group activities such as barbecues and other events.

Groups arriving by bus will utilize a circular drive in front of the Visitor's Center which will allow passenger drop off. Buses will then continue to a remote parking area located in the southeast corner of the 26-acre site. Parking for up to sixty passenger cars is planned adjacent to



the Visitor's Center allowing easy access for all. Overflow parking will also be available at the remote parking area.

This park will serve as a delightful cultural and recreational facility for the general public. In addition, it will provide economic enhancement opportunities for the City of Palm Springs and the Agua Caliente Band of Cahuilla Indians.

Most importantly, the Tahquitz Canyon Park will protect the natural environment of the area by limiting access to more ecologically sensitive tracts, and it will help to educate the public regarding the natural desert wetland environment, and its first inhabitants.

Summary & Recommendations

This plan outlines the purpose, goals and objectives for protection of the Tahquitz Canyon wetlands. It includes discussions of the importance of the Canyon to the Cahuilla people, both historically, and as a contemporary expression of culture. The geology and hydrology are explained, with their impacts to the wetland areas. Native plants and animals of the Canyon are noted, as well as some exotic invaders and efforts to control their intrusion.

The Agua Caliente Band has already launched initiatives aimed at protecting and improving the Canyon. By limiting access and cleaning up the years of litter and vandalism, both the appearance and the functionality of the habitat have vastly improved.

The Band is also moving forward with a Tribal water quality management program under the Clean Water Act. This program will effect water quality protection of the waters of the Reservation, and will assist restoration and enhancement measures in Tahquitz Creek.

Recommendations:

From this report we can directly establish several recommendations for future actions:

1. Protect the wetlands as a cultural resource, maintaining native plants and removing exotics under specific removal programs.
2. Restrict or prohibit recreational activities, such as off-road vehicles, horseback riding, camping and swimming.
3. Develop a stable trail system and restrict hikers to the trails. Trails should be placed as far as possible from the riparian habitat. Final design of the trail system should incorporate considerations of the volume and

nature of visitor traffic expected. Further studies should include an assessment of the timing and size of tour groups, both guided and un-guided.

4. Perform an annual survey of plant and animal species.
5. Monitor and record the emergence/disappearance of wetland areas over time and protect the most critical, based on established priority characteristics.
6. Monitor impacts and control access by limiting hours or increasing fees to achieve a sustainable level of activity.
7. Restrict hiking tours to the first falls for safety reasons.
8. Continue to track meteorological and stream flow data.
9. Investigate the possibility of assuming 404 and/or 401 responsibilities for wetlands.
10. Designate areas for traditional gathering practices and work to enhance the traditional resources.
11. Reintroduce native plants and animals into restored areas.
12. Train staff in wetlands delineation, bioassessments and survey techniques.
13. Perform additional studies in the Upper Tahquitz Canyon area above the falls.
14. Incorporate Tahquitz Canyon studies within a comprehensive Indian Canyons Management Plan.
15. Incorporate Tahquitz Canyon studies into the Tribe's Multispecies Habitat Conservation Plan.

Additionally, the Tribe should actively participate in, or at least monitor, several regional initiatives which overlap Tribal efforts. These include:

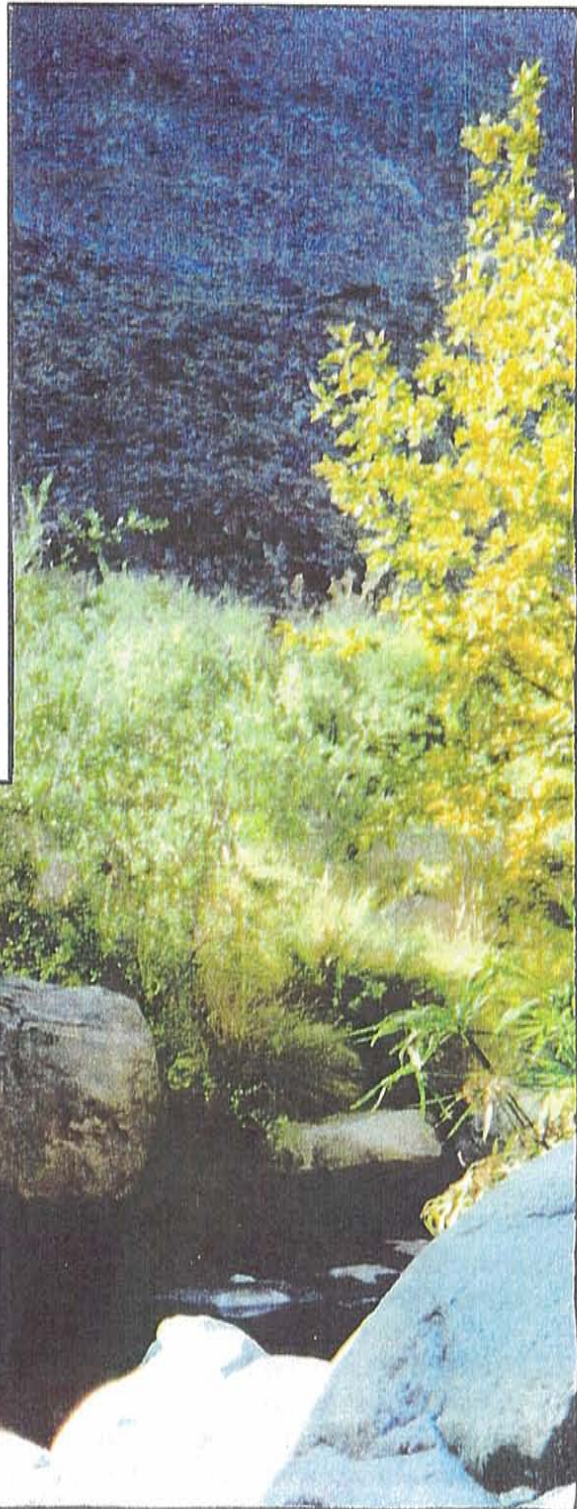
- Least Bell's Vireo Recovery Plan
- Coachella Valley Multiple Species Conservation Plan

Agua Caliente Band of Cahuilla Indians

- Riverside County land use planning
- Peninsular Big Horn Sheep Recovery Plan
- Regional Water Quality Control Board beneficial use designations

The benefits of a healthy Tahquitz Canyon are shared by all downgradient users. Tahquitz Creek contributes an estimated annual 2,300 acre-ft of ground water recharge, to the upper Coachella Valley, assisting the provision of a clean source of drinking water, and waters for agricultural and other uses.

Through coordinated efforts within the Tribe and with off-Reservation agencies, Tahquitz Canyon can be an asset enjoyed, for a wide range of benefits, by present and future generations.



References

- Anderson, M. and Hirsch & Company Consulting Engineers. 1998. Agua Caliente Band of Cahuilla Indians Water Quality Assessment Report. Revised July 1998.
- Bainbridge, D., R. MacAller, M. Fidelibus, A.C. Newton, A.C. Williams, L. Lippitt, and R. Franson. 1998. A Beginner's Guide to Desert Restoration. 2nd Ed. Dept. of Interior, National Park Service, Lake Mead National Recreation Area.
- Barbour, M.T. 1993. EPA's Rapid Bioassessment and Biocriteria for Streams and Rivers. Tetra Tech, Inc. Owings Mills, MD.
- Bean, L.J. and L. Bourgeault. 1989. The Cahuilla. (Indians of North America). F.W. Porter, Gen. ed. Chelsea House Publishers: New York; Philadelphia.
- Benton, N. 1998. Fountain Grass. Native Plant Conservation Initiative, Alien Plant Working Group.
- Bradley, K. 1998. Fountaingrass - A Dry Region Threat. Wildland Weeds. Vol. 1, No. 4.
- California Dept. of Food and Agriculture. Red Imported Fire Ant In California: Learning more about the fire ant in California.
- Catanzaro, C.J., W.A. Skroch, and J.D. Burton. 1993. Resistance of Selected Ornamental Grasses to Graminicides. Weed Technology. Vol. 7:326-330.
- Coachella Valley Mosquito and Vector Control District. 1995. Living with Africanized Honey Bees: A Gardener's Guide.
- Coachella Valley Mosquito and Vector Control District. 1996. European Honey Bees.
- Coachella Valley Multiple Species Habitat Conservation Plan/Natural Communities Conservation Plan. Orientation & Tour. April 16, 1999.
- Cooper, D.J. 1993. Restoring and Creating Wetlands: A Handbook for the Rocky Mountain West. Dept. of Fishery and Wildlife Biology, Colorado State University. Fort Collins, Colorado. U. S. Environmental Protection Agency, Region 8, Water Quality Branch. EPA908-B-95-900. January 1993.
- Cowardin, L.M. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. December 1979.
- Cultural Systems Research, Inc. 1995. Archaeological, Ethnographic, and Ethnohistoric Investigations at Tahquitz Canyon Palm Springs, California. Menlo Park, California.

Agua Caliente Band of Cahuilla Indians

Hubbard, J. and T. Whitwell. 1991. Ornamental Grass Tolerance to Postemergence Grass Herbicides. HortScience 26 (12): 1507-1509. December, 1991.

Mayhew, W. W. 1980. Vertebrates Observed on the Deep Canyon Transect. Taken from Santa Rosa Mountains Wildlife Habitat Management Plan. U.S. Dept. of the Interior, Bureau of Land Management, Riverside District, Indio Resource Area and State of California, Resources Agency Dept. of Fish and Game.

Munz, P.A. 1962. California Desert Wildflowers. Univ. of California Press: Berkeley, Los Angeles, London.

Peattie, D. C. 1991. A Natural History of Western Trees. Houghton Mifflin Co.

Rojo, H.A., J. Bredehoeft, R. Lacewell, J. Price, J. Stromberg, and G.A. Thomas. 1999. Sustaining and Enhancing Riparian Migratory Bird Habitat on the Upper San Pedro River. Prepared for the Secretariat of The Commission for Environmental Cooperation. Montreal (Quebec) Canada.

Stewart, J.M. 1993. Colorado Desert Wildflowers. Cachuma Press.

The Dangermond Group. 1999. Draft Indian Canyons Master Plan Study.

The Federal Interagency Stream Restoration Working Group. October 1998. Stream Corridor Restoration: Principles, Processes, and Practices.

The Nature Conservancy. 1999. Weeds on the Web. Wildland Weeds Management and Research Program.

T.K.D. Associates, Inc. Tahquitz Creek Park: 26-Acre Interpretive Center. Palm Springs, California.

University of Florida, Center for Aquatic and Invasive Plants. 1999. Aquatic, Wetland and Invasive Plant Particulars and Photographs.

University of Hawai'i at Manoa, Cooperative National Park Resources Studies Unit. 1994. Fountain Grass Control in Hawai'i Volcanoes National Park 1985-1992. Tech.Rept. 91.

U.S. Army Corps of Engineers. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Rept. Y-87-1. U.S. Army Engineer Waterways Experiment Station. Environmental Laboratory. Vicksburg, MS.

Agua Caliente Band of Cahuilla Indians

U.S. Dept. of Agriculture. Cooperative Extension Office, College of Agriculture, Univ. of Arizona. Africanized Honey Bees: Outdoor Recreation Safety Tips.

U.S. Dept. of Agriculture, Soil Conservation Service. Soil Survey. Riverside County, California. pp.10-12.

U.S. Dept. of Agriculture. Soil Conservation Service, Portland, Oregon. West National Technical Center. Western Wetland Flora Field Office Guide to Plant Species.

U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office. 1998. Peninsular Bighorn Sheep Listing: Frequently Asked Questions.

U.S. Fish and Wildlife Service. 1998. Draft Recovery Plan for the Least Bell's Vireo. U.S. Fish and Wildlife Service, Portland, OR. 139 pp.

U.S. Geological Survey. 1999. Water Resources Investigations Report 93-4076.

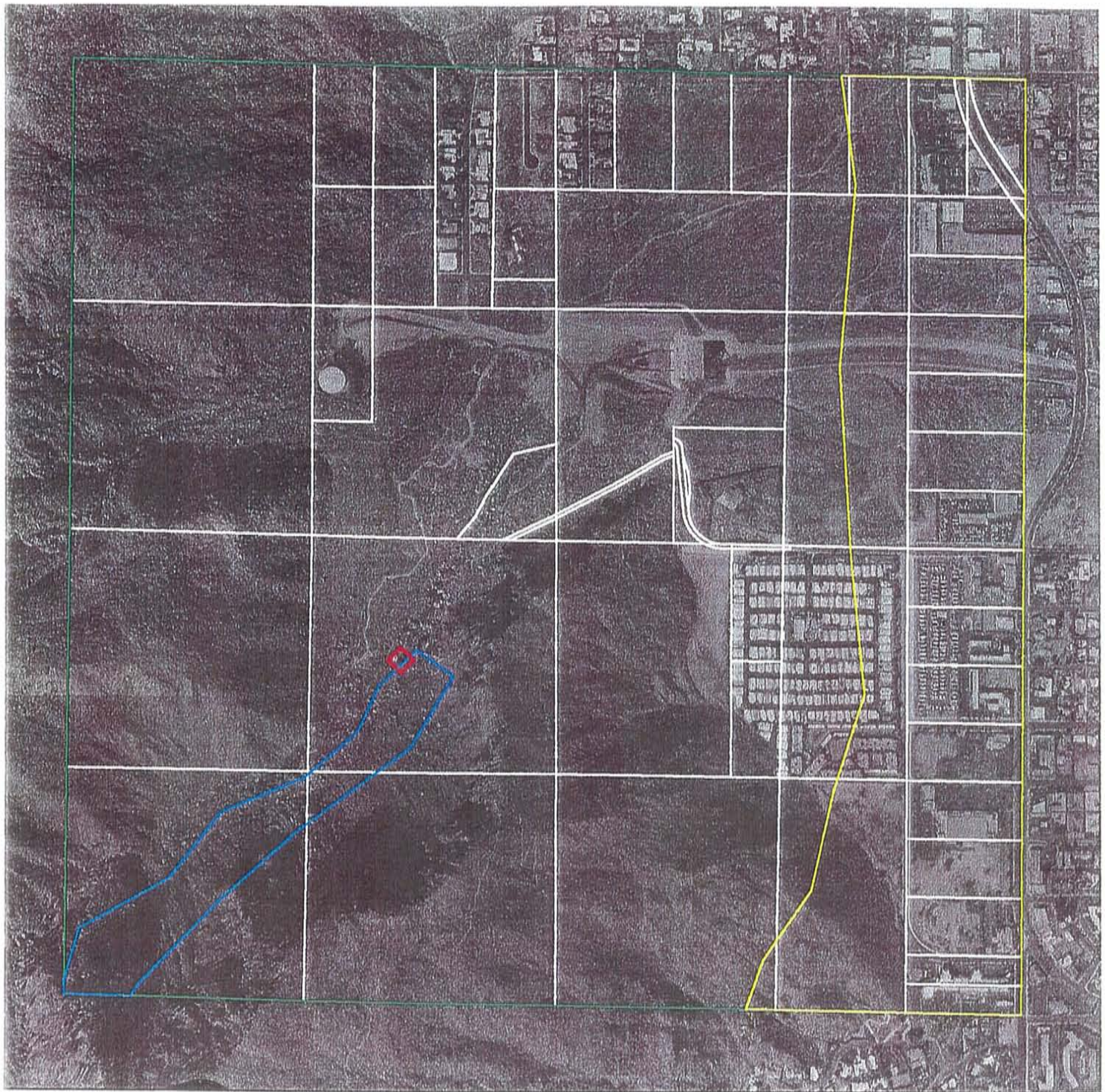
World Wildlife Fund. 1992. Statewide Wetlands Strategies: A Guide to Protecting and Managing the Resource. Island Press: Washington, D.C.; Covelo, CA.

APPENDIX 1

**Tahquitz Canyon
Vegetative Survey & Maps**

Tanquitz Biological Survey: Plants Streamside							
	Staked April '99	Counted 5/3/99	Counter Ron Cordes / Barbara Wicker				
	4 X 50' X 50' Sub-Section	SouthWest		SouthEast	NorthWest	NorthEast	4 Section
Register	Plant Name	# Counted	Notations	# Counted	# Counted	# Counted	Totals
Ref #							
1	<i>Pennisetum setaceum</i>	38		11	37	56	142
	Common Name: Fountain Grass/Rubrum						
2		2		1	3		6
	Common Name: Sycamore Trees						
3							
	Live Oak	0		0	1	0	1
4							
	Desert Lavender	0		0	0	1	1
5	<i>Acacia Greggii</i>	1		5	3	0	9
	Common Name: Cat Claw/"Wait a Minute"						
6	<i>Encelia farinosa</i> , BrittleBrush	5		4	0	0	9
	Common Name: Brittle Bush/Phenicodonta						
7		0		3	1	2	6
	Common Name: Umbrella Grass/Plant						
8	<i>Mimulus spp. (Figwort Family)</i>	0		16	1	18	35
	Common Name: Monkey Flower						
	Photo Cross Reference #						
	pg 51 Muriel Sweet: Common edible						
9		0		3	0	0	3
	Foxtails/Grass						
	Common Name:						
10		0		2	20	5	27
	Common Name: Ragweed						
					3'6" height colony	very large 6' across	
11	Chuparosa: <i>Beloperone californica</i>	8	3'-6' colonies	4		5	17
	Spanish for "Sucking Rose"						
						3'-6' colonies	
12	<i>Chilopsis Linearis:</i>					1	1
	Desert Willow: Bignonia Family						
13	Desert Sage	0		0		3	3
14	Creeping Fescue	20		10	0	10	40
	colony 4' X 8' approx area						
15	Noxious Weeds	7			6	12	25

Note: this chart redrawn from original for legibility and sizing purposes, data content is unchanged except for minor typographical corrections. Connolly, Jan. 2000



TAHQUITZ CANYON

Natural Communities used to Model Sensitive Habitat Distributions

PROJECT FUNDING:
 State Wetlands Protection Development Grant
 U. S. Environmental Protection Agency
 Region 9

AGUA CALIENTE INDIAN RESERVATION
 Riverside County, California
 Section 22 T4S R4E SBBM
 June 1, 1988

REFERENCES:
 Data obtained from Bureau of Land Management
 Palm Springs - South Coast Field Office
 Coachella Valley Multiple Species
 Habitat Conservation Plan
 Natural Communities Database
 April 21, 1999

Reservation Townships with
 location of Interest Highlighted



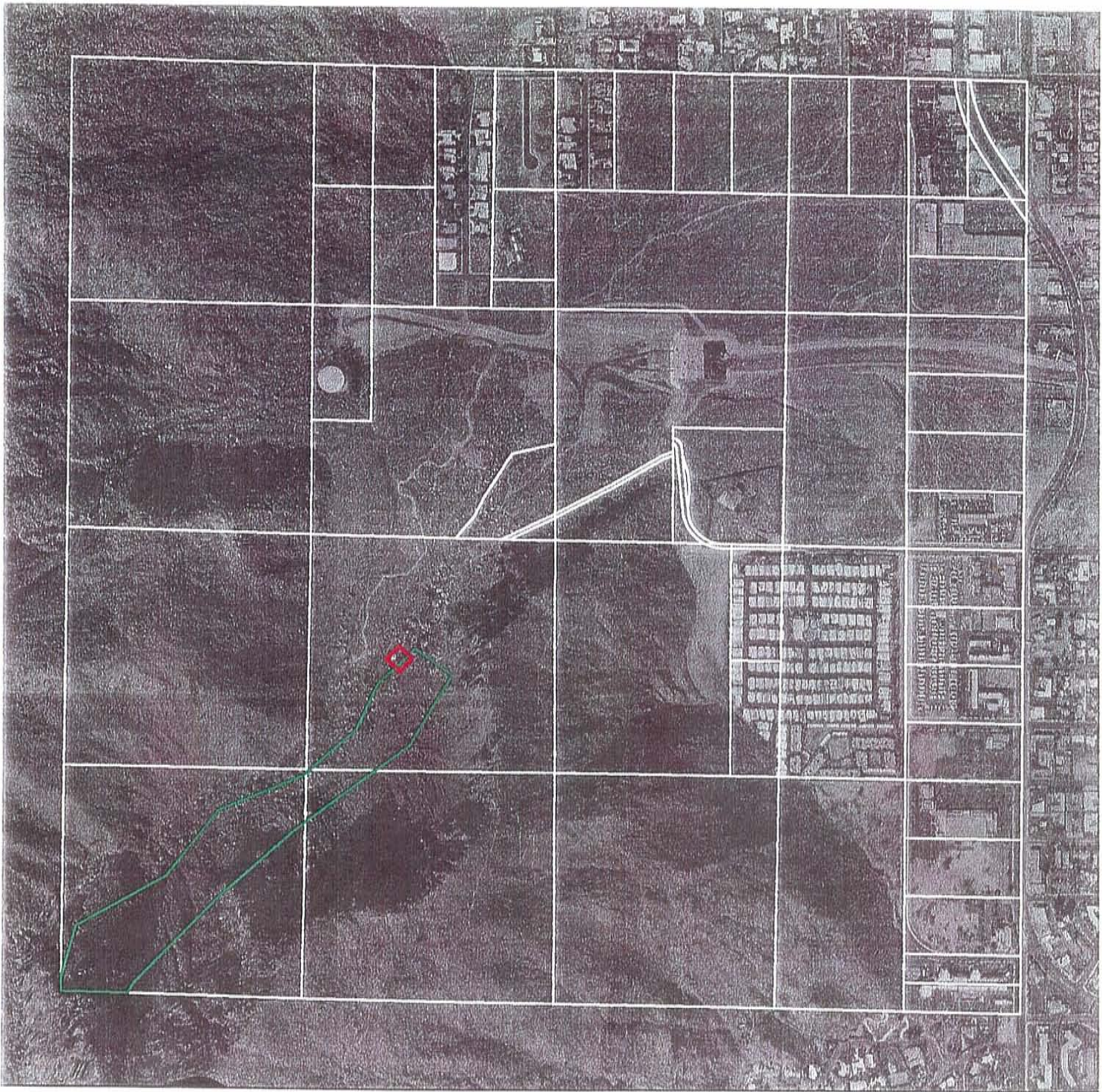
GEOGRAPHIC INFORMATION SYSTEMS
 Agua Caliente Band of Cahuilla Indians
 GIS Services
 Cartographer: Bob A. Weinstock

LEGEND

- Natural Communities (Vegetation Types)
- Study Boundary
- Urban
- Tract Boundaries
- Southern Sycamore-Alder Riparian Woodland
- Sonoran Mixed Woody and Succulent Scrub



GEOGRAPHIC DATA PARAMETERS:
 State Plane Projection
 North American Datum 1983
 Zone 6
 Land Status as of May 26, 1999



TAHQITZ CANYON
Sensitive Habitat Distribution Model for
Southern Sycamore - Alder Riparian Woodland Community

PROJECT FUNDING:
 State Wetlands Protection Development Grant
 U. S. Environmental Protection Agency
 Region 9

AGUA CALIENTE INDIAN RESERVATION
 Riverside County, California
 Section 22 T4S R4E SBBM

REFERENCES:
 Data obtained from Bureau of Land Management
 Palm Springs - South Coast Field Office
 Coachella Valley Multiple Species
 Habitat Conservation Plan
 Natural Communities Database
 April 21, 1999

June 1, 1998



(Reservation Townships with
 Section of Interest Highlighted)



GEOGRAPHIC INFORMATION SYSTEMS
 Agua Caliente Band of Cahuilla Indians
 GIS Services
 Cartographer: Beth A. Wronowicz

LEGEND

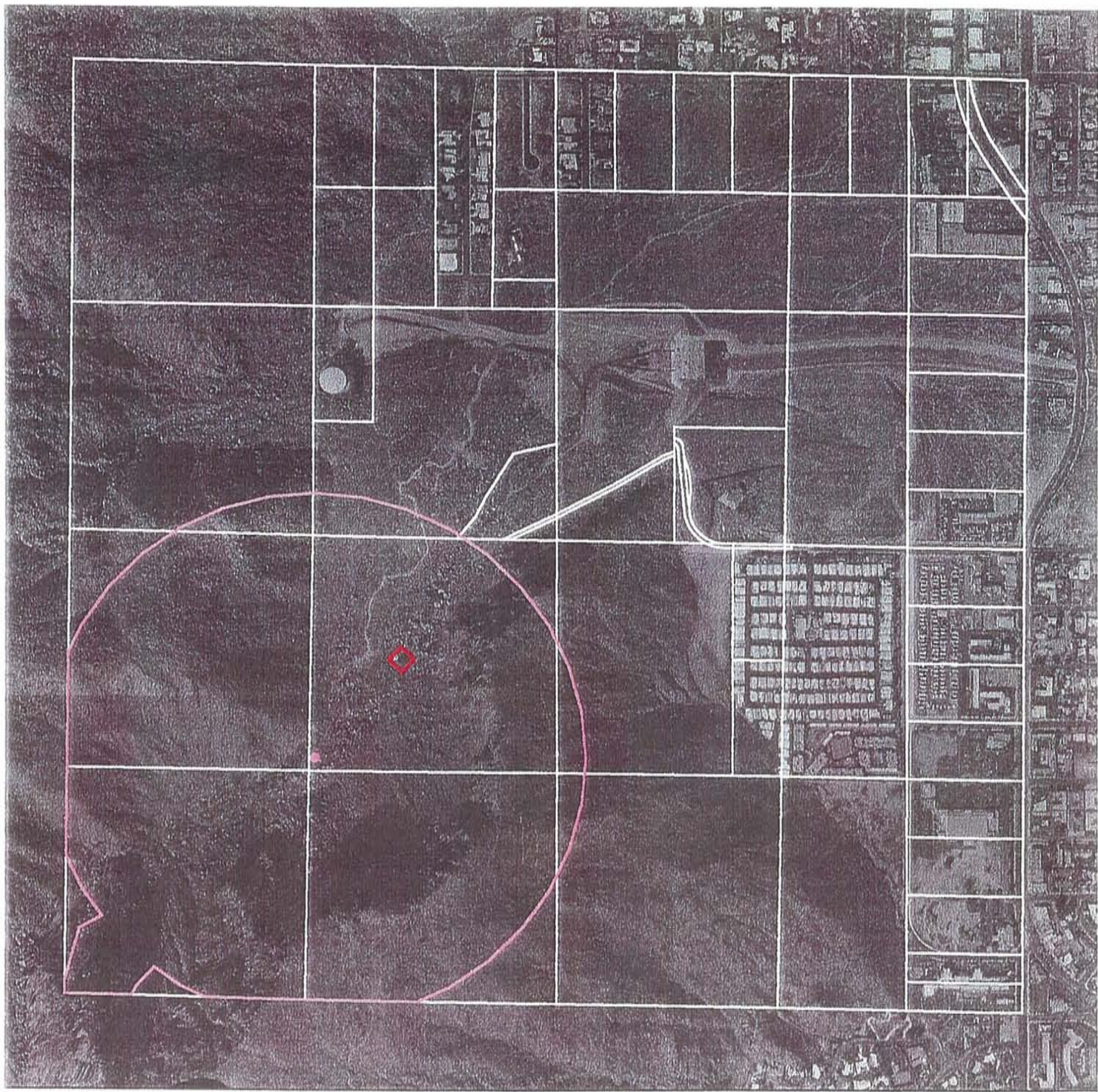
- Study Area
- Southwestern Willow Flycatcher
- Sumner Tanager
- Yellow Breasted Chat
- Yellow Warbler
- Tract Boundaries



GEOGRAPHIC DATA PARAMETERS:
 State Plane Projection
 North American Datum 1983
 Zone 6
 Land Status as of May 26, 1999

APPENDIX 2

**Tahquitz Canyon Sensitive Species
Habitat Maps**



TAHQITZ CANYON
Sensitive Habitat Distribution Model for
Least Bell's Vireo

AGUA CALIENTE INDIAN RESERVATION
 Riverside County, California
 Section 22 T4S R4E S8BM

June 1, 1998

SCALE



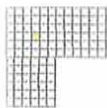
LEGEND

- Study Area
- ◆ Least Bell's Vireo Site
- Least Bell's Vireo Site
- Tract Boundaries



PROJECT FUNDING:
 State Wetlands Protection Development Grant
 U. S. Environmental Protection Agency
 Region 9

Recreation Townships with
 Section of Interest Highlighted



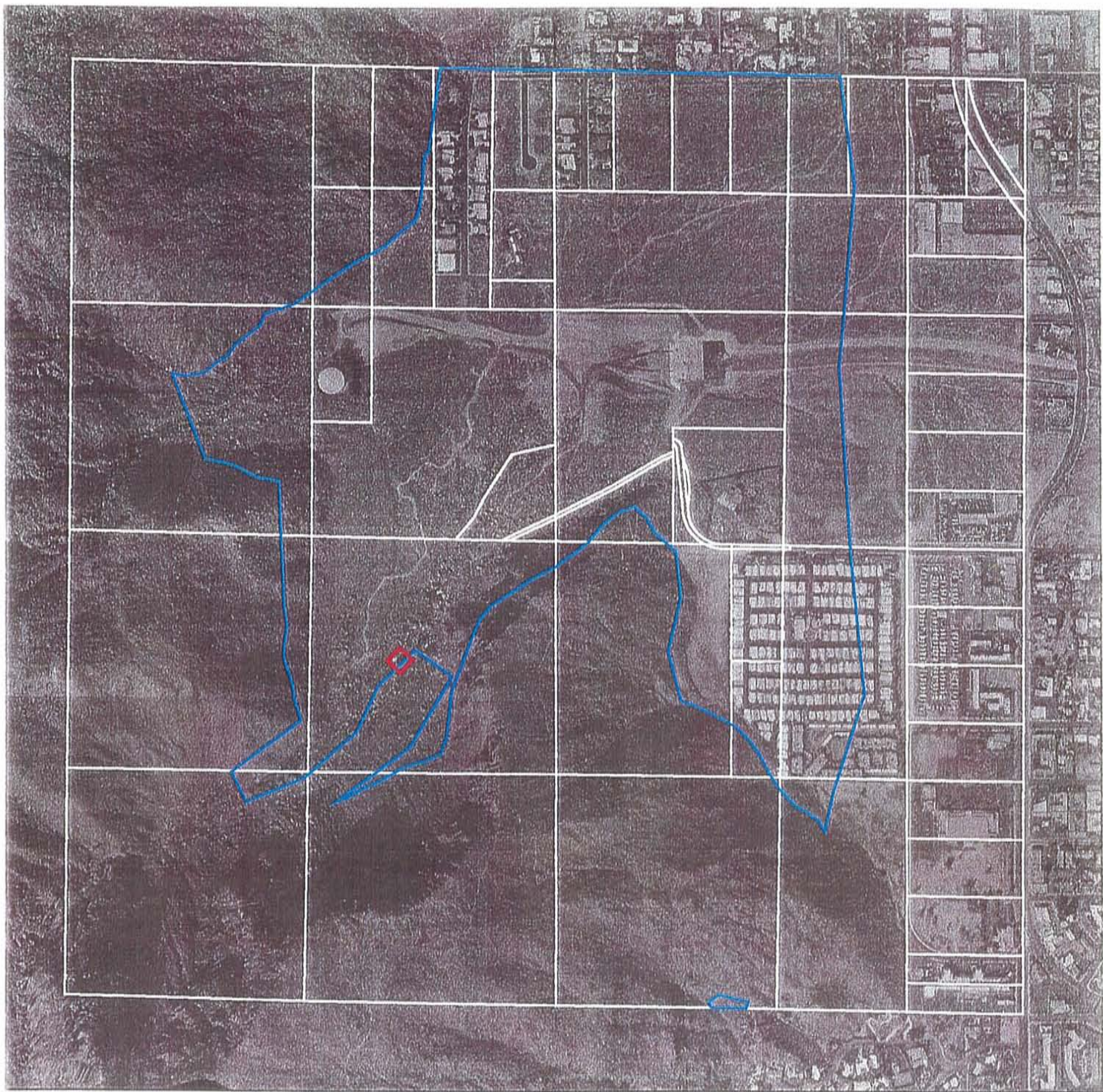
FOR THE AGUA CALIENTE INDIAN RESERVATION SYSTEM
 Agua Caliente Band of Cahuilla Indians
 GIS Services
 Cartographer: Beth A. Weststrom



REFERENCES:
 Data obtained from Bureau of Land Management
 Palm Springs - South Coast Field Office
 Coachella Valley Multiple Species
 Habitat Conservation Plan
 Natural Communities Database
 April 21, 1999



GEOGRAPHIC DATA PARAMETERS:
 State Plane Projection
 North American Datum 1983
 Zone 5
 Land Status as of May 26, 1999



TAHQUITZ CANYON Sensitive Habitat Distribution Model for the Burrowing Owl

AGUA CALIENTE INDIAN RESERVATION

Riverside County, California

Section 22 T4S R4E SBBM

June 1, 1998

SCALE



REFERENCES:
 Data obtained from Bureau of Land Management
 Palm Springs - South Coast Field Office
 Coachella Valley Multiple Species
 Habitat Conservation Plan
 Natural Communities Database
 April 21, 1999

PROJECT FUNDING:
 State Wetlands Protection Development Grant
 U. S. Environmental Protection Agency
 Region 9

Reservation Townships with
 Section of Interest highlighted



GEOGRAPHIC INFORMATION SYSTEMS:
 Agua Caliente Band of Cahuilla Indians
 GIS Services
 Cartographer: Beth A. Westrom

LEGEND

- Study Boundary
- Burrowing Owl Tract Boundaries



GEOGRAPHIC DATA PARAMETERS:
 State Plane Projection
 North American Datum 1983
 Zone 6
 Land Status as of May 26, 1999



TAHQUITZ CANYON Sensitive Habitat Distribution Model for Desert Tortoise



PROJECT FUNDING:
State Wetlands Protection Development Grant
U. S. Environmental Protection Agency
Region 9

AGUA CALIENTE INDIAN RESERVATION
Riverside County, California
Section 22 T4S R4E SBBM

REFERENCES:
Data obtained from Bureau of Land Management
Palm Springs - South Coast Field Office
Coachella Valley Multiple Species
Habitat Conservation Plan
Natural Communities Database
April 21, 1999

Reservation Townships with
Section of Interest Highlighted



June 1, 1998

SCALE



GEOGRAPHIC INFORMATION SYSTEM
Agua Caliente Band of California Indians
GIS Services
Cartographer: Beth A. Wessman

LEGEND

- Study Area
- Desert Tortoise
- Tract Boundaries



GEOGRAPHIC DATA PARAMETERS:
State Plane Projection
North American Datum 1983
Zone 6
Land Status as of May 26, 1999



PROJECT FUNDING:
 State Wetlands Protection Development Grant
 U. S. Environmental Protection Agency
 Region 9

Reservation Townships with
 Section of Interest Highlighted



GEOGRAPHIC INFORMATION SYSTEMS
 Agua Caliente Band of Colorado Indians
 GIS Services
 Cartographer: Beth A. Wenzel

TAHQUITZ CANYON

Sensitive Habitat Distribution Model for the Palm Springs Ground Squirrel

AGUA CALIENTE INDIAN RESERVATION

Riverside County, California

Section 22 T4S R4E SBBM

June 1, 1999



LEGEND

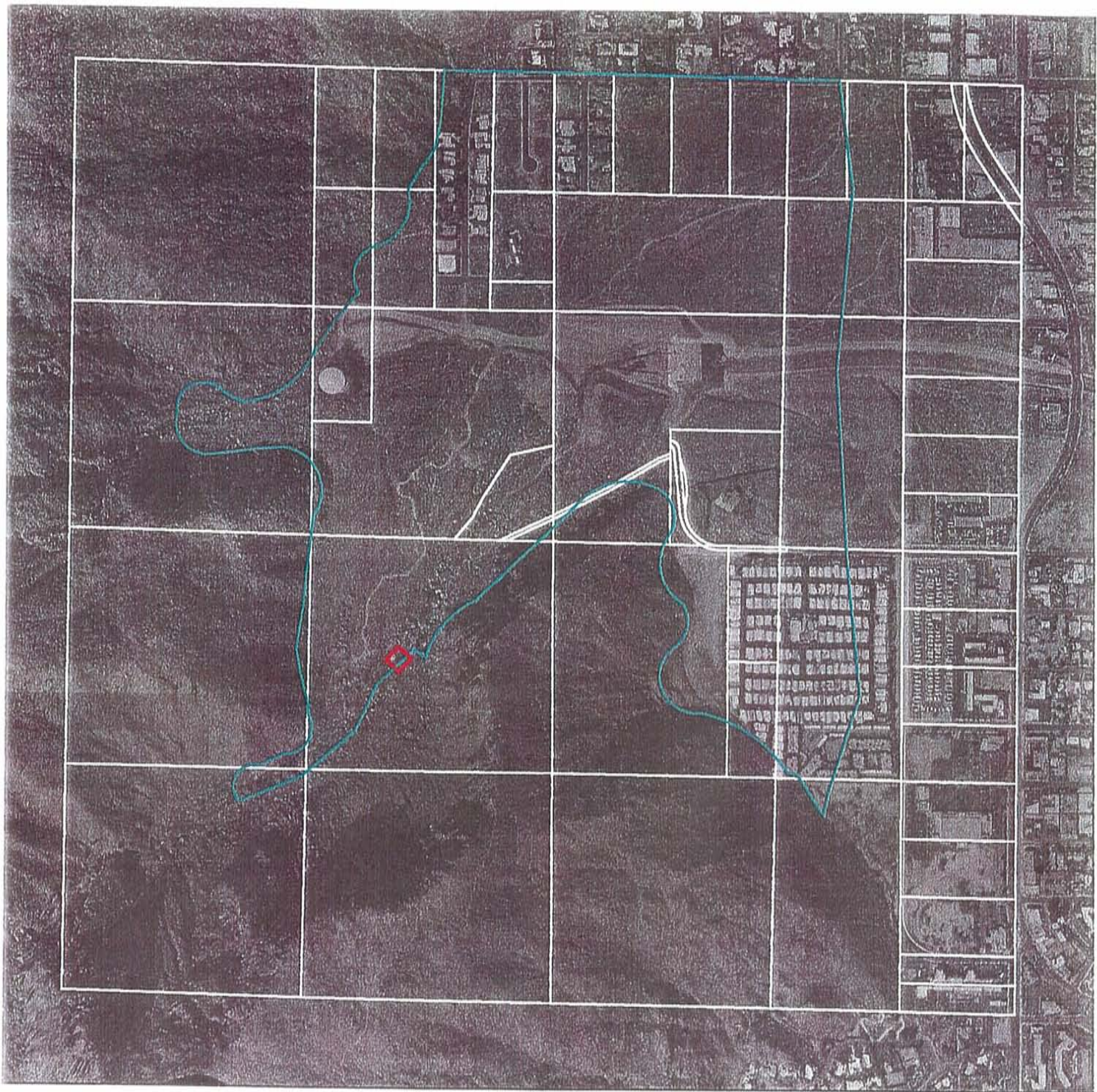
- Palm Springs Ground Squirrel
- CARRIZO STONEY BAND, 2-0% SLOPES
- CARRIZO COBBLY BAND, 2-0% SLOPES
- CARRIZO GRAVELLY BAND, 0-0% SLOPES
- Tract Boundaries
- Study Area



REFERENCES:
 Data obtained from Bureau of Land Management
 Palm Springs - South Coast Field Office
 Coachella Valley Multiple Species
 Habitat Conservation Plan
 Natural Communities Database
 April 21, 1999



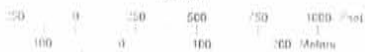
GEOGRAPHIC DATA PARAMETERS:
 State Plane Projection
 North American Datum 1983
 Zone 6
 Land Status as of May 26, 1999



TAHQITZ CANYON
Sensitive Habitat Distribution Model for
the Palm Springs Pocket Mouse
AGUA CALIENTE INDIAN RESERVATION
Riverside County, California
Section 22 T4S R4E SBBM

June 1, 1998

SCALE



LEGEND

- Palm Springs Pocket Mouse Tract Boundaries
- Study Area

REFERENCES:
 Data obtained from Bureau of Land Management
 Palm Springs - South Coast Field Office
 Coachella Valley Multiple Species
 Habitat Conservation Plan
 Natural Communities Database
 April 21, 1999



GEOGRAPHIC DATA PARAMETERS:
 State Plane Projection
 North American Datum 1983
 Zone 8
 Land Status as of May 26, 1999



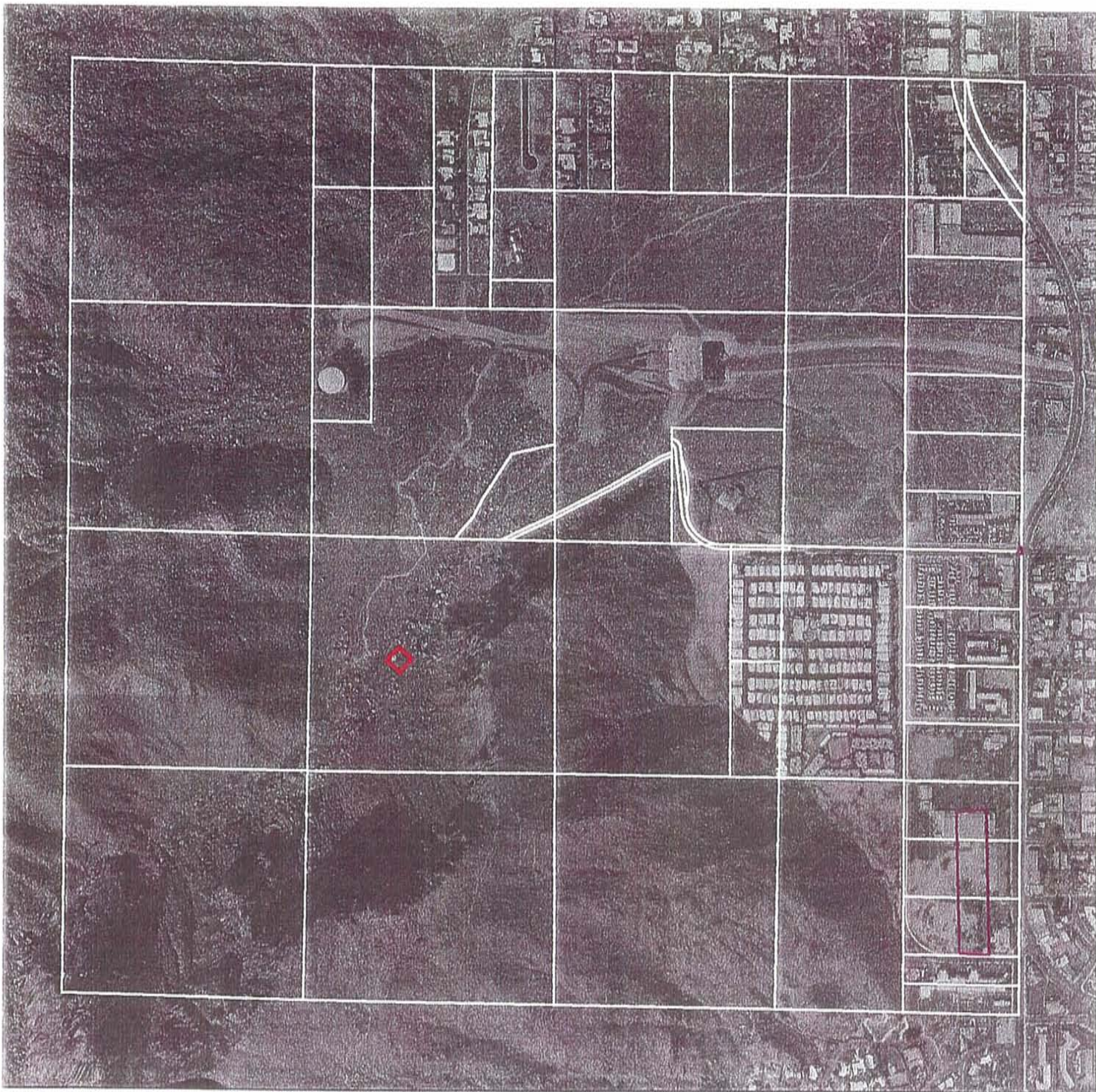
PROJECT FUNDING:
 State Wetlands Protection Development Grant
 U. S. Environmental Protection Agency
 Region 9

(Reservation Townships with
 location of Internet Highlighted)



GEOGRAPHIC INFORMATION SYSTEM
 Agua Caliente Band of Cahuilla Indians
 GIS Section
 Cartographer: Beth A. Wainman





PROJECT FUNDING:
 State Wetlands Protection Development Grant
 U. S. Environmental Protection Agency
 Region 9

Reservoirs Townships with
 Section of Interest Highlighted



DIGITAL VECTOR INFORMATION SYSTEM
 Agua Caliente Band of Cahuilla Indians
 GIS Services
 Cartographer: Beth A. Wessman

TAHQUITZ CANYON
 Sensitive Habitat Distribution Model for
 Casey's June Beetle
 AGUA CALIENTE INDIAN RESERVATION
 Riverside County, California
 Section 22 T4S R4E SBBM

June 1, 1998



LEGEND

- Study Area
- Casey's June Beetle Tract Boundaries



REFERENCES:
 Data obtained from Bureau of Land Management
 Palm Springs - South Coast Field Office
 Coachella Valley Multiple Species
 Habitat Conservation Plan
 Natural Communities Database
 April 21, 1999



GEOGRAPHIC DATA PARAMETERS:
 State Plane Projection
 North American Datum 1983
 Zone 8
 Land Status as of May 26, 1999

TRAILS MANAGEMENT PLAN

TRAIL PLAN



WEST FORK
FALLS

**AGUA CALIENTE BAND OF CAHUILLA
INDIANS**
PREPARED BY
TRIBAL PLANNING DEPARTMENT,
TRIBAL ENVIRONMENTAL PROTECTION OFFICE
OCTOBER 1, 2000

TRAIL PLAN

Master Plan Draft

Prepared for:

AGUA CALIENTE BAND OF CAHUILLA INDIANS

Prepared by:

TRIBAL PLANNING DEPARTMENT
TRIBAL ENVIRONMENTAL PROTECTION OFFICE

October 1, 2000

ACKNOWLEDGEMENTS

"A land ethic for tomorrow should be as honest as Thoreau's Walden, and as comprehensive as the sensitive science of ecology. It should stress the oneness of our resources and the live-and-help-live logic of the great chain of life. If, in our haste to "progress," the economics of ecology are disregarded by citizens and policy makers alike, the result will be an ugly America."

- Stewart Lee Udall (1920 -)

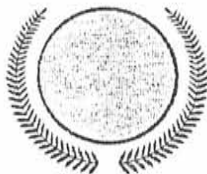
The Agua Caliente Band of Cahuilla Indians would like to give special thanks to Reggie Bowdler, Forest Trail Coordinator, Summit Ranger District of the United States Department of Agriculture Forest Service, for his hours of help and humor through the process of writing this plan and for his invaluable insight which was used to gain knowledge of the process of trail maintenance and planning.

We would also like to thank the Bureau of Land Management, by acknowledging the help of Danella George, Assistant Field Manager, Palm Springs, for providing us with a "boilerplate" for the writing of this document.

Special references to the equestrian user with standards for equestrian trails were provided with permission from Equestrian Trails, Inc. (Ms Gwen Allen) as referenced in the *ETI Trail Manual* by Bill Vogal.

Photographs of Indian Canyons were contributed by Ron Cordes, Planning Department Supervisor.

And finally, we would like to thank the participation and cooperation of Mr. Phil Kaplan, ADA Coordinator, City of Palm Springs Department of Planning and Building, and Mr. Lino Cortez, Senior Rehabilitation Counselor, California State Department of Rehabilitation. Their discussions have eloquently represented the needs of the handicapped community, and their contributions have been a great resource for the writing of this document.



AGUA CALIENTE BAND OF CAHUILLA INDIANS TRAIL PLAN

TABLE OF CONTENTS

	<u>Page</u>
<u>ACKNOWLEDGMENTS</u>	i
<u>TABLE OF CONTENTS</u>	ii
<u>1.0 INTRODUCTION</u>	1
1.1. The Significance of Trails.....	1
<u>2.0 MISSION STATEMENT</u>	2
<u>3.0 PURPOSE</u>	2
<u>4.0 OBJECTIVES</u>	3
<u>5.0 AUTHORITY</u>	3
<u>6.0 RESPONSIBILITY</u>	3
6.1 Chief Operating Officer.....	3
6.2 Tribal Planning Director.....	3
6.3 Tribal Canyon Maintenance Foreman/ Environmental Resources Manager.....	4
6.4 Tribal Ranger Director.....	4
<u>7.0 MAINTENANCE</u>	4
7.1 Policy.....	4
7.2 Goals.....	5
7.3 Maintenance Schedule.....	5
7.4 Trail Inventory.....	5
7.5 Condition Surveys.....	6
7.6 Materials.....	6
7.7 Manpower.....	6
<u>8.0 TRAIL DESIGN</u>	6
8.1 Location.....	7
8.2 Signage.....	7
8.2.1 Specifications.....	7
8.2.2 Need.....	8

8.2.2.1 Trailhead Signs.....	8
8.2.2.2 Trail Maps.....	8
8.2.3 Posting Policies.....	8
8.3 Trail Specifications.....	8
<u>9.0 EXISTING TRAILS.....</u>	11
<u>10.0 PROPOSED TRAILS.....</u>	11
10.1 Justification.....	11
10.2 Trail Building/Locating.....	12
<u>11.0 ENVIRONMENTAL CRITERIA.....</u>	13
11.1 Wildlife.....	13
11.2 Vegetation.....	13
11.3 Re-vegetation.....	14
11.4 Pesticides/Chemical Usage.....	14
11.5 Solid Waste.....	14
11.6 Environmental Authority.....	14
<u>12.0 GLOSSARY OF TERMS.....</u>	15
<u>13.0 APPENDICES.....</u>	15

TRAIL PLAN

INDIAN CANYONS

1.0 INTRODUCTION

A trail, at its most basic, is simply a cleared travel corridor leading from one point to another. In a way, that seems to fly in the face of environmental protection, for a trail is also a scar on the landscape. It is a sacrifice zone devoid of vegetation, a linear clear cut that can amount to a third of an acre or more per mile. And yet we accept the denuded surface of a trail as an almost natural part of the back county. It serves our needs extremely well and, by concentrating human use to a thin ribbon of land, it can spare the larger landscape from being trampled.

Trails are among the most effective means of backcountry management available to those responsible for overseeing Tribal, public and private lands. By controlling trail location, managers can encourage visitation to certain areas and limit access to others. Every choice that land managers make about design, construction, and maintenance will affect who will be able to use a pathway and who will be discouraged from traveling on it or denied access altogether.

How can trails best be planned and managed to recognize the needs and sensitivities of wildlife and the environment? What impacts do trail development and use have on wildlife? What can we do to minimize these impacts? With the tremendous love of both trails and wildlife, these seem to be the questions at hand. It is with these questions in mind and the need to identify critical issues and sources of information about trails and wildlife, to document case studies, and to present the information in a practical format that we address this management plan.

1.1 The Significance of Trails

Trails make positive contributions to nature conservation, they can help:

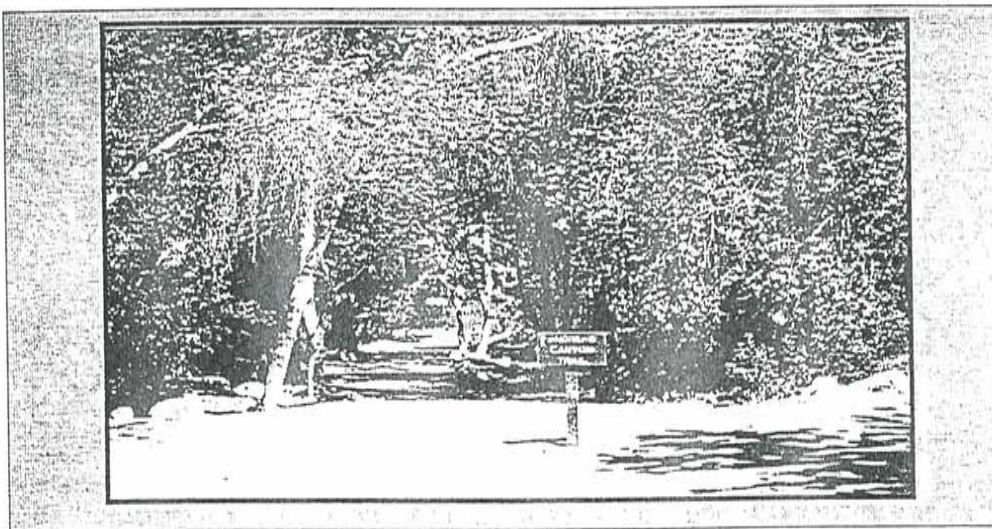
- restore degraded stream corridors and other habitats in the process of trail building;
- guide recreationalists away from sensitive cultural areas and wildlife habitat and into more adaptable settings;
- educate people about wildlife issues and appropriate behaviour in the outdoors; and
- build broad constituencies for wildlife conservatio by putting people in contact with nature.

Trails can be effective wildlife management tools. In a typical situation, land managers intentionally choose not to build a trail to particularly sensitive areas, perhaps a burial mound. People hear of the site and make their own paths to it. Many of the visitors are careful in how and when they approach the birds. But, before long many paths braid through the trees and planners are pressured into doing something. They decide to harden one of the trails and build an observation deck

at an appropriate distance from the birds. Finally, with great effort, over many years, most of the social trails are re-vegetated.

Any trail program should include a broad variety of trails to accommodate the various users that occur on Tribal and public lands and waters including the following:

Hiking Trails: This includes trails that are developed to accommodate foot travelers. Trails for hiking generally require less development than other travel modes and offer maximum opportunity for the trail to blend in with the environment. Although they may be constructed for a variety of purposes, foot trails are generally associated with providing a hiking experience, including day-long backpacking trails that extend into wild undeveloped areas.



Day Trail

Equestrian Trails: This trail type accommodates large numbers of saddle animals. These trails are simply day use paths.

Management must therefore include experienced guesses that may prove useful even though they may not be "right" in every situation. It is the larger framework of laws and community desires that determine what should – or must be valued and protected.

2.0 MISSION STATEMENT

The mission of the Agua Caliente Band of Cahuilla Indians (ACBCI), in partnership with local and governmental agencies, is to maintain and manage trails and cause minimum impact upon the environment; protect scenic, cultural, and historic values; conserve resources; and provide a safe and adequate trail for the user. We hope to instill the principles of the wilderness experience by "walking with a light step".

3.0 PURPOSE

This plan defines the responsibilities, policies, and procedures for the planning, design, construction, and maintenance of trails located within the Agua Caliente Indian Reservation.

4.0 OBJECTIVES

The objectives are to assure that Tribal trails are:

- uniform in planning, design, construction, and effective maintenance;
- harmonize with the surrounding landscape;
- cause minimum impact upon the environment; protect scenic, cultural, and historic assets;
- conserve all resources;
- and provide a safe and adequate trail for the user that conforms to the purpose defined herein.

5.0 AUTHORITY

The Tribal Council of the Agua Caliente Band of Cahuilla Indians has final authority over the planning, management, use and operation of all trails located on Tribal property. Other authority is sanctioned through executed management agreements between the Tribe and Governmental and local agencies and include: management Agreement between the State of California Department of Parks and Recreation, U.S. Bureau of Indian Affairs and the Agua Caliente Band of Cahuilla Indians for management of Indian Canyons Park (1992), its attachments and amendments. The Agua Caliente Band of Cahuilla Indians Constitution and By-laws (1955), Declaration of Federal Recognition as a Federally recognized Indian Tribe (1952) and others, et.al. also establish authority for the Agua Caliente Band of Cahuilla Indians.

6.0 RESPONSIBILITY

6.1 The Chief Operating Officer (COO) has the responsibility for:

Issuing and monitoring standards. Overseeing new building/development and maintenance.

Providing technical advice and recommendations on programming for trails located on Tribal lands to the Tribal Council.

Supervising and directing all personnel related to trail construction and management.

6.2 The Tribal Planning Director has the responsibility for:

Developing and maintaining engineering and land use policies and procedures for the planning, design, ownership, easements, and construction of trails on Tribal lands.

Providing technical expertise to the Tribal Council, when requested, for trail project designs and reviews.

Maintaining inventory and recordation of trails that intersect and are located on Tribal lands. Including the location of and use of trails that may impact wildlife and wildlife conservation.

Maintaining inventory and recordation of trails that intersect and are located on Tribal lands. Including the location of and use of trails that may impact wildlife and wildlife conservation.

Developing Tribal standard drawings, maps and specifications for trails.

Monitoring plans and specifications prepared by others for technical adequacy and adherence to Tribal standards, ordinances or resolutions.

6.3 Tribal Canyon Maintenance Foreman/Environmental Resources Manager have the joint responsibility for:

Compiling and maintaining a Tribal inventory of trails and trail features.

Monitoring and reviewing trails designed, and having qualified personnel and resources available to perform the work.

Providing technical assistance to the Tribe, when requested, for trail project design.

Performing condition surveys and maintenance inspections of trails.

Obtaining engineering approval of all trail designs for all areas of responsibility consistent with the Indian Canyons Master Plan and Tribal Conservation Plan and this document.

Files and Records Maintenance- Generation and maintenance of project files, record keeping, and retention requirements.

Overseeing route selection, standards, and maintenance of all trails constructed within the respective area of jurisdiction.

Supervising the maintenance and upkeep of all Tribal trails.

6.4 Tribal Ranger Director has the following responsibilities:

- patrolling Tribal lands;
- interpretation;
- enforcement of ordinances;
- protection and security.

7.0 MAINTENANCE

7.1 Policy – The Canyon Maintenance Team, directed by the Canyon Foreman under authority of the Tribal Council, will be responsible to provide such maintenance activities as dictated by any directives incorporated in this document; Tribal Ordinance 28, and the Indian Canyons Park Management Agreement (1992) between the State of California Department of parks and Recreation, the U.. Bureau of Indian Affairs and the Agua Caliente Band of Cahuilla Indians, or as directed by Tribal Council.

The Canyon Maintenance Team, under direction by the Canyon Foreman are responsible to maintain the environmental integrity of all natural systems and to work to conserve the designated Canyon and tribal Property areas, their resources, both natural, economic and cultural features and recreations. In the event of natural or man-made disaster, Canyon staff will be charged with repairing, and restoring Canyon systems, as dictated by Tribal Council.

7.2 Goals – Canyon maintenance is intended to help preserve the Indian Canyons and such other areas as assigned by tribal Council in a natural, or restored state, and to maintain enhancements and cultural resources for the pleasure, education and responsible use by the public where designated.

7.3 Maintenance Schedule – In addition to daily maintenance of public Tribal lands, the following schedule will be adhered to:

Back-Country Trails: will be inspected every two years for trail and feature integrity and to assure that fire prevention measures are taken.

Front-Country Trails: will be inspected at least every year in order to perform any necessary maintenance to regularly used trails, to secure trail location and integrity has been kept, and to assure that fire prevention measures are taken. Front country trails, at a minimum, are hiked weekly to inspect for overhand, general trail condition, safety, and trail hazards. On-foot inspections for damage are conducted after heavy rainfall, heavy wind or after other severe weather conditions.

7.4 Trails Inventory – A trails inventory (see attachment #1) will be maintained by the Canyon Foreman and supplied to the Planning Department in order to record land status, etc. It will be amended each time new trails are built, or when trails are closed. Form information includes:

- Official Trail Name/and former name
- Trail length
- Date entered in inventory
- Name of person entering information
- Land Status
- Beginning elevation
- Elevation gain
- Trail Classification or use

These records are kept for the purposes of historic and legal reference/description, mapping and topographic reference, cooperation with adjoining owners and land management. The Chief Operating Officer, the Tribal Environmental Protection Office, the Tribal Ranger Director and the Canyon Foreman will have copies of this inventory available to them and will be issued amendments as they are recorded.

Cultural features are not to be recorded on this form. The location of cultural features, artifacts or significant cultural sites will be recorded, stored and distributed by the Tribal Planning Director only as approved by Tribal Council.

7.5 Condition Surveys – Front and back country trails will be inspected for hike ability and fire abatement compliance as noted in Section 7.3. Issues having to do with Environmental conservation will be addressed separately but will be recorded on the Condition Survey form for remedy or repair (Attachment 2). The Environmental Resources Manager is responsible for preparing the Environmental Assessment for each trail (both qualitative and quantitative). A copy of the Assessment form is placed in a trail file. Make progress and similar reports as required. Make a final report on each project. Indicate the correct measured length of the trail, the distance to all important features such as bridges, puncheon, rockslides, and all other features that may affect or interest maintenance planning. This report is the first condition survey of the trail and should be filed with the maintenance records and the trail inventory record and filed in the trail file.

7.6 Materials – It will be the policy of the Canyon Maintenance Team to use natural materials for trail building sand repair as available. In a case where paving, culverts, bridges, or other structures or outdoor equipment such as horse ties, picnic tables and so on are necessary additions to natural trail construction, the Environmental Resources Manager will be consulted as to best practices use, and a joint decision with the Canyon Foreman will be made.

Trail surface materials will depend on trail use. In the case of common trail use, chipped green waste in cooperation with the Tribal Solid Waste Plan (Dec. 2000) and other natural materials should be used (except as indicated) in order to maintain a responsible conservation approach to trail maintenance leading to the reduction of soil compaction and erosion.

Alternative surfacing can be costly and should be used only when it is impossible for traffic to use the natural material encountered in grading operations. There are various types of alternative materials that may be used for trail surfacing. Some are: natural gravel, graded gravel, an asphalt dust treatment, an asphalt mat, soil cement treatment in wet areas, puncheon, and corduroy.

Where handicapped use is indicated, a hardened trail surface is necessary for wheelchair access and a 1/4 inch or less trail hazard (raise) tolerance is permitted. Such materials as asphalt and other compacted surfaces should be agreed upon both from an environmental standpoint as well as economical and conservation points of view by the Environmental Resources Manager and the Canyon Foreman.

7.7 Manpower – Maintenance is accomplished by Tribal or contracted employees using tribally owned or rented equipment and purchased or natural materials. The supervisory area of responsibility extends to the Canyon Foreman who is given maximum responsibility to see that work is done with complete and clear advance instruction and who is tasked to have personnel, equipment and materials in the correct amounts for maintenance jobs. A record of maintenance projects and resources should be kept and should include; a budget, time, materials and contracts if applicable.

8.0 TRAIL DESIGN

The development of a design for new or re-routed trails should be performed as a result of a planning effort for trails, normally the result of management decisions made through the ACBCI Operating and Planning Systems. Trail projects are developed

Through a series of analyses and studies, then designed and funded for construction and/or maintenance through the ACBCI Canyon Maintenance Department. Management objectives and functional requirements should include such items as environmental concerns, the type of use (I.e., recreational, handicapped, administrative, etc.), the estimated volume of use, and the anticipated season of use.

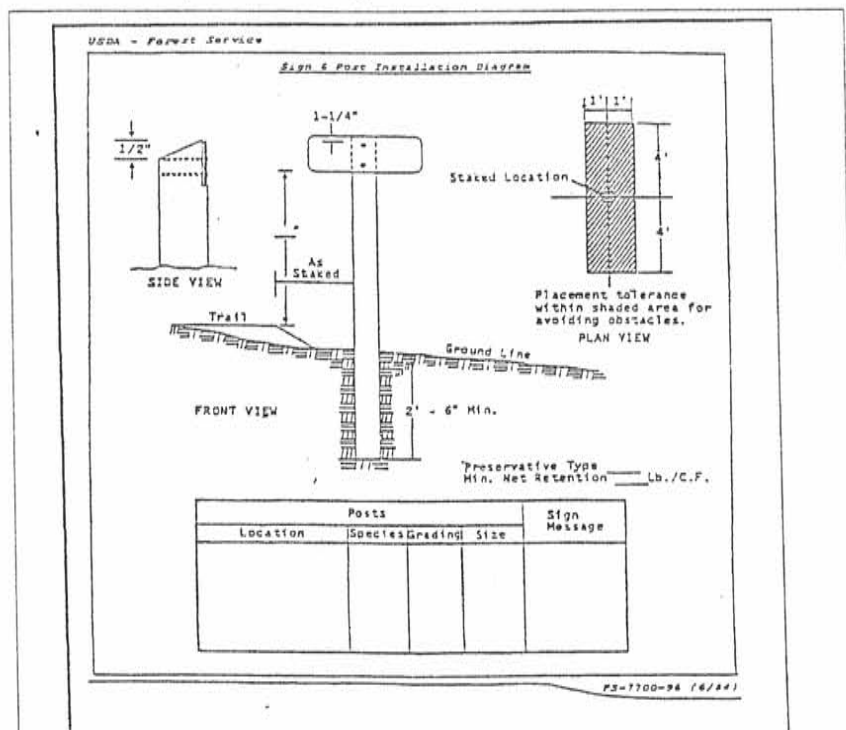
The design of a trail should be in keeping with its purpose. In general, it should be designed to produce minimum disturbance to the natural environment and should consider the protection of the adjoining resources, the safety and enjoyment of the user, the volume and type of traffic, the related economics. The design should incorporate features that reduce adverse impacts upon the environment, that resulting trail of high quality and permanence, and that provide the least costly maintenance.

8.1 Location – A good trail location provides a facility that meets management objectives, that is safe, functionally adequate, requires minimum maintenance, produces a minimum physical impact on the land, and, in most cases, is visually pleasing.

Cultural resources, endangered species, the preservation of habitat and erosion of stream banks, as well as other resource and conservation considerations will always be taken into consideration before building or relocating trails.

8.2 Signage – It is determined by above referenced management agreements, that signage should be kept to a minimum on both front and back country trails.

8.2.1 Specifications – Signage should be consistent. Brown weather-proof paint for the background with painted weather-proof white lettering. Sign material should be 2-inch x 6", 10" or 12" pine (depending on overall message to be posted). Signs are mounted on 2x2 or 2x4 pole stock also painted weather-proof brown. Galvanized or other weather-proof screws will be used to affix signs to sign poles. Lettering is machine routed using simple stencils. Special combinations of these specifications may be dictated by use/location/need (see drawing below).



Front CountryBack Country

1. Two inch (white) letters in parking
2. One inch on trails

1. One inch letters

8.2.2 Need – Put signs on special-purpose trails to indicate the primary use for which they are maintained. Proper directional signs are probably more necessary on trails than on roads. Travel on trails is slow and wearisome and improper or incomplete signing can cause a traveler to get lost or to underestimate the length and difficulty of the trail. Mileage indicators will be used that can be easily seen by the traveler, as necessary.



1/4 mile, Andreas Canyon ➤

8.2.2.1 Trailhead Signs – Trailhead signs will be posted at any trailhead or “y” in the trail, using standard signage for appropriate locations (back country or front country).

8.2.2.2 Trail Maps – Trail maps will be developed and their use encouraged by all hikers on ACBCI lands or Reservation and adjoining trails. Efforts in conjunction with the Bureau of Land Management and other land use agencies in common.

8.2.3 Posting Policies – On front country trails, 1/4 mile signs will be posted from the trail head corresponding to trail maps as necessary.

8.3 TRAIL SPECIFICATIONS

Clearance

Front Country

1. Hiking 36 to 48 inches wide
2. Hiking 7 to 8 feet high
3. Equestrian 48 inches wide
4. Equestrian 8 to 10 feet high

Back Country

1. Hiking 12 to 18 inches wide (36 in. maximum)
2. Hiking 7 to 8 feet high
3. Equestrian 36 inches wide
4. Equestrian 8 to 10 feet high

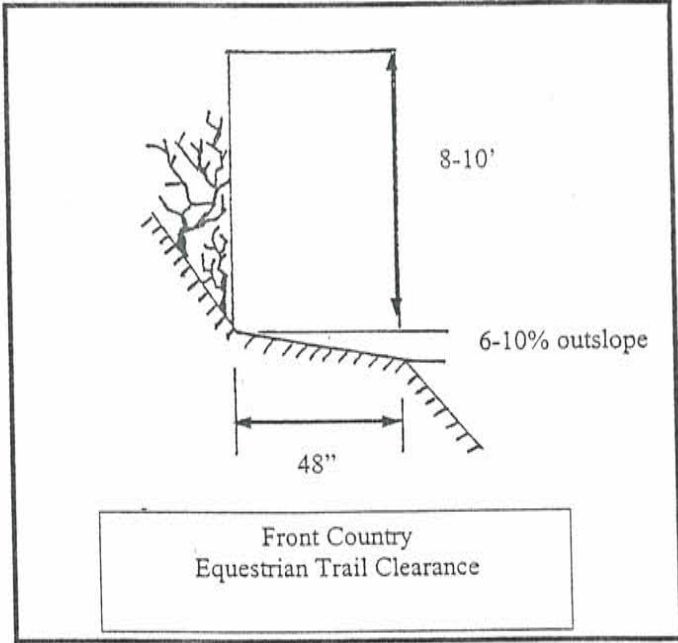
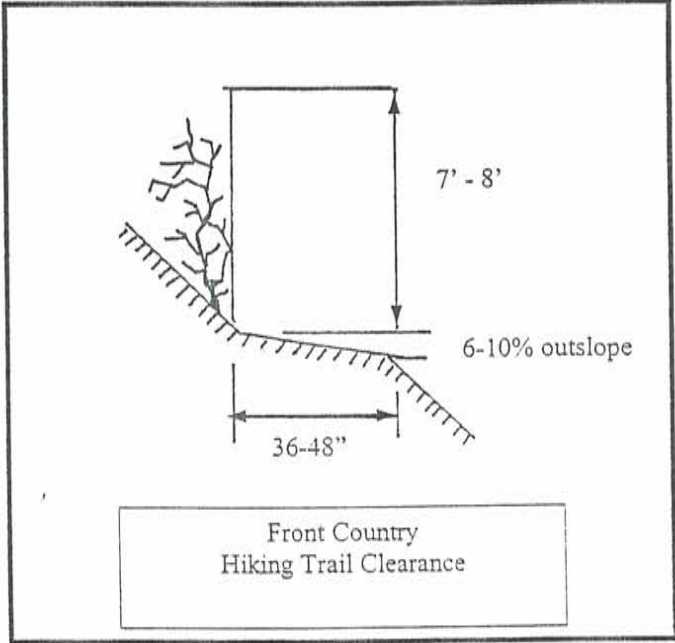
(see diagrams on page 13-14)

It should be considered that local heavy traffic or use by wheelchair handicapped may require a two-way trail to accommodate passing and/or turn-around.

Clearing for trails varies according to the value of the trail (front country/back country). Clearing criteria, design guidelines, and dimensions of the cleared area are in agreement with Tribal environmental and conservation guidelines and as referenced in this document. General purpose trails should be cleared of all projecting limbs, brush, down logs, debris, and other hazards to the user. Healthy foliage should be removed only where it interferes with trail traffic and the trail cannot be relocated to eliminate the interference. Methods of accomplishing clearing and disposal of debris must be verified according to Tribal environmental standards including Tribal Ordinance

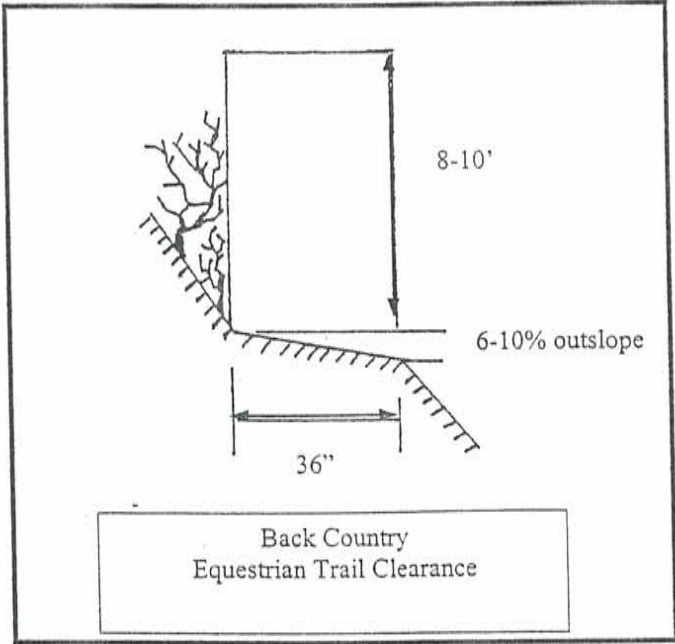
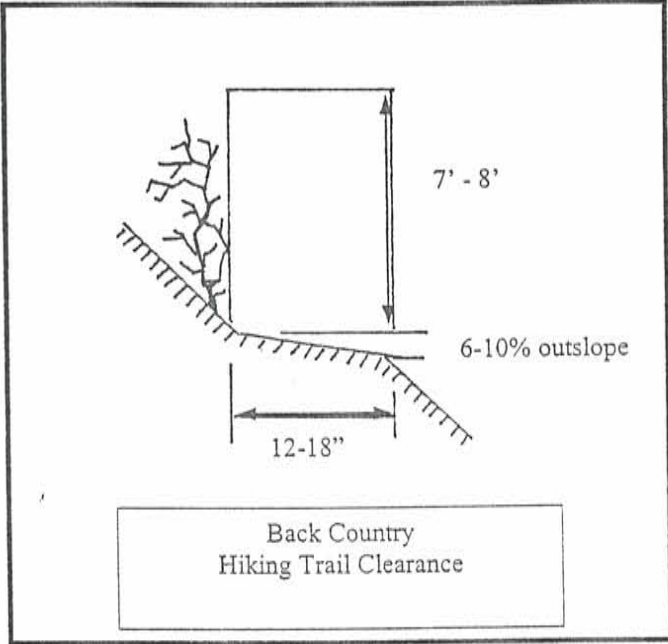


TRAIL CONSTRUCTION DRAWINGS





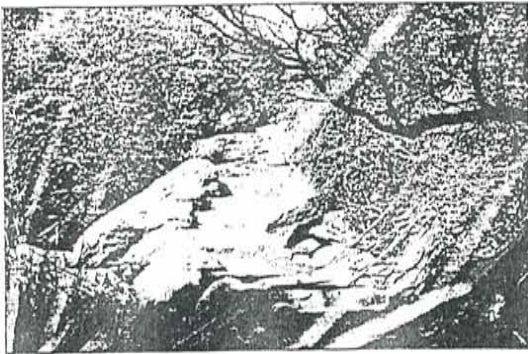
TRAIL CONSTRUCTION DRAWINGS



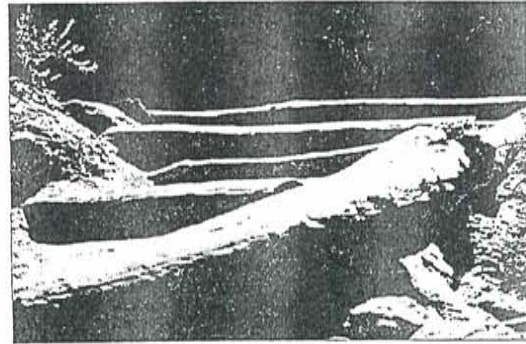
28, the Tribal Conservation Plan (Dangermond, 2000), and the Indian Canyons Park Management Agreement (1992) between the State of California Department of Parks and Recreation, the Bureau of Indian Affairs and the Agua Caliente Band of Cahuilla Indians.

Grading of trails should be 10% for normal use trails. Trails that accommodate handicapped access should normally be graded at 5% or less, or, in the case of elevation gain, no more than 10% for a short distance (~30 feet) with a flat resting area at the base of the incline and a flat resting area at the top of the incline. This design should include a 2% outslope (see trail surface discussion in Section 7.6). Hand rails or curbs are necessary for handicapped use on 10% inclines. Application should be specific in each case.) These directives are not a substitute for ADA Guidelines.

Steps provide a stable vertical rise on a trail while permitting lower average grades between steps. This slows water and retains soil. Steps should be thoughtfully placed on the trail, usually a low place requiring the least effort on the part of the walker. Steps that rise too high above the surface of the ground will not be used by hikers. A new treadway will develop and hikers will create an eroded area immediately to the side of the unused steps.



*Steps in
Tahquitz
Canyon*
“ ”



9.0 EXISTING TRAILS

Existing trails are managed and maintained under the agreements and directions issued by tribal Council. These trails will be aligned to Tribally sanctioned names and will be maintained in a consistent, safe, and environmentally sound manner. Existing trails will be included in regular scheduled maintenance and inventory systems, and will be included in yearly budgets for upkeep and improvement. Improvements, changes or removal from the Tribal trail inventory will be by the recommendations of management and approval by Tribal Council.

Primary responsibility for upkeep and improvements is referenced in Section 6.3.

10.0 PROPOSED TRAILS

New trails may be proposed by anyone and will be studied and considered by Agua Caliente Band of Cahuilla Indians management organizations and the Tribal Council on a case-by-case basis. Final decisions will be made by the Tribal Council.

10.1 Justification – New trails are justified by need. Approval of new trail building or re-routing of existing trails is the responsibility of the Tribal Council and COO on

advice from the Canyon Foreman, Tribal Ranger Director, or Environmental Resources Manager. Such needs can be justified by, but not be limited to:

- * desire to provide handicapped access
- * redesign of old trails on the reservation that do not conform to environmental standards or cultural preservation goals
- * in consideration of user safety
- * as habitat management for endangered or sensitive species
- * for other purposes as determined

10.2 Trail Building/Locating – Various other regulations, Tribal policies, and laws affect the location of trails on reservation lands. As each alternative location for a trail is being analyzed, consider the items discussed below.

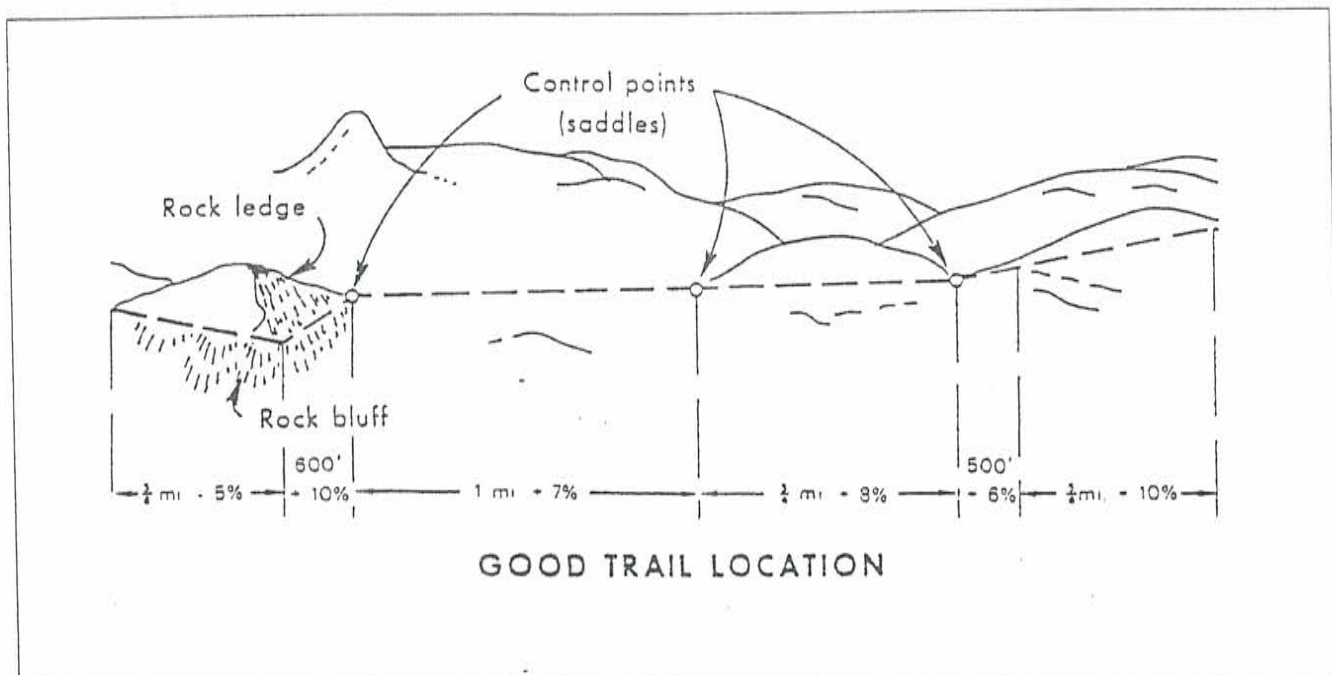
Management requirements and objectives and functional requirements which should include such items as environmental concerns, the type of use (i.e., recreational, handicapped, administrative, emergency, etc.), the estimated volume of use, and the anticipated season of use.

Environmental quality should consider the preservation or protection of water, soil, wildlife, air, and flora where possible.

With regard to cultural resources, trails are designed to meet the intent of the National Historic Preservation Act of 1966, as amended and must be constructed or routed to avoid known Tribal culturally sensitive areas. Trails must not be located where they might adversely affect national register quality cultural resources unless there is no practical alternative and the design includes appropriate measures to mitigate the impacts of the trail upon the cultural resources (see Section 7.4).

In accordance with Multi-Species Habitat Plans and agreements entered in by the Tribe, wildlife and habitat conservation will be a major concern in the consideration of new trail building, trail re-routing, and Canyon development.

Viewscape and hiker enjoyment will be considered, as well as future development and preservation, economic impact, closure and unauthorized or defacto trails.



11.0 ENVIRONMENTAL CRITERIA

Environmental mitigation objectives are set forth as follows by Tribal Council: "...to ensure the protection of natural resources and the environment within the Agua Caliente Indian Reservation, while promoting the highest and best use and development of Tribal Property, by establishing minimum standards for the review and consideration of environmental impacts associated with proposed major Tribal actions, including development on Tribal Property."

11.1 Wildlife – Trails which connect Indian Canyons Park to other wildlands in the vicinity are of primary concern to management. Wildlife, managed on an ecosystem or habitat based approach will be beneficially affected by trail management which reflects biologically sound, cooperative efforts by multiple agencies where trail uses cross land ownership/jurisdictional boundaries. Wildlife in general requires access to water during critical summer months and may be implemented by a variety of strategies (including installation of water guzzlers, temporary or seasonal closures or trail re-routing) designed to enhance habitat needs of the vast array of wildlife on and adjacent to Tribal lands. Wildlife affected by trail management policies will be covered by the Tribal Habitat Conservation Plan.



*PENINSULAR
BIG HORN SHEEP*



LEAST BELLS VIREO



DESERT TORTOISE

11.2 Vegetation – The Tribe endorses the removal of non-indigenous vegetation along the trail corridors and reseeded to reintroduce native plants. Such restoration work is done to create a better trail setting, but is also effective in improving wildlife habitat. Cooperation has been developed between the Bureau of Land Management for the removal and control of Tamarisk and fountain grass. Native plant re-vegetation plans are currently being developed.

11.3 Re-vegetation – Re-vegetation is important as a means of preserving the environmental integrity of Indian Canyons and its trails. Where noxious and non-indigenous plants are removed, native plants will be used to re-vegetate the affected landscape. These directives are set forth in the Tribal Conservation and Habitat Management Plan.



*Tamarisk Removal
Canyon Maintenance Team/CDF Crew*

11.4 Pesticides/Chemical Usage – The Canyon Resources Handbook written by the Tribal Environmental Protection Department and provided in cooperation with the United States Environmental Protection Agency, the United States Department of Agriculture and the Coachella Valley Mosquito and Vector Control District (Dr. Min-Lee Cheng) is on file in the office of the Canyon Foreman. When mitigation takes place or is planned using pesticides, herbicides, or other regulated chemicals, the Resources Handbook will be consulted to determine approved, best-method products to be used. Tribal and manufacturer regulations concerning purchase, human and wildlife hazard, storage, application and disposal of such products must be adhered to as referenced in the Resources handbook (Tribal Environmental Protection Office/EPA;6/2000) and elsewhere as referenced herein.

11.5 Solid Waste – Disposal of solid waste on front country trails is handled daily. There are trash receptacles at each trail head and Tribal Ranger patrols walk trails daily to assure the trails are free from trash.

Greenwaste in the form of palm fronds and other natural debris is handled as discussed in Section 7.6. Inspections for overhang and other trail greenwaste take place weekly and are handled according to standard Canyon Maintenance procedures.

With the exception of greenwaste, there are currently no recycling efforts being considered on trails or in the Indian Canyons Park (Tribal Recycling Plan, 2000).

11.6 Environmental Authority – Indian Tribes possess inherent sovereign authority over their land. Beginning with the inherent responsibility of the Agua Caliente Indians, this authority has been endorsed by virtue of environmental grants from the U.S. Environmental Protection Agency, The National Fish and Wildlife

Foundation, the Bureau of Land Management, U.S. Department of the Interior, Bureau of Indian Affairs, the State of California Department of Parks and recreation, Federal Environmental Management Administration and other authorities. Documents and agreements are referenced herein, or are on file in the Tribal Environmental Protection Office.

12.0 GLOSSARY OF TERMS

ADA – Americans with Disabilities Act

Back Country – Public or service trails used infrequently.

COO – Chief Operating Officer of the Agua Caliente Band of Cahuilla Indians Tribal Government.

Corduroy – Wood tread used like a boardwalk to get traffic over a bog or other problem trail area.

Duff – Leaves, branches and other natural debris (fire fuel) found on trails
Environmental Protection Office Manager – Environmental Resources Manager

Environmental Resources Manager – Environmental Protection Office Manager

Front Country – Public trails used daily.

General Purpose Trail – Use is mainly for hiking and public access.

Indian Canyon Park – The three canyon areas known cumulatively as Indian Canyon Park consisting of Andreas, Palm, and Murray Canyons

Indian Canyons – Those canyons at the base of the Santa Rosa Mountains on the Agua Caliente Reservation including Chino, Palm, Murray, Andreas and Tahquitz Canyons.

Obstacle – any rise in a trail, natural or manufactured.

Outslope – direction of trail construction incline which allows water to drain off the trail.

Puncheon – Textured trail tread constructed of wood.

Social Trails – Unsanctioned trails formed from random use by recreationalists to get to a desirable feature or location.

Special Use Trails – Those trails used specifically for non-public purposes such as maintenance, study, scientific and cultural access.

Tribal Lands – any portion of the Reservation regardless of land status.

13.0 APPENDICES

13.1 (DRAFTS) Trail Forms (7)

DRAFT

WATERSHED GRAZING/WATER QUALITY INVENTORY/ASSESSMENT

TRAIL CODE: _____

LOCATION: _____ TRAIL SEGMENT _____

WATER SOURCE PRESENT WITHIN CORRIDOR ASSESSED: Seasonal

Yes No Name of Water Body _____

TYPE: Spring Creek Seep Wellhead

LIST Diversions, Bridges Crossings:

Water Samples Taken: Program 319 Non-Point Source 106 Clean Water Act

RECOMMEND TEST FOR:

Fe.Col.	D.O. (Dissolved Oxygen)
TDS (Total Dissolved Solids)	VOL (Volatile Suspended Solids)
COD (Chemical Oxygen Demand)	NO ₂
GOD (Biological Oxygen Demand)	NO ₃ (Total Nitrate)
As (Arsenic)	Turbidity
NH ₃ (Total Ammonia)	
TEM (Temperature)	
TSS (Total Suspended Solids)	
Settleability	10 min. _____ 30 min. _____ 60 min. _____

COMMENTS/RECOMMENDATIONS: _____

Taken by: _____

Date: _____

DRAFT
AGUA CALIENTE BAND OF CAHUILLA INDIANS
TRAIL INVENTORY / ASSESSMENT
& DIGITAL MAPPING PROCESS
OCTOBER 2000

1. Review trail records, maintenance schedule and Trail Mgmt Plan for existing trail inventory and digital maps on file.
2. Digitize trails using aerial photograph, current trail digital mapping and visual review with canyon ranger and maintenance coordinator.
3. Print maps and review with Environmental Coordinator and trail management staff: Tribal Planning Director, Tribal Ranger, Maintenance.
4. Review maps for biological/habitat assessment concurrence with biological & habitat consultants.
5. Select site/trail segments for ground truthing/field verification and detail assessment using an interdisciplinary team:
 - A. Hydrologist/Watershed Specialist
 - B. Biologist/Habitat Consultant
 - C. Cultural Resource Monitor/Archeologist
 - D. GIS field specialist
 - E. Environmental Technician/Env. Coordinator
 - F. Trail Maintenance Supervisor/Ranger Law Enforcement Coord.
6. Schedule Assessment & accomplish field assessment for chosen sites/segments.
7. Digitize and summarize new field data into revised trail segments and summary recommendations for:
 - A. Field changes, trail categorization, seasonal openings/closures
 - B. Biological data mapping
 - C. Trail corridor/habitat mapping
 - D. Permanent Trail Inventory & Maintenance Records
 - E. Updated Trails Maps for Tribal, Gov't Agency & Public Use

DRAFT

CULTURAL INVENTORY/ASSESSMENT

TRAIL CODE: _____

QUAD NAME: _____

Curator: _____

Type: _____

Human Remains: Yes No Site Work Required: Yes No

Type of Site: Habitation Activity Burial

Integrity of Site: Intact Impacted

Uniqueness of Site: Rare Extensive

Segment: _____

Low → High

Site Sensitivity:

0 25 50 75 100

Site Significance:

0 25 50 75 100

Impact/Effect of Activity:

0 25 50 75 100

Vulnerability of Sites:

- Close proximity to Trails, Roads, Public access, or other
- May Impact Recreational Uses
- Relational to Aboriginal History
 - Historical
 - Pre-Historical
- Affects mitigation for other environmental components
- May May Not be candidate for limited public use

Exact Location:

Cultural Value:

0 25 50 75 100

Agent: _____

DATE: _____

Mapped: _____ 2000

Map Updated: _____ 2000

Vegetation Inventory/Assessment
 Agua Caliente Band of Cahuilla Indians

DRAFT

Trail Code: _____		Date: _____		Time: _____	
Location: _____		Observer: _____		Legal Location: _____	
Site Quality: <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor		Vegetation Coverage: _____ %			

Common Name or Species	Occurance	Veg. Communities	Aspect	Elevation	Phenology	Topography	Notes

Disturbance:	Human: Trash Graffiti Soil Compaction Vehicle use Pot Hunting
%Disturbed	Natural: Erosion Fire Mass Wasting
Elevation (feet):	Vegetation Communities:
0-1000 = 1	SMWSS-Sonoran mixed woody & succulent shrub
1000-2000 = 2	SSAR - southern sycamore alder riparian forest
2000-3000 = 3	PJWS - Peninsula juniper woodland and scrub
3000-4000 = 3	DFPOW - desert fan palm oasis woodland
4000-5000 = 4	ILOC - interior live oak chaparral
5000-6000 = 5	BOF - black oak forest
6000-7000 = 6	RSC - red shank chaparral
Occurance:	SCBS - Sonoran creosote bush scrub
A-Abundant, C-Common, S-Sparse, R-Rare	DDWW - desert dry wash woodland
Aspect:	
N-North, E-East, W-West, S-South	
Topography:	
R = Riparian Zone F = Foothills D = Desert M = Mountains	
Phenology:	
T-Tree, S-Shrub, H-Herb, V-Vine	

Area Sketch Map

Trails Inventory
 Agua Caliente Band of Cahuilla Indians

DRAFT

Trail Code: _____

Tribal Name: _____ Name: _____

Common Name: _____

Trail Segment(s): _____ through _____ Date: _____

Fee: _____ Allotment: _____ Public Lands: _____ Tribal: _____ Guide Reservation: _____

Trail Type: Hiking Equestrian Biking

Status: (Y or N) Approved:

Open:

Explain if No: _____

Trail Description:

Segment Length(s): _____

Average Aspect: _____

Average % Slope: _____

Starting Elevation: _____ Ending Elev.: _____

Total Elevation Gain: _____

Trailhead Location: _____

Classification: Back Country Front Country

Trail Difficulty: Easy Moderate Strenuous

Season: Spring Summer Fall Winter

Loop: Y N

Condition: Good Fair Needs Work: (Explain Below)

Noteworthy Features: Mileage:

Water	Waterfalls Springs	
Seasonal H2O		
Plant Features		
Public Cultural Features		
Wildlife		
Hazards		
Permanent Features		

Landscape Features to be Named

Feature Description	Name	Approved	Date

Land Status

_____ R _____ S _____ (W) _____ (V) _____

USGS Topographic Quadrangle: _____

Allotment Number: _____

Attached: _____ Date: _____

GIS Unit: _____

Photo: _____

Other records: _____

Wildlife Inventory/Assessment
 Agua Caliente Band of Cahuilla Indians

DRAFT

Trail Code	
Date	Time
Location	Observer
Legal Location T R S No	

Common Name

or Species	Quantity	Veg. Comm.	Age	Aspect	Elevation	Sign	Weather	Topography:

Elevation (feet): 0-1000 = 1 1000-2000 = 2 2000-3000 = 3 3000-4000 = 3 4000-5000 = 4 5000-6000 = 5 6000-7000 = 6 Age: A = Adult J = Juveniles U = Unknown Aspect: N = North E = East W = East S = South Weather: C = Clear K = Partly Cloudy O = Overcast P = Precipitation Topography: R = Riparian Zone F = Foothills D = Desert M = Mountains Sign: O - Observation, V - Vocalization, S - Scat, B - Burrow, N - Nest, C - Carcass	Vegetation Communities: SMWSS-Sonoran mixed woody & succulent shrub SSAR - southern sycamore alder riparian forest PJWS - Peninsula juniper woodland and scrub DFPOW - desert fan palm oasis woodland ILCC - interior live oak chaparral BOF - black oak forest RSC - red shank chaparral SCBS - Sonoran creosote bush scrub
---	--

DRAFT

Canyon

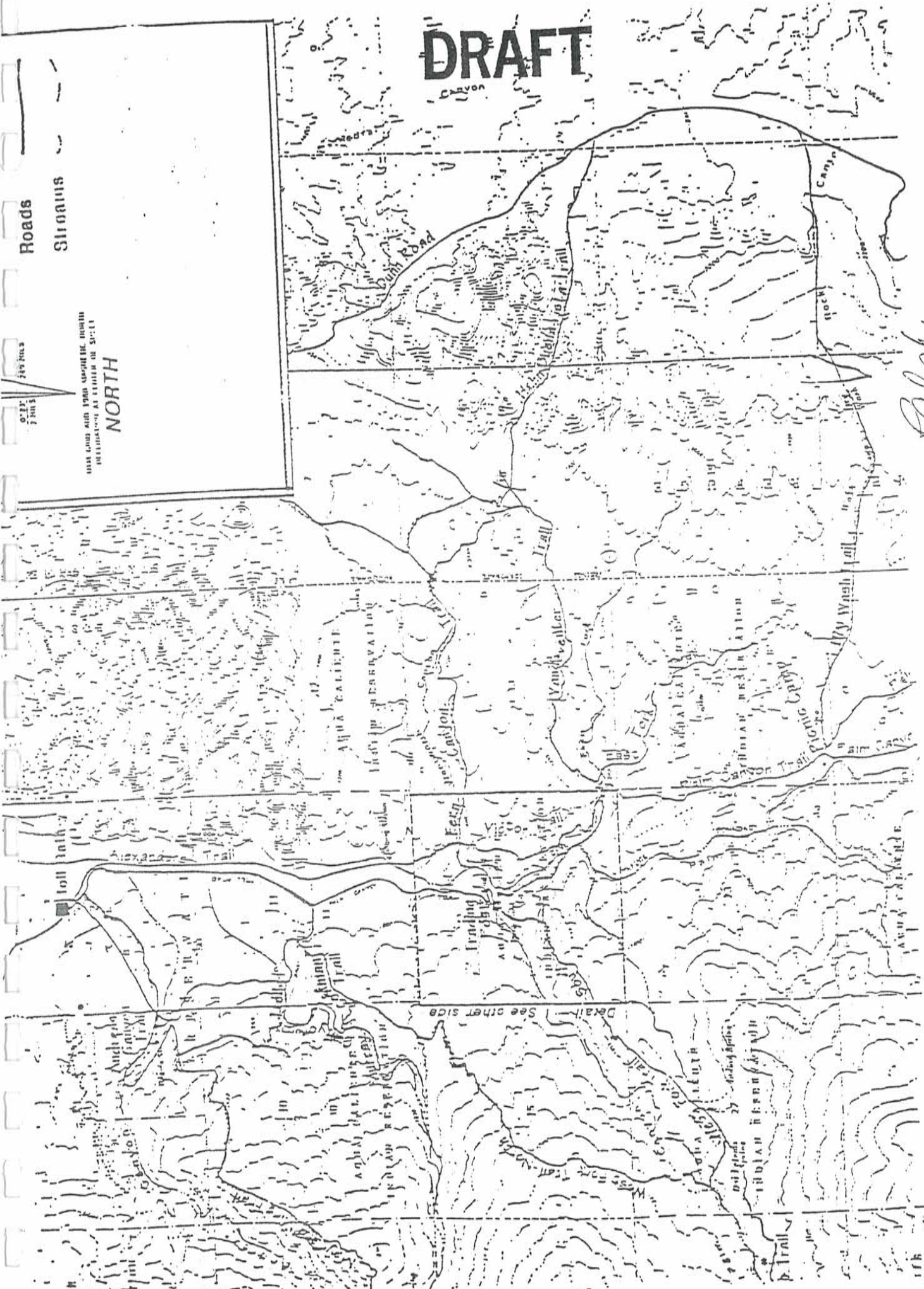
Roads

Streams

Scale
0 100 200
Feet

THIS MAP AND DATA WERE ACQUIRED BY THE BUREAU OF LAND MANAGEMENT AS PART OF THE SURVEY OF THE PUBLIC LANDS

NORTH



Alpk

**Appendix E
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 2 South Range 3 East				
County of Riverside/ Desert Hot Springs	13	2,560	Vacant	Open Space
	25	2,320	Vacant	City
Township 2 South Range 4 East				
County of Riverside	8	2,260	Vacant	Rural/Open Space
	9	2,240	Vacant	Commercial/Freeway/Open Space/Rural
	10	2,440	Vacant	Open Space
	14	1,920	Vacant	Open Space
	15	1,800	Vacant	Rural
County of Riverside/ Desert Hot Springs	16	1,760	Vacant	City/Commercial/Freeway/Open Space
	17	1,860	Vacant	City/Freeway/Open Space/Rural
	18	2,160	Vacant	Open Space/Rural
	19	1,960	Vacant	City/Open Space/Rural
	20	1,700	Vacant	City/Rural
	21	1,520	Vacant	City/Open Space/Rural
	22	1,380	Vacant	City/Open Space/Rural
	23	1,440	Developed	City/Open Space/Residential
	24	1,480	Road	City
	25	1,160	Developed	City
	26	1,200	Vacant	City/Open Space
	27	1,280	Vacant	City
	28	1,380	Under Construction	City
29	1,560	Vacant	City	
35	1,100	Vacant	Residential	
36	1,020	Vacant	City/Residential	

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 2 South Range 4 East (Cont.)				
Desert Hot Springs	30	1,800	Vacant	City
Township 3 South Range 3 East				
County of Riverside	7	1,500	Vacant	Freeway/Open Space
County of Riverside/Palm Springs	9	1,460	Vacant	City/Freeway/Open Space
	10	1,600	Vacant/ Agriculture	City/Freeway/Open Space
	11	1,620	Vacant	City/Freeway/Open Space/Rural
	12	1,480	Vacant	Freeway/Open Space/Rural
	13	1,140	Vacant/ Windmill Farm	City/Open Space/Rural/ Freeway
	14	1,180	Vacant/ Windmill Farm	City/Open Space
	15	1,180	Agriculture/ Vacant/N/S Highway/ Transmission Tower	City/Open Space/ Freeway/
	16	1,200	Vacant/N/S Highway/ Transmission Tower	City/Freeway/Open Space
	24	1,280	Vacant	City/Freeway/Open Space/Rural
Palm Springs	23	1,760	Vacant	City/Freeway

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 3 South Range 4 East				
County of Riverside	2	980	Vacant	Industrial/Open Space/Rural
	12	840	Vacant/ Developed	Commercial/Industrial/Open Space/Residential/ Rural
	18	1,080	Vacant	Freeway/Rural
County of Riverside/Desert Hot Springs	1	940	Vacant	City/Industrial/Open Space Residential/Rural
	7	1,340	Vacant	Freeway/Rural
County of Riverside/Palm Springs	11	860	Vacant	Industrial/Rural
	13	760	Vacant	Industrial/Open Space/Rural
	14	760	Vacant	Industrial
	19	960	Cleared For Water Transport/ Windmill Farms	City/Freeway/Open Space/Residential/Rural
	20	880	Windmills	Open Space
	23	700	Mining/ Under Construction	City/Commercial/ Freeway/Industrial/Open Space
	29	1,120	Vacant	City/Freeway/Open Space
Palm Springs	21	760	Windmills	City
	22	680	Windmills	City/Industrial/Open Space
	24	720	Vacant	City/Freeway/Industrial/ Open Space/Rural
	25	580	Vacant	City/Freeway/Industrial/ Open Space/Rural
	26	600	Vacant	City/Open Space
	27	680	Vacant	City/Open Space
	28	760	Vacant	Open Space
	30	1,600	Vacant	City/Freeway/Open Space
	32	1,960	Vacant	City/Freeway/Open Space

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 3 South Range 4 East (Cont.)				
Palm Springs (Cont.)	33	940	Vacant	City/Open Space/ Residential
	34	640	Vacant	City/Open Space/ Residential
	35	580	Developed/ Vacant	City/Open Space/Residential
	36	540	Vacant	Residential
Township 3 South Range 5 East				
County of Riverside/Desert Hot Springs	6	880	Vacant	City/Residential/Rural
County of Riverside	7	800	Vacant	Open Space/Residential/ Rural
	13	1,180	Vacant	Open Space/Rural
	14	1,060	Vacant	Open Space/Residential/ Rural
	15	860	Vacant/ Water Treatment	Open Space/Residential/ Rural
	16	800	Vacant	Residential/Rural
	17	760	Vacant/ Housing	Open Space/Residential/ Rural
	18	720	Vacant	Open Space/Rural
	19	680	Vacant	Commercial/Open Space/ Residential/Rural
	20	720	Vacant/ Housing	Open Space/Residential
	24	1,360	Vacant	Open Space/rural
	25	1,300	Vacant	Institutional/Open Space
	26	1,220	Vacant	City/Industrial/Institutional/ Open Space/Residential
	27	1,040	Vacant	Industrial/Institutional/Open Space/Residential
28	740	Vacant	City/Open Space/Residential	

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 3 South Range 5 East (Cont.)				
County of Riverside (Cont.)	29	620	Vacant	City/Commercial/Open Space/Residential/Rural
	30	560	Vacant	City/Commercial/Freeway/Industrial/Open Space/Residential/Rural
	31	520	Vacant	City/Commercial/Freeway/Industrial/Open Space
	32	600	Vacant	City/Commercial/Freeway/Industrial/Institutional/Open Space/Residential
	33	620	Vacant	City/Commercial/Industrial/Open Space/Residential
	34	920	Vacant	City/Industrial/Open Space/Residential
	35	1,280	Vacant	City/Open Space/Residential
	36	1,1080	Vacant	Open Space
County of Riverside/Cathedral City	21	720	Vacant	Open Space/Residential
	22	860	Vacant	Institutional/Open Space/Residential/Rural
	23	1,100	Vacant	Institutional/Open Space/Rural
Township 3 South Range 6 East				
County of Riverside	18	1,260	Vacant	Open Space/Rural
	19	1,340	Vacant	Open Space/Rural
	20	1,100	Vacant	Open Space/Rural
	27	1,1040	Vacant	Open Space/Rural
	28	1,020	Vacant/ Housing	Open Space/Rural
	29	940	Vacant	Open Space/Rural
	30	1,240	Vacant	Open Space
	31	1,000	Vacant	Open Space
	32	920	Vacant	Open Space/Rural

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 3 South Range 6 East (Cont.)				
County of Riverside (Cont.)	33	1,100	Vacant	Open Space
	34	1,020	Vacant	Open Space
	35	840	Vacant	Open Space
	36	880	Vacant	Open Space
Township 3 South Range 7 East				
County of Riverside	31	1,040	Vacant	Open Space
	32	1,200	Vacant	Open Space
Township 4 South Range 3 East				
County of Riverside	1	4,040	Vacant	City/Open Space
Township 4 South Range 4 East				
Palm Springs	1	500	Vacant	Open Space
	2	560	Developed	City/Commercial/Open Space/Residential
	4	1,160	Chino Canyon and Palm Springs Tramway	City/Open Space/Residential
	5	2,240	Vacant	Open Space/Residential
	6	3,020	Vacant	City/Open Space
	7	3,040	Vacant	Open Space
	8	2,740	Vacant	Open Space/Residential
	9	1,640	Vacant	Open Space/Residential
	10	780	Housing/Vacant	City/Open Space/Residential
	11	480	Developed	City
	12	460	Developed	City/Commercial/Industrial/
	13	420	Developed	City/Industrial
	14	420	Developed	City/Commercial/Open Space/Residential
	23	420	Developed	City
24	380	Developed	City/Open Space/Residential	

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 4 South Range 4 East (Cont.)				
Palm Springs (Cont.)	25	640	Road/ Developed	Open Space/Residential/City/ Open Space
	26	480	Developed	Open Space/Residential
County of Riverside	19	4,700	Vacant	Open Space/Rural
	20	3,720	Vacant	Open Space/Rural
	21	2,500	Vacant	Open Space/Rural
	22	1,020	Tahquitz Canyon	City/Commercial/Open Space/Residential
	28	2,420	Vacant	Open Space/Rural
	29	3,880	Vacant	Open Space/Rural
	30	4,640	Vacant	Industrial/Open Space/Rural
	31	5,640	Vacant	Industrial/Open Space/Rural
	32	3,900	Vacant	Open Space/Rural
	33	2,320	Vacant	Open Space
County of Riverside/Palm Springs	16	2,120	Vacant	Open Space
	17	3,740	Vacant	Open Space
	18	4,280	Vacant	Industrial/Open Space/Rural
	27	1,380	Vacant/ Developed	City/Open Space/Residential/ Rural
	34	1,060	Vacant/ Housing	City/Industrial/Open Space/ Residential/Rural
	35	700	Developed/ Golf Course and Under Construction	City/Industrial/Open Space/ Residential/Rural
	36	980	Vacant	City/Open Space/Residential

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 4 South Range 5 East				
County of Riverside	1	880	Vacant	Industrial/Open Space/Rural
	12	400	Vacant	Industrial/Rural/Freeway
County of Riverside/Cathedral City	2	820	Vacant	City/Industrial/Open Space/Residential
	4	440	Developed	City/Commercial/Freeway/Industrial/Institutional/Open Space/Residential
	11	380	Vacant	City/Freeway/Industrial/Institutional/Open Space/Residential
	14	300	Vacant/ Roads/ Housing	City/Commercial/Freeway/Industrial/Institutional/Residential
Cathedral City	3	640	Vacant/ Trans- mission Lines	Commercial/Freeway/Industrial/Institutional/Open Space/Residential
	9	400	Developed	Residential
	15	360	Developed	City/Commercial/Institutional/Residential
County of Riverside/Cathedral City/ Palm Springs	5	460	Vacant/ Developed	Commercial/Open Space/Residential/City/Industrial/Open Space
Palm Springs	6	460	Vacant/ Housing/ Commercial/ Commercial Storage/ Electrical	City/Commercial/Industrial/Open Space/Residential
	7	440	Developed/ Road	City/Industrial/Open Space
	18	400	Developed	City/Commercial/Industrial/Residential
	19	360	Developed	City

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 4 South Range 5 East (Cont.)				
Palm Springs (Cont.)	20	360	Vacant/ Developed	City/Commercial/Industrial/ Open Space/Residential
	30	680	Developed/ Flood Control	City/Commercial/Open Space/Residential
	31	1,020	Vacant	Open Space
Cathedral City/Palm Springs	8	420	Developed	Industrial/Open Space/ Residential
	10	360	Vacant/ Highway/ School/ Housing	City/Commercial/Freeway/ Industrial/Institutional/Open Space/Residential
	16	360	Developed	City/Residential
	17	380	Developed	City/Industrial/Residential/ Commercial/Open Space/ Residential
	21	360	Vacant/ Developed	City/Open Space/Residential
	28	320	Developed	City/Commercial/Industrial/ Open Space/Residential
	32	820	Vacant/ Commercial	City/Commercial/Open Space/Residential
	33	440	Vacant/ Commercial	City/Commercial/Industrial/Op en Space/Residential
County of Riverside/Rancho Mirage	13	280	Vacant/ Trans- mission Lines	Commercial/Freeway/City/ Industrial/Institutional/ Residential
	24	280	Vacant/ Under Construction	City/Commercial/Industrial/ Residential
Cathedral City/Rancho Mirage	22	360	Vacant/ Developed	City/Commercial/ Institutional/Open Space /Residential
	23	340	Vacant/ Developed	City/Commercial/Residential

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 4 South Range 5 East (Cont.)				
Cathedral City/Rancho Mirage (Cont.)	27	300	Developed	Commercial/Residential
	34	460	Developed/ Flood Control	City/Commercial/Industrial/Office/Professional/Open Space/Residential
	35	300	Developed	City/Open Space/Residential
Rancho Mirage	25	320	Developed	City/Open Space/Residential/
	26	300	Developed	City/Open Space/Residential
County of Riverside/Palm Springs	29	500	Developed	City/Commercial/Open Space/Residential
Township 4 South Range 6 East				
County of Riverside	1	740	Vacant	Open Space
	2	980	Vacant	Open Space
	3	940	Vacant	Open Space
	4	860	Vacant	Open Space/Rural
	5	700	Vacant	Industrial/Open Space/Rural
	6	660	Vacant/ Mining	Industrial/Open Space/Rural
	7	400	Vacant	Industrial/Residential/Rural
	8	480	Housing/ Vacant	Industrial/Open Space/Residential/Rural
	9	560	Vacant	Open Space/Rural
	10	660	Vacant	Open Space/Rural
	11	740	Vacant	Open Space/Rural
	12	720	Vacant	Open Space
	13	560	Vacant	Open Space
	14	440	Vacant	Open Space/Rural
	15	320	Vacant/ Housing/ Industrial	Residential/Rural

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 4 South Range 6 East (Cont.)				
County of Riverside (Cont.)	16	260	Vacant	Commercial/Industrial/ Residential/Rural
	17	260	Road	Commercial/Residential/ Rural
	18	260	Road	Industrial
	21	200	Vacant	Residential/Rural
	22	220	Housing/ Nursery/ Under Construction	Open Space/Residential/ Rural
	23	260	Vacant	Open Space
	24	300	Vacant	Open Space
	25	180	Vacant	Open Space
	26	180	Vacant	Open Space
	27	180	Vacant	Industrial/Open Space
36	140	Vacant	Institutional/Open Space	
County of Riverside/Palm Desert	19	280	Road	City/Commercial/Freeway/ Industrial
	28	180	Vacant	Open Space/Residential/ Rural
	34	180	Vacant	Open Space
	35	140	Vacant	Open Space/Residential
County of Riverside/Palm Desert/ Rancho Mirage	20	200	Vacant	Residential
Township 4 South Range 7 East				
County of Riverside	5	1,040	Vacant	Open Space/Rural
	6	860	Vacant	Open Space
	7	760	Vacant	Open Space
	8	920	Vacant	Open Space
	9	1,000	Vacant	Open Space/Rural

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 4 South Range 7 East (Cont.)				
County of Riverside (Cont.)	10	1,140	Developed/ Road	Open Space/Rural
	16	980	Vacant	Open Space/Rural
	17	760	Vacant	Open Space
	18	620	Vacant	Open Space
	19	340	Vacant	Open Space/Residential
	20	560	Vacant	Open Space
	21	840	Vacant	Open Space
	28	540	Vacant	Institutional/Open Space/ Residential/Rural
	29	360	Orchard/ Agriculture	Commercial/Institutional/ Open Space/Residential
	30	160	Vacant	Institutional/Open Space/ Residential
County of Riverside/La Quinta	31	100	Vacant	Institutional/Open Space
	32	100	Orchard	Open Space/Residential
	33	260	Vacant	Open Space
Township 5 South Range 3 East				
County of Riverside	1	5,920	Vacant	Open Space
	12	5,420	Vacant	Open Space
	25	6,500	Vacant	Open Space/Rural
	36	6,780	Vacant	Rural
Township 5 South Range 4 East				
County of Riverside/Palm Springs	1	1,240	Vacant	Open Space/Residential/ Rural
	2	700	Indian Canyons/ Developed	City/Industrial/Residential/ Rural
	3	1,240	Indian Canyons	City/Industrial/Open Space/ Rural
	12	1,380	Indian Canyons	City/Open Space/Rural

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 5 South Range 4 East (Cont.)				
County of Riverside/Palm Springs (Cont.)	13	1,180	Vacant	City/Open Space/Rural
	25	1,660	Vacant	Open Space/Rural
	26	2,320	Vacant	Open Space/Rural
	35	2,720	Vacant	Open Space/Rural
County of Riverside	4	2,640	Vacant	Rural
	5	4,160	Vacant	Open Space/Rural
	6	5,200	Vacant	Open Space/Rural
	7	4,200	Vacant	Open Space/Rural
	8	3,280	Vacant	Rural
	9	2,560	Vacant	Rural
	10	1,660	Indian Canyons	Rural
	11	1,000	Indian Canyons	Rural
	14	1,260	Indian Canyons	Open Space/Rural
	15	2,180	Vacant	Industrial/Rural
	16	3,000	Vacant	Industrial/Open Space/Rural
	17	3,420	Vacant	Industrial/Open Space/Rural
	18	4,080	Vacant	Industrial/Open Space/Rural
	19	5,160	Vacant	Industrial/Open Space/Rural
	20	4,000	Vacant	Industrial/Open Space/Rural
	21	3,160	Vacant	Industrial/Open Space/Rural
	22	2,560	Indian Canyons	Industrial/Open Space/Rural
23	1,760	Vacant	Industrial/Open Space/Rural	
24	1,380	Indian Canyons	Industrial/Open Space/Rural	
27	3,600	Vacant	Open Space/Rural	

**Appendix E (cont.)
Existing Land Use and Land Use Designations**

Jurisdiction	Section	Approximate Elevation (Feet)	Existing Land Use	Planned Land Use
Township 5 South Range 4 East (Cont.)				
County of Riverside (Cont.)	28	4,300	Vacant	Open Space/Rural
	29	3,980	Vacant	Open Space/Rural
	30	5,300	Vacant	Open Space/Rural
	31	5,500	Vacant	Open Space/Rural
	32	5,240	Vacant	Open Space/Rural
	33	5,440	Vacant	Open Space/Rural
	34	6,660	Vacant	Open Space/Rural
Palm Springs	36	2,080	Vacant	Open Space/Rural
Township 5 South Range 5 East				
Cathedral City/Rancho Mirage	3	740	Vacant	City/Open Space/Residential
Palm Springs	6	1,640	Vacant	Open Space
	7	1,640	Vacant	Open Space
	8	1,420	Vacant	Open Space
	20	2,260	Vacant	Open Space
County of Riverside/Palm Springs	19	1,940	Vacant	City/Open Space/Rural
	30	1,960	Vacant	Open Space/Rural
Township 6 South Range 4 East				
County of Riverside/Palm Springs	1	2,680	Vacant	Open Space
	2	3,480	Vacant	Open Space
County of Riverside	3	4,560	Vacant	Rural

DRAFT TRIBAL FIRE MANAGEMENT PLAN

TRIBAL FIRE MANAGEMENT PLAN



Approved by the Tribal Council on December 11, 2007



AGUA CALIENTE BAND OF CAHUILLA INDIANS
5401 Dinah Shore Drive
Palm Springs, CA 92264

TRIBAL FIRE MANAGEMENT PLAN

TABLE OF CONTENTS

CHAPTER 1: Purpose and Need	1
1.1 Introduction	1
1.2 Jurisdictional Framework and Regulatory Context of the Plan.....	4
CHAPTER 2: Relationship to Land Management Planning	11
2.1 Other Tribal Plans and Programs Related to Fire Management	11
2.2 Other Plans and Programs Relevant to the Tribal Fire Management Plan.....	12
CHAPTER 3: Wildland Fire Management Strategies	15
3.1 General Management Considerations.....	15
3.1.1 Setting.....	15
3.1.2 Topography	16
3.1.3 Aspect	19
3.1.4 Infrastructure.....	19
3.1.5 Climate	20
3.1.6 Unusual Hazards	26
3.1.7 Soils.....	26
3.1.8 Wildland Fire History.....	27
3.1.9 Land Ownership Status	28
3.1.10 Cultural Resource Management.....	29
3.2 Wildland Fire Management Goals.....	30
CHAPTER 4: Wildland Fire Risk Assessment	33
4.1 Botanical Life Zone Classification System	33
4.1.1 Classification System	33
4.1.2 Cultural Significance	36
CHAPTER 5: Plan Implementation	41
5.1 Fire Prevention and Fuels Management.....	41
5.1.1 Tribal fire management processes will be proactive rather than reactive.	41
5.1.2 Develop an educational outreach program.....	41
5.1.3 Maintain and share up-to-date database information collaboratively with all concerned agencies.	42
5.1.4 Reduce fuel loading by considering all methods of hazardous fuels removal.	43
5.1.5 Protection and management of cultural resources.	43
5.1.6 Maintain existing indigenous trails.	44
5.2 Wildland Fire Suppression	44
5.2.1. Maintain agreements with all concerned agencies for the provision of immediate response to all wildland fires within and adjacent to the exterior boundaries of the ACIR.....	44
5.2.2. Initial attack of wildland fires will be aggressive and efficient to minimize damage to property and natural and cultural resources.	44
5.2.3. Develop and implement appropriate measures of assistance that the Tribe could provide in the case of a wildland fire incident.....	44
5.3 Wildland Fire Stabilization and Rehabilitation	45
5.3.1 Reduce flooding due to damming of stream channel from debris.	45
5.3.2 Enhance native species regeneration.	45

TRIBAL FIRE MANAGEMENT PLAN

LIST OF FIGURES

Figure 1	Direct Protection Areas	5
Figure 2	Land Status as of February 2007	17
Figure 3	ACIR Topography.....	21
Figure 4	Trails Map.....	23
Figure 5	Life Zones/Risk Assessment Areas	37

LIST OF APPENDICIES

APPENDIX A	Tables Showing Temperature and Average Annual Rainfall Taken Recorded at the Palm Springs Reporting Station from 1922 to 2004
APPENDIX B	Wildland Fire History Maps
APPENDIX C	Remote Automated Weather Station Information

TRIBAL FIRE MANAGEMENT PLAN

LIST OF ACRONYMS

ACBCI	Agua Caliente Band of Cahuilla Indians
ACIR	Agua Caliente Indian Reservation
BIA	Bureau of Indian Affairs, U.S. Department of the Interior
BLM	Bureau of Land Management, U.S. Department of the Interior
CDCA	California Desert Conservation Area
CDF	California Department of Forestry and Fire Protection
CVAG	Coachella Valley Association of Governments
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
DOI	U.S. Department of the Interior
DPA	CDF Direct Protection Area
DPR	California Department of Parks and Recreation
EPA	Environmental Protection Agency
FPA	Fire Program Analysis
GIS	Geospatial Information System
GOES	Geostationary Operational Environmental Satellite
GPS	Global Positioning System
HFI	USFS Healthy Forests Initiative
HFRA	Healthy Forests Restoration Act
NASF	National Association of State Foresters
NEPA	National Environmental Policy Act
NFP	National Fire Plan
NIFC	National Interagency Fire Center
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service, U.S. Department of the Interior
RAWS	Remote Automated Weather Station
TEPA	Tribal Environmental Policy Act
THCP	Tribal Habitat and Conservation Plan
THPO	Tribal Historic Preservation Office
USDA	U.S. Department of Agriculture
USFS	USDA Forest Service
USFWS	U.S. Fish and Wildlife Service, U.S. Department of the Interior
WIMS	Weather Information Management System
WRCC	Western Regional Climate Center

TRIBAL FIRE MANAGEMENT PLAN

Executive Summary

The Agua Caliente Band of Cahuilla Indians' (Tribe) Fire Management Plan (Plan) was developed to provide the Tribe with a process driven management tool to implement the Tribal Environmental Policy Act (TEPA) and meet National Environmental Policy Act requirements. Codified as part of the Tribal Code, TEPA states Tribal objectives as they relate to environmental policy for the protection of the natural environment, including the land, air, water, minerals, and all living things, on or directly affected by the use and development of tribal property.¹

More specifically, this Plan was developed in order to provide a prescribed process that will allow the Tribe to use various fuel management techniques as fire prevention measures to protect the Tribe's natural and cultural resources, manage wildland fires that may occur on the Agua Caliente Indian Reservation (ACIR), and address rehabilitation efforts that would be necessary after a wildland fire.

The priorities that drive this Plan are:

1. Protection of human life; and
2. Protection of property, and natural and cultural resources.

This Plan generally follows the format prescribed by the Interagency Fire Management Plan Template dated July 11, 2002, and is subdivided into three major categories: i) collaboration, ii) assessment, and iii) implementation.

Primarily, this Plan identifies collaborative fire planning efforts and other Tribal plans and programs relative to land management planning. Secondly, this Plan establishes wildland fire management strategies based upon an assessment of quantitative criteria as they relate to a botanical life zone classification system. The following criteria are included in the assessment:

- Geographic setting
- Topography
- Aspect
- Infrastructure - transportation systems including trail systems, water, sewer, electricity, natural gas, and communication systems
- Climate
- Unusual hazards
- Soils
- Vegetation
- Fire history

¹ Agua Caliente Band of Cahuilla Indians Tribal Code, §5.04.050(A)

The botanical life zone classification system is commonly used in ethnobotanical studies. Within the context of this Plan, the botanical life zone classification system relates specifically to the Cahuilla Indian people and their historic knowledge and usage of native plants. Historically, this intrinsic connection between the Tribe and the vegetative landscape was the vehicle for the Tribe's survival.

The conclusion of the assessment category of this Plan reiterates the point that historically the Tribe environmentally managed their lands as they are doing so today. In such, there is no distinction between culture, land, and vegetation; therefore, cultural existence for the Tribe cannot be separated from land management issues. For that reason, the use of a classification system based upon vegetative analysis represents not only quantifiable data, but also significant qualitative cultural considerations.

Lastly, this Plan provides implementation processes that will serve to protect life, property, and natural and cultural resources in response to a fire threat. These processes are pragmatic solutions for wildland fire prevention on the ACIR enabling the Tribe to collaborate with adjacent land management agencies. An emphasis in the implementation phase of this Plan is on a proactive, rather than a reactive, response to wildland fire management. Implementation measures include:

- Installation of a Remote Automated Weather Station (RAWS) on the ACIR that will collect, store, and forward data to the National Interagency Fire Center in Boise, Idaho and the Weather Information Management System in Reno, Nevada;
- Build a database of assessment criteria that can be managed through the Tribe's Geospatial Information Services Group to aid in wildland fire prevention which could also be shared with collaborating agencies;
- Provide emergency wildland fire response support facilities during an active wildland fire in the form of water points, staging areas, and helibase sites;
- Provide two trained employees to participate on the Fire Response Management Team in the event of wildland fire within ACIR or the Tribe's Traditional Use Area;
- Continue with hazardous fuel removal programs on the ACIR through a variety of methods;
- As necessary, continue to enter into cooperative protection agreements and memorandums of understanding with collaborative agencies for wildland fire preparedness;
- Continue to maintain trail access on the ACIR; and
- Rehabilitation after wildland fire as needed.

TRIBAL FIRE MANAGEMENT PLAN

CHAPTER 1: Purpose and Need

1.1 Introduction

The Agua Caliente Band of Cahuilla Indians' (Tribe) Fire Management Plan (Plan) was developed to identify various fuel management techniques that will be used to protect the Tribe's natural and cultural resources, manage wildland fires that may occur on properties with the Agua Caliente Indian Reservation (ACIR), and address rehabilitation efforts that would be necessary after a wildland fire. This Plan complies with National Environmental Policy Act (NEPA) requirements and is primarily a communicative tool for collaborative interagency management, establishing consistency and compatibility across administrative lines.

Codified as part of the Tribal Code, Tribal Environmental Policy Act (TEPA) states Tribal objectives as they relate to environmental policy §5.04.050(A), "...to protect the natural environment, including the land, air, water, minerals, and all living things, on or directly affected by the use and development of tribal property." Further goals and objectives have been identified in the Draft Final Tribal Habitat Conservation Plan (THCP), the Tribal Historic Preservation Office Program Organization and Policies, the Tahquitz Canyon Wetland Conservation Plan, the Indian Canyons Master Plan, and the Tribal Trail Plan. The goals and objectives of the Tribe inherent in all these plans incorporate preservation and restoration of cultural, natural and scenic values, thereby creating a strong sense of place that reflects the cultural and natural history of the Tribe.

The preparation of this Plan is the next natural step in furthering the Tribe's goals and objectives as well as implementing the directives of the National Fire Plan (NFP), Healthy Forests Initiative (HFI), and Healthy Forests Restoration Act (HFRA). In generally following the format prescribed by the Interagency Fire Management Plan Template dated July 11, 2002, which was adopted by the U.S Department of Interior's (DOI) Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), National Park Service (NPS), and US Fish and Wildlife Service (USFWS), and the U.S. Department of Agriculture's (USDA) Forest Service (USFS), this Plan is subdivided into three major categories: i) collaboration, ii) assessment, and iii) implementation.

Through the implementation of this Plan, the following priorities will guide the commitment of resources for wildland fire management actions:

- 1) Protection of life; and
- 2) Protection of property, and natural and cultural resources.

- **Collaboration**

As indicated in the *10-Year Comprehensive Strategy, A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment*, the foundations for a

successful Fire Management Plan, given the multi-faceted nature of problems that it must address, dictate collaboration across private and public lands, administrative boundaries, geographic regions, and areas of interest.² Therefore, in order to successfully implement the 10 Year Comprehensive Strategy and the directives of the NFP, collaboration between the Tribe and federal, state, and local agencies must occur relative to fire management. In addition, there are several Environmental Protection Agency (EPA) approved resource management plans, as well as interagency fire agreements in neighboring jurisdictions.

The most recent fire management planning and budgeting tool is the Fire Program Analysis (FPA) System Preparedness Module. The purpose of the FPA System is to provide an interagency management tool that will promote effective fire management planning and budgeting between federal agencies with common land management goals and objectives. The FPA System Preparedness Module is the first module to move forward through the FPA System. Additional FPA System modules will address extended attack, large fires and national fire resources, hazardous fuel reduction, and prevention. Although FPA System planning is currently ongoing, completion of modeling outcomes are not anticipated for several years.

Participants in the FPA System planning process represent federal agencies that have previously adopted Fire Management Plans, which include the USFS, BLM, BIA, USFWS, and the NPS. The Fire Management Plans from these respective agencies provide specific fire program objectives that, when viewed collectively, will provide the basis for management modules that will address preparedness, initial attack, extended attack, large fires and national fire resources, hazardous fuel reduction, and prevention. The outcome of the FPA will be a quantifiable system intended to optimize the level of cost-effectiveness associated with a range of budgets that in turn will be used cooperatively by the five federal wildland firefighting agencies to prepare and submit fire management program budget information. Submissions will be rolled-up into one national database for use in a uniform analysis of fire management budgets between and within agencies.

Identification within a Fire Planning Unit is the first step in FPA implementation. A Fire Planning Unit is the geographic scope of the landscape for the FPA and the ACIR is included within South Coast Fire Planning Unit #12. Fire Planning Units are not predefined by administrative boundaries and may relate to one or more federal agencies.

Over the last 25 years, several large wildland fires have occurred in the wildland-urban interface areas, canyons, and mountain lands of the ACIR and its surroundings. In the past, the checkerboard pattern of landholdings within and adjacent to the ACIR contributed to fire protection coordination problems fighting these and other wildland fires, and until recently, the Palm Springs Fire Department, Cathedral City Fire Department, Rancho Mirage Fire Department, California Department of Forestry and Fire Protection (CDF), BLM, BIA, and USFS were all primary fire protection providers. This

² A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, 10-Year Comprehensive Strategy, Department of Agriculture and the Department of Interior, May 2002.

multi-jurisdictional array of primary fire protection providers often resulted in confusion as to jurisdiction for fire suppression on various ACIR parcels, both inside and outside incorporated areas.

Wildland fires often occur on lands managed by federal and state agencies that are intermingled or adjacent to the lands of the other. Recognizing the need to assist each other with the suppression of wildland fires which present a threat to the lands of the other, federal and state agencies agreed to the creation of Direct Protection Areas (DPA). Basically, within the boundaries of a DPA only one agency, known as the Protecting Agency, has direct protection responsibility regardless of land ownership. The USFS is the Protecting Agency responsible for fire suppressions "initial attack" on ACIR land primarily outside of the city limits of Palm Springs, Cathedral City and Rancho Mirage (see Figure 1). Fire calls within the Santa Rosa and San Jacinto Mountains National Monument are dispatched from the USFS Fire Incident Command Center in San Bernardino. This area includes all unincorporated areas south of Interstate 10 (I-10) and north/northwest of State Highway 74. The BLM is responsible for first attack status on everything south/southeast of State Highway 74 (the Santa Rosa Mountains). District Protection Area redistricting was conducted in collaboration with the USFS, BLM, CDF, BIA, tribal governments, the California Department of Parks and Recreation (DPR), the cities of Palm Springs, Cathedral City and Rancho Mirage, and private land owners.

The Chino Cone area of the ACIR (located in the northwest portion) is an exception to the DPA agreement. Although it is located within the city limits of Palm Springs, the USFS is responsible for first attack in that area. The Palm Springs Tram, a private commercial tramway operation, has a trained light support fire suppression group and provides active fire suppression along Tramway Road (bisecting the Chino Cone area through ACIR land) and on properties adjacent to the Tram itself.

Additionally, it should be noted that local fire protection does operate on a first arrival, first suppression status; therefore, even if a wildland fire occurred on land under USFS first attack jurisdiction, the most immediately available fire unit from any jurisdiction would respond. The wildland fire call would be centralized to the USFS Fire Incident Command Center enlisting additional forces as necessary. This reorganization of geographic fire management helps clearly define overall fiscal responsibility as well.

Despite the presence of DPAs, the cities of Palm Springs, Cathedral City, and Rancho Mirage will continue to be engaged in fire protection services via land use agreements or memorandums of understanding on most ACIR lands within each city's corporate boundaries. All ACIR lands north of I-10 are under the fire protection jurisdiction of Riverside County, which contracts with the CDF for fire protection services.

A memorandum of understanding with the City of Palm Springs for fire suppression services on Indian Trust Land within its corporate limits has been in place since 1992 and will continue through December 31, 2008. The Tribe is currently discussing the possibility of establishing a similar memorandum of understanding, as currently exists with the City of Palm Springs, with the City of Cathedral City. This cooperative working agreement

would specifically target the wildland-urban interface areas and code enforcement problems on ACIR properties relative to hazardous fuels removal, which are of mutual concern to both the Tribe and the City of Cathedral City.

Finally, integrated resource management planning includes the compliment of fire and biome management necessitating cooperative processes and goals - not only between regulatory agencies but within regulatory agencies.

- **Assessment**

This Plan establishes wildland fire management strategies based upon an assessment of quantitative criteria as they relate to a botanical life zone classification system, which will be discussed at length in Chapter 4 of this Plan. The importance of including all assessment criteria within a vegetative classification system is that it allows the inclusion of an accompanying historic cultural value system based on the plant life that shaped the ways of the Cahuilla people. The pragmatic assessment and manipulation of the environment of the past still remains true in the present.

- **Implementation**

This Plan defines all appropriate planning documents necessary for its implementation including: prevention planning, hazardous fuels removal program planning, fire incident contributions, and emergency stabilization and rehabilitation programmatic planning as directed in the BIA Fire Policy Manual.³

1.2 Jurisdictional Framework and Regulatory Context of the Plan

This section describes the regulatory and management authority of the Tribe and how such authority has been implemented to date, the authority of other federal agencies under legislation applicable within the ACIR, the roles of state and local regulators and land managers in and around the ACIR, and the establishment of the ACIR, Tribal government structure, and regulatory and planning activities.

- **Inherent Sovereign Authority of Tribal Government**

Tribal governments have broad regulatory and management authority within their jurisdictional territories. The inherent sovereign authority of tribal governments to manage and regulate their people, lands, and resources is supported by an extensive body of treaties, federal legislation and regulations, executive orders and policies, and case law. This authority includes the ability to regulate and manage activities of tribal members and non-members on both tribal and allotted trust land as well as in certain circumstances, non-Indians engaging in activities on fee land within the boundaries of an Indian reservation.

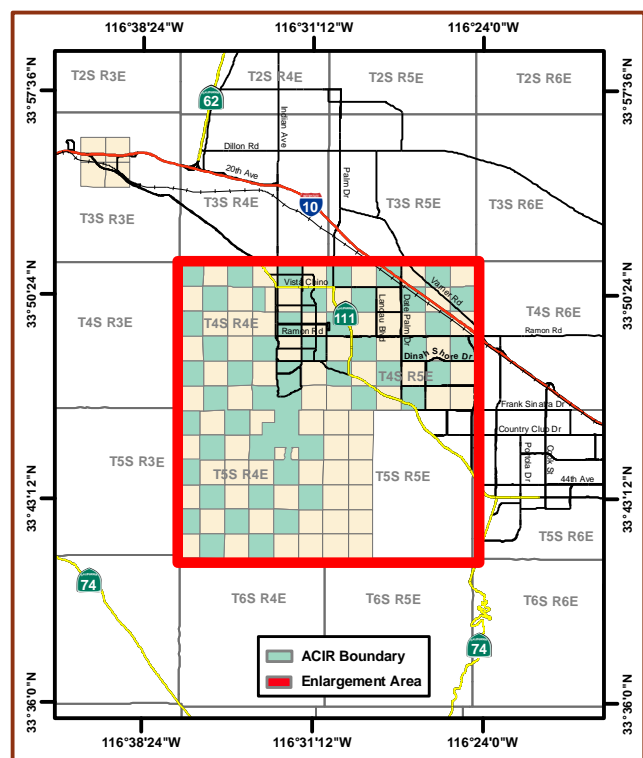
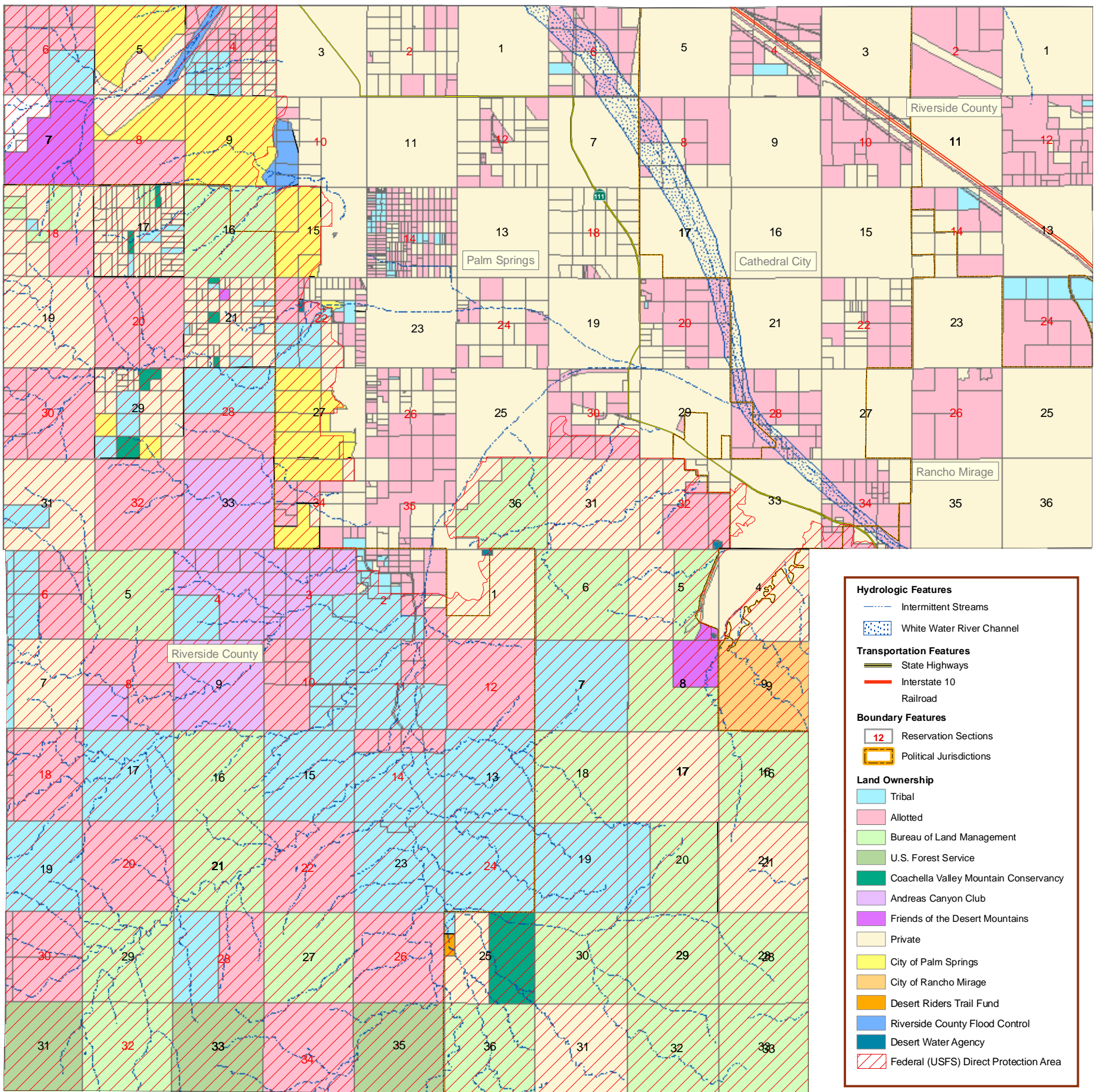
³ USDI Part 910 DM 1: Chapter 1



AGUA CALIENTE INDIAN RESERVATION

FIGURE 1

DIRECT PROTECTION AREAS



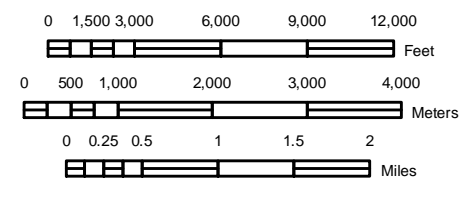
Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Planning/Land_Ownership/ACIR_Land_Ownership_2006.mxd
 Map Origination Date: 3/01/2006

This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - This map contains geographic information owned by the County of Riverside.
 - All other layers provided by ACBCI Planning & Development Department



Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883 - 1911/Fax (760) 883 - 1937



- **Authority of the Federal Government; Authorization to Delegate Authority to Tribal Governments**

Based on the plenary powers doctrine, the federal government has jurisdiction to enact, implement, and enforce law that applies within Indian reservations, and federal law of general applicability will usually apply there as well. This authority is concurrent with inherent tribal authority, and does not supersede it unless expressly provided by the U.S. Congress.

Recognizing the inherent sovereign regulatory and management authority of tribal governments, and the significant role tribal governments can play in implementing and enforcing land management and protection measures, several federal environmental laws also provide for federal implementing agencies to delegate their authority to tribal governments in a manner similar to delegation of authority to states.

Such delegated authority is in addition to, and not in lieu of, a tribe's inherent regulatory and management authority. In cases where the U.S. Congress had made federal law applicable within Indian reservations, tribal governments can regulate more strictly under either inherent or delegated authority; however, they must meet minimum federal law requirements.

- **Establishment of the Agua Caliente Indian Reservation, Tribal Government Structure, Regulatory Authority, and Planning Activities**

In 1876, President Grant established the ACIR consisting of 960 acres more or less at that time. In 1877, President Hayes extended the boundaries of the ACIR to incorporate all even numbered sections, except sections 16 and 36, in three townships (T4S R4E, T4S R5E, and T5S R4E) totaling approximately 30,000 acres for the sole use and benefit of the Tribe and all the land was held in trust for the Tribal members in common.

The ACIR includes The Hot Springs, homeland of the Kausiktum Clan; Andreas and Murray Canyons, homelands of the Paniktum Clan; Snow Creek and Whitewater Canyons, homelands of the Waniktum Clan; and Palm Canyon, homeland of the Acitcem Clan. The traditional use area of the Tribe extended well beyond the confines of the ACIR running high into the San Jacinto and Santa Rosa Mountain ranges, across the open desert of the Coachella Valley to the Indio Hills, and west to the Whitewater and Snow Creek drainages. Those homelands were occupied for at least 350 to 500 years before the imposition of an Indian reservation.

Because of the Cahuillas' relative isolation from coastal tribes and occupation of perceived inhospitable terrain, they maintained their successful self-governing political and social structures well into the mid 1800's. Villages were occupied year-round, allowing the Cahuillas to develop a complex and extensive trade network and a rich ceremonial life intrinsically tied to the homelands they occupied. The Cahuillas' sustained themselves through hunting, irrigated agricultural practices, and gathering within the vast natural gardens of the palm oases, canyons' riparian areas, mountain sides, and desert floor. They constructed and maintained trails connecting their villages to one another and to their hunting and gathering areas. The Cahuillas not only lived

on the land, they lived with the land – managing the land and its natural resources to their benefit.

Many changes have occurred, however, since the ACIR was established. A Constitution and Bylaws were adopted by the Tribe in 1955, as amended, formally establishing a democratic form of government under the administration of an elected Tribal Council. That body was, and is, empowered to protect and preserve all ACIR property including land and natural resources.

Pursuant to its inherent sovereignty, the Tribe has the authority to manage natural resources including wildlife and habitat within the ACIR, as well as activities that affect those resources, in order to protect the health, safety, and welfare of the Tribe and its members and the environmental integrity of the ACIR. This authority includes the development, adoption, implementation, and enforcement of environmental and natural resource protection laws, plans, and policies governing activities of both Tribal members and, in certain cases, non-members taking place within the ACIR. The Tribal Council is the Tribe's representative in all dealings with outside governments, and is the ultimate authority on land use matters within the ACIR. The Tribe's Planning and Development Department serves as the lead agency in matters of environmental concern and development on the ACIR.

The Tribe has a successful and documented tradition of managing land and natural resources within its jurisdictional territory. In more modern times, the Tribe has exercised its inherent environmental protection, natural resources, and land use management authority through the adoption and implementation of numerous ordinances, plans, and intergovernmental agreements that serve to protect and regulate activities affecting the ACIR's environment. These ordinances, plans, and agreements (a list of which is shown in Chapter 2.1) reflect the fundamental policies and traditional approach of the Tribe as an active and cooperative land and resource manager, protecting and preserving the ACIR's environment while promoting the highest and best use and development of ACIR lands and resources.

- **Relevant Federal Agency Authority and Activity and Intent Regarding Consultation**

The Tribe recognizes that several other federal laws and agency actions, relevant to land use, environmental protection, and natural resource management are applicable within the ACIR and that such authority and action often triggers a need for consultation regarding the environmental impacts of certain activities proposed to take place within or around the ACIR.

Environmental Impacts Consultation

Actions undertaken, sponsored and, in some cases, permitted or funded by agencies of the federal government are subject to NEPA requirements. For instance, within the ACIR, the BIA, among many other responsibilities, generally serves as the lead or co-lead agency for compliance with NEPA in connection with certain activities taking place within the ACIR.

NEPA is primarily a procedural mandate that requires all federal agencies to conduct an evaluation of any action that may be defined as a “major federal action” that may involve a “significant impact on the natural environment.” While judicial interpretations of this threshold definition vary depending on circumstances, NEPA generally imposes a requirement that the agency at least consider all environmental impacts of a given action, as well as the alternative actions and measures that may mitigate such impacts. Although NEPA does not effect an outright prohibition even on those federal projects that involve adverse environmental impacts, it does operate to provide information about the potential adverse impacts of such projects and opens them to public scrutiny. Among those factors that must be considered under NEPA is the effect of the proposed project on sensitive species and their habitat.

Through the adoption of this Plan, it is the Tribe’s intent that whenever any federal agency action within or impacting the ACIR requires consultation through NEPA, or otherwise, the Tribe be directly consulted regarding the proposed activity’s potential impacts to cultural and natural resources within the ACIR, and this Plan be given deference as mandated by the authorities discussed previously.

- **State and Local Authority**

Absent an express grant of authority from a tribal government or the U.S. Congress, state and local governments generally have no regulatory authority within Indian reservations. The following discussion provides more information about the relationship of the Tribe with the State of California (State) and local governments:

Federal Delegation of Authority to State of California under Public Law 83-280

Through the enactment of Public Law 83-280, the U.S. Congress granted the State, and its political subdivisions, general criminal jurisdiction on Indian reservations within its boundaries; State courts have jurisdiction over civil cases arising on an Indian reservation and/or involving tribal members. This grant of jurisdiction by the U.S. Congress, however, does not provide the State with general regulatory authority; therefore, most State laws do not apply within the ACIR, and most State agencies have no jurisdiction or authority on the ACIR, except to the extent the Tribe has delegated or otherwise authorized such authority.

Tribal Delegation of Authority to State and Local Governments

In the interests of administrative efficiency, consistency, and clarity of land use regulation within and around the ACIR, the Tribe has chosen to enter into Land Use Agreements with Riverside County and the cities of Palm Springs, Rancho Mirage and Cathedral City whose jurisdictions overlap the ACIR. With each of these Land Use Agreements, the Tribe has chosen to adopt relevant land use laws within these jurisdictions as its own, and to delegate to these local governments, as the Tribe’s agents, the authority to enforce those laws on certain lands within the ACIR.

As previously mentioned, the Tribe has a Memorandum of Understanding with the City of Palm Springs Fire Department for fire suppression on the ACIR within the City of Palm

Springs and a statewide cooperative fire protection agreement between the CDF and BIA. The Tribe has also signed an agreement with the DPR recognizing the Tribe's management of Indians Canyons Heritage Park as an "ecological entity" and "prime cultural resource area." The primary objective of the agreement with DPR is that both governmental agencies recognize that the Indians Canyons Heritage Park, with the Tribe's management, will provide long-term preservation of the major natural and cultural resources of the area. It is further recognized by the State that the Tribe will preserve the unique palm oases under its control and prevent negative impacts on the cultural/ecological continuity of the area or on the pristine aesthetics of the viewshed.

The Tribe recognizes the desirability of administrative efficiency and consistency with respect to land use regulations and management plans in and around the ACIR. The Tribe intends that this Plan will collaboratively clarify jurisdictional boundaries, outline additional commitments of behalf of the Tribe upon assessment of the fuel index, describe a multiplicity of other factors that are inherent to fire prevention, suppression and rehabilitation, and provide a process for its implementation. This Plan works in cooperation with existing previously adopted agreements and is not intended to supersede such agreements; however, the Tribe intends to assume and maintain responsibility for this Plan's implementation and enforcement pursuant to its inherent sovereign authority. The Tribe also intends that this Plan be coordinated with the laws and actions of neighboring authorities to the extent practical.

TRIBAL FIRE MANAGEMENT PLAN

CHAPTER 2: Relationship to Land Management Planning

2.1 Other Tribal Plans and Programs Related to Fire Management

The Tribe has adopted the following land management ordinances, plans, and agreements that serve to protect and regulate activities within its jurisdictional territory (some are specific to particular geographic areas within the ACIR):

- Land Use Contract between the City of Palm Springs and the Agua Caliente Band of Cahuilla Indians, July 26, 1977, as amended by Supplement Nos. 1 through 5.
- Land Use Regulation Agreement between the City of Cathedral City and the Agua Caliente Band of Cahuilla Indians, June 11, 1997
- Rancho Mirage/Agua Caliente Band of Cahuilla Indians Land Use Contract, June 22, 1998.
- Ordinance No. 28, Tribal Environmental Policy Act, Agua Caliente Band of Cahuilla Indians, March 7, 2000.
- Tribal Trail Plan, Agua Caliente Band of Cahuilla Indians, October 1, 2000.
- Cooperative Agreement Between the U.S. Department of Interior-Bureau of Land Management and the Agua Caliente Band of Cahuilla Indians for the Santa Rosa and San Jacinto Mountains, October 13, 1999.
- Tahquitz Canyon Wetland Conservation Plan, Agua Caliente Band of Cahuilla Indians, 2000, Connolly & Associates, Tribal Environmental Consultants, Campo, California.
- Riverside County/Agua Caliente Band of Cahuilla Indians Land Use Contract (Amended and Restated), July 17, 2001.
- Draft Final Tribal Habitat Conservation Plan, Agua Caliente Band of Cahuilla Indians, November 12, 2002, Michael Brandman Associates
- Tribal Quality Assurance Protection Plan, 2003.
- Section 14 Final Master Development Plan, Specific Plan, November 2004.

2.2 Other Plans and Programs Relevant to the Tribal Fire Management Plan

Other plans and programs relevant to this Plan include the adopted general plans of surrounding jurisdictions (Palm Springs, Cathedral City, Rancho Mirage, and Riverside County), various land use management plans governing state and federal lands located adjacent to or in the region of the ACIR, species management plans approved by state and/or federal agencies, and habitat conservation plans in adjoining or overlapping areas.

Some specific plans considered relevant in the preparation of this Plan include:

Bureau of Land Management

- California Desert Conservation Area (CDCA) Plan
- Willow Hole/Edom Hill Area of Critical Environmental Concern Management Plan
- Whitewater Canyon Area of Critical Environmental Concern Management Plan

U.S. Forest Service

- San Bernardino National Forest Land Use Management Plan

National Park Service

- Land Protection Plan for Joshua Tree National Park
- Joshua Tree National Park General Management Plan
- Backcountry and Wilderness Management Plan

U.S. Fish and Wildlife Service

- Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California

California Department of Fish and Game

- Carrizo Canyon Ecological Reserve Management Plan
- Hidden Palms Ecological Reserve Management Plan
- Magnesia Spring Ecological Reserve Management Plan

California Department of Parks and Recreation

- Mount San Jacinto State Park Management Plan

Multiple Agency Plans

- Coachella Valley Preserve System Management Plan
- Santa Rosa Mountains Wildlife Habitat Management Plan
- Santa Rosa and San Jacinto Mountains National Monument Management Plan

Coachella Valley Association of Governments

- Draft Multiple Species Habitat Conservation Plan

The Tribe reviews and comments on environmental assessments prepared in support of the above land use management plans. As a sovereign nation, Tribal land and cultural

resource management concerns often differ in perspective from other public land managers. The Tribe's constituency is forthright and clearly defined as the Tribe, which not only embodies individual members represented by an elected Tribal Council in a democratic form of governance, but a cultural heritage as well. This integral relationship between the Tribe's cultural heritage and land management creates a unique environmental review perspective not typical of other governmental agencies. Therefore, although the Tribe works diligently towards a collaborative effort in multi-jurisdictional review processes, it is fundamental to understand the cultural continuum the Tribe follows which forms the basis for all its goals, objectives, standards, and guidelines.

In broad programmatic terms, often the direction of land management plans may be self actualizing for whatever bureaucratic entity is providing the data. More recent policy enacted by various federal regulations attempt to reduce paperwork, time, and duplication of efforts by mandating collaborative efforts with federal, state and local governments, tribes, landowners, and other interested parties and community based groups. The HFI, through the HFRA, is one such attempt in order to reduce the intensity and destructiveness of wildland fires that have been hampered by administrative processes causing critical delays in fuel-reduction projects.

Additionally, the Tribe has been an active partner in the first bipartisan legislative effort to establish the first congressionally designated National Monument to be jointly managed by the BLM and the USFS – the Santa Rosa and San Jacinto Mountains National Monument (Monument) encompassing 271,400 acres, 19,800 acres of which are part of the ACIR. The BLM and the USFS will jointly manage the federal lands within the Monument in consultation and cooperation with the Tribe. Therefore, the purpose of the management plan for the Monument is to fulfill established needs in a comprehensive interagency approach to land and resource management. Additionally, it provides a mechanism for communication, consultation, and coordination of activities.

Federal lands within the Monument are also included as part of a multi-jurisdictional planning effort by the Coachella Valley Association of Governments (CVAG). CVAG has prepared and is in the final review stages of the *Coachella Valley Multiple Species Habitat Conservation Plan* (CVMSHCP) which will establish a reserve system and conservation strategy for state and federally listed species. The BLM and the USFS have made a commitment to the local jurisdictions to be partners in support of the CVMSHCP. As previously mentioned, the Tribe is in the process of adopting the THCP which will establish a reserve system and conservation strategy for ACIR land. In the spirit of cooperation, the CVMSHCP and THCP will operate in concert with one another in a strong commitment to better manage land resources. Overall, both habitat conservation plans will facilitate urban development through incidental take permits. The CVMSHCP and THCP propose to balance environmental protection and economic development objectives within their respective plan areas and to simplify compliance with endangered species' laws. This is done by conserving un-fragmented habitat in order to provide for the protection and security of long-term viable populations of species of concern.

The THCP will incorporate wildland fire management policies as a response to changed circumstances within the habitat preserve system by defining risk assessment, preventive measures, and planned responses upon the occurrence of a wildland fire. This Plan will include and build upon those management policies. Additionally, this Plan will incorporate the sociological implications relative to cultural resource management that are not inherent within the THCP.

TRIBAL FIRE MANAGEMENT PLAN

CHAPTER 3: Wildland Fire Management Strategies

3.1 General Management Considerations

General management considerations relate to the environmental setting of the ACIR today and how it compares to the historic setting as it existed when the Cahuillas were sole decision makers for their traditional use area. The intensification of habitation and associated land uses within the ACIR are variables that have changed significantly since it was established in 1876, posing considerable challenges for fire management strategy. Therefore, the greatest challenge of the Tribe's wildland fire management strategies is creating a balance between access, use, development, maintenance, and possible restoration of the land as it relates to the cultural heritage of the Tribe.

In order to better understand the general management considerations of the Plan, it is imperative to understand the geography of the ACIR (see land status map, Figure 2). Furthermore, it is also important to assess a variety of quantifiable criteria and relate them to one another when developing wildland fire management strategies. The following criteria represent vital information necessary to formulate a detailed fire risk analysis: geographic setting, topography, aspect, infrastructure (transportation systems including trail systems, water, sewer, electricity, natural gas, and communications systems), climate, unusual hazards, soils, fire history, and culture.

3.1.1 Setting

The ACIR is situated in a unique scenic and physiographic setting approximately 100 miles east of Los Angeles. Both the Santa Rosa Mountains to the south and east and the San Jacinto Mountains to the west dominate the landscape. Sections of the ACIR are located within the cities of Palm Springs, Cathedral City, and Rancho Mirage which are generally situated in the northwestern portion of the Coachella Valley in Riverside County, California. Unincorporated areas within the ACIR are located to the north, south, and west of the above cities and the ACIR is generally distributed in a checkerboard pattern throughout these areas.

The ACIR consists of approximately 32,000 acres, of which approximately 40 percent lay within the arid desert floor; the remaining 60 percent is located in rugged mountain regions. The northeastern slope of Mount San Jacinto begins at the western boundary of the City of Palm Springs, ascending to an elevation of 10,804 feet as a result of uplifted granitic fault block activity. Conversely, valley floor elevations vary from below sea level to a couple of hundred feet above. These divergent environmental settings create an abrupt vertical relief of more than 6,000 feet rise in elevation within the confines of the ACIR boundary. The Santa Rosa Mountains run in an east/west direction south of the cities of Cathedral City and Rancho Mirage.

The San Jacintos and the Santa Rosas intersect one another in the southwest region of the ACIR. This confluence of mountain ranges forms a vast watershed drainage comprised of Andreas Creek, Murray Creek, East Fork Palm Canyon Creek, West Fork Palm Canyon Creek, Cedar Creek, Wentworth Creek, and other minor surface water tributaries which outlet into Palm Canyon Creek as it flows through Palm Canyon from south to north. As with most surface water sources on the ACIR, these are intermittent streams – rainwater runoff is typically rapid and erosion relatively high during intense rainfall events. Various springs also create pockets of year-round water sources; however, depending on the amount of precipitation received at higher elevations during the winter, all major drainages on the ACIR can occasionally flow throughout the summer.

All the canyons associated with these first and second order drainages contain palm oases of *Washingtonia filifera*. The Palm Canyon drainage, which is located within the Tribe's Indian Canyons Heritage Park, contains the largest natural occurring stands of *Washingtonia filifera* in the world.

Palm Canyon Wash, which intercepts the intermittent flow of Palm Canyon Creek, proceeds northeasterly through the City of Palm Springs, turns and redirects itself southeasterly as it meets the Whitewater River Wash. The Whitewater River Wash runs from the northwest to the southwest as it enters and flows through the ACIR. Within the greater Coachella Valley watershed, the Whitewater River Wash has become a very significant recharge basin to the underlying aquifers that supply water to the entire Coachella Valley.

Tahquitz Creek, located to the north of the Palm Canyon drainage, is another key watershed drainage on the ACIR supplied from tributaries high in the San Jacintos. At approximately 600 feet above sea level, Tahquitz Creek is artificially chanelized for flood control purposes directing snowmelt and/or rainwater flowing to the lower desert floor eastward to intersect with Palm Canyon Creek at the easternmost boundary of Palm Springs.

Lastly, another significant watershed drainage is Chino Creek, which occurs on the uppermost northwest corner of the ACIR. The lower reaches are, as yet, situated on a relatively undeveloped alluvial fan. Chino Creek has been redirected to the north side of the fan by a flood control levee, altering the natural stream course significantly.

3.1.2 Topography

Topography is a critical fire suppression factor for the entire ACIR. Generally speaking, hazardous fuels are much lighter within the ACIR than in many other areas of California; however, the desert climate and extremely steep topography can make wildland fire suppression extremely difficult. Initial response to any vegetation ignition should be extremely rapid.

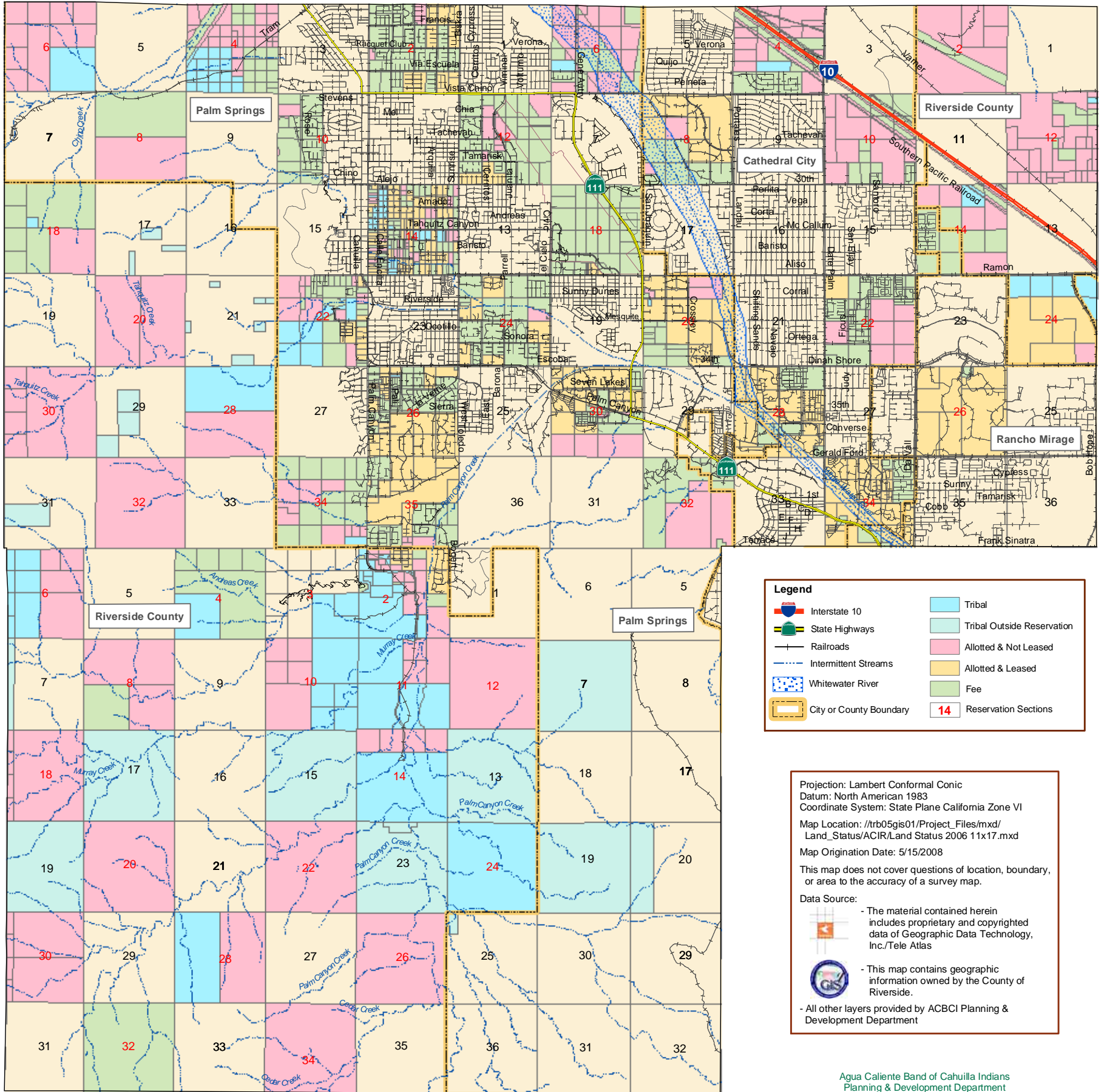
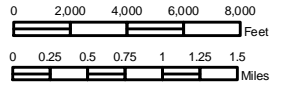
Most of the valley floor could be generalized as a Sonoran Desert environment. Much of the peripheral landscape is in an abrupt transition from desert floor to steep mountains with over a 40 percent slope on the western and southern portions of the



AGUA CALIENTE INDIAN RESERVATION

FIGURE 2

LAND STATUS AS OF FEBRUARY 2007

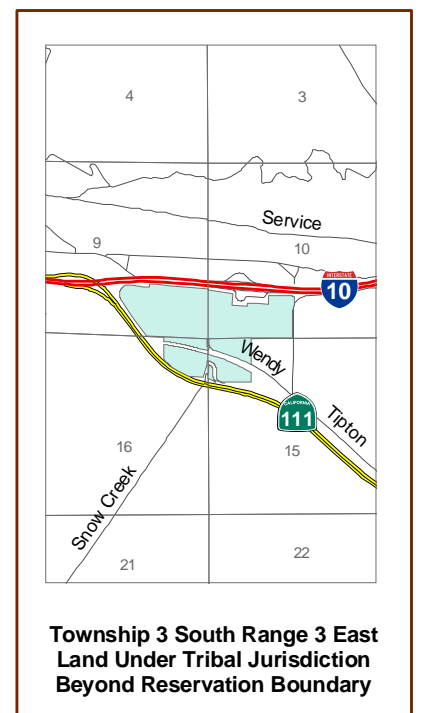
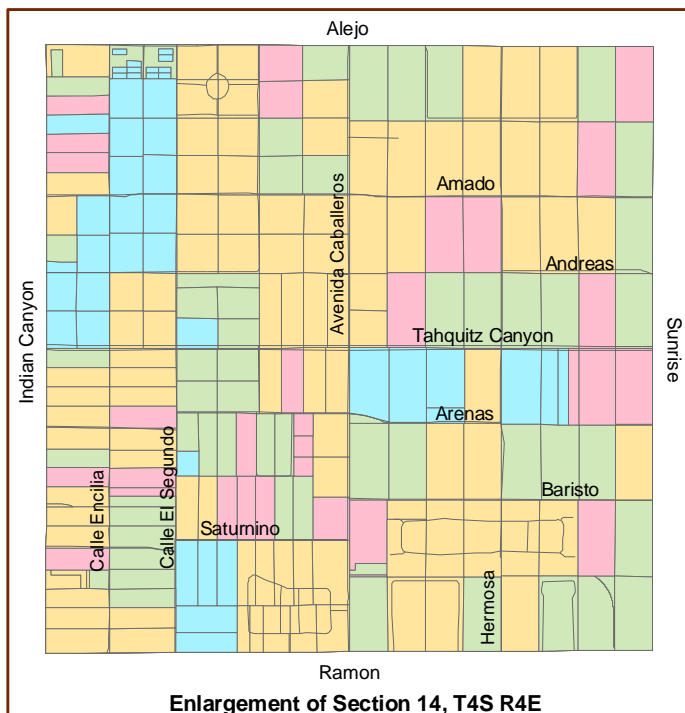
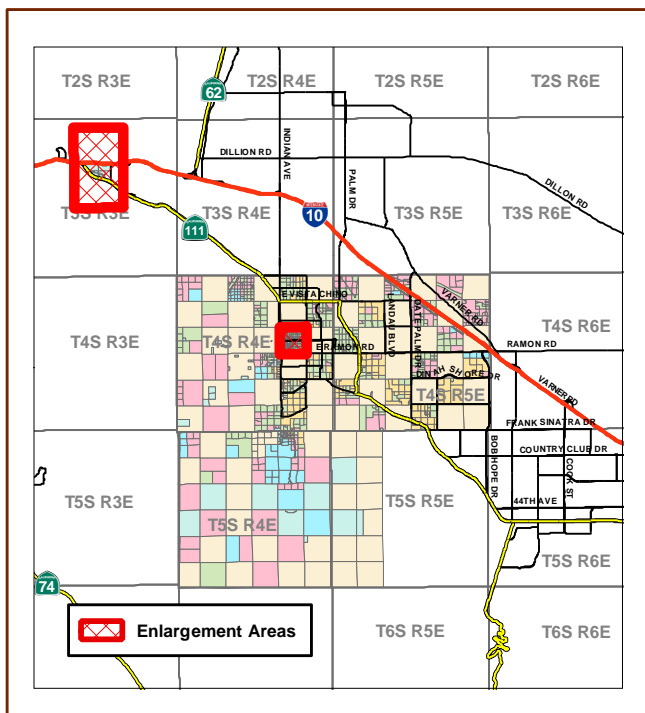


Legend

	Interstate 10		Tribal
	State Highways		Tribal Outside Reservation
	Railroads		Allotted & Not Leased
	Intermittent Streams		Allotted & Leased
	Whitewater River		Fee
	City or County Boundary		14 Reservation Sections

Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Land_Status/ACIR/Land Status 2006 11x17.mxd
 Map Origination Date: 5/15/2008
 This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
 Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - This map contains geographic information owned by the County of Riverside.
 - All other layers provided by ACBCI Planning & Development Department

Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883 - 1911/Fax (760) 883-1937



ACIR where elevation ranges from 300 feet to 6,200 feet. Between these two extremes there are many parallel steep, rocky canyons and ridgelines that may act as barriers to lateral wildland fire movement. A topographic map of the ACIR is shown on Figure 3.

3.1.3 Aspect

Aspect is primarily north, which results in cooler, damper sites where shading from solar heating can occur during the hottest part of the day. However, within the low desert area there is little wildland fire suppression benefit realized from this north aspect.

3.1.4 Infrastructure

Regionally, Interstate 10 (I-10), State Highway 111, and local streets provide access to the portion of the ACIR located on the valley floor. Several earth-surfaced roads provide additional access to portions of the ACIR beyond inhabited areas. Roads in steep areas of the ACIR are of low standard and have minimal maintenance – some roads are not passable to two-wheel drive vehicles. An aerial tramway is located near the northwest corner of the ACIR providing immediate access to the Mount San Jacinto summit. Palm Springs also supports an international airport with several carriers and general aviation activity, and the Southern Pacific Railroad passes through the ACIR's northeast corner providing both passenger and product services.

Coachella Valley Water District and Desert Water Agency provide water to the local communities and sewer and septic systems are provided within these urban areas. Electric power, natural gas, and communication utility easements parallel I-10 which acts as a regional utility corridor; all are accessible throughout the urbanized portion of the ACIR. High-pressure natural gas and petrochemical transmission pipelines also traverse the northwest corner of the ACIR. The northwest portion of the Coachella Valley is also the United States largest wind generation site, home to over 4,000 wind turbines within in a 70 square mile area.

Access to the wildlands under Tribal management is most commonly obtained by foot or horse traffic via local trails. The Tribe adopted a Tribal Trail Plan in October 2000 and Figure 4 illustrates some of the many trails that crisscross the ACIR. The mission of the Tribe, in partnership with local and regional governmental agencies, is to: i) maintain and manage trails and cause minimum impact upon the environment; ii) protect scenic, cultural, and historic values; iii) conserve resources; and iv) provide a safe and adequate trail for the user.

Historically, trails provided connectivity from one tribal clan to another, one band to another, one tribe to another, and access to hunting and food harvest areas. In the introduction to *Temalpakh, Cahuilla Indian knowledge and usage of plants*, co-authors Lowell John Bean and Katherine Siva Saubel state:⁴

⁴ Bean, Lowell John and Katherine Siva Saubel, 1972, *Temalpakh, Cahuilla Indian knowledge and usage of plants*. Malki Museum Press, Morongo Indian Reservation. Page 1-2.

“Southern California’s native American Indian populations varied in historical background and in their social adjustments to the multifaceted environments in which they lived.... In the interior, various groups of the southern California basin skillfully adapted to a variety of ecological niches, developing a diversified hunting and gathering economy with far-ranging reciprocal trade relationships with other cultures....”

Today, the social trails of the past which provided connectivity with various groups of people exist as local streets, state highways, and interstates. In essence, they serve the same historical purpose, but with a design to accommodate greater numbers at a vastly faster pace.

Bean and Saubel, continue:

“They [the Cahuilla] inhabited an environment beginning west of the mountainous terrain that formed an eastern wall to the interior basin and extending far out into the Colorado Desert, seemingly harsh and barren, yet richer in natural resources than the unknowledgeable might imagine. Here the Cahuilla Indians – whose oral literature reflects a land of sharp contrasts – became singularly adept at mastering and exploiting an environment that was both desert and mountainous woodland....

Long before arrival of the Spanish in California, the Cahuilla had acquired mastery of a seemingly forbidding and fruitless environment. As with most hunting and gathering peoples, their daily life was influenced to a great extent by the environmental potential which nature afforded them. No one can attempt to understand the Cahuilla without soon becoming aware that they were master ecologists – that in their world view and philosophical system there was an ecological model as keenly geared to empirical reality as any that botanists might teach in today’s college classrooms.”

The significance of this statement relates not only to access via trail to those hunting and gathering sites, it also leads to the deduction that the aboriginal trails were not necessarily utilized as the shortest and easiest distance between two points but as a passageway through and to hunting and gathering sites. Additionally, the above statement clearly notes that the Cahuilla tribes manipulated their traditional use areas ecologically and it can be assumed that this manipulation also related to access and maintenance of traditional trails.

Today, trails within the ACIR are no longer used for hunting and gathering purposes, instead they are primarily used for recreational purposes. Traditional trails also presently provide access for environmental studies such as water sampling, wildlife surveys, and cultural resource surveys. Lastly, in relation to fire management, the ancient Cahuilla trail system provides the only foot access into the deep canyons and mountainous regions of the ACIR for wildland fire suppression by ground support crews.

3.1.5 Climate

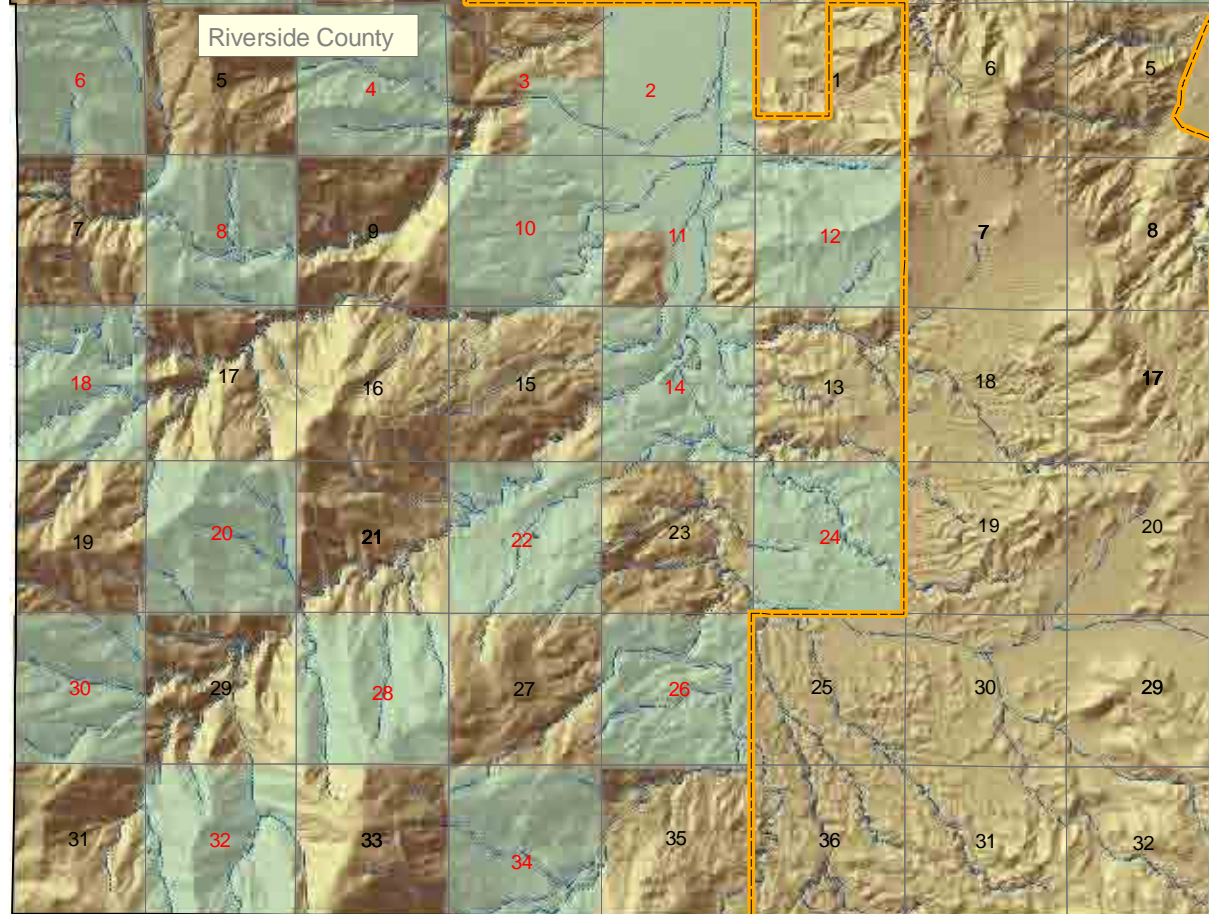
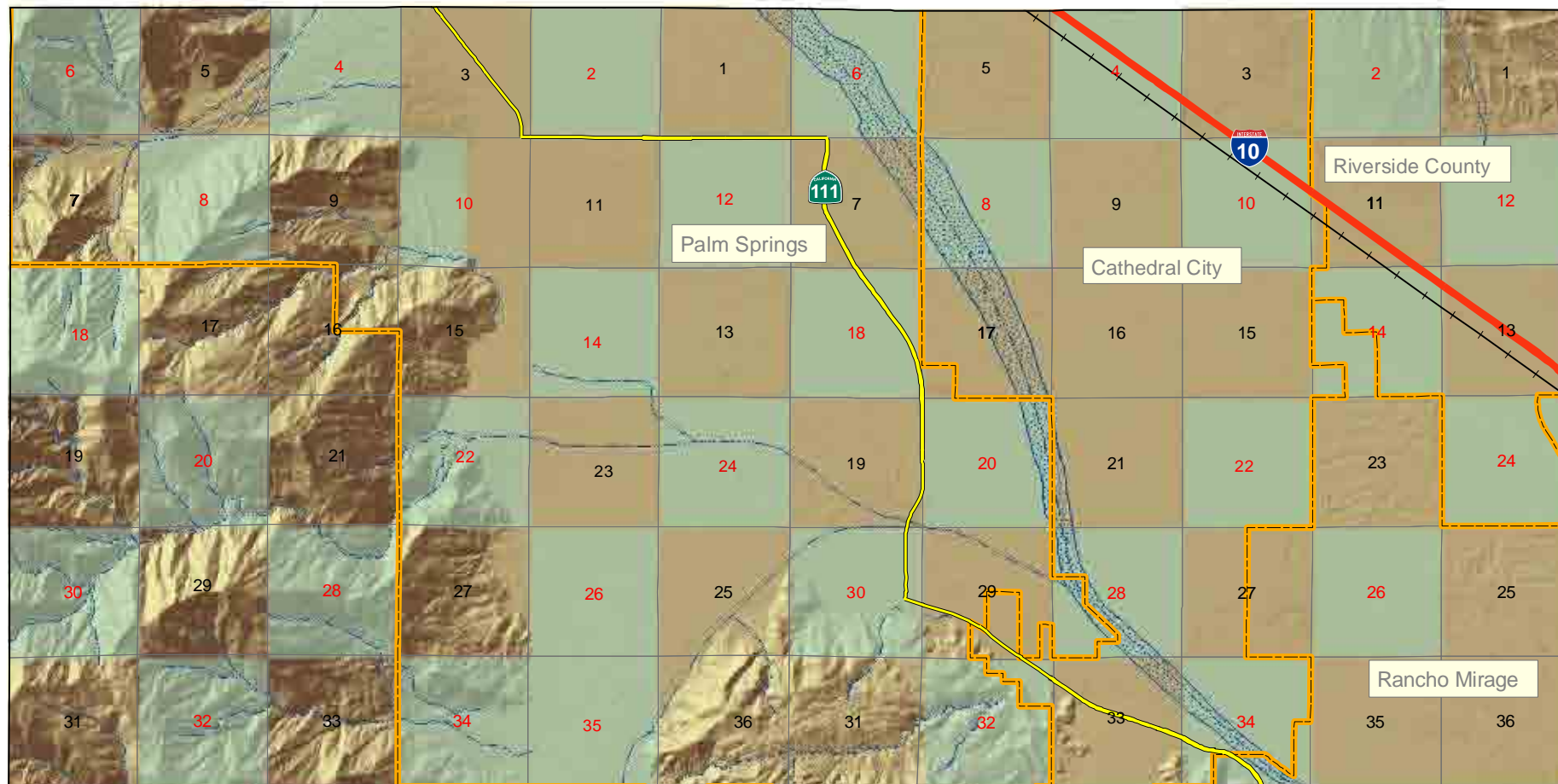
Climate has played a significant role in the historic and current use of the ACIR environment. Portions of the ACIR lie within a semiarid desert region, characterized by



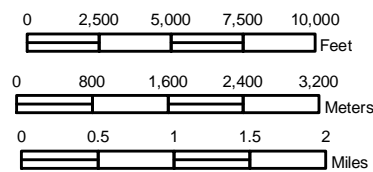
AGUA CALIENTE INDIAN RESERVATION

FIGURE 3

TOPOGRAPHY



- 14 Reservation Sections
- Township Sections
- Political Jurisdictions
- White Water River Channel
- Reservation
- Intermittent Streams
- Road Centerline
- State Highway 111
- Interstate 10
- ++ Railroad

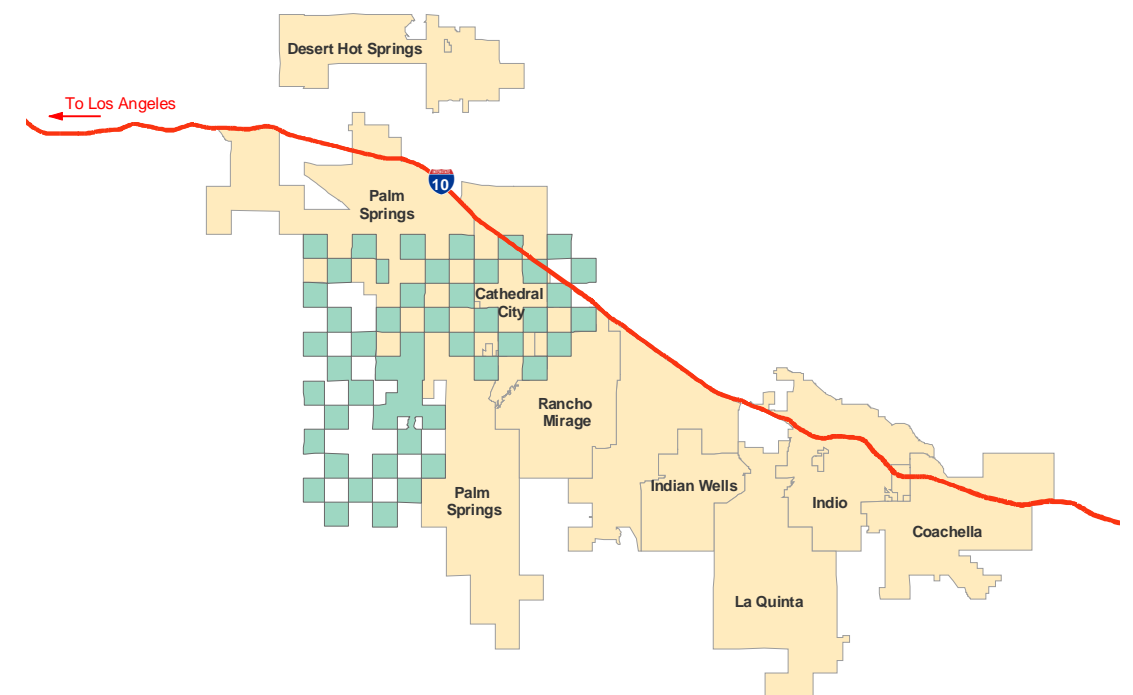


Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Topography/Reservation Topo 11x17.mxd
 Map Origination Date: 9/15/2006

This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

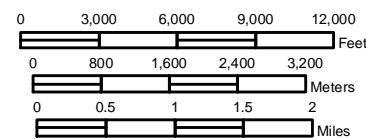
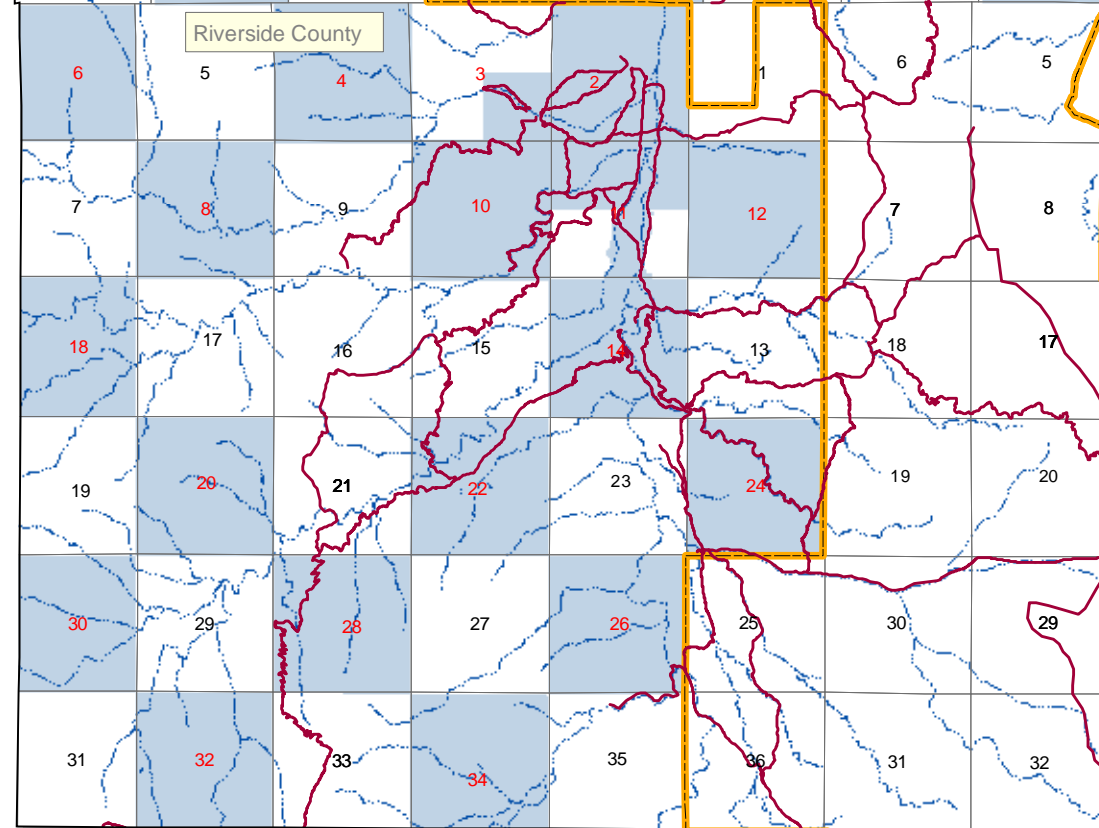
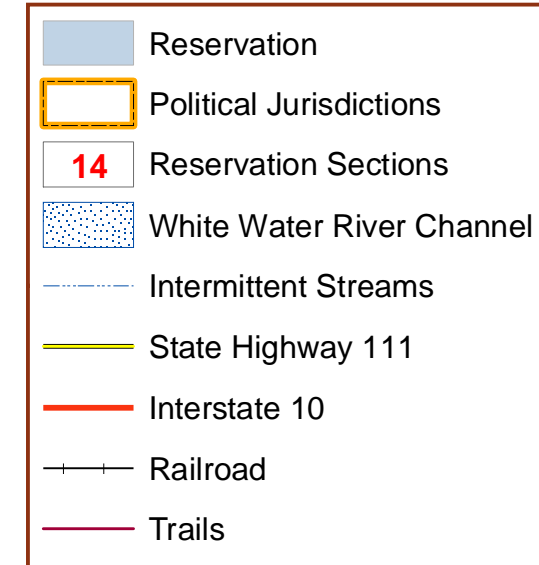
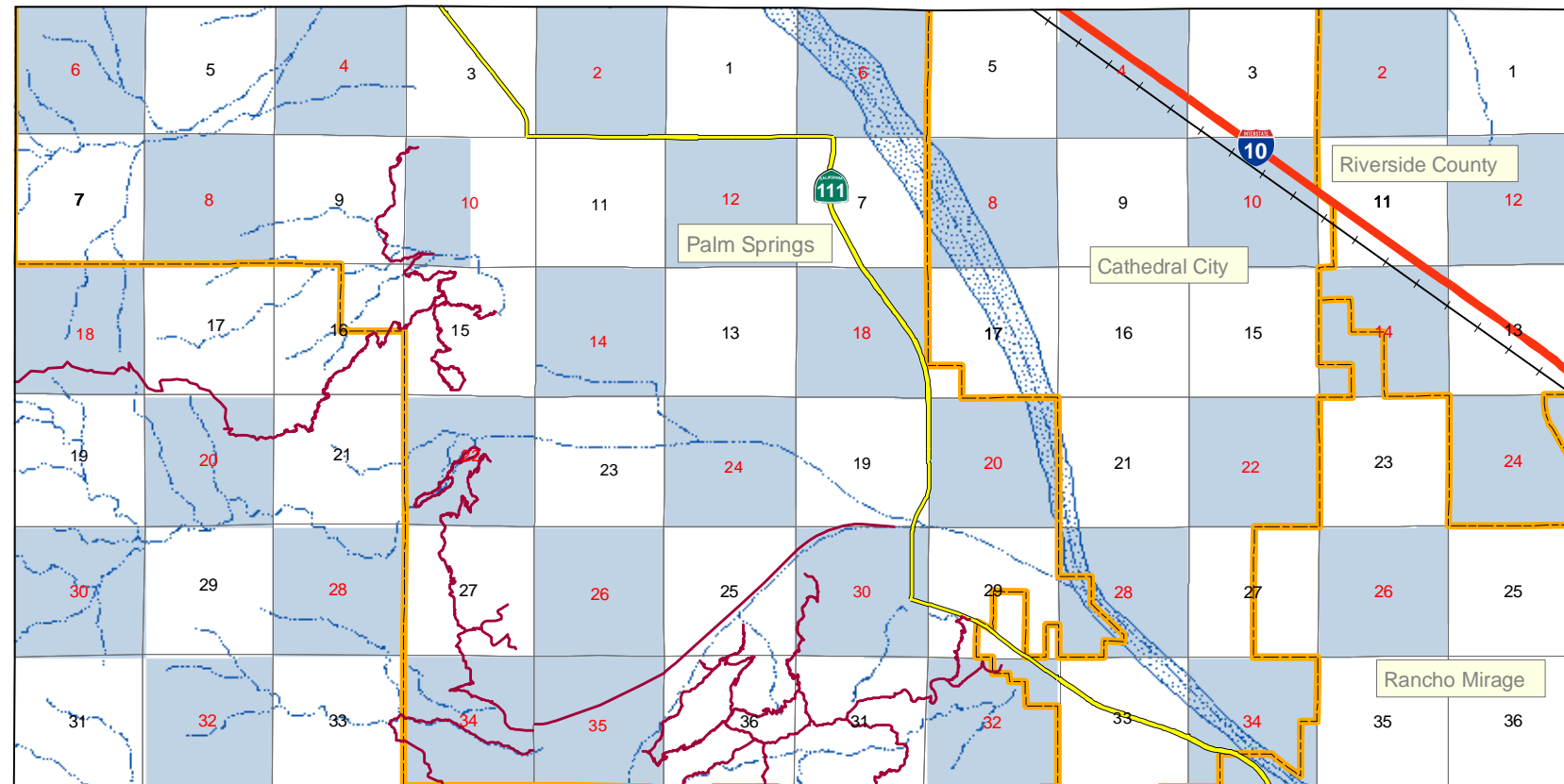
- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department





AGUA CALIENTE INDIAN RESERVATION

FIGURE 4 TRAILS MAP

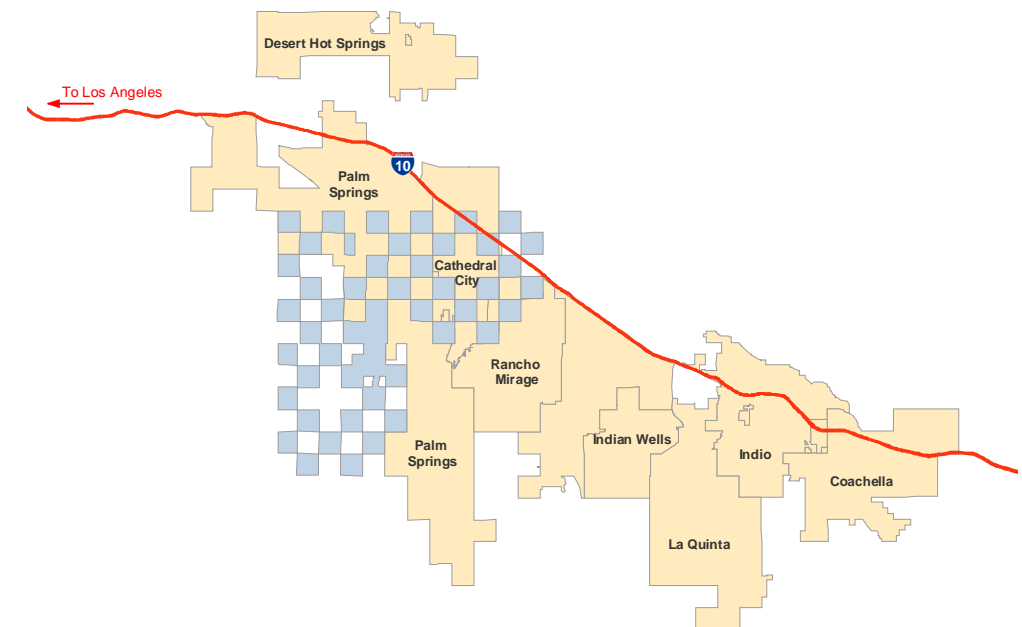


Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Land_Status/Reservation_Extent_11x17.mxd
 Map Origination Date: 9/15/2006

This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



very limited rainfall and extreme temperatures. Winter precipitation generally moves into the region from the southeast, while summer rains originate in the west. Summer rains usually occur as brief, sometimes severe, thunderstorms producing short duration events with relatively large amounts of rainfall. The effectiveness of the rainfall from these summer convectional storms is limited since runoff is often great; therefore, little moisture is absorbed into the soil.

Annual average rainfall in the mountain regions varies with elevation ranging from 25.8 inches in the proximity of the Mount San Jacinto summit (elevation 8,430 feet), to 12.6 inches at Snow Creek (elevation 1,940 feet) and 5.6 inches at Palm Springs (elevation 420 feet). Average annual rainfall in the Coachella Valley is 3.15 inches based on monthly averages. Palm Springs' average monthly rainfall varies from 1.04 inches in January to 0.18 inches in July and most of the precipitation occurs December through March.

Air temperatures fluctuate widely between the mountain and valley areas. High and low temperature extremes in the San Jacinto Mountains may range from -20°F to 85°F, while extremes in the Coachella Valley may range from 38°F to 123°F. Palm Springs' average monthly high temperatures are 108.3°F in July and 69.6°F in January, whereas average monthly lows are 74.6°F in July and 42°F in January.

Changes in climate pattern have occurred over the past one hundred years. Average annual precipitation has decreased by a mean annual average of one inch between the first half of the twentieth century and the second half, the cause of which has been alluded to as global warming; however, the significance and long term analysis of climate change is well beyond the scope of only a one hundred year cycle review. Included herein as Appendix A are tables showing temperature and average annual rainfall recorded at the Palm Springs reporting station from 1922 to 2004.

Dust storms and extremely high winds also affect the ACIR, as well as occasional earthquakes and flash flooding events.

In the Indian culture of the Cahuilla people there were eight seasons within a yearly cycle. This delineation of seasons is a pragmatic response to the cycle of the mesquite tree, which was an extremely important food source. Raymond Friday Locke, in an unpublished manuscript prepared for the Tribe states:⁵

"The Palm Springs Cahuilla divided the year into eight specific seasons, each of which was named in association with the development and maturation of one of their most important foods, the mesquite bean....

Before their (the mesquite trees) removal to make way for golf courses and housing developments, mesquite trees were plentiful in the upper Coachella Valley, found in groves on the desert floor and up the mountain sides to 3500 feet. There are still numerous stands near the streams and washes in the canyons south

⁵ Locke, Raymond Friday, January 31, 1990. Progress Report: California Saga, unpublished manuscript. Studio City, California. Page 4-8.

of Palm Springs, although not nearly as large as they were in former times when their growth was encouraged by the Indians.”

The significance of this statement is twofold. First, Dr. Locke alludes to the manipulation of the environment by indicating that mesquite tree growth was encouraged by the Indians. Secondly, the delineation of seasons by the vegetative cycle of one plant species is much more flexible than the mathematical divisions of finite lunar cycles taken for granted by much of the world’s cultures today.

Statistically, water years in the northern hemisphere are often currently defined as July 1 through June 30, although older publications relating to water can deviate from this. The comparison of historic Cahuilla time management, that maintains flexibility relative to wet or dry years and warm or cool years, to today’s inflexible mathematical lunar calendar is a distinct analogy to the historic wholeness of Cahuilla culture.

The following are two very important points to consider in today’s land management practices on the ACIR as they relate to natural resource manipulation:

- Resources were historically manipulated by the Tribe to the benefit of both man and the environment, and;
- Culture evolved around a vegetative species’ growth and reproduction.

3.1.6 Unusual Hazards

Poisonous rattlesnakes are found throughout the ACIR and can pose a serious threat to firefighters; however, the sometimes extreme and treacherous terrain of the ACIR, including steep closed canyons, is considered the most dangerous hazard to wildland fire crews. The Western Poison Oak can also be found on the ACIR; its leaves and twigs are covered with surface oil that acts as an irritant, and depending upon individual susceptibility and exposure, symptoms can range from trivial to life threatening. Fuel buildups often occur from fallen palm fronds, tamarisk tree infestations, and other exotic weed species along drainage slopes making foot travel very difficult. Sharp, thorny, razor type desert vegetation can cause problems for wildland firefighters and their equipment, and loose and jagged rock outcroppings also pose additional ground hazards to wildland firefighting efforts. In addition, intermittent streams that flow on an irregular basis cannot be counted on for water supply.

3.1.7 Soils

Soils found on the ACIR can be classified into two major soil associations: the Carsitas-Myoma-Carrizo-Cajon-Coachella and the lithic torripsamments-Bull-Trail-Gilman-Indio. A detailed description of these associations can be found in the THCP. Generally, the Carsitas-Myoma-Carrizo associations are nearly level to moderately steep sands. These sands are classified as somewhat excessively drained, fine, gravelly, cobbly, and stony and are situated on alluvial fans and valley fills. The lithic torripsamments associations are situated on rolling to very steep landscape. These sands are classified as

excessively drained, gravelly, and loamy and are found in the transition zone between the Southern California Mountains and Great Basin ranges.

3.1.8 Wildland Fire History

Wildland fire historically retraces its steps, in that geographic conditions relate to the way wildland fires start and proceed through an area. Climate patterns, including wind, temperature, and humidity correlate to burning indexes that repeat through seasonal cycles almost yearly. Topography within wildlands typically does not change with time; therefore, storm patterns that might bring lightning often follow similar general spatial patterns and time sequencing year in and year out. Maps indicating wildland fire history during the twentieth century for property adjacent to or on the ACIR are included herein as Appendix B. The most noted feature on the overlapping chronological layers representing wildland fires is that they circle the highest elevation points, starting at lower elevations and moving up towards to the mountain tops (but not all the way). Another comparative note is that wildland fires in the first half of the twentieth century were much smaller than the second half on the western, northern, and eastern fronts of the San Jacinto Mountains. If topography, soils, and aspect haven't changed then what has? Perhaps a look at historic burns will lend to better understanding of present and future wildland fire management.

Two large wildland fires have occurred within the past twenty-one years and appear to be well beyond the size and scope of individual fires during the first fifty years of the twentieth century. The following discussion summarizes those fires.

In 1980, the runaway Dry Falls brush fire burned almost 29,000 acres. *The Desert Sun* reported that the Dry Falls fire was man caused, starting in the foothills adjacent to Palm Springs burning in a south-southwest direction. Within two days the Dry Falls Fire had burned over 1,000 acres in Tahquitz Canyon, a critical watershed drainage and riparian habitat, and had charged up to the 8,000 foot elevation mark and was continuing to burn southwards to the next significant Indian Canyon, Andreas Canyon. Total ground crew manpower was 618 fire fighters and within three more days 1,300 fire fighters were holding the line on 27,000 acres. Eventually, the Dry Falls fire had moved through all the western Indian Canyons and had proceeded to the timber of the high desert divide area of Garner Valley, south and west of its origin. The September 1, 1980, edition of *The Desert Sun* reported that:

"During its late afternoon push through the Indian canyons the fire also destroyed a priceless grove of about 500 Washington fan palm trees in Palm Canyon. The grove represented the largest collection of Washington fan palms in the Coachella Valley and one of the largest in Southern California."

Overall, an estimated 500 acres of timber were burned in the San Jacinto State Wilderness, with the rest of the fuel load consisting of lighter brush in the lower elevations and heavier brush in the higher elevations.

On July 1, 1994, the Palm Canyon Fire, also called the Pinyon Fire, began with a lightning strike in upper Palm Canyon, nine miles south of Palm Springs. Fueled by

strong winds, dry fuels and high temperatures it too spread in a southerly direction. Within three days it had burned 14,000 acres. Wildland-urban interface residences had to be evacuated as the fire burned upslope towards the Pinyon Flats area. *The Desert Sun* reported that:

“Highway 74 remained closed between Highway 111 at Palm Desert and Highway 371 near Anza.... Eight helicopters, 12 air tankers and about 1,000 fire fighters were on the scene Sunday. Fire fighters were hampered by steep terrain, erratic winds of 15 – 20 mph and temperatures of 100 degrees.... Smoke made it difficult to fight the fire from the air...[The mountain blocked radio and cellular phone transmissions, making it difficult to coordinate the fire fighting efforts].”

The Summer 2004 issue of *Home & Fire*⁶ includes an article by Keith Argow, president of the National Woodland Owners Association. His conclusions relative to large wildland fire causes are most specifically linked to the greatly increased fuel loads that have accumulated as a result of years of effective wildfire protection. However, additional causes could be attributed to prolonged drought, dead and dying forests from insect infestations and disease, and the possibility of weather variation linked to global warming.

ACIR wildland fires have not typically started at forested elevations; therefore, prolonged drought and dead and dying forests from insect infestations and disease can be effectively eliminated as primary causes of larger wildland fires. Although climatic changes exacerbate the potential for fire occurrence, the most probable cause of larger, more intense, catastrophic wildland fire on the ACIR and adjacent properties appears to be the dramatic increase in fuel load.

The spatial analysis of fire risk assessment by zone will be discussed in Chapter 4.

3.1.9 Land Ownership Status

Established in 1876, the ACIR predates the incorporation of all Coachella Valley cities; there are presently 420 members enrolled in the Tribe. As previously mentioned, land within the cities of Palm Springs, Cathedral City and Rancho Mirage and surrounding area are divided into Indian and non-Indian ownership, generally based upon a grid pattern of square mile sections in alternating ownership.

Ownership status on the Reservation is as follows:

- *Tribal Trust Lands* are held in common trust for all members of the Tribe.
- *Allotted Trust Lands* are the lands that were apportioned to individual members of the Tribe as part of the Equalization Act of 1959, whereby each Tribal member received allotments. Today, ownership may have been passed on from the original allottee to several heirs making it possible for several Tribal members to

⁶ Argow, Keith, “Fire Control, A Performance Review by National Woodland Owners Association President,” *Home & Fire*, Summer 2004, Vol. 1, Issue 3, pg. 32

have an undivided interest in a single parcel. In addition, leases to other parties encumber many of these parcels.

- *Fee Lands* were originally allotted to a Tribal member, but have been sold to another entity under the auspices of the BIA regulatory authority. These fee parcels are still contained within the ACIR and are subject to regulations affecting ACIR lands.

3.1.10 Cultural Resource Management

The Tribe will facilitate the integration of cultural resource management into the fire management process to meet the goals of this Plan, and its obligation to federal and Tribal historic preservation/cultural resources law, including compliance with Section 106 of the National Historic Preservation Act. The Tribal Historic Preservation Office (THPO) will coordinate with appropriate Tribal departments and other agencies on all cultural resource issues during fire management and suppression activities.

The Tribe established the THPO in 2005 through an agreement with the NPS to assume certain responsibilities under the National Historic Preservation Act (16 USC 470 et seq.) within the ACIR. These responsibilities are codified in the *Agua Caliente Band of Cahuilla Indians Tribal Code Chapter 2.24, Sections 2.24.010, 2.24.020, and 2.24.030*.

The THPO, in cooperation with the Tribe's Planning and Development Department, will ensure its cultural resource specialists participate in fire management planning process so that cultural resource information and management objectives are integrated into the planning and decision making process. To this end, the Tribe will ensure that the THPO is provided an opportunity to contribute to any new or updated fire management plan(s).

Roles and Responsibilities of the THPO

The THPO is committed to meeting fire management goals to aid in the preservation of significant non-renewable historic landscapes, cultural heritage sites, and traditional cultural places by:

1. Defining cultural resource protection procedures and protocol within this Plan, including:
 - a) Providing appropriate training ("red card") for Native American Monitors and the THPO Archaeologist on staff; and
 - b) Continue to maintain and update the Agua Caliente Cultural Register.
2. Developing protection strategies for vulnerable cultural resources within the reservation, which may include:
 - c) Developing summary data regarding known site distributions and densities with information available in the Agua Caliente Cultural Register, and provide that information to the Tribe's fire management personnel; and

- d) Providing recommendations in areas where no data is available (i.e. no field inventory data) by characterizing the landscape based on the best available information.
3. Working cooperatively with interested Tribal departments, associated agencies and land managers.
4. Develop and implement mitigation measures after fire suppression activities, which may include Phase I inventories and archaeological testing (Phase II).

Confidentiality

The THPO should provide planners/decision makers with essential information and fire management personnel should work with the THPO to ensure that procedures to access cultural resources information are in place, and to specify who has access to the information. Site specific information should not be released to the public.

MIST

The Minimum Impact Suppression Tactics (MIST), as employed by the USFS, should be implemented to the greatest extent feasible. Under the MIST system, appropriate management personnel must be contacted during all fire suppression activities. When possible, all known culturally sensitive areas should be avoided and protected from fire suppression related activities. If any cultural resources are encountered during the course of MIST activities, the Rangers Director, Canyon Foreman, THPO, and THPO Archaeologist will be notified immediately to evaluate fire suppression activities. Such evaluation may limit and/or cease fire suppression activities in that area until the THPO Archaeologist can take appropriate action to document and/or mitigate (if necessary) any newly discovered cultural site(s).

3.2 Wildland Fire Management Goals

For thousands of years, native people have used fire as a major environmental management tool. Annual burning prevented the accumulation of dead materials that could contribute to damaging forest fires. Moreover, annual burning also destroyed plant disease and damaging insects and parasites.

The Cahuilla regularly set fire to the native palm (*Washingtonia filifera*) in order to more easily access the palm fruit. In addition, the ash from the burning provided valuable nutrients to the soil for food crops such as the Mesquite and Oak trees. Burning was also important to Cahuilla basket weavers. A number of basketry plants, such as the willow, sumac, and juncus yield long, straight shoots when burned. Because grasses that have not been burned are too inflexible for proper weaving, only recently burned bear and deer grass produce the best basketry materials.

The regular burning of an area by the Cahuilla was carried out according to a schedule that depended upon plant type and locality, as well as upon such factors as humidity, wind direction, and speed. If an area was burned regularly, there was insufficient fuel to support large wildland fires that could damage trees. By carefully managing burning

sequences on different terrains, only a minimum of bare earth was ever exposed to erosion. On steep slopes, the burning was done during a time when surrounding areas were damp or green from a recent rain. In marshy areas, cattails and reeds were annually burned to improve their qualities as sources of food and weaving material. This highly effective system of environmental management was developed by the Cahuilla to adapt to the erratic, arid climate of Southern California desert.

These historic efforts point out that wildland fire has been managed by the Tribe for centuries. The obvious goal was to maintain a balance spiritually and culturally with the land in order to survive.

Wildland fire management is conducted today on ACIR properties in support of the overall Tribal objective of preservation and restoration of cultural, natural, and scenic values.

The following is a list of wildland fire management goals which provide the programmatic direction for the Plan within the context of land management planning:

Fire Prevention

1. Tribal fire management processes will be proactive rather than reactive.
2. Develop an educational outreach program.
3. Maintain and share up-to-date database information collaboratively with all concerned agencies.
4. Reduce fuel loading by considering all methods of hazardous fuels removal.
5. Maintain existing indigenous trails.

Wildland Fire Suppression

1. Maintain agreements with all concerned agencies for the provision of immediate response to all wildland fires within and adjacent to the exterior boundaries of the ACIR.
2. Initial attack of wildland fires will be aggressive and efficient to minimize damage to property and natural and cultural resources.
3. Develop and implement appropriate measures of assistance that the Tribe could provide in the case of a wildland fire incident.

Wildland Fire Rehabilitation

1. Reduce flooding due to damming of stream channel from debris.
2. Enhance native species regeneration.

TRIBAL FIRE MANAGEMENT PLAN

CHAPTER 4: Wildland Fire Risk Assessment

4.1 Botanical Life Zone Classification System

As previously mentioned, wildland fire risk assessment for this Plan is based upon a variety of quantifiable and commonly accepted criteria that will be evaluated relative to a botanical (vegetative) life zone classification system. The justification for the use of a botanical classification system is that it incorporates plant life as it relates to a traditional Cahuilla life style. Additionally, it allows the incorporation of previously documented academic work conducted about the Cahuilla people historically. Lastly, using a botanical life zone classification system establishes the premise that environmental management by native Californians has occurred for centuries and that manipulation of the environment by those people established a balance between nature and man. Given that this Plan is a tribal fire management plan, the inclusion of a culturally relevant continuum was a necessary process in its design.

4.1.1 Classification System

The botanical life zone classification system used here is an old one, developed by Hall and Grinnell in 1919, "Life zone indicators in California"⁷; however, it is as geographically specific to the Tribe's traditional use area as possible and it has been used in past academic studies that reference Cahuilla Indian plant use. Dr. Lowell Bean and Katherine Saubel point out that the actual distribution of plants can vary within the life-zone model due to some of the following factors:⁸

1. Drainage of cold air from hill slopes, producing warmer thermal belts there;
2. Accumulation of such cold air in valley bottoms, producing areas of exceptional coldness;
3. Streams carrying cold water that cause higher altitude plants to grow at lower elevations than might be expected;
4. Evaporation from moist soils and lingering snow banks that depress temperature in some areas and change the botanical pattern;
5. Rocky slopes and outcroppings that tend to be warmer than surrounding areas, thereby causing differences in plant formation; and
6. Contrasts in exposure to solar radiation, producing warmer but drier south-facing slopes and cooler but more moisture-retaining north-facing slopes.

⁷ Hall, H.M. and J. Grinnell. 1919. Life zone indicators in California. Proceedings of the California Academy Sciences, Ser. 4. 9(2). Pages 37-67.

⁸ Bean, Lowell John and Katherine Siva Saubel. 1972, Temalpakh, Cahuilla Indian knowledge and usage of plants. Malki Museum Press. Page 11.

Even with these constraints in mind a fairly consistent vegetative analysis can be made relative to life zone locations based primarily upon topographic elevation. The plant communities included here are representative of only a very small selection of the diversity of botanical species that occur within each zone. Several distinct life zones have been identified within the ACIR's wildlands (areas outside of local municipal boundaries including the northeast corner of the ACIR, which is located within Riverside County on the desert floor) as risk assessment areas and are as follows:⁹

- o *Lower Sonoran Life Zone ~ Desert Floor to 3,500 Feet*

Characteristics:

Summers are hot

Winters are cool

Low rainfall – average annual precipitation of 4 inches

Fine textured alluvial to sandy or gravelly soils

9,672 acres within the ACIR

Xerophytic plant communities:

Creosote brush – desert flat

Saltbrush – desert flat

Desert willow - wash

Smoke tree - wash

Palo verde - wash

Ironwood - wash

Catclaw – wash

Cholla – southern exposure, well air-drained slope

Barrel cactus – southern exposure, well air-drained slope

Ocotillo – southern exposure, well air-drained slope

Century plant – southern exposure, well air-drained slope

Mojave yucca – higher elevation, north-facing slope

Goatnut – higher elevation, north-facing slope

Nolina – higher elevation, north-facing slope

- o *Upper Sonoran Life Zone ~ 3,501 to 5,000 Feet*

Characteristics:

Summers are warm

Winters are cold

Average annual rainfall averaging 15 inches

4,924 acres within the ACIR

Plant communities:

Pinion – desert slopes

Juniper – desert slopes

Chaparral – northern slopes of the Santa Rosas and western slopes of the San Jacintos

Chamise

Ironwood

Oak

⁹ Bean and Saubel, p. 11-13.

Ocotillo
 Manzanita
 Buckthorn
 Barrel cactus

- o *Transitional Life Zone ~ 5,001 to 7,000 Feet*

Characteristics:

Cool summers
 Cold winters
 Average annual precipitation of 20 to 30 inches
 1,784 acres within the ACIR

Plant communities:

California black oak
 Manzanita
 Elderberry
 Yellow pine
 Chaparral type vegetation

Additional risk assessment areas that characterize land use patterns within the ACIR have been defined for this Plan. These areas include:

- o *The City of Palm Springs ~ Urban*
 12,331 acres within the ACIR
- o *The City of Cathedral City ~ Urban*
 3,724 acres within the ACIR
- o *The City of Rancho Mirage ~ Urban*
 941 acres within the ACIR
- o *The County of Riverside ~ Desert Floor and Urban*
 2,382 acres within the Reservation

Plant communities:

Sonoran Mixed Woody and Succulent Scrub ~ Indio Hills
 Desert agave
 Brittlebush
 Ocotillo
 Pygmy-cedar
 Mojave yucca
 Creosote brush ~ Stabilized and Partially-Stabilized Shielded Sand Fields

The final risk assessment area contains some of the most referenced wildland features within the ACIR; therefore, it has been removed from the above classification schemes in order to be evaluated on its own merit:

- *Riparian Zone ~ All watercourse drainages within the Lower Sonoran, Upper Sonoran, and Transitional Life Zones*

Characteristics:

Variable average annual rainfall and temperatures

839 acres within the Reservation

Plant communities:

California fan palm

Mesquite

Screwbean

Arrowweed

Deer grass

Cottonwood

Willow

A map showing the boundaries of the above identified life zones and/or risk assessment areas is included herein as Figure 5.

4.1.2 Cultural Significance

Robert James Hepburn, a Tribal ranger, has compiled an extraordinary amount of information into an, as yet, unpublished volume entitled *Plants of the Cahuilla Indians of the Colorado Desert and Surrounding Mountains, Field Notes for Rangers*. This volume contains a very detailed index of plants utilizing the botanical life zone classification system. More specifically, it is an index of a multitude of traditional Cahuilla Indian plant uses. Hepburn's field notes describe that plants were not only used for food, but also as tools, construction materials, water sources, medicine, dyes, musical instruments, firewood, clothing, baskets, weapons, adhesives, and ceremonial and ritual materials. Social roles, seasonal movements to gather plant materials, property and ownership concepts, spiritual beliefs, and creative expression were all tied to plant life in a reciprocal relationship with the Cahuilla people.

Lastly, it has been documented from oral history statements made by Tribal members that fire was utilized to manage vegetation. For instance, fire was used to i) stimulate the growth of clean shoots of deer grass for basket making, ii) keep vegetation off trails, and iii) clear areas beneath palms to enable the harvest of palm fruit to proceed without impedance.

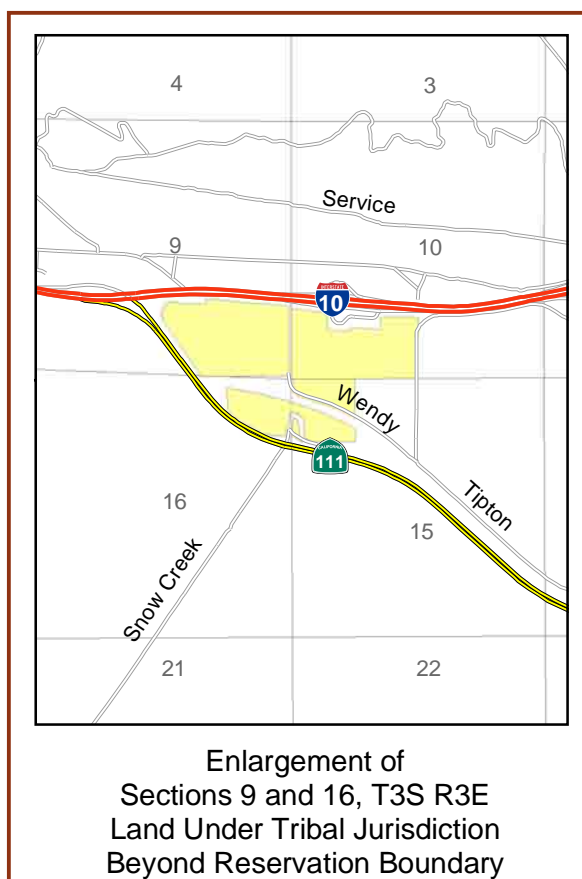
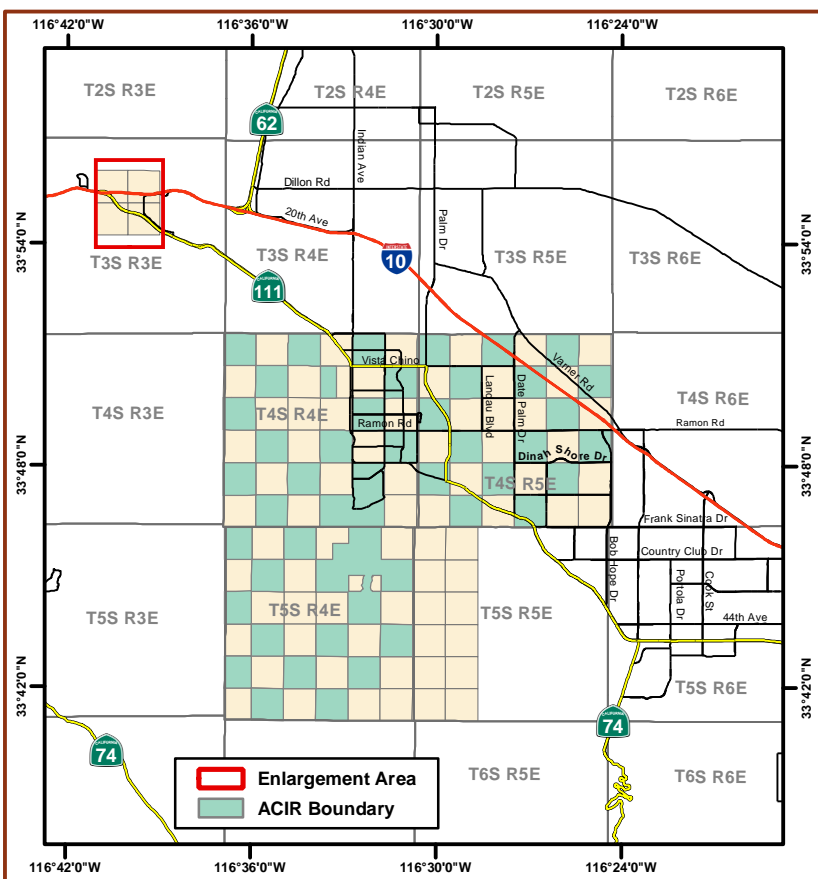
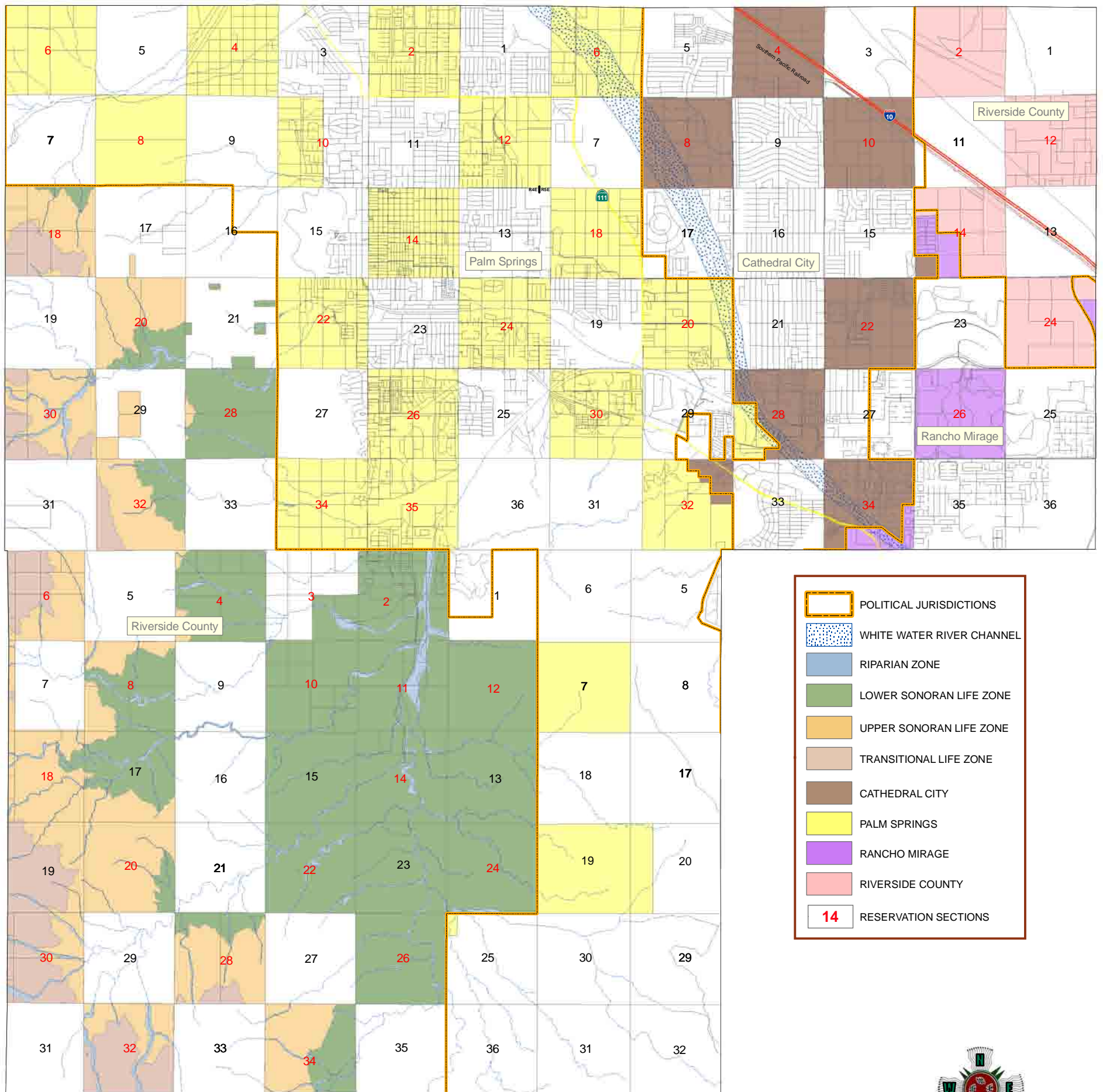
Based upon the information presented thus far, it is evident that cultural significance within the Tribe's traditional use area was highly dependent upon the botanical species available for use. This Plan relies upon that fact, rather than giving cultural significance only to such relics as burial sites, village sites, etc. and points out that previous catastrophic wildland fires have changed the face of the land, such as the Cahuilla people originally knew it.



AGUA CALIENTE INDIAN RESERVATION

FIGURE 5

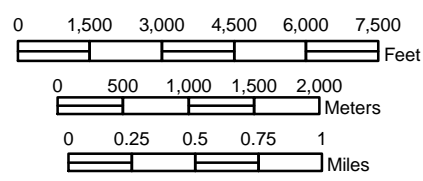
LIFE ZONES/FIRE RISK ASSESSMENT AREAS



- POLITICAL JURISDICTIONS
- WHITE WATER RIVER CHANNEL
- RIPARIAN ZONE
- LOWER SONORAN LIFE ZONE
- UPPER SONORAN LIFE ZONE
- TRANSITIONAL LIFE ZONE
- CATHEDRAL CITY
- PALM SPRINGS
- RANCHO MIRAGE
- RIVERSIDE COUNTY
- RESERVATION SECTIONS



Agua Caliente Band of Cahuilla Indians
 Planning/Building/Engineering Department
 777 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883 - 1911/Fax (760) 883-1937



Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Environmental/Fire Plan/Fire Risk Assessment/Fire_Risk_ACIR.mxd
 Map Origination Date: 9/8/2006
 This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
 Data Source:
 - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
 - This map contains geographic information owned by the County of Riverside.
 - All other layers provided by ACBCI Planning & Development Department

4.2 Conclusion

Risk analysis within this Plan will not weigh risk assessment areas against one another. Life zones have potential property, flora and fauna and cultural elements representing many levels of sensitivity. It is the intent of the implementation of this Plan to provide as much information as possible about each life zone recognizing its uniqueness in order to protect the landscape and the cultural values of the Tribe.

TRIBAL FIRE MANAGEMENT PLAN

CHAPTER 5: Plan Implementation

5.1 Fire Prevention and Fuels Management

The emphasis of the implementation phase of this Plan is on a proactive, rather than a reactive, response to wildland fire management working toward the actualization of the following goals (previously identified in Section 3.2 of this Plan) and objectives:

5.1.1 Tribal fire management processes will be proactive rather than reactive.

Building upon its current foundation of land and people, the Tribe will utilize present assets in order to create a stable base of wildland fire prevention awareness, both internally and externally. Therefore, this Plan is not intended to be reactive, in that it does not incorporate the implementation of a Tribal Fire Department, nor does it include additional staffing to be employed as firefighters. The Tribe plans to maintain its present collaborative efforts for fire fighting with the communities that share its land and neighboring land holders. The Tribe has been a long time supporter of the professionalism of fire fighting personnel within those jurisdictions, and it intends to support their efforts rather than try to match them.

5.1.2 Develop an educational outreach program.

The Tribe will develop an educational outreach program, which can be incorporated into the guided ranger tours within Tribal park lands, informing visitors at both Tahquitz Canyon and the Indian Canyons Heritage Park about the fire hazards that occur on the ACIR, consequences of wildland fire to natural and cultural resources, and actions the Tribe is taking to maintain the natural balance between people and the land and how that might differ from conventional parks.

Presently, the Tribe does not allow smoking, camp fire building, or overnight camping in its park lands. In addition to those fire preventative measures, additional information will be provided to park visitors about the relationship of the land and the people that visit the ACIR, and the significance of that relationship to the flora and fauna of the ACIR and the culture of the Tribe. Additionally, Tribal staff will keep the public informed of its support of other fire fighting agencies and of the collaborative relationship maintained with those agencies through active measures such as occasional press releases and as part of brochures handed out to parkland visitors. Lastly, within these distributions will be information about the distinction between a Tribal park and other conventional parks. Included in this information will be the fact that the Tribal parks are a purposefully shared part of the Tribe and that the land is not commonly owned by the federal government, but by a small group of Cahuilla people. Consequently, along with that gift of sharing comes the reciprocal gift from the visitor of caring.

5.1.3 Maintain and share up-to-date database information collaboratively with all concerned agencies.

A geospatial information system (GIS) will be utilized by the Tribe's Geospatial Information Services Group to build zonal models (by vegetative life zones) in order to assess wildland fire risk more completely. These zonal models will incorporate the quantification of available data pertaining to the assessment criteria mentioned in Chapter 4 of this Plan that continue to become available relative to topography, aspect, infrastructure, climate, soils, wildland fire history, and vegetation and cultural resources. The possibilities within this modeling framework could include:

1. Values to protect – homes, natural resources, wildlife, and cultural and recreational values;
2. Hazards – flammable vegetation, types of fuels, and dry aspects;
3. Risks – steep slopes and locations of historic incidents, recurring incidents, and causes;
4. Solutions/Models/Strategies – identify sources of accessible water, location of response agencies, contact information, shortest path computations, and drive times computations for response; research fire behavior models and what combination of inputs (fuels, topography, weather) are used to create these models; research forecasting fire spread; create level of service models and maps showing resistance of controls, response times, probability of ignition, and potential living unit loss; and weather ranking including sources of real time wildland fire weather information; and
5. Occurrence mapping – map the perimeter of wildland fires with hand-held computers, GPS, and helicopters/aircraft.

Of special importance in the realm of wildland fire prevention, as it relates to climate, is the future inclusion of a Remote Automated Weather Station (RAWS) on the ACIR as one of this Plan's implementation measures. These stations monitor local weather in a wildland setting collecting data to assist land management agencies in rating fire danger and provide up to the minute weather data during a wildland fire event. RAWS units collect, store, and forward data to a computer system at the National Interagency Fire Center (NIFC) in Boise, Idaho via the Geostationary Operational Environmental Satellite (GOES) operated by the National Oceanic and Atmospheric Administration (NOAA). These data are automatically forwarded to several other computer systems including the Weather Information Management System (WIMS) and the Western Regional Climate Center (WRCC) in Reno, Nevada. Fire managers use data collected from RAWS units to predict fire behavior and monitor fuels.¹⁰ Agencies that work collaboratively with the RAWS systems are the BIA, National Association of State Foresters (NASF), BLM, USFS, USFWS and NPS. Additional information regarding RAWS is provided in Appendix C.

¹⁰ <http://www.fs.fed.us/raws/> RAWS: National Interagency Remote Automated Weather Stations

5.1.4 Reduce fuel loading by considering all methods of hazardous fuels removal.

Hazardous fuel reduction through reduced fuel loading will decrease fuel levels back to a more natural fire regime. Within brush areas, mechanical manipulation (chainsaw felling, chipping, limited clearing with a bulldozer, and/or piling) will be the primary treatment method used in strategic areas to reduce fuel loading and break up fuel continuity. Fire use in brush areas will initially be limited to slash pile burning, while broadcast burning may be used later on a recurring basis to maintain desired fuel levels in brush treatment areas, maintain grass, and reduce brush re-growth.

Management of each vegetative community must be ecologically and culturally based. Management techniques may include mechanical manipulation such as thinning with chain saws, chipping, crushing, and chopping, or it may include chemical treatments; however, chemical treatments can result in environmental degradation from continued use over an extensive area.

Prescribed burning is another alternative to reduce hazardous fuels. The reintroduction of fire back into selected portions of these ecosystems will include a distinct schedule of return intervals or maintenance burns for each plant community. All prescribed burns will incorporate a Prescribed Fire Burn Plan that follows established guidelines from the *Department of the Interior, Bureau of Indian Affairs, Fire Use Handbook*. All prescribed burns will also be carried out collaboratively utilizing professional staff from neighboring agencies in which the Tribe shares cooperative working agreements.

5.1.5 Protection and management of cultural resources.

Cultural resources within the ACIR are under Tribal jurisdiction and will be protected according to the *Agua Caliente Band of Cahuilla Indians Tribal Code Chapter 2.24, Sections 2.24.010, 2.24.020, and 2.24.030*.

The THPO should be consulted on all cultural resource issues. In general, hazardous fuel reduction activities should avoid known cultural resources by 100 feet. Discoveries of sites and/or human remains must be immediately reported to the THPO. The THPO will record and assess the significance of the site and provide recommendations on how to proceed.

In order to minimize impacts to cultural historic sites and culturally sensitive areas, prescriptions for all hazardous fuel reduction will be made in cooperation with the THPO including, but not limited to, mechanical manipulation, felling, chipping, bulldozing, piling, and slash and burn activities. Formal notification to the THPO is required for any department or agency 10 days prior to implementing these types of fuel reduction activities. Once notified, the THPO will consult the Agua Caliente Register to determine if any sites will be impacted by the hazardous fuel reduction activities.

If the THPO determines that cultural resources will be impacted by hazardous fuel reduction activities, special procedures and protocol for areas in and near cultural heritage sites and historic structures will be implemented in cooperation with the THPO, Rangers Director, and Canyon Foreman. Special procedures may include:

1. Avoidance of the resource;
2. The presence of Native Cultural Monitors and/or the THPO Archaeologist; and/or
3. Clearing/grubbing by hand, without the use of machines or motorized vehicles.

5.1.6 Maintain existing indigenous trails.

This Plan proposes the continued maintenance of all existing indigenous trails on the ACIR to aid firefighter access by foot in the event of a wildland fire incidence.

5.2 Wildland Fire Suppression

The Tribe will not actively participate in wildland fire suppression. Rather this Plan proposes that the Tribe provide support to the professional staff that is engaged in wildland fire suppression. This support will include:

5.2.1. Maintain agreements with all concerned agencies for the provision of immediate response to all wildland fires within and adjacent to the exterior boundaries of the ACIR.

As previously noted in Chapters 1 and 2 of this Plan, the Tribe is presently a signatory in a variety of cooperative working agreements and memorandums of understanding relating to fire protection for ACIR properties. Those agreements will continue to be maintained at a level necessary to assure adequate wildland fire protection for all ACIR land.

5.2.2. Initial attack of wildland fires will be aggressive and efficient to minimize damage to property and natural and cultural resources.

Tribal staff will actively participate in all regional wildland fire management team meetings to assure that the level of protection to ACIR properties is acknowledged and first response operational procedures will continue to be the mode of operation.

5.2.3. Develop and implement appropriate measures of assistance that the Tribe could provide in the case of a wildland fire incident.

For the past two years the Tribe has voluntarily included two Tribal staff members to participate on wildland fire incident management teams when a wildland fire occurs on the ACIR or within the Tribe's traditional use area. The reasons for inclusion of Tribal staff members on wildland fire incident management teams is to add their knowledge of terrain, cultural resources, and access to the team's decision making process at the time of a wildland fire incident; however, in order for Tribal staff members to participate they must receive professional level training and certification. The Tribe will continue to provide certified participants at the management team level in order to help facilitate the fire incident team's decision making process.

5.3 Wildland Fire Stabilization and Rehabilitation

5.3.1 Reduce flooding due to damming of stream channel from debris.

This is a shared goal with other Tribal natural resource endeavors. In the event of a catastrophic wildland fire within the riparian zones of the ACIR, these areas will be subject to a heightened risk of flooding, erosion, degradation of water quality, and loss of vegetation cover and wildlife. Tribal maintenance staff will focus on the recovery of riparian areas as a priority rehabilitation project. Removal of debris from stream channels is one of method of recovery; however, it is acknowledged that removal alone will not thwart erosion and water degradation. Catastrophic wildland fire not only removes the stabilizing vegetation in a riparian area, it also chemically changes soil properties often times creating a much more impervious soil surface that deters infiltration of water runoff, thereby allowing a compounded water runoff situation at higher elevations which consequently impacts lower elevations with more than normal water runoff during rain events. Therefore, it is anticipated that no amount of recovery efforts will completely resolve all post-wildland fire flood issues.

5.3.2 Enhance native species regeneration.

Finally, this Plan proposes that plant nurseries become an active component of the land management process on the ACIR. Proposed actions could include the Tribe collaborating with local nurseries to gather and store native seed. Also, as part of the THCP adaptive management program, research could be conducted on the propagation of native species and reintroduction of native plant materials upon the removal of exotic species (i.e. the replanting of deer grass upon the removal of invasive fountain grass). Native seed stores or small domestically propagated native plant species would be invaluable in the event of wildland fire. These native seeds and/or plants could be aggressively re-introduced to compete with the many species of non-native plants that have intruded onto the ACIR, which are either fire hardy or aggressively return after a wildland fire event to the detriment of the slow growing native species.

APPENDIX A

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation	Snowfall
1922	Jan	NO DATA								
	Feb	NO DATA								
	Mar	58.9	73.5	44.4	89.0	33.0	22.0	202.0	1.0	
	Apr	68.3	70.4	47.3	95.0	38.0	67.0	110.0	0.2	
	May	76.9	94.0	59.7	115.0	39.0	395.0	19.0	0.3	
	Jun	85.2	102.8	67.6	115.0	55.0	615.0	0.0	0.0	
	Jul	90.0	107.2	72.9	118.0	63.0	783.0	0.0	1.7	
	Aug	89.1	104.0	74.3	112.0	60.0	759.0	0.0	0.7	
	Sept	87.6	103.7	71.4	114.0	47.0	683.0	0.0	0.0	
	Oct	73.8	89.2	58.3	100.0	44.0	298.0	19.0	0.1	
	Nov	59.2	73.7	44.7	87.0	36.0	11.0	179.0	0.2	
	Dec	57.9	69.8	46.0	79.0	38.0	2.0	216.0	0.6	
	Avg.	74.7	88.8	58.7					4.7	
1923	Jan	58.1	71.9	44.4	92.0	33.0	15.0	222.0	0.3	
	Feb	60.1	72.4	47.8	88.0	33.0	69.0	202.0	0.7	
	Mar	62.9	78.0	47.8	89.0	37.0	36.0	96.0	0.1	
	Apr	66.9	81.9	51.9	96.0	43.0	102.0	38.0	0.0	
	May	78.0	95.6	60.5	109.0	50.0	414.0	0.0	0.0	
	Jun	77.8	96.4	59.1	111.7	48.0	39.0	0.0	0.0	
	Jul	88.1	104.8	71.3	113.0	61.0	724.0	0.0	0.0	
	Aug	87.3	104.2	70.3	109.0	62.0	695.0	0.0	0.1	
	Sept	82.7	97.2	68.2	114.0	51.0	540.0	0.0	0.2	
	Oct	72.9	87.7	58.1	97.0	48.0	259.0	5.0	0.0	
	Nov	64.2	77.4	51.1	85.0	37.0	31.0	48.0	0.0	
	Dec	54.9	65.1	44.7	77.0	32.0	0.0	305.0	1.0	
	Avg.	71.2	86.1	56.3					2.4	
1924	Jan	55.5	70.1	41.0	80.0	29.0	0.0	287.0	0.2	
	Feb	64.3	79.9	48.8	88.0	43.0	43.0	52.0	0.0	
	Mar	59.1	72.4	45.8	83.0	34.0	6.0	182.0	0.4	
	Apr	67.3	82.3	52.2	97.0	43.0	93.0	29.0	0.1	
	May	78.7	97.0	60.5	109.0	49.0	390.0	0.0	0.0	
	Jun	88.2	106.9	69.6	114.0	58.0	647.0	0.0	0.0	
	Jul	88.6	106.8	70.5	112.0	61.0	742.0	0.0	0.0	
	Aug	88.6	106.7	70.5	116.0	61.0	740.0	0.0	0.0	
	Sept	85.3	102.4	68.3	110.0	55.0	557.0	0.0	0.0	
	Oct	72.0	87.2	56.7	96.0	38.0	NA	NA	NA	
	Nov	66.2	80.7	51.6	94.0	40.0	97.0	56.0	0.0	
	Dec	54.2	66.9	41.5	85.0	27.0	8.0	334.0	NA	
	Avg.	72.3	88.3	56.4					0.7	
1925	Jan	55.8	70.1	41.5	81.0	29.0	1.0	267.0	0.0	
	Feb	62.9	77.2	48.6	86.0	41.0	25.0	78.0	0.0	
	Mar	66.1	80.7	51.5	94.0	39.0	131.0	88.0	0.3	
	Apr	70.6	86.6	54.5	103.0	41.0	219.0	45.0	0.0	
	May	78.2	95.2	61.2	104.0	50.0	416.0	0.0	0.0	
	Jun	83.3	99.7	66.9	118.0	48.0	556.0	0.0	0.0	
	Jul	92.4	108.9	76.0	120.0	65.0	855.0	0.0	0.0	
	Aug	87.4	104.8	70.0	112.0	61.0	701.0	0.0	0.0	
	Sept	81.7	97.6	65.9	104.0	55.0	507.0	0.0	0.0	
	Oct	69.6	83.0	56.3	97.0	49.0	165.0	12.0	2.8	
	Nov	61.6	75.0	48.2	83.0	40.0	11.0	104.0	0.3	
	Dec	59.5	71.6	47.3	81.0	36.0	7.0	170.0	0.4	
	Avg.	72.4	87.5	57.3					3.7	

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation	Snowfall
1926	Jan	55.8	70.1	41.5	81.0	29.0	1.0	267.0	0.0	
	Feb	62.9	77.2	48.6	86.0	41.0	25.0	78.0	0.0	
	Mar	66.9	81.1	52.8	90.0	42.0	100.0	31.0	0.0	
	Apr	70.2	82.9	57.6	104.0	45.0	201.0	36.0	3.7	
	May	75.6	92.8	58.5	107.0	47.0	344.0	3.0	0.0	
	Jun	86.7	105.0	68.5	115.0	57.0	661.0	0.0	0.0	
	Jul	89.9	107.2	72.6	118.0	61.0	778.0	0.0	0.0	
	Aug	89.1	105.6	72.6	116.0	60.0	755.0	0.0	0.0	
	Sept	82.1	100.0	63.8	106.0	55.0	520.0	0.0	0.0	
	Oct	76.3	92.2	60.5	102.0	51.0	361.0	0.0	0.0	
	Nov	67.2	81.5	52.9	97.0	44.0	102.0	32.0	1.0	
	Dec	52.3	62.5	42.1	78.0	31.0	0.0	387.0	6.3	
	Avg.		72.9	88.2	57.7					11.0
1927	Jan	56.0	69.0	42.9	79.0	37.0	1.0	272.0	0.0	
	Feb	58.9	69.0	48.9	83.0	39.0	14.0	177.0	10.4	
	Mar	58.5	72.2	44.8	91.0	39.0	17.0	208.0	0.0	
	Apr	67.2	83.7	50.7	102.0	35.0	170.0	97.0	0.0	
	May	74.9	92.9	57.0	112.0	45.0	326.0	8.0	0.0	
	Jun	81.9	100.1	63.6	112.0	52.0	514.0	0.0	0.0	
	Jul	89.8	106.9	72.8	116.0	65.0	776.0	0.0	0.1	
	Aug	87.6	104.9	70.3	116.0	59.0	710.0	0.0	0.1	
	Sept	80.8	98.5	63.2	109.0	52.0	481.0	0.0	0.0	
	Oct	75.7	90.9	60.5	104.0	46.0	352.0	12.0	0.6	
	Nov	65.3	79.2	51.5	92.0	42.0	72.0	57.0	0.4	
	Dec	51.7	63.6	39.8	88.0	29.0	8.0	410.0	3.3	
	Avg.		70.7	85.9	55.5					14.9
1928	Jan	57.9	72.8	42.9	90.0	27.0	18.0	223.0	0.0	
	Feb	58.7	72.8	44.6	81.0	39.0	2.0	179.0	0.9	
	Mar	65.3	80.8	49.8	95.0	41.0	83.0	64.0	0.0	
	Apr	69.6	87.5	51.7	99.0	38.0	172.0	27.0	0.0	
	May	77.8	95.6	60.0	107.0	49.0	408.0	4.0	0.0	
	Jun	83.7	104.0	63.4	117.0	56.0	569.0	0.0	0.0	
	Jul	90.0	109.1	71.0	120.0	59.0	783.0	0.0	0.0	
	Aug	89.2	107.5	71.0	121.0	60.0	760.0	0.0	0.0	
	Sept	86.0	104.7	67.3	113.0	54.0	637.0	0.0	0.0	
	Oct	74.0	90.1	58.0	105.0	40.0	310.0	24.0	0.1	
	Nov	64.3	78.3	50.3	88.0	36.0	63.0	78.0	0.3	
	Dec	55.6	68.5	42.7	80.0	34.0	4.0	287.0	1.1	
	Avg.		72.7	89.3	56.1					2.4
1929	Jan	52.5	65.4	39.7	81.0	30.0	0.0	380.0	0.3	
	Feb	55.3	69.1	41.6	84.0	30.0	5.0	269.0	0.0	
	Mar	62.6	77.7	47.5	92.0	34.0	44.0	111.0	0.0	
	Apr	65.1	79.9	50.3	97.0	39.0	87.0	78.0	1.1	
	May	77.7	96.0	59.3	102.0	49.0	400.0	0.0	0.0	
	Jun	83.9	112.7	65.0	118.0	51.0	574.0	0.0	0.0	
	Jul	91.0	108.3	73.8	113.0	67.0	814.0	0.0	0.0	
	Aug	92.8	107.2	78.4	115.0	70.0	872.0	0.0	0.0	
	Sept	82.6	98.0	67.2	116.0	55.0	536.0	0.0	1.8	
	Oct	78.0	93.4	62.5	106.0	46.0	417.0	7.0	0.0	
	Nov	63.7	80.6	46.8	91.0	35.0	50.0	81.0	0.0	
	Dec	61.7	77.5	46.0	84.0	34.0	20.0	114.0	0.0	
	Avg.		72.2	88.8	56.5					3.2

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precip.	Snowfall
1930	Jan	52.8	63.7	41.9	78.0	31.0	0.0	368.0	4.6	2
	Feb	64.2	79.4	49.0	92.0	35.0	79.0	94.0	0.5	
	Mar	64.6	78.4	50.9	95.0	41.0	99.0	104.0	0.6	
	Apr	73.3	89.0	57.6	102.0	46.0	257.0	2.0	0.0	
	May	69.9	85.7	54.1	101.0	39.0	212.0	55.0	0.6	
	Jun	83.6	103.4	63.9	113.0	51.0	565.0	0.0	0.0	
	Jul	89.9	107.6	72.2	114.0	64.0	780.0	0.0	0.0	
	Aug	87.8	104.1	71.6	111.0	60.0	715.0	0.0	2.0	
	Sept	78.8	97.0	60.5	110.0	46.0	424.0	2.0	0.0	
	Oct	72.7	89.0	56.3	98.0	44.0	257.0	12.0	0.0	
	Nov	65.7	78.2	53.2	95.0	36.0	148.0	120.0	0.5	
	Dec	55.3	70.5	40.1	78.0	31.0	0.0	293.0	0.0	
	Avg.		71.6	87.2	55.9					8.8
1931	Jan	57.2	70.8	43.5	84.0	34.0	12.0	248.0	0.4	
	Feb	58.1	68.2	48.1	79.0	41.0	0.0	158.0	2.7	
	Mar	67.2	83.7	50.6	99.0	35.0	99.0	38.0	0.0	
	Apr	73.5	89.7	57.3	100.0	48.0	265.0	2.0	0.5	
	May	79.7	97.9	61.4	111.0	52.0	459.0	0.0	0.0	
	Jun	82.0	100.1	63.9	111.0	55.0	520.0	0.0	0.2	
	Jul	95.2	110.8	79.6	120.0	71.0	944.0	0.0	0.0	
	Aug	90.4	104.9	75.9	117.0	67.0	798.0	0.0	0.5	
	Sept	82.4	99.1	65.6	109.0	54.0	529.0	0.0	0.0	
	Oct	73.0	88.4	57.6	98.0	48.0	259.0	3.0	1.6	
	Nov	59.1	71.6	46.5	97.0	29.0	98.0	263.0	1.4	
	Dec	51.4	64.0	38.8	72.0	30.0	0.0	411.0	1.4	
	Avg.		72.4	87.4	57.4					8.7
1932	Jan	50.2	63.7	36.7	75.0	28.0	0.0	449.0	0.3	
	Feb	56.6	67.4	45.8	89.0	33.0	36.0	274.0	7.0	
	Mar	65.5	82.5	48.6	93.0	39.0	63.0	41.0	0.0	
	Apr	68.8	86.9	50.8	98.0	38.0	173.0	50.0	0.2	
	May	74.4	92.3	56.5	102.0	44.0	310.0	10.0	0.1	
	Jun	82.5	102.0	63.0	115.0	50.0	497.0	0.0	0.4	
	Jul	88.8	107.0	70.6	116.0	56.0	745.0	0.0	0.0	
	Aug	89.0	108.2	69.7	118.0	58.0	752.0	0.0	0.0	
	Sept	82.5	104.9	66.1	120.0	53.0	623.0	0.0	0.0	
	Oct	72.6	88.9	56.4	103.0	38.0	247.0	1.0	1.5	
	Nov	68.8	84.1	53.4	89.0	45.0	126.0	7.0	0.0	
	Dec	52.6	65.5	39.8	84.0	31.0	13.0	387.0	1.4	
	Avg.		71.0	87.8	54.8					10.9
1933	Jan	51.5	64.2	38.7	80.0	32.0	0.0	415.0	1.5	
	Feb	53.5	68.2	38.9	79.0	25.0	0.0	315.0	0.0	
	Mar	63.9	81.6	46.2	88.0	34.0	36.0	65.0	0.0	
	Apr	65.8	81.7	50.0	100.0	37.0	101.0	68.0	0.0	
	May	70.5	87.6	53.4	109.0	38.0	217.0	38.0	0.1	
	Jun	82.8	102.9	62.7	115.0	49.0	542.0	0.0	0.0	
	Jul	93.0	110.7	75.2	119.0	58.0	873.0	0.0	0.2	
	Aug	89.1	107.3	70.9	120.0	54.0	756.0	0.0	0.0	
	Sept	83.3	102.6	64.0	111.0	54.0	557.0	0.0	0.0	
	Oct	80.1	96.3	63.9	108.0	46.0	475.0	0.0	0.1	
	Nov	68.9	84.8	53.1	96.0	36.0	180.0	56.0	0.1	
	Dec	56.2	71.2	41.3	84.0	32.0	1.0	265.0	0.8	
	Avg.		71.6	88.3	54.9					2.8

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation	Snowfall	
1934	Jan	59.9	74.1	45.7	85.0	39.0	1.0	152.0	0.8		
	Feb	62.7	76.3	49.1	81.0	44.0	10.0	66.0	0.6		
	Mar	74.2	90.8	57.6	99.0	50.0	292.0	0.0	0.0		
	Apr	75.7	92.5	58.9	103.0	43.0	332.0	2.0	0.0		
	May	80.7	98.9	62.5	113.0	54.0	497.0	0.0	0.0		
	Jun	79.6	97.4	61.7	109.0	50.0	443.0	0.0	0.0		
	Jul	MISSING DATES				118.0	66.0			1.1	
	Aug	90.6	106.1	75.2	114.0	68.0	805.0	0.0	0.3		
	Sept	81.9	98.0	65.8	108.0	51.0	391.0	0.0	0.0		
	Oct	76.8	92.3	61.3	104.0	48.0	376.0	4.0	0.2		
	Nov	66.3	81.0	51.6	94.0	37.0	137.0	93.0	0.1		
	Dec	58.1	70.3	46.0	78.0	35.0	11.0	219.0	1.7		
		Avg.	73.3	88.9	57.8					4.7	
1935	Jan	55.1	67.8	42.4	86.0	31.0	21.0	320.0	2.1		
	Feb	59.6	73.4	45.7	85.0	34.0	19.0	159.0	1.8		
	Mar	59.0	74.8	43.2	92.0	34.0	29.0	210.0	0.5		
	Apr	68.3	84.1	52.4	97.0	42.0	129.0	22.0	0.8		
	May	71.8	89.1	54.5	102.0	44.0	225.0	6.0	0.1		
	Jun	85.5	106.1	64.9	114.0	56.0	622.0	0.0	0.0		
	Jul	87.4	106.3	68.4	115.0	54.0	611.0	0.0	0.0		
	Aug	88.9	104.5	73.4	116.0	62.0	678.0	0.0	0.3		
	Sept	86.2	103.2	69.2	110.0	59.0	645.0	0.0	0.0		
	Oct	71.3	88.5	54.2	100.0	38.0	223.0	21.0	0.1		
	Nov	60.3	75.6	45.0	85.0	37.0	11.0	144.0	0.2		
	Dec	56.4	70.8	42.0	79.0	35.0	0.0	260.0	0.6		
		Avg.	70.8	87.0	54.6					6.4	
1936	Jan	56.2	71.1	41.4	81.0	33.0	0.0	264.0	0.2		
	Feb										
	Mar	63.2	76.1	50.3	88.0	37.0	72.0	124.0	1.7		
	Apr								0.4		
	May								0.0		
	Jun								0.0		
	Jul	89.3	100.6	78.1	108.0	59.0	689.0	0.0	1.5		
	Aug	88.3	107.5	69.2	115.0	57.0	730.0	0.0	0.0		
	Sept	84.1	106.7	61.5	113.0	49.0	581.0	0.0	0.0		
	Oct	73.7	94.3	53.0	109.0	44.0	278.0	1.0	0.9		
	Nov	63.2	81.8	44.5	93.0	31.0	62.0	109.0	0.8		
	Dec	54.5	67.7	41.3	77.0	28.0	0.0	318.0	3.7		
		Avg.	71.6	88.2	54.9					9.2	
1937	Jan	43.9	56.2	31.6	64.0	19.0	0.0	645.0	1.8		
	Feb	57.1	70.9	43.3	78.0	36.0	0.0	215.0	1.4		
	Mar	63.4	78.6	48.1	91.0	37.0	59.0	100.0	1.9		
	Apr	69.7	87.8	51.6	100.0	41.0	164.0	13.0	0.0		
	May	76.7	95.0	58.5	110.0	50.0	370.0	0.0	0.0		
	Jun	83.9	103.9	63.9	117.0	54.0	575.0	0.0	0.0		
	Jul										
	Aug										
	Sept			116.0	51.0						
	Oct	83.4	97.7	69.1	105.0	63.0	578.0	0.0	0.0		
	Nov	67.1	84.0	50.3	94.0	39.0	108.0	38.0	0.0		
	Dec	59.8	75.2	44.3	90.0	34.0	4.0	150.0	0.5		
		Avg.	67.2	83.3	57.7					5.7	

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation	Snowfall
1938	Jan	58.7	76.0	41.4	84.0	32.0	0.0	187.0	0.3	
	Feb	55.6	70.1	41.0	89.0	32.0	6.0	235.0	0.6	
	Mar	59.6	74.1	45.1	83.0	37.0	5.0	161.0	2.3	
	Apr	69.4	87.1	51.7	103.0	41.0	160.0	25.0	0.0	
	May	74.7	93.2	56.2	109.0	43.0	316.0	9.0	0.0	
	Jun	82.1	101.6	62.6	112.0	53.0	476.0	0.0	0.0	
	Jul	91.8	106.6	76.9	115.0	59.0	838.0	0.0	0.0	
	Aug		106.6		116.0				0.1	
	Sept		104.1		110.0				0.0	
	Oct									
	Nov									
	Dec	58.2	72.4	44.1	93.0	36.0	27.0	228.0	3.2	
	Avg.	68.8	89.2	52.4					6.5	
1939	Jan	54.6	68.8	40.3	76.0	36.0	0.0	316.0	1.6	
	Feb	50.9	65.2	36.6	80.0	30.0	0.0	388.0	1.9	
	Mar	62.3	79.1	45.5	95.0	33.0	81.0	156.0	0.1	
	Apr	71.7	90.2	53.2	104.0	44.0	222.0	16.0	0.0	
	May	75.9	95.6	56.3	110.0	52.0	347.0	0.0	0.0	
	Jun	82.4	103.1	61.8	115.0	54.0	412.0	0.0	0.0	
	Jul									
	Aug									
	Sept	80.3	95.0	65.6	114.0	52.0	468.0	0.0	4.9	
	Oct		93.1		105.0	45.0			0.0	
	Nov			48.9		42.0			0.7	
	Dec	60.3	78.3	42.4	89.0	32.0	13.0	144.0	0.2	
	Avg.	59.8	85.4	50.1					9.5	
1940	Jan	57.4	71.3	43.5	85.0	30.0	3.0	233.0	1.9	
	Feb	57.8	72.0	43.6	82.0	31.0	0.0	172.0	1.3	
	Mar	66.5	84.2	48.8	100.0	38.0	93.0	43.0	0.0	
	Apr	70.3	87.2	53.5	102.0	41.0	193.0	29.0	0.2	
	May	79.8	98.8	60.7	108.0	54.0	451.0	0.0	0.2	
	Jun	86.9	106.5	67.3	118.0	59.0	665.0	0.0	0.0	
	Jul	88.5	108.8	68.2	116.0	56.0	712.0	0.0	0.0	
	Aug	90.0	109.3	70.7	117.0	62.0	729.0	0.0	0.0	
	Sept	80.7	98.8	62.6	107.0	52.0	483.0	0.0	0.0	
	Oct	73.0	91.9	54.1	104.0	42.0	259.0	22.0	0.1	
	Nov	60.2	78.5	42.0	87.0	31.0	9.0	143.0	0.0	
	Dec			44.5	91.0	28.0			5.9	
	Avg.	73.7	91.6	55.0					9.6	
1941	Jan	55.3	68.0	42.6	77.0	34.0	0.0	257.0	0.6	
	Feb				86.0	39.0			1.4	
	Mar	61.6	76.0	47.2	85.0	39.0	15.0	107.0	2.5	
	Apr	63.7	80.4	46.9	95.0	41.0	41.0	70.0	0.5	
	May	77.2	95.0	59.4	107.0	52.0	374.0	0.0	0.0	
	Jun	79.6	99.2	60.0	110.0	51.0	446.0	0.0	0.0	
	Jul	89.0	108.2	69.9	115.0	59.0	705.0	0.0	0.0	
	Aug	84.3	102.7	65.9	111.0	56.0	586.0	0.0	1.1	
	Sept	76.9	97.4	56.4	107.0	47.0	363.0	0.0	0.0	
	Oct	67.5	83.6	51.3	102.0	43.0	136.0	50.0	1.5	
	Nov	62.3	79.8	44.7	96.0	32.0	47.0	123.0	1.6	
	Dec	53.9	69.6	38.1	84.0	28.0	5.0	343.0	1.4	
	Avg.	70.1	87.3	52.9					10.7	

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation	Snowfall
1942	Jan	55.0	71.3	38.7	84.0	27.0	0.0	304.0	0.2	
	Feb	53.8	70.1	37.5	79.0	24.0	0.0	306.0	0.8	
	Mar	59.1	78.3	40.0	93.0	33.0	12.0	186.0	0.7	
	Apr	65.2	82.8	47.7	93.0	40.0	53.0	37.0	2.3	
	May	72.6	92.5	52.8	110.0	43.0	24.9	3.0	0.0	
	Jun	81.9	103.2	60.7	115.0	53.0	497.0	0.0	0.0	
	Jul	92.7	111.5	73.9	119.0	63.0	837.0	0.0	0.0	
	Aug	89.0	106.9	71.0	116.0	56.0	749.0	0.0	0.3	
	Sept	80.9	102.2	59.6	112.0	52.0	486.0	0.0	0.0	
	Oct	72.4	90.7	54.0	106.0	41.0	247.0	10.0	0.0	
	Nov	64.0	82.5	42.5	95.0	37.0	47.0	69.0	0.0	
	Dec	57.3	75.5	39.1	86.0	31.0	0.0	224.0	0.3	
	Avg.		70.3	89.0	51.5					4.5
1943	Jan	54.8	69.5	40.0	91.0	23.0	4.0	312.0	8.4	
	Feb				90.0	32.0				
	Mar	64.5	80.1	48.9	91.0	42.0	45.0	52.0	2.2	
	Apr	70.5	88.1	53.0	102.0	40.0	207.0	35.0	0.1	
	May	77.2	96.6	57.7	108.0	47.0	385.0	0.0	0.0	
	Jun	78.8	99.1	58.6	112.0	48.0	422.0	0.0	0.0	
	Jul		108.4		119.0	58.0		0.0	0.0	
	Aug	87.7	105.4	70.1	112.0	57.0	712.0	0.0	0.1	
	Sept	84.9	105.2	64.6	114.0	59.0	607.0	0.0	0.7	
	Oct	72.0	90.3	53.7	107.0	43.0	246.0	20.0	1.2	
	Nov	63.2	82.2	44.2	93.0	35.0	25.0	70.0	0.0	
	Dec	54.4	66.6	42.2	80.0	32.0	0.0	319.0	5.9	
	Avg.		70.8	90.1	53.3					10.1
1944	Jan	53.6	69.2	38.1	92.0	28.0	1.0	343.0	0.1	
	Feb	53.3	66.4	40.1	85.0	31.0	4.0	338.0	2.3	
	Mar	60.9	77.5	44.3	90.0	36.0	14.0	135.0	0.8	
	Apr		82.4		93.0	41.0			0.2	
	May	73.3	91.8	54.8	99.0	47.0	257.0	2.0	0.0	
	Jun	76.4	95.8	57.1	114.0	50.0	352.0	0.0	0.0	
	Jul				114.0				0.0	
	Aug	88.2	109.7	66.7	117.0	59.0	726.0	0.0	0.0	
	Sept	82.8	102.4	63.2	114.0	50.0	541.0	0.0	0.0	
	Oct	74.3	93.4	55.3	100.0	50.0	293.0	0.0	0.1	
	Nov	59.2	72.2	46.3	86.0	32.0	13.0	181.0	1.7	
	Dec	56.3	72.2	40.3	81.0	32.0	0.0	261.0	0.4	
	Avg.		67.8	77.8	54.4					5.5
1945	Jan	54.9	71.0	38.8	87.0	31.0	3.0	308.0	0.2	
	Feb			42.8	82.0	35.0			0.7	
	Mar	58.8	75.5	42.0	94.0	32.0	20.0	207.0	1.0	
	Apr			49.5	105.0	35.0				
	May	74.8	92.9	56.6	106.0	50.0	310.0			
	Jun	81.0	99.8	62.1	116.0	52.0	486.0			
	Jul	91.5	109.0	74.1	116.0	68.0	830.0			
	Aug	88.9	104.7	73.0	111.0	61.0	749.0		2.2	
	Sept	83.8	101.3	66.2	115.0	52.0	570.0		0.7	
	Oct	75.8	94.3	57.3	107.0	44.0	294.0		0.4	
	Nov	61.8	79.4	44.3	94.0	36.0	54.0	142.0		
	Dec	52.7	68.3	37.2	79.0	28.0		374.0	3.3	
	Avg.		66.9	82.5	53.7					7.5

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation	Snowfall
1946	Jan	54.3	69.7	38.9	80.0	27.0		325.0		
	Feb	55.7	73.8	37.5	90.0	29.0	2.0	257.0	0.2	
	Mar	61.2	78.3	44.2	88.0	36.0	9.0	117.0	0.3	
	Apr	72.3	90.9	53.7	104.0	40.0	246.0	22.0		
	May	73.8	92.3	55.3	105.0	50.0	280.0			
	Jun	84.9	105.3	64.5	111.0	52.0	604.0			
	Jul	89.0	106.6	71.4	114.0	58.0	750.0			
	Aug	89.2	107.8	70.6	119.0	58.0	761.0			
	Sept	83.9	65.3	65.3	113.0	57.0	435.0		0.5	
	Oct	68.0	50.0	50.0	97.0	37.0	128.0	27.0	0.0	
	Nov	57.0	41.5	41.5	84.0	35.0		230.0	1.5	
	Dec	56.5	40.4	40.4	83.0	32.0	1.0	257.0	0.6	
	Avg.		70.5	76.8	52.8					3.0
1947	Jan	53.6	70.7	36.6	87.0	29.0		345.0	0.2	
	Feb	61.5	80.5	42.6	94.0	35.0	25.0	117.0		
	Mar	63.3	63.3	45.4	93.0	33.0	36.0	79.0	0.0	
	Apr	69.4	87.6	51.3	105.0	39.0	163.0	25.0	0.0	
	May	77.3	95.8	58.7	115.0	50.0	389.0	1.0		
	Jun	82.8	102.3	63.2	113.0	53.0	413.0			
	Jul	90.2	111.4	69.1	120.0	57.0	790.0			
	Aug	84.7	100.3	69.2	115.0	55.0	618.0		0.8	
	Sept	86.3	104.7	67.9	114.0	57.0	585.0		0.1	
	Oct	73.9	91.5	56.4	106.0	46.0	289.0	6.0		
	Nov	59.0	75.6	42.5	90.0	34.0	10.0	182.0		
	Dec	54.2	69.2	39.1	80.0	31.0	1.0	327.0	1.2	
	Avg.		71.4	87.7	53.5					2.2
1948	Jan	58.2	75.8	40.6						
	Feb	56.7	71.7	41.6					1.6	
	Mar	58.3	74.1	42.5					0.2	
	Apr	71.7	90.1	55.3						
	May	77.9	97.4	58.4						
	Jun	88.5	106.3	70.6					2.8	
	Jul	88.6	106.4	70.8					2.8	
	Aug	89.0	108.1	69.9						
	Sept	86.4	103.3	69.6						
	Oct	74.7	90.1	59.3					0.5	
	Nov	62.8	78.4	47.3						
	Dec	51.8	65.7	37.8					0.5	
	Avg.		72.1	89.0	55.3					6.8
1949	Jan	45.0	54.8	35.1					2.1	
	Feb	52.2	66.5	37.9						
	Mar	60.8	76.1	45.4						
	Apr	73.1	89.8	56.4					0.0	
	May	75.8	91.2	60.4						
	Jun	88.8	102.3	69.2						
	Jul	90.1	106.5	73.8						
	Aug	90.5	107.5	73.5					0.0	
	Sept	88.7	105.1	72.4						
	Oct	72.4	87.7	57.0					0.1	
	Nov	70.6	86.4	54.8						
	Dec	54.8	68.4	41.2					0.4	
	Avg.		71.9	86.9	56.4					2.6

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1950	Jan	51.5	65.0	38.0					0.7	
	Feb	62.7	77.2	48.1					0.1	
	Mar	64.7	80.5	48.9					0.1	
	Apr	74.2	90.0	58.4					0.0	
	May	75.1	91.2	59.1						
	Jun	83.5	101.3	65.6						
	Jul	91.5	105.6	77.3						
	Aug	91.1	108.1	74.0						
	Sept	82.1	97.2	67.0					0.5	
	Oct	79.2	95.6	62.8						
	Nov	68.7	88.3	54.2						
	Dec	59.6	77.5	41.7						
		Avg.	73.7	89.8	57.9					1.4
1951	Jan	51.7	70.1	33.3					0.2	
	Feb	57.8	71.7	43.9					0.3	
	Mar	63.7	78.4	49.0					0.3	
	Apr	69.7	84.6	54.8					0.3	
	May	77.9	94.1	61.7					0.1	
	Jun	82.7	99.3	66.0						
	Jul	92.5	107.7	77.3					0.4	
	Aug	89.2	104.2	74.2					0.2	
	Sept	85.8	105.4	66.2					0.1	
	Oct	73.8	91.4	56.2					0.0	
	Nov	60.4	77.6	43.2						
	Dec	52.5	66.3	38.0					2.5	
		Avg.	71.5	87.6	55.3					4.3
1952	Jan	49.5	64.1	34.9						
	Feb	56.7	71.7	41.8					0.1	
	Mar	56.2	70.3	42.0					1.0	
	Apr	68.3	84.5	52.1					0.2	
	May	79.2	99.4	59.0						
	Jun	78.4	98.1	58.7						
	Jul	90.0	108.8	71.3					0.2	
	Aug	91.0	108.0	74.0						
	Sept	86.2	103.9	68.4					1.5	
	Oct	78.7	99.1	58.4						
	Nov	58.9	73.1	44.8					2.3	
	Dec	53.1	65.9	40.3					1.8	
		Avg.	70.5	87.2	53.8					6.9
1953	Jan	58.6	74.3	43.0					0.2	
	Feb	56.4	74.3	38.4					0.5	
	Mar		80.2						0.0	
	Apr	66.2	83.6	48.9					0.1	
	May	69.8	87.9	51.8						
	Jun	80.0	100.3	59.7						
	Jul	91.9	109.1	74.6						
	Aug	87.9	106.2	69.5					0.3	
	Sept	84.4	105.1	63.7						
	Oct	73.1	91.4	54.8						
	Nov	63.6	80.4	46.8						
	Dec	54.5	71.4	37.5					0.1	
		Avg.	74.6	88.7	56.4					1.1

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation	Snowfall
1954	Jan	53.1	67.6	38.5					2.5	
	Feb	65.1	81.5	48.6					1.0	
	Mar	59.8	74.6	45.0					2.6	
	Apr	71.9	90.3	53.5						
	May	76.5	95.5	57.5						
	Jun	82.2	100.9	63.5						
	Jul	91.9	108.5	75.2					0.5	
	Aug	85.4	104.2	66.6						
	Sept	83.7	103.2	64.1					0.7	
	Oct	74.2	94.5	54.0						
	Nov	64.7	82.2	47.1					0.4	
	Dec	53.9	69.9	37.9					0.1	
	Avg.	71.9	89.4	54.3					7.7	
1955	Jan	49.9	63.5	36.3					2.8	
	Feb	53.3	68.9	37.7						
	Mar	61.5	79.6	43.3						
	Apr	65.7	84.4	46.9						
	May	73.3	91.9	54.7					0.0	
	Jun	80.8	100.7	60.8						
	Jul	86.7	103.7	69.7					1.1	
	Aug	90.6	105.1	76.1					0.1	
	Sept	84.1	103.2	65.0						
	Oct	75.3	94.6	56.0						
	Nov	60.5	77.8	43.2					0.1	
	Dec	55.9	71.0	40.7					0.3	
	Avg.	69.8	87.0	52.5					4.3	
1956	Jan	56.6	72.0	41.2					0.7	
	Feb	53.1	69.6	36.5					0.0	
	Mar	64.2	83.9	44.6						
	Apr	68.1	85.2	50.9					0.2	
	May	75.7	93.9	57.4						
	Jun	85.2	104.7	65.7						
	Jul	89.2	106.6	71.8					0.1	
	Aug	84.2	104.7	63.8						
	Sept	85.5	104.1	66.9						
	Oct	70.9	89.5	52.2						
	Nov	62.8	81.5	44.1						
	Dec	56.5	73.0	40.1					0.0	
	Avg.	71.0	89.1	52.9					1.0	
1957	Jan	52.9	64.6	41.2					3.3	
	Feb	63.4	78.8	48.1					0.4	
	Mar	64.1	80.9	47.3					0.3	
	Apr	68.7	86.4	51.0						
	May	73.1	91.8	54.5						
	Jun	88.6	109.2	67.9						
	Jul	92.0	112.4	71.6	122.0	59.0	818.0			
	Aug	89.3	107.6	71.0	117.0	52.0	760.0		0.1	
	Sept	83.1	103.9	62.3						
	Oct	70.4	85.9	55.0					0.7	
	Nov									
	Dec	57.1	71.6	42.5					0.6	
	Avg.	73.0	90.3	55.7					5.4	

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1958	Jan	56.6	72.6	40.6					0.3	
	Feb	60.0	74.1	45.9					2.2	
	Mar	57.4	71.9	42.9					1.6	
	Apr	68.5	86.2	50.7					1.4	
	May	79.6	99.4	59.9					0.1	
	Jun									
	Jul	88.5	109.6	67.5	121.0	60.0	740.0		0.4	
	Aug	91.8	108.2	75.4	117.0	68.0	702.0		0.1	
	Sept	86.9	104.8	69.1						
	Oct	78.9	95.9	61.8					0.1	
	Nov		79.7		92.0				0.0	
	Dec		78.0		93.0	31.0				
		Avg.	74.2	89.1	82.4					6.2
1959	Jan	57.5	72.4	42.7					0.5	
	Feb	55.4	70.0	40.9					1.4	
	Mar	67.5	86.0	49.0						
	Apr	74.2	92.6	55.8						
	May	74.4	92.3	56.5						
	Jun	87.4	107.5	67.4	119.0	58.0	681.0			
	Jul	95.3	112.8	77.8	119.0	67.0	949.0			
	Aug	89.1	106.3	72.0	115.0	57.0	757.0		0.0	
	Sept	80.9	99.1	62.8					0.4	
	Oct	75.1	93.0	57.1					0.1	
	Nov	64.1	79.4	48.7					0.7	
	Dec	55.3	67.1	43.4					1.2	
		Avg.	73.0	89.9	56.2					4.1
1960	Jan	49.5	62.5	36.5					0.8	
	Feb	56.5	70.3	42.7					0.7	
	Mar	67.1	83.9	50.3						
	Apr	72.2	89.2	55.1					0.1	
	May	76.7	95.0	58.4						
	Jun	88.6	108.0	69.2	115.0					
	Jul	92.7	109.9	75.6						
	Aug	90.0	107.4	72.6					0.1	
	Sept	86.5	103.1	69.9					0.3	
	Oct	73.9	89.9	57.8						
	Nov	62.0	76.6	47.3					0.3	
	Dec	55.5	69.8	41.1					0.2	
		Avg.	72.6	88.8	56.4					2.5
1961	Jan	58.7	74.4	43.1					0.7	
	Feb	61.6	77.4	45.8						
	Mar	63.1	79.5	46.6					0.1	
	Apr	71.6	90.0	53.1						
	May	73.9	90.8	56.9						
	Jun	87.9	106.2	69.6						
	Jul	92.1	107.5	76.7						
	Aug	91.3	106.6	76.0					0.3	
	Sept	81.4	98.4	64.4						
	Oct	74.0	89.6	58.3					0.0	
	Nov	60.6	73.8	47.5					0.3	
	Dec	54.8	68.0	41.6					0.6	
		Avg.	72.6	88.5	56.6					1.9

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1962	Jan	57.1	70.6	43.7					0.6	
	Feb	57.1	69.8	44.4					0.8	
	Mar	58.5	74.2	42.8					0.0	
	Apr	74.9	94.1	55.7						
	May	73.2	90.7	55.6						
	Jun	83.8	103.0	64.6						
	Jul	89.2	108.3	70.1						
	Aug	91.5	111.0	72.0						
	Sept	85.9	104.8	67.0						
	Oct	74.9	93.6	56.2					0.5	
	Nov	65.5	83.4	47.5						
	Dec	57.6	74.4	40.8					0.3	
		Avg.	72.4	89.8	55.0					2.2
1963	Jan	52.6	66.6	38.7					0.1	
	Feb			50.7					1.2	
	Mar			47.5					0.5	
	Apr	66.9	83.5	50.6					0.2	
	May	77.1	94.5	59.7						
	Jun	81.6	98.8	64.5						
	Jul	90.4	109.3	71.5						
	Aug	89.7	106.0	73.4					0.5	
	Sept	87.1	103.9	70.3					1.6	
	Oct	76.8	92.5	61.2					1.9	
	Nov		78.3						0.3	
	Dec	56.6	74.6	38.5						
		Avg.	75.4	90.8	57.0					6.1
1964	Jan		68.2						0.6	
	Feb		73.2						0.3	
	Mar	60.9	76.8	45.0					0.9	
	Apr	67.6	84.5	50.7					0.1	
	May	75.1	93.3	56.9					0.0	
	Jun	81.7	98.7	64.7						
	Jul									
	Aug	91.3	107.6	74.9					0.0	
	Sept	82.6	101.4	63.7					0.2	
	Oct	78.7	96.6	60.9						
	Nov	58.0	74.5	41.6					1.3	
	Dec	56.4	70.7	42.0					0.1	
		Avg.	72.5	86.0	55.6					3.6
1965	Jan	57.9	72.9	43.0						
	Feb	60.4	77.5	43.2					0.1	
	Mar	61.1	76.6	45.6					0.6	
	Apr	68.1	83.0	53.3					1.0	
	May	75.8	93.2	58.4						
	Jun	79.4	96.7	62.0						
	Jul									
	Aug	90.7	108.0	73.5					0.2	
	Sept	80.6	98.5	62.6						
	Oct	79.5	98.8	60.3						
	Nov	64.5	77.2	51.9					6.4	
	Dec	54.0	66.2	41.7					2.7	
		Avg.	70.2	86.2	54.1					10.9

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1966	Jan	53.5	67.6	39.4					0.3	
	Feb	55.8	70.9	40.6					0.2	
	Mar	66.1	83.1	49.0					0.3	
	Apr	74.3	92.6	55.9						
	May	79.5	97.9	61.1						
	Jun	85.2	104.3	66.1						
	Jul	91.0	110.0	72.0	118.0	62.0	815.0		0.1	
	Aug	92.1	109.6	74.7					0.2	
	Sept	85.4	103.4	67.4					0.1	
	Oct	74.4	92.8	56.1					0.4	
	Nov	64.5	79.8	49.1					0.6	
	Dec	56.3	70.0	42.5					2.9	
	Avg.	73.2	90.2	56.2					5.1	
1967	Jan	55.3	70.7	39.8					0.6	
	Feb	62.0	79.7	44.2						
	Mar	63.7	80.0	47.5					0.0	
	Apr	60.7	76.0	45.3					0.7	
	May	76.5	93.5	59.5						
	Jun	80.6	99.2	62.0						
	Jul	94.4	110.7	78.1	119.0	68.0				
	Aug	94.3	110.3	78.3	120.0	71.0			1.0	
	Sept	84.2	100.0	68.4					0.7	
	Oct	77.0	95.6	58.4						
	Nov	66.2	81.3	51.0					1.1	
	Dec	51.9	65.6	38.1					1.2	
	Avg.	72.2	88.6	55.9					5.2	
1968	Jan	55.2	70.8	39.7						
	Feb	65.1	80.4	49.7					0.2	
	Mar	65.6	82.3	48.9					0.6	
	Apr	70.3	87.2	53.3						
	May	77.2	95.9	58.5					0.1	
	Jun	85.4	104.5	66.4						
	Jul	90.3	107.3	73.4					0.8	
	Aug	86.7	103.2	70.3						
	Sept	84.1	103.9	64.4						
	Oct	73.8	92.5	55.1					0.1	
	Nov	64.2	80.3	48.1					0.0	
	Dec	50.7	65.4	36.1					0.5	
	Avg.	72.4	89.5	55.3					2.3	
1969	Jan	57.3	68.9	45.7					3.8	
	Feb	55.1	68.5	41.6					1.6	
	Mar	63.3	79.4	47.2						
	Apr	69.8	87.3	52.2						
	May	78.6	96.4	60.8					0.9	
	Jun	80.6	97.4	63.8						
	Jul	91.9	109.2	74.6						
	Aug	95.2	112.5	77.8					0.7	
	Sept	88.0	104.9	71.1						
	Oct	72.6	88.9	56.4					0.0	
	Nov	65.0	78.5	51.5						
	Dec	56.7	70.6	42.8					0.9	
	Avg.	72.8	88.5	57.1					7.9	

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1970	Jan	55.4	69.5	41.2					0.1	
	Feb	63.5	78.7	48.3					0.6	
	Mar	64.1	79.9	48.2					1.7	
	Apr	66.4	83.6	49.2						
	May	78.4	95.7	61.0						
	Jun	86.0	104.0	68.0						
	Jul	93.4	109.8	76.9						
	Aug	93.0	107.9	78.2					0.0	
	Sept	83.3	101.7	64.9						
	Oct	72.5	88.9	56.2					0.0	
	Nov	64.0	79.3	48.7					0.7	
	Dec	54.5	67.5	41.5					1.3	
	Avg.		72.9	88.9	56.9				3.8	
1971	Jan	57.8	73.1	42.4					0.0	
	Feb	60.7	77.1	44.2						
	Mar	65.8	82.9	48.7					0.0	
	Apr	68.4	85.2	51.6						
	May	73.1	89.1	57.2					0.1	
	Jun	82.9	101.0	64.9						
	Jul	91.9	110.2	73.6						
	Aug	91.8	105.3	78.3						
	Sept	85.4	102.3	68.6						
	Oct	70.1	86.4	53.8						
	Nov	62.3	77.4	47.1						
	Dec	51.5	63.4	39.6					1.3	
	Avg.		71.8	87.8	55.8				1.4	
1972	Jan	55.0	71.0	38.9						
	Feb	64.0	81.2	46.8						
	Mar	72.7	91.3	54.2						
	Apr	71.6	89.5	53.8						
	May	78.1	95.5	60.6						
	Jun	86.2	103.0	69.4					0.1	
	Jul	94.2	111.5	77.0						
	Aug	89.9	105.9	78.9					0.0	
	Sept	82.5	98.7	66.3						
	Oct	70.0	83.7	56.2					0.2	
	Nov	59.9	73.8	46.0					1.4	
	Dec	53.3	67.1	39.5					0.5	
	Avg.		73.1	89.4	57.3				2.1	
1973	Jan	52.9	66.4	39.4					0.5	
	Feb	58.6	71.2	46.1					1.0	
	Mar	58.8	72.4	45.1					0.7	
	Apr	69.0	85.3	52.6						
	May	80.5	98.7	62.3						
	Jun	88.6	106.2	70.9						
	Jul	91.8	109.1	74.5						
	Aug	89.9	107.4	72.3					0.1	
	Sept	81.8	101.2	62.5						
	Oct	75.1	93.0	57.3						
	Nov	61.7	76.6	46.9					0.1	
	Dec	57.2	72.6	41.8					0.1	
	Avg.		72.2	88.3	56.0				2.4	

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1974	Jan	54.3	65.8	42.8					3.2	
	Feb	59.6	74.8	44.4						
	Mar	64.9	78.5	51.3					0.6	
	Apr	71.2	87.1	55.3						
	May	78.1	94.3	62.0						
	Jun	89.9	108.1	71.8						
	Jul	91.0	106.3	75.8					0.1	
	Aug	90.7	107.2	74.3						
	Sept	89.0	104.0	74.0						
	Oct	76.2	90.1	62.2					0.2	
	Nov	64.9	79.5	50.4						
	Dec	55.5	68.5	42.5					0.9	
	Avg.		73.8	88.7	58.9					4.9
1975	Jan	56.9	72.4	41.5						
	Feb	59.3	73.5	45.1					0.2	
	Mar	62.0	76.0	48.1					0.3	
	Apr	63.5	76.8	50.3					0.7	
	May	77.4	93.6	61.3						
	Jun	85.4	101.5	69.3						
	Jul	92.2	108.2	76.2					0.1	
	Aug	91.1	108.1	74.0						
	Sept	88.6	103.6	73.7					0.1	
	Oct	74.6	89.5	59.7					0.0	
	Nov	64.8	80.2	49.5					0.3	
	Dec	59.3	73.9	44.7						
	Avg.		72.9	88.1	57.8					1.7
1976	Jan	60.5	76.5	44.5						
	Feb	61.5	74.2	48.8					2.6	
	Mar	63.8	78.1	49.5					0.4	
	Apr	66.8	83.8	49.9						
	May	80.6	96.3	64.9					1.1	
	Jun	85.2	105.0	65.4						
	Jul	91.6	107.0	76.1						
	Aug	85.9	104.6	67.2						
	Sept	81.3	93.7	69.0					4.2	
	Oct	74.1	88.9	59.3					0.2	
	Nov	66.5	81.8	51.2					0.2	
	Dec	57.0	72.7	41.2					0.5	
	Avg.		72.9	88.6	57.3					9.2
1977	Jan	56.1	69.7	42.5					1.5	
	Feb	64.7	82.6	46.9					0.2	
	Mar	60.2	76.8	43.6						
	Apr	72.9	91.0	54.8						
	May	71.7	86.9	56.5					0.1	
	Jun	87.5	105.7	69.3					0.0	
	Jul	92.6	109.9	75.3						
	Aug	90.8	106.0	75.5					2.1	
	Sept	83.6	100.1	67.1					0.2	
	Oct	77.1	93.3	61.0						
	Nov	65.3	82.2	48.3						
	Dec	59.4	72.1	46.6					1.7	
	Avg.		73.5	89.7	57.3					5.8

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1978	Jan	55.0	66.5	43.9					4.3	
	Feb	58.7	72.3	45.0					1.0	
	Mar	64.8	79.8	49.7					2.0	
	Apr	66.2	83.1	49.2					0.1	
	May	78.4	96.6	60.1					0.0	
	Jun	87.2	108.4	65.9						
	Jul	92.3	110.6	74.0						
	Aug	89.2	106.6	71.8						
	Sept	84.1	100.1	68.0					0.4	
	Oct	78.7	95.5	61.8					0.1	
	Nov	61.0	76.0	46.1					1.1	
	Dec	51.0	65.0	37.0					1.5	
	Avg.	72.2	88.4	56.0					10.4	
1979	Jan	50.1	61.7	38.5					2.8	1.5
	Feb	57.1	71.8	42.5					0.7	
	Mar	63.1	77.9	48.4					0.8	
	Apr	70.8	88.5	53.2						
	May	77.5	94.2	60.7						
	Jun	87.9	106.7	69.1					0.1	
	Jul	91.1	109.3	73.0					2.6	
	Aug	87.4	102.8	72.1					1.8	
	Sept	88.7	105.3	72.1					0.4	
	Oct	77.0	93.1	60.9					0.3	
	Nov	62.2	78.1	46.2						
	Dec	59.6	75.3	43.9					0.0	
	Avg.	72.7	88.7	56.7					9.4	
1980	Jan	59.5	70.9	48.1					4.1	
	Feb	61.8	74.3	49.4					5.4	
	Mar	62.3	76.6	48.0					0.6	
	Apr	71.2	87.0	55.3					0.2	
	May	73.7	88.3	59.0						
	Jun	84.7	104.3	65.0					0.8	
	Jul	94.1	110.8	77.3						
	Aug	90.0	106.2	73.5						
	Sept	86.1	102.9	69.3						
	Oct	77.4	93.7	61.0					0.0	
	Nov	66.0	81.6	50.3						
	Dec	63.3	78.6	48.1					0.0	
	Avg.	74.2	89.6	58.7					11.2	
1981	Jan	61.6	74.7	48.5					0.6	
	Feb	63.1	78.0	48.3					0.5	
	Mar	63.9	77.7	50.1					1.2	
	Apr	74.1	90.6	57.6						
	May	78.9	94.1	63.7					0.2	
	Jun	92.0	109.1	74.8						
	Jul	93.2	109.1	77.4						
	Aug	94.2	109.5	79.0						
	Sept	87.2	102.9	71.4					0.2	
	Oct	72.5	86.7	58.2					0.2	
	Nov	66.5	80.8	52.3					0.3	
	Dec	59.9	73.6	46.2						
	Avg.	75.6	90.6	60.6					3.1	

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1982	Jan	54.9	67.5	42.3					1.0	
	Feb	52.5	75.6	49.5					1.5	
	Mar	62.8	75.6	50.0					0.5	
	Apr	70.5	85.5	55.5					0.2	
	May	77.6	92.8	62.4					0.1	
	Jun	81.0	96.8	65.3						
	Jul	90.1	105.5	74.7						
	Aug	91.0	105.2	76.8					0.1	
	Sept	82.9	96.4	69.4					1.4	
	Oct	74.3	89.3	59.3						
	Nov	60.9	73.8	48.0					1.1	
	Dec	54.2	65.6	42.7					0.7	
		Avg.	71.1	85.8	58.0					6.6
1983	Jan	58.9	72.1	45.6					1.0	
	Feb	59.4	71.5	47.2					2.1	
	Mar	62.9	74.9	50.9					2.1	
	Apr	65.9	79.3	52.4					0.2	
	May	79.0	95.7	62.2						
	Jun	83.4	100.3	66.6						
	Jul	90.6	107.2	74.0						
	Aug	88.4	101.1	75.6					4.3	
	Sept	87.0	100.0	74.0					2.0	
	Oct	75.9	89.3	62.5					0.1	
	Nov	62.4	75.7	49.0					0.2	
	Dec	57.1	69.8	44.4					1.7	
		Avg.	72.6	86.4	58.7					13.7
1984	Jan	60.0	73.8	46.1						
	Feb	61.1	76.8	45.4						
	Mar	68.1	83.4	52.8						
	Apr	71.1	85.8	56.4						
	May	84.4	101.1	67.7						
	Jun	86.0	101.0	71.0						
	Jul	92.6	105.2	80.0						
	Aug	92.1	105.1	79.1					0.3	
	Sept	72.9	87.2	58.6						
	Oct	55.1	67.9	42.3					0.2	
	Nov									
	Dec	0.0	0.0	0.0						
		Avg.	67.6	80.7	54.5					0.5
1985	Jan	56.5	70.3	42.7					0.6	
	Feb	61.3	74.9	47.8					1.3	
	Mar	64.5	79.2	49.7					0.2	
	Apr	77.9	94.8	61.0						
	May	80.5	95.6	65.4						
	Jun	88.4	105.2	71.5						
	Jul	87.7	105.3	70.2						
	Aug	91.3	107.2	75.5						
	Sept	86.0	102.9	69.2					0.0	
	Oct	79.2	93.0	65.4					1.3	
	Nov	63.5	77.0	50.0					1.1	
	Dec	51.5	64.2	38.9					0.8	
		Avg.	74.0	89.1	58.9					5.3

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1986	Jan	63.2	77.7	49.8					0.3	
	Feb	63.1	76.1	50.0					2.3	
	Mar	69.3	83.7	54.9					1.1	
	Apr	71.9	87.5	56.3					0.0	
	May	80.9	97.4	64.4						
	Jun	90.2	107.2	72.8						
	Jul	89.9	106.2	73.7					0.1	
	Aug	94.0	108.2	79.7					0.5	
	Sept	79.7	94.9	64.4						
	Oct	74.2	88.6	59.7					0.5	
	Nov	66.7	81.7	51.8					0.3	
	Dec	58.6	72.5	44.8					0.2	
	Avg.	75.1	90.1	60.2					5.2	
1987	Jan	56.5	70.3	42.7					0.6	
	Feb	61.3	74.9	47.8					1.3	
	Mar	64.5	79.2	79.7					0.2	
	Apr	77.9	94.8	61.0						
	May	80.5	95.6	65.4						
	Jun	88.4	105.2	71.5						
	Jul	87.7	105.3	70.2						
	Aug	91.3	107.2	75.5						
	Sept	86.0	102.9	69.2					0.0	
	Oct	79.2	93.0	65.4					1.3	
	Nov	63.5	77.0	50.0					1.1	
	Dec	51.5	64.2	38.9					0.8	
	Avg.	74.0	89.1	61.4					5.3	
1988	Jan	55.3	69.6	41.0					1.7	
	Feb	62.6	79.2	46.8					0.7	
	Mar	66.8	83.7	49.8						
	Apr	71.0	86.7	55.4					0.3	
	May	80.4	97.0	63.9						
	Jun	85.5	102.2	68.8						
	Jul	93.1	108.7	77.4						
	Aug	91.0	106.6	75.3						
	Sept	86.1	101.9	70.3					0.5	
	Oct	81.0	96.0	66.1						
	Nov	64.7	77.9	51.4						
	Dec	57.0	70.3	43.8					0.4	
	Avg.	74.5	90.0	59.2					3.6	
1989	Jan	54.7	68.8	40.6					0.6	
	Feb	60.6	75.7	45.6					0.0	
	Mar	70.2	85.4	55.0					0.2	
	Apr	78.9	95.9	61.8						
	May	80.9	97.4	64.4						
	Jun	87.8	105.7	69.8						
	Jul	94.9	111.2	78.6						
	Aug	89.4	105.5	73.3					0.5	
	Sept	86.3	102.8	69.8					0.0	
	Oct	75.9	91.5	60.2						
	Nov	67.1	82.0	52.2						
	Dec	58.5	73.1	44.0						
	Avg.	75.4	91.3	59.6					1.4	

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1990	Jan	55.7	69.5	42.0					0.4	
	Feb	58.3	72.3	44.3					0.7	
	Mar	67.3	82.5	52.1						
	Apr	74.6	89.9	59.4						
	May	77.5	93.3	61.8					0.1	
	Jun	89.0	105.6	72.3					0.7	
	Jul	93.5	108.2	78.8					0.1	
	Aug	89.0	103.8	74.2						
	Sept	86.8	101.4	72.3						
	Oct	77.3	92.3	62.3						
	Nov	66.5	80.9	52.1						
	Dec	52.6	66.6	38.6						
		Avg.	74.0	88.9	59.2					1.9
1991	Jan	57.4	69.5	45.3					0.4	
	Feb	66.8	82.0	51.5					2.0	
	Mar	59.6	71.7	47.4					3.5	
	Apr	71.4	86.6	56.1						
	May	77.3	94.1	60.5						
	Jun	83.2	100.0	66.5						
	Jul	90.9	107.7	74.0					0.9	
	Aug	90.6	106.8	74.5					0.2	
	Sept	87.2	103.3	71.2					0.1	
	Oct	81.1	97.1	65.2						
	Nov	65.6	80.5	50.6						
	Dec	56.6	69.8	43.3					0.7	
		Avg.	74.0	89.1	58.8					7.7
1992	Jan	58.3	72.2	44.3					0.6	
	Feb	62.2	74.5	49.9					3.0	
	Mar	63.8	76.4	51.2					1.6	
	Apr	76.4	92.4	60.5					0.2	
	May	81.9	97.4	66.5						
	Jun	0.0	0.0	0.0						
	Jul	91.7	106.7	76.7					0.0	
	Aug	92.9	107.0	78.9					0.5	
	Sept	88.8	104.5	73.2						
	Oct	78.3	92.7	63.9					0.2	
	Nov	63.0	77.3	48.7						
	Dec	52.5	64.3	40.8					2.4	
		Avg.	67.5	80.5	54.6					8.5
1993	Jan	54.5	64.9	44.0					8.0	
	Feb	58.2	69.6	46.8					2.8	
	Mar	68.9	83.5	54.4						
	Apr	75.2	91.0	59.4						
	May	80.8	95.8	65.7					0.1	
	Jun	87.2	104.3	70.1						
	Jul	87.9	104.7	71.1						
	Aug	90.0	106.2	73.9						
	Sept	86.1	102.4	69.7						
	Oct	77.1	92.0	62.3						
	Nov	61.9	76.0	47.8					0.2	
	Dec	57.5	71.6	43.3					0.1	
		Avg.	73.8	88.5	59.0					11.2

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1994	Jan	61.1	76.2	46.1					0.0	
	Feb	57.2	69.8	44.7					0.4	
	Mar	68.5	83.3	53.8					0.6	
	Apr	73.7	88.1	59.3						
	May	76.5	90.9	62.2						
	Jun	91.2	107.8	74.6						
	Jul	93.2	108.9	77.5					0.0	
	Aug	95.1	110.8	79.4					0.4	
	Sept	87.9	103.4	72.5						
	Oct	75.4	89.3	61.6						
	Nov	57.0	70.1	44.0						
	Dec	55.5	67.0	44.1					0.5	
	Avg.	74.4	88.8	60.0					1.9	
1995	Jan	55.1	64.6	45.6					4.4	
	Feb	65.6	78.4	52.8					0.8	
	Mar	64.5	76.6	52.4					1.5	
	Apr	70.0	84.8	55.1					0.1	
	May	74.0	87.5	60.4						
	Jun	85.3	101.5	69.1						
	Jul	72.6	108.9	76.3	123.0	67.0	865.0		0.3	
	Aug	95.8	111.6	80.1	118.0	72.0	966.0			
	Sept	89.7	104.3	75.1						
	Oct	78.4	93.2	63.5						
	Nov	70.1	84.0	56.2						
	Dec	59.9	73.0	46.9					0.2	
	Avg.	73.4	89.0	61.1					7.3	
1996	Jan	59.9	72.5	47.3					0.2	
	Feb	64.3	76.3	52.3					0.5	
	Mar	68.0	82.2	53.8					0.2	
	Apr	75.9	90.8	61.0						
	May	82.2	97.3	67.0						
	Jun	88.8	105.7	71.9						
	Jul	95.5	109.5	81.6						
	Aug	64.5	108.9	80.2						
	Sept	85.5	99.3	71.6						
	Oct	76.5	91.5	61.5						
	Nov	66.1	78.5	53.7						
	Dec	58.0	69.5	46.5					0.4	
	Avg.	73.8	90.2	62.4					1.3	
1997	Jan	58.6	69.3	48.0					0.8	
	Feb	61.9	74.6	49.3						
	Mar	71.5	87.5	55.5						
	Apr	73.0	96.7	59.2					0.2	
	May	86.0	100.5	71.4					0.1	
	Jun	86.0	101.3	70.7						
	Jul	90.3	105.8	74.8					0.6	
	Aug	93.7	107.9	79.5						
	Sept	88.2	101.4	75.0					2.0	
	Oct	74.4	87.5	61.4						
	Nov	66.1	78.7	53.5						
	Dec	55.5	66.7	44.4					1.0	
	Avg.	75.4	89.8	61.9					4.5	

APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation	Snowfall
1998	Jan	57.8	69.8	45.8					0.8	
	Feb	57.0	67.4	46.6					3.4	
	Mar	63.6	76.0	51.2					0.5	
	Apr	68.4	82.7	54.2						
	May	72.4	86.6	58.2					0.1	
	Jun	81.9	97.7	66.1						
	Jul	94.5	110.1	78.8	119.0					
	Aug	96.2	110.7	81.7	120.0				0.3	
	Sept	85.7	99.8	71.6						
	Oct	75.4	89.8	61.0					0.0	
	Nov	65.2	78.3	52.2						
	Dec	56.7	69.8	43.6					0.1	
	Avg.	72.9	86.6	59.3					5.0	
1999	Jan	60.4	73.6	47.2						
	Feb	60.5	74.0	46.9						
	Mar	63.2	78.0	48.4					0.3	
	Apr	66.9	81.1	52.7						
	May	77.9	93.7	62.0					0.1	
	Jun	85.7	101.3	70.1						
	Jul	91.1	106.4	75.8						
	Aug	91.2	106.4	76.1					0.4	
	Sept	87.7	102.8	72.7						
	Oct	80.7	97.1	64.2						
	Nov	67.9	82.2	53.6						
	Dec	59.2	72.0	46.4						
	Avg.	74.4	89.1	59.7					0.8	
2000	Jan	61.4	73.3	49.6						
	Feb	60.3	72.4	48.2					0.9	
	Mar	65.9	78.9	53.0					0.4	
	Apr	76.9	93.2	60.7					0.1	
	May	84.5	100.8	68.3						
	Jun	88.6	104.5	72.6						
	Jul	92.3	107.8	76.7						
	Aug	93.4	106.9	80.0					0.4	
	Sept	86.7	102.0	71.3					0.1	
	Oct	74.2	86.0	62.4					0.2	
	Nov	60.1	73.0	47.1						
	Dec	60.3	73.5	47.1						
	Avg.	75.4	89.4	61.4					2.1	
2001	Jan	55.9	67.5	44.2					1.0	
	Feb	57.7	69.0	46.4					1.9	
	Mar	67.7	81.4	54.0					0.9	
	Apr	71.1	85.6	56.6						
	May	86.2	102.4	70.1						
	Jun	91.1	107.7	74.4						
	Jul	91.9	108.2	75.7	120.0	69.0	703.0	0.0	0.0	
	Aug	94.4	108.6	80.1						
	Sept	89.7	105.3	74.1						
	Oct	80.2	95.1	65.3						
	Nov	68.6	80.6	56.6						
	Dec	54.7	67.1	42.4					0.2	
	Avg.	75.8	89.9	61.7					4.1	

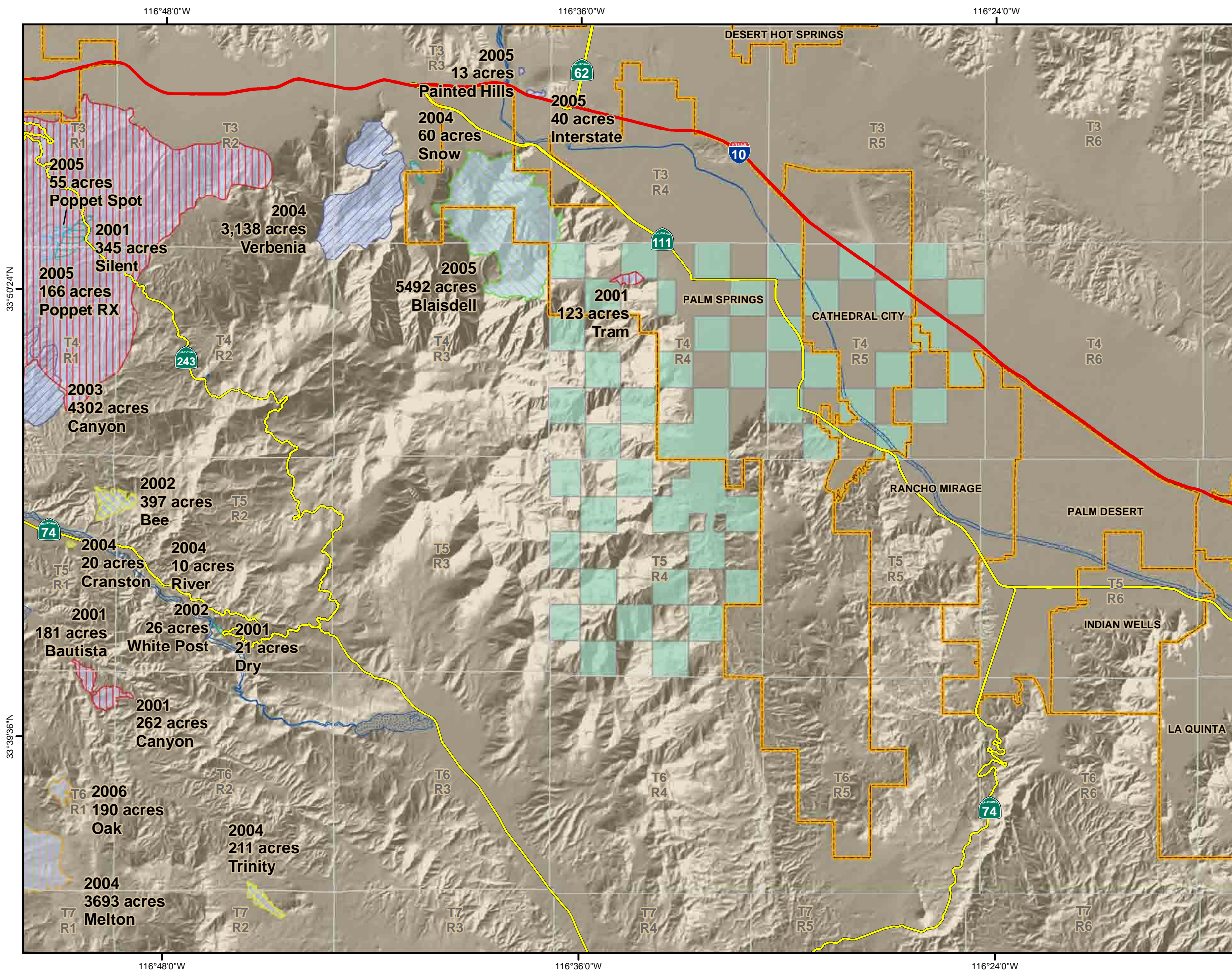
APPENDIX A

YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
2002	Jan	57.7	70.5	44.8						
	Feb	63.4	78.4	48.3						
	Mar	65.3	79.5	51.0						
	Apr	74.0	89.1	58.9					0.1	
	May	79.6	95.5	63.7						
	Jun	90.3	107.6	73.0						
	Jul	94.7	109.0	80.4						
	Aug	91.8	107.6	76.0						
	Sept	89.4	103.7	75.2					0.1	
	Oct	75.3	88.9	61.7						
	Nov	69.0	82.2	55.8					0.1	
	Dec	57.4	69.8	44.9					0.5	
	Avg.	75.7	90.2	61.1					0.8	
2003	Jan	66.4	80.8	52.0					0.5	
	Feb	60.1	71.7	48.5					1.4	
	Mar	67.6	81.7	53.5					1.0	
	Apr	69.1	83.2	55.0						
	May	79.8	95.4	64.1						
	Jun	87.5	103.8	71.2						
	Jul	96.0	110.3	81.8	122.0	77.0	970.0	0.0	0.1	
	Aug	94.2	107.8	80.6	118.0				0.4	
	Sept	91.4	105.9	76.9						
	Oct	84.4	99.0	69.7						
	Nov	61.4	72.8	50.0					1.1	
	Dec	57.1	69.8	44.4					0.4	
	Avg.	76.3	90.2	62.3					4.9	
2004	Jan	58.4	71.8	45.0					0.1	
	Feb	57.3	69.1	45.5					1.7	
	Mar	74.6	88.8	60.5						
	Apr	74.8	90.0	59.5					0.1	
	May	81.8	98.2	65.3					+	
	Jun	87.8	103.7	72.0						
	Jul	93.9	108.5	79.2						
	Aug	92.2	106.9	77.5						
	Sept	86.2	101.1	71.2					0.1	
	Oct	74.1	86.4	61.7					2.2	
	Nov	60.8	72.9	48.7					1.7	
	Dec	0.0	0.0	0.0						
	Avg.	70.2	83.1	57.2					5.8	

APPENDIX B



AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 2000-2006

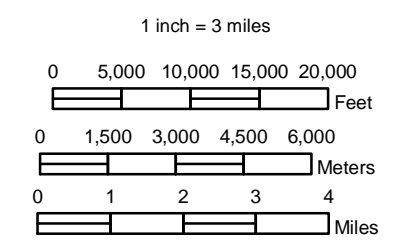


Legend

- Political Jurisdictions
- ACIR
- Water Bodies
- Fire History (2000-2006)

Fire Cause:

- Unknown
- Miscellaneous
- Arson
- Equipment Use
- Lightning
- Escaped Prescribed Burn
- Campfire



Agua Caliente Band of Cahuilla Indians
Planning & Development Department
777 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1911/Fax (760) 883 - 1937

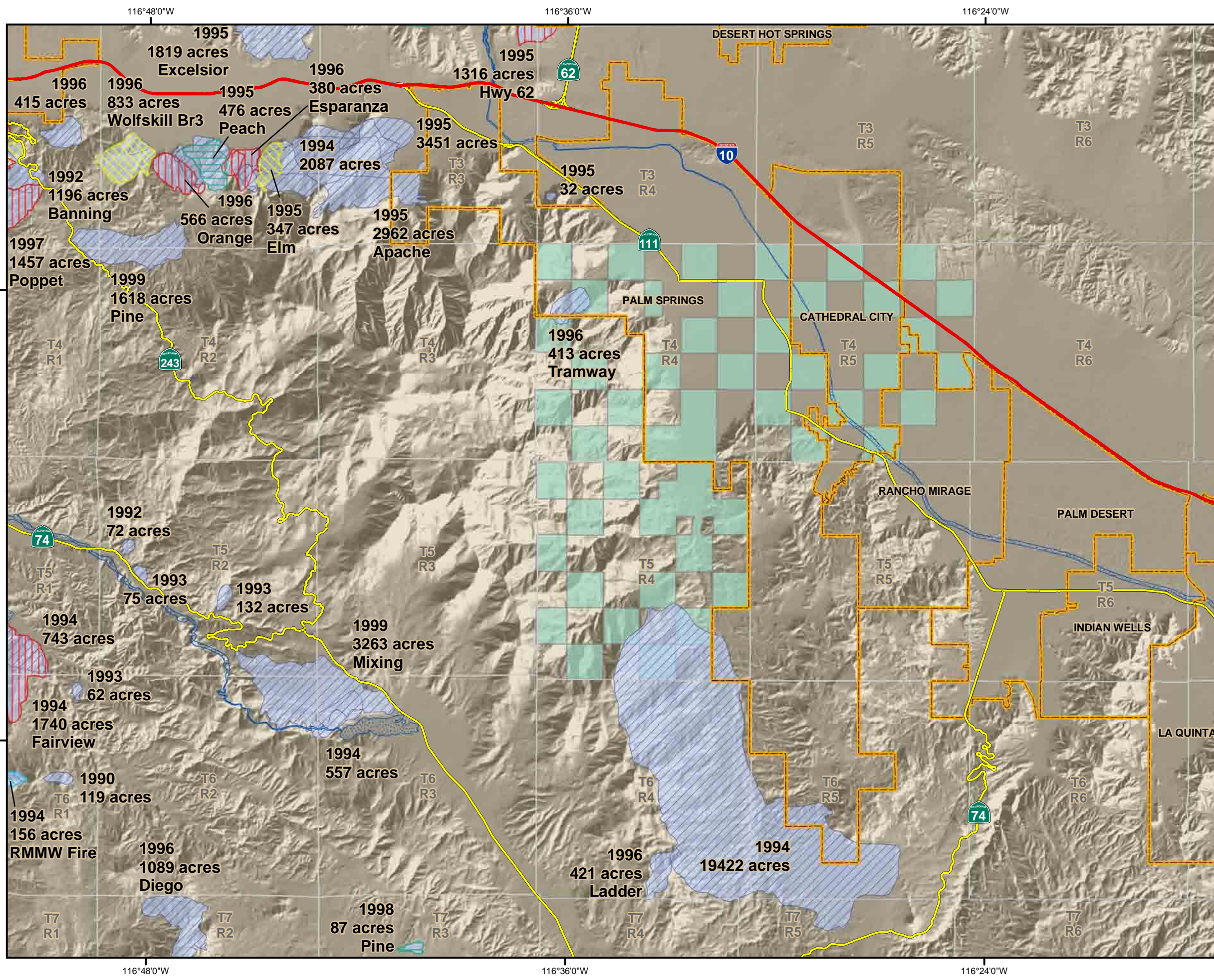
Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/
Environmental/Fire Plan/Fire History/2000-2006.mxd
Map Origination Date: 10/09/2006
This map does not cover questions of location, boundary,
or area to the accuracy of a survey map.

Data Source:

- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- Fire data provided by the CA Fire Alliance, 2006
- All other layers provided by ACBCI Planning & Development Department



AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 1990-1999



Legend:

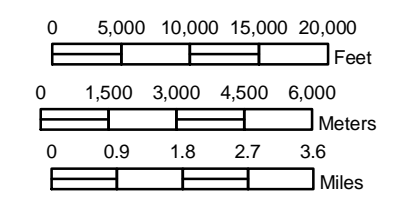
- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1990-1999)

Fire Cause:

- Lightning
- Unknown
- Miscellaneous
- Arson
- Equipment Use



1 inch = 3 miles

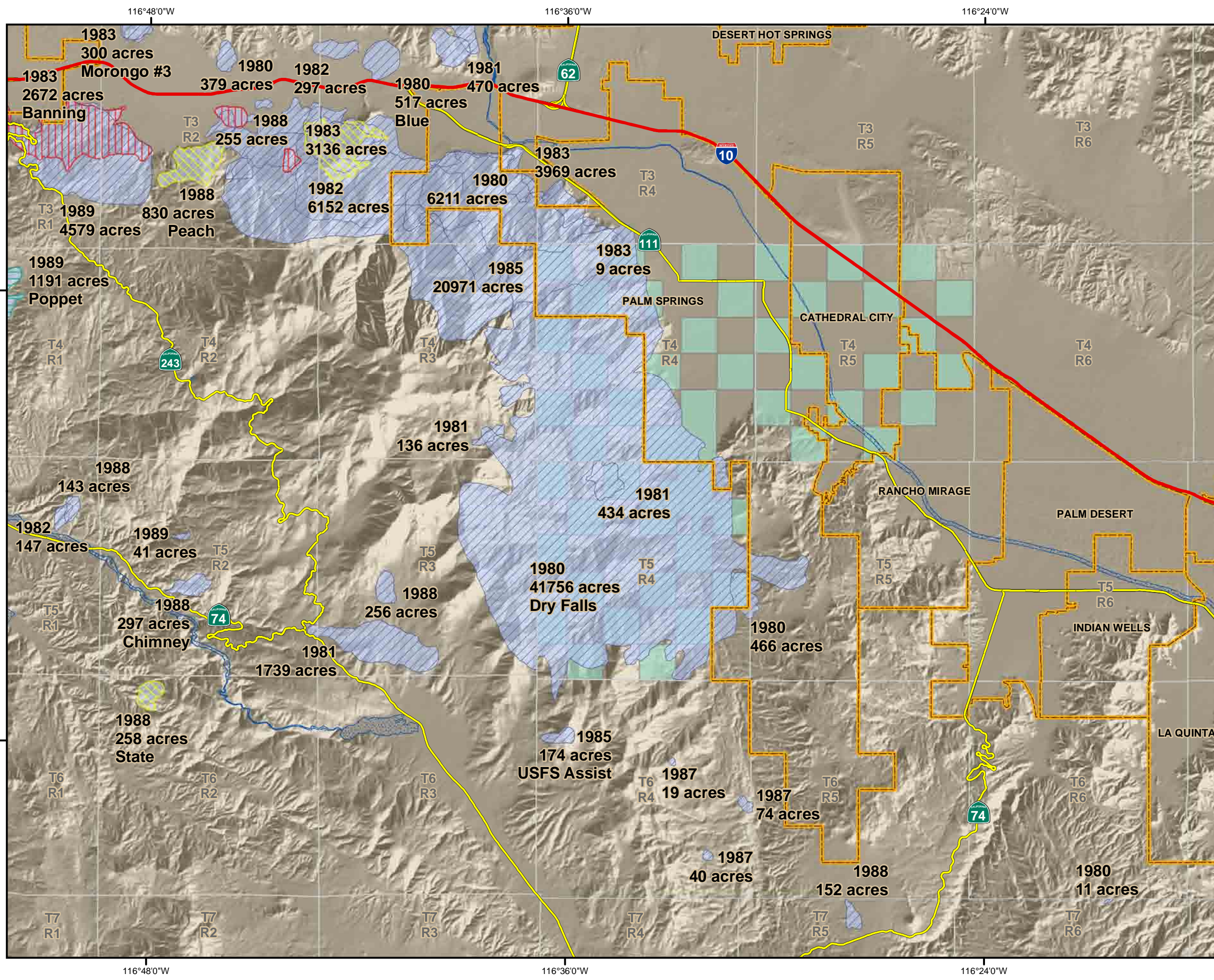


Agua Caliente Band of Cahuilla Indians
Planning & Development Department
650 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/Environmental/Fire Plan/Fire History/1990-1999.mxd
Map Origination Date: 5/2/2005
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.
Data Source:
- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 1980-1989



Legend

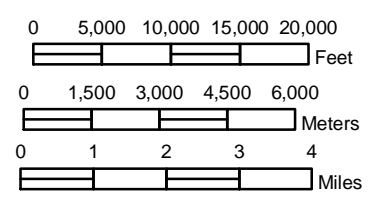
- Political Jurisdictions
- Townships
- Interstate
- State & US Highways
- ACIR
- Water Bodies
- Fire History (1980-1989)

Fire Cause:

- Unknown
- Miscellaneous
- Arson
- Equipment Use



1 inch = 3 miles

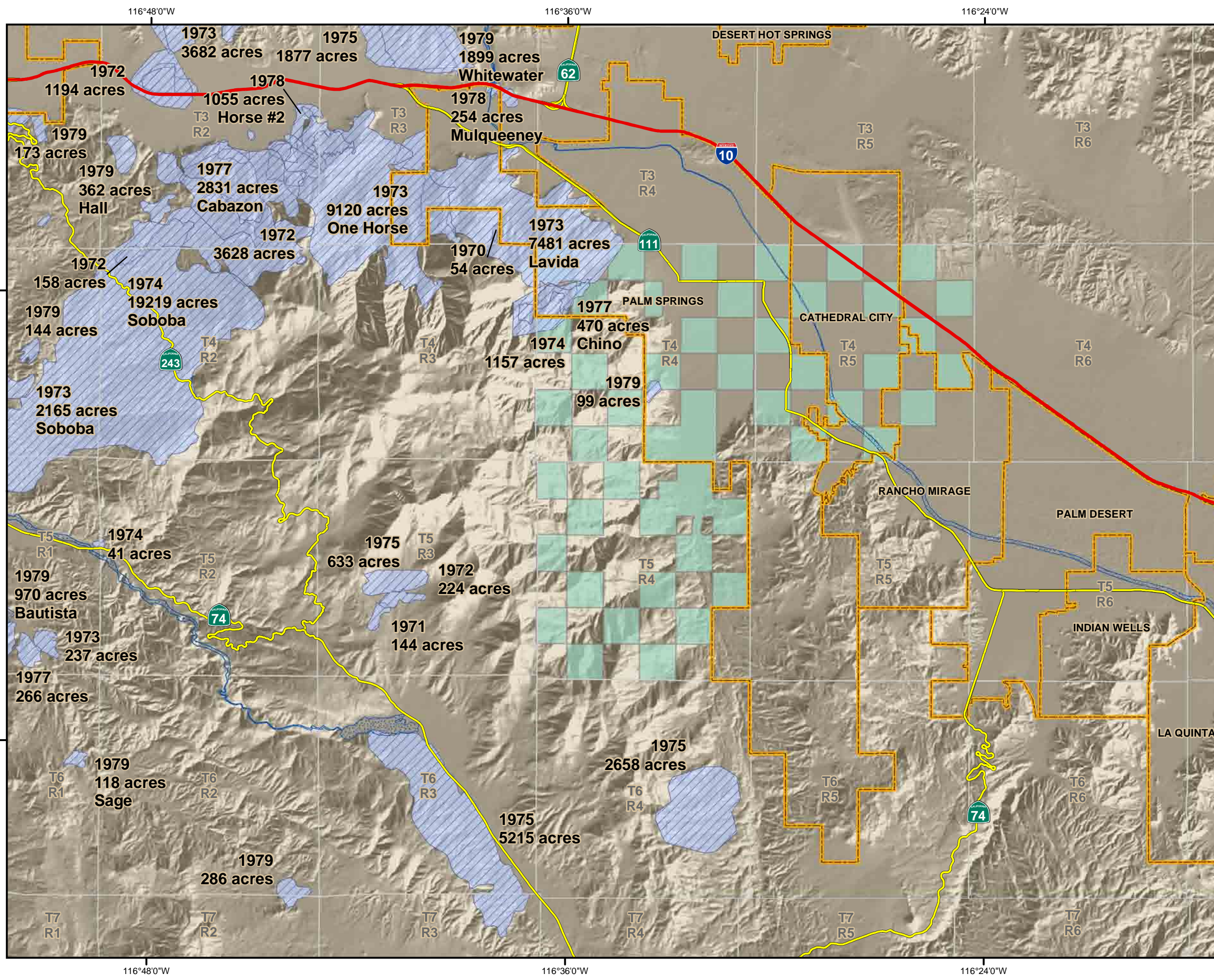


Agua Caliente Band of Cahuilla Indians
Planning & Development Department
650 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/
Environmental/Fire Plan/Fire History/1980-1989.mxd
Map Origination Date: 5/2/2005
This map does not cover questions of location, boundary,
or area to the accuracy of a survey map.
Data Source:
- The material contained herein
includes proprietary and copyrighted
data of Geographic Data Technology,
Inc./Tele Atlas
- This map contains geographic
information owned by the County of
Riverside.
- All other layers provided by ACBCI Planning &
Development Department



AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 1970-1979



Legend

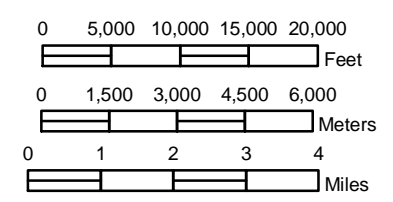
- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1970-1979)

Fire Cause:

- Unknown



1 inch = 3 miles



Agua Caliente Band of Cahuilla Indians
Planning & Development Department
650 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/
Environmental/Fire Plan/Fire History/1970-1979.mxd
Map Origination Date: 5/2/2005

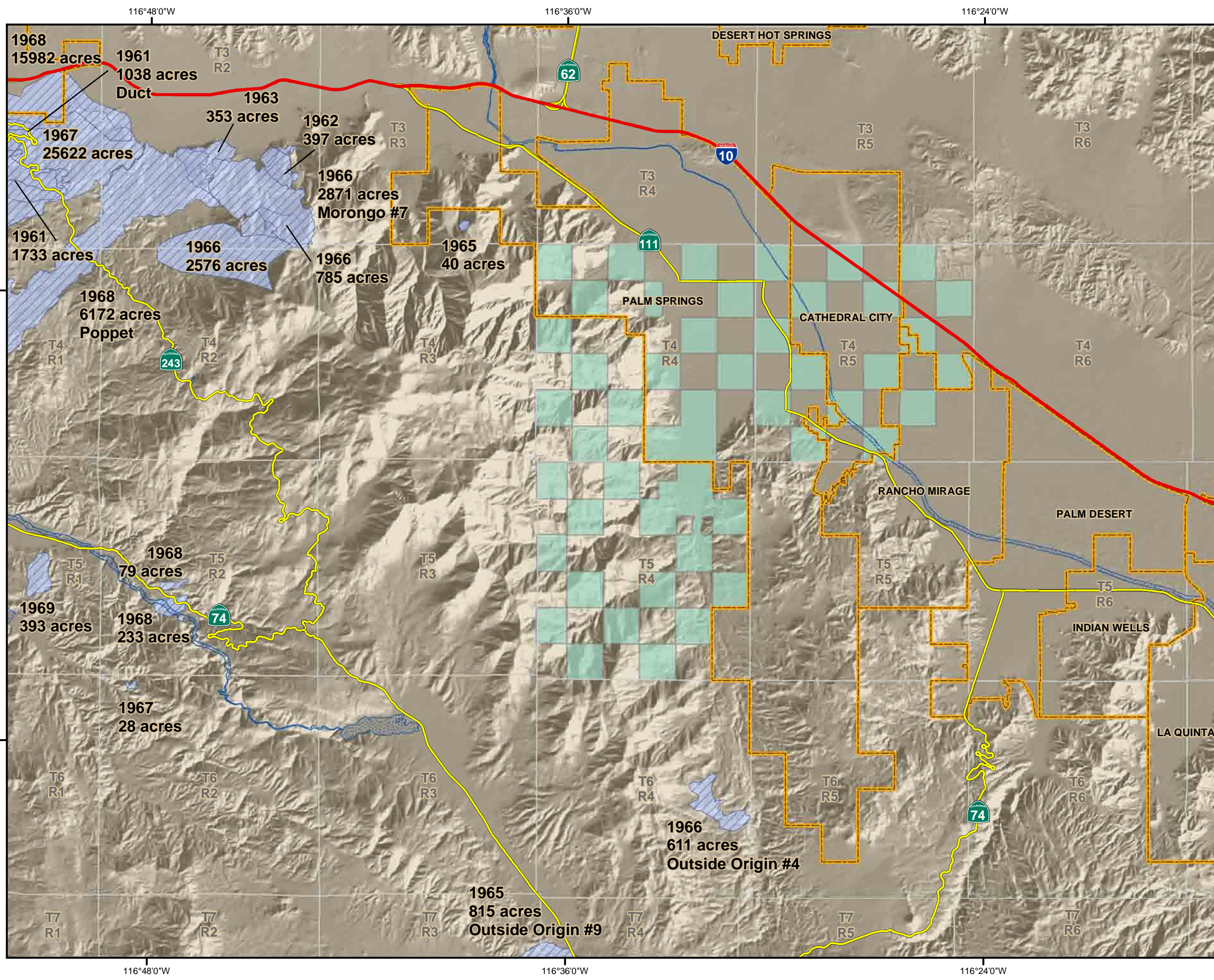
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 1960-1969



Legend

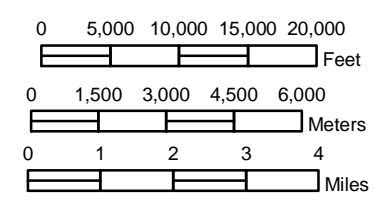
- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1960-1969)

Fire Cause:

- Unknown



1 inch = 3 miles



Agua Caliente Band of Cahuilla Indians
Planning & Development Department
650 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/
Environmental/Fire Plan/Fire History/1960-1969.mxd
Map Origination Date: 5/2/2005

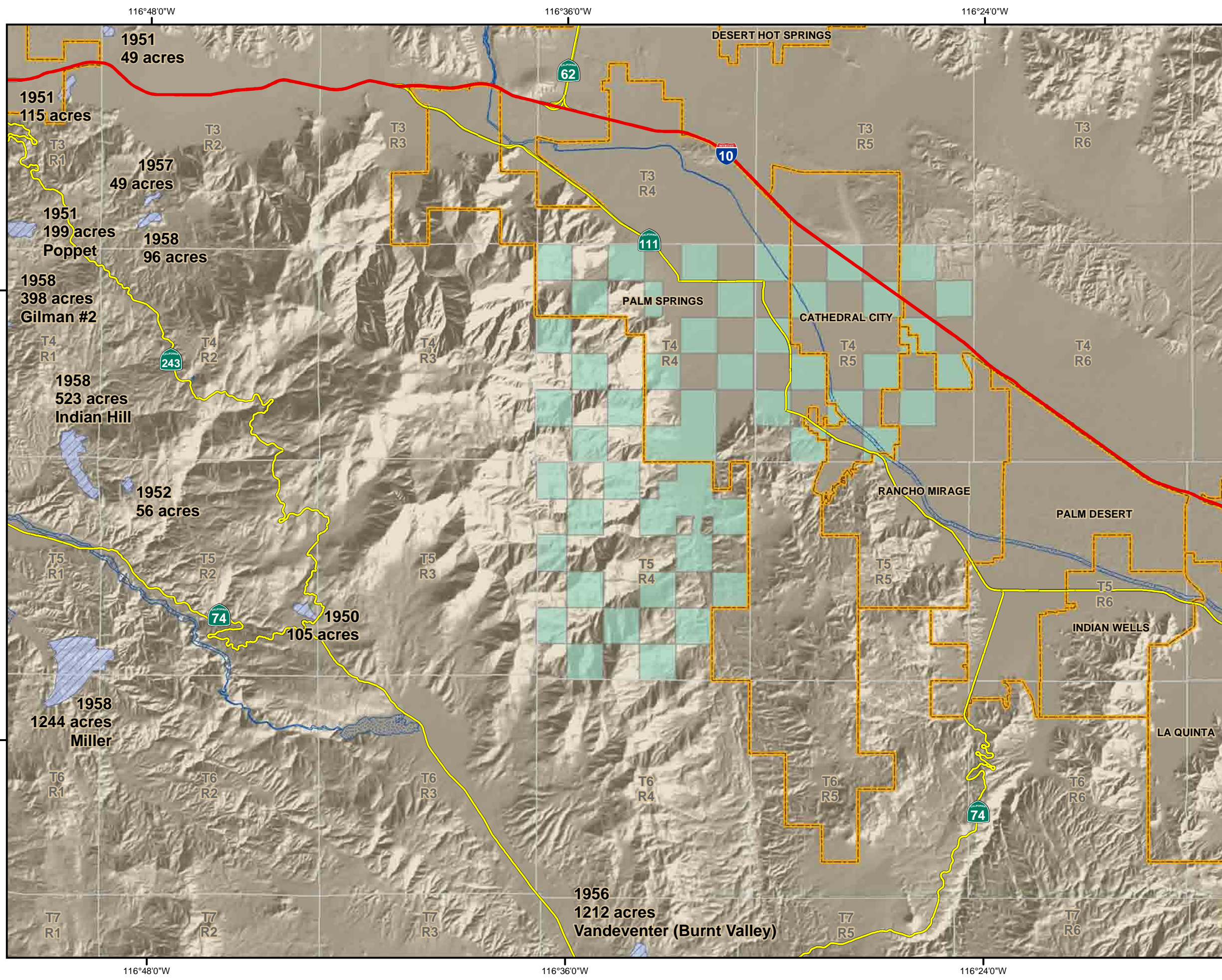
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 1950-1959



Legend

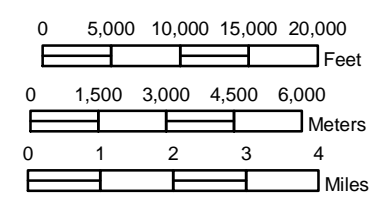
- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1950-1959)

Fire Cause:

- Unknown



1 inch = 3 miles



Agua Caliente Band of Cahuilla Indians
Planning/Building/Engineering Department
650 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/
Environmental/Fire Plan/Fire History/1950-1959.mxd
Map Origination Date: 5/2/2005

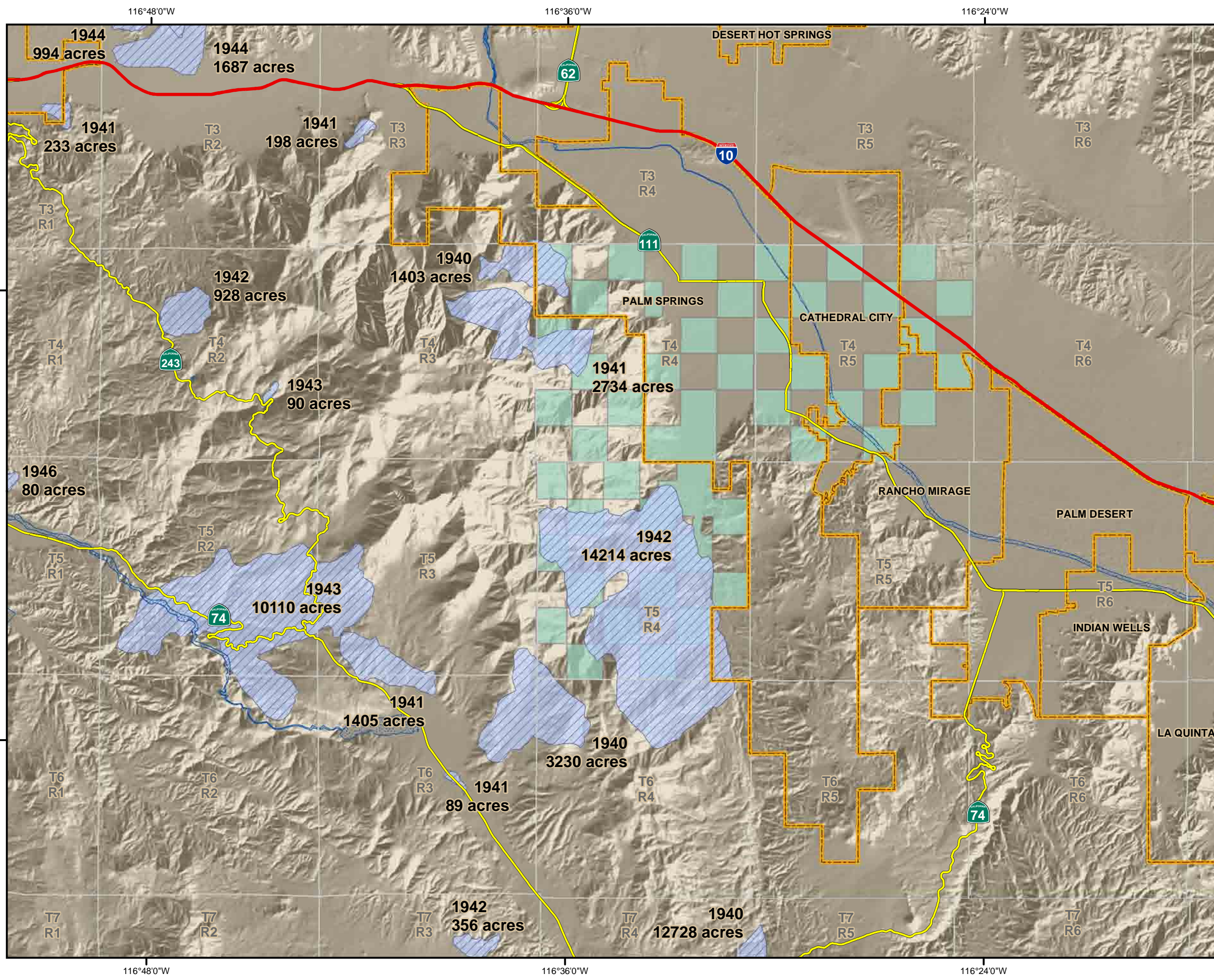
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 1940-1949



Legend

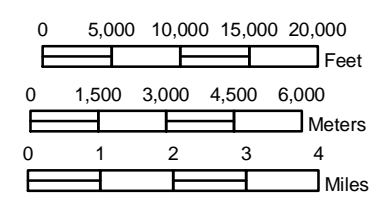
- Interstate
- State & US Highways
- Political Jurisdictions
- Townships
- Water Bodies
- ACIR
- Fire History (1940-1949)

Fire Cause:

- Unknown



1 inch = 3 miles



Agua Caliente Band of Cahuilla Indians
Planning & Development Department
650 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/
Environmental/Fire Plan/Fire History/1940-1949.mxd
Map Origination Date: 5/2/2005

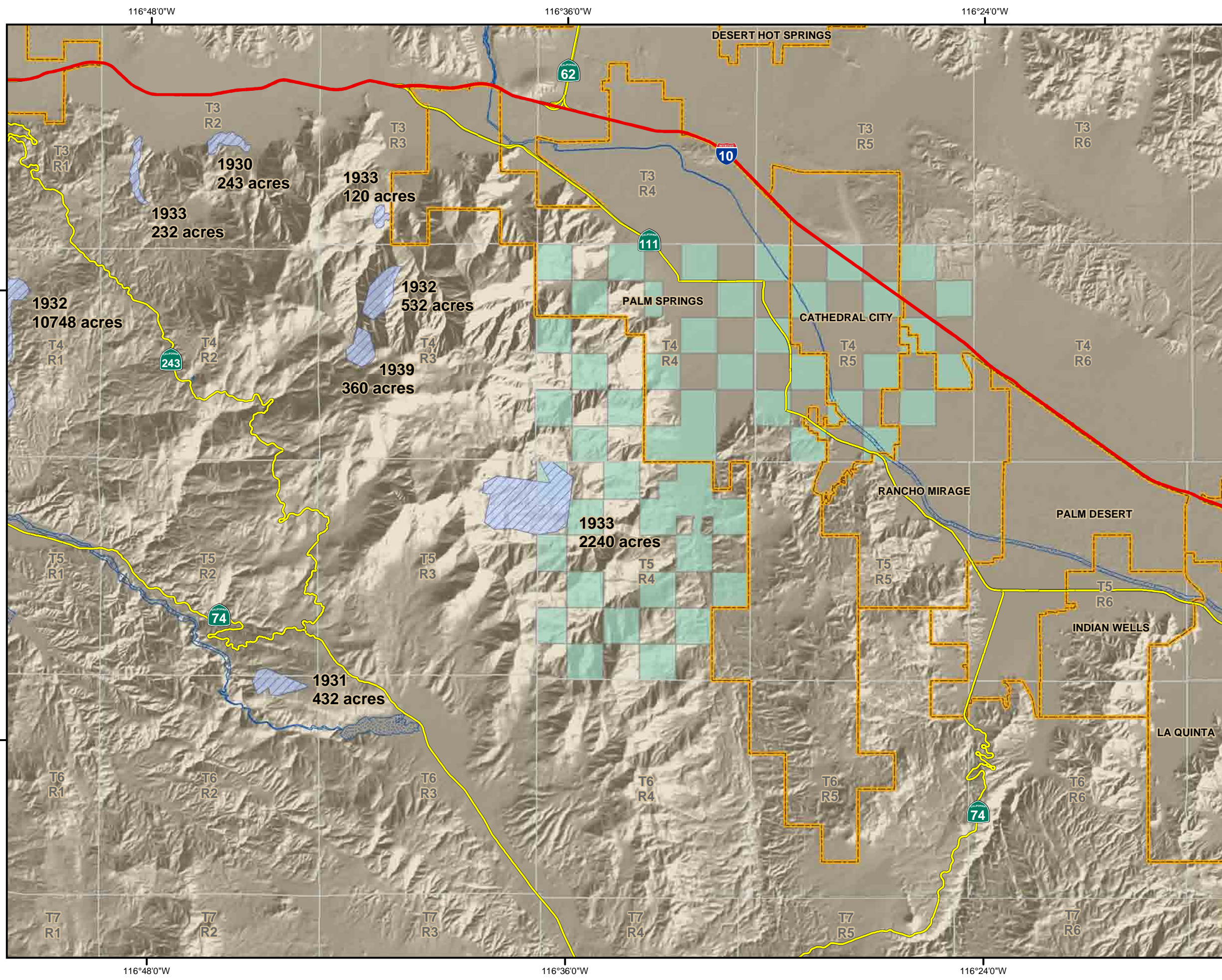
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 1930-1939



Legend

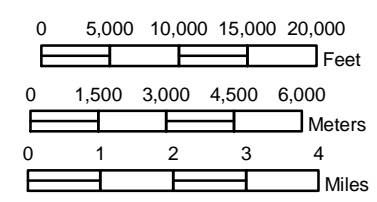
- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1930-1939)

Fire Cause:

- Unknown



1 inch = 3 miles



Agua Caliente Band of Cahuilla Indians
Planning & Development Department
650 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/
Environmental/Fire Plan/Fire History/1930-1939.mxd
Map Origination Date: 5/2/2005

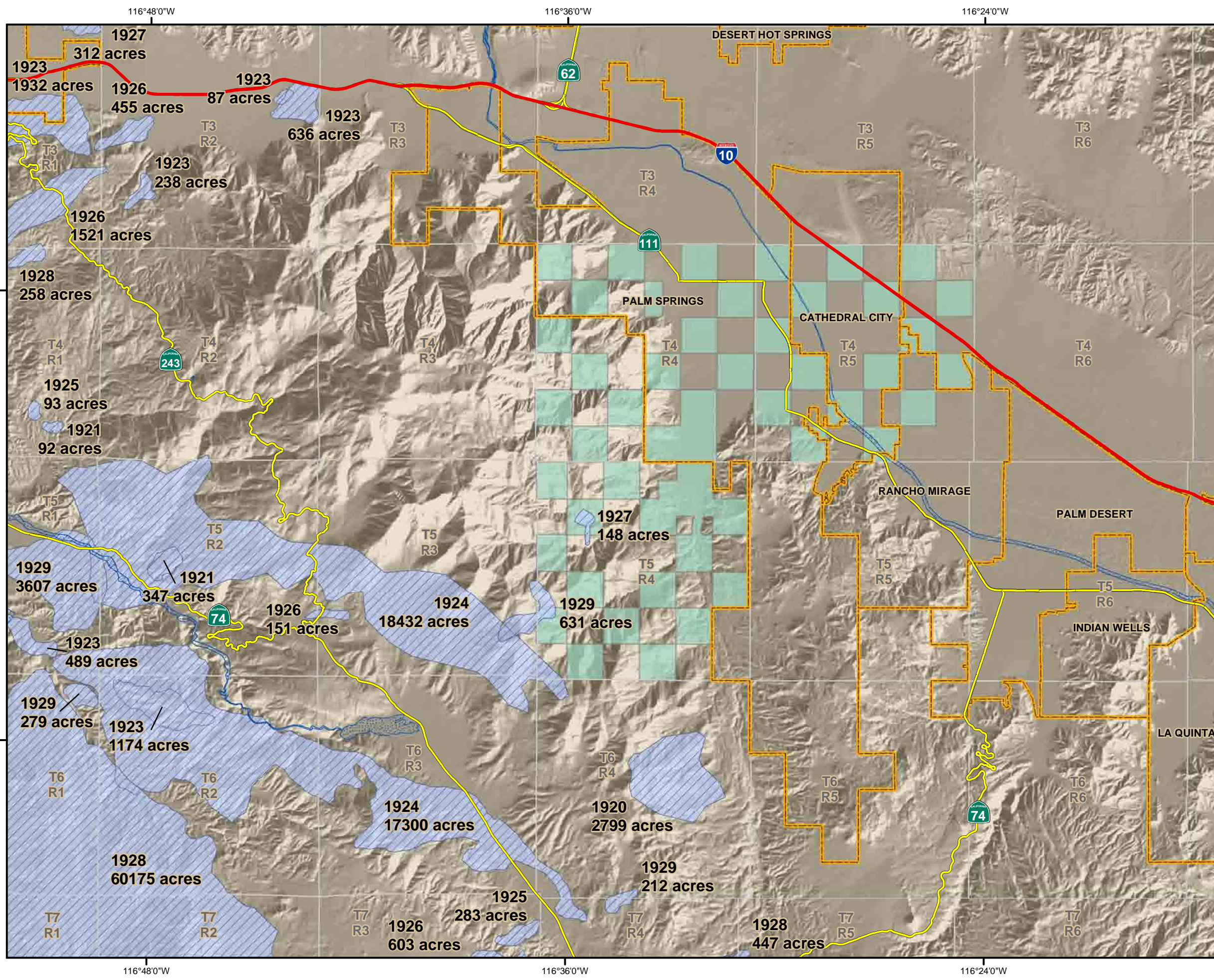
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 1920-1929

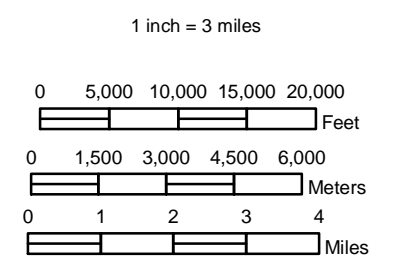


Legend

- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1920-1929)

Fire Cause:

- Unknown



Agua Caliente Band of Cahuilla Indians
Planning & Development Department
650 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/
Environmental/Fire Plan/Fire History/1920-1929.mxd
Map Origination Date: 5/2/2005

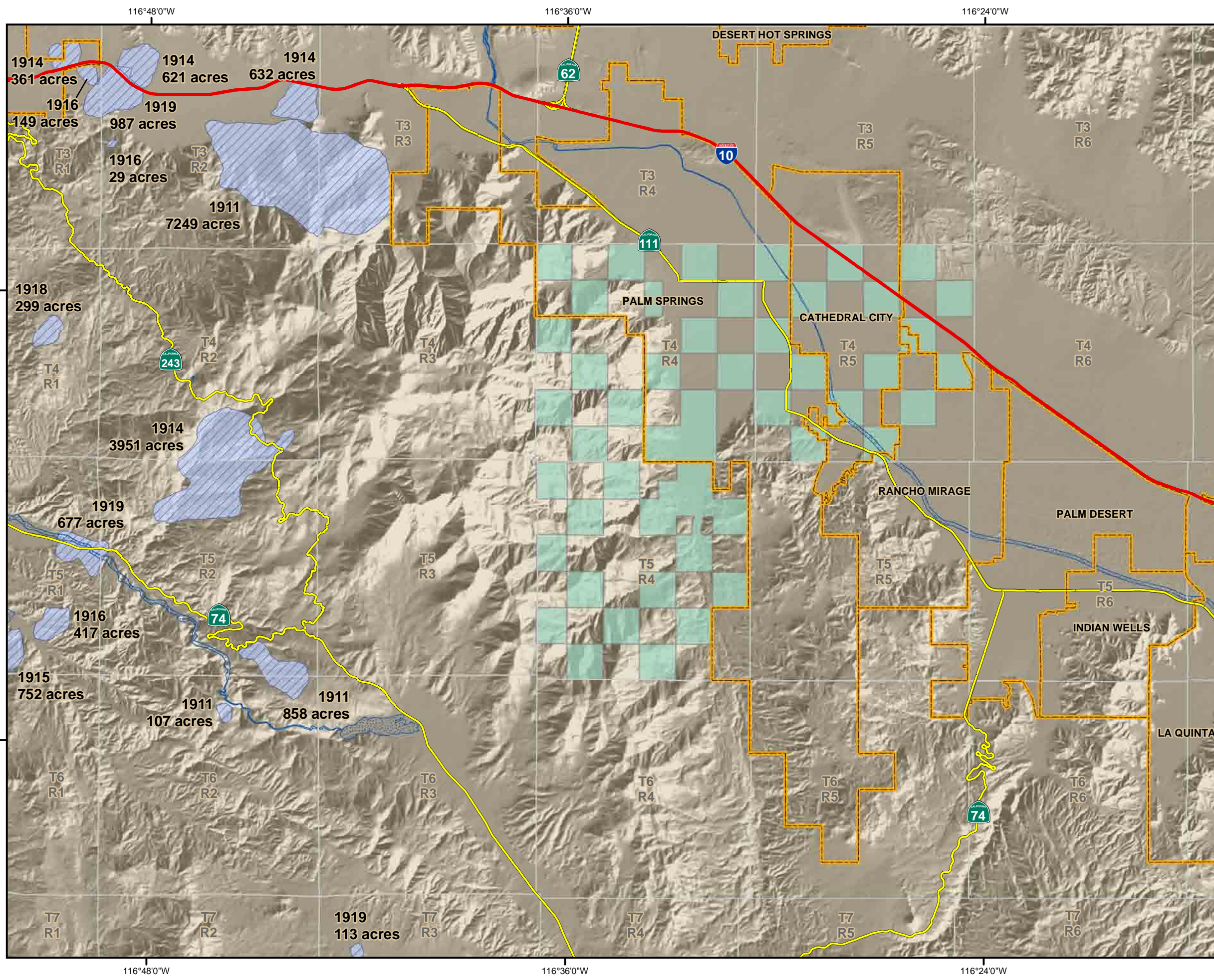
This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

- The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
- This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department



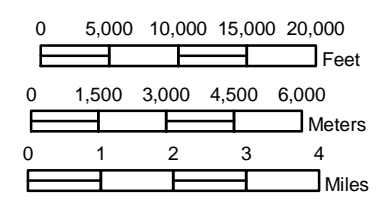
AGUA CALIENTE INDIAN RESERVATION FIRE HISTORY 1910-1919



— State & US Highways
— Interstate
□ Townships
□ Political Jurisdictions
■ ACIR
■ Water Bodies
■ Fire History (1910-1919)
Fire Cause:
■ Unknown

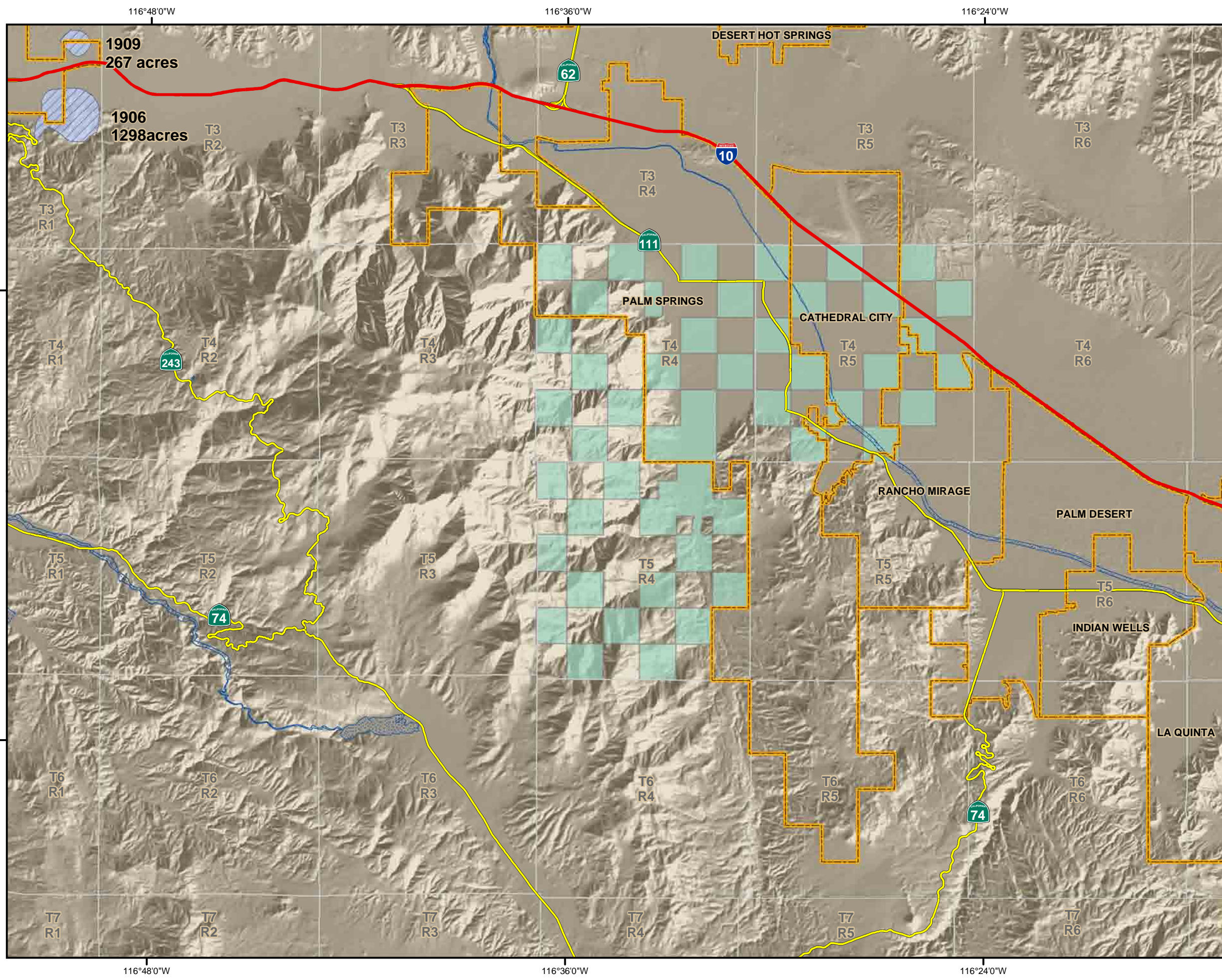


1 inch = 3 miles



Agua Caliente Band of Cahuilla Indians
Planning & Development Department
650 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI
Map Location: //trb05gis01/Project_Files/mxd/
Environmental/Fire Plan/Fire History/1910-1919.mxd
Map Origination Date: 5/2/2005
This map does not cover questions of location, boundary,
or area to the accuracy of a survey map.
Data Source:
- The material contained herein
includes proprietary and copyrighted
data of Geographic Data Technology,
Inc./Tele Atlas
- This map contains geographic
information owned by the County of
Riverside.
- All other layers provided by ACBCI Planning &
Development Department




AGUA CALIENTE INDIAN RESERVATION

FIRE HISTORY 1900-1909

Legend:

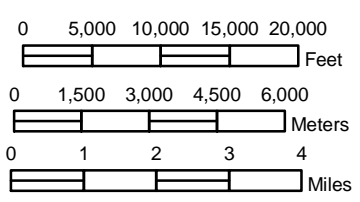
- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1900-1909)

Fire Cause:

- Unknown



1 inch = 3 miles




Agua Caliente Band of Cahuilla Indians
 Planning & Development Department
 650 E Tahquitz Canyon Palm Springs CA, 92262
 Geospatial Information Services
 (760) 883 - 1336/Fax (760) 325 - 6952

Projection: Lambert Conformal Conic
 Datum: North American 1983
 Coordinate System: State Plane California Zone VI
 Map Location: //trb05gis01/Project_Files/mxd/Environmental/Fire Plan/Fire History/1900-1909.mxd
 Map Origination Date: 5/2/2005

This map does not cover questions of location, boundary, or area to the accuracy of a survey map.

Data Source:

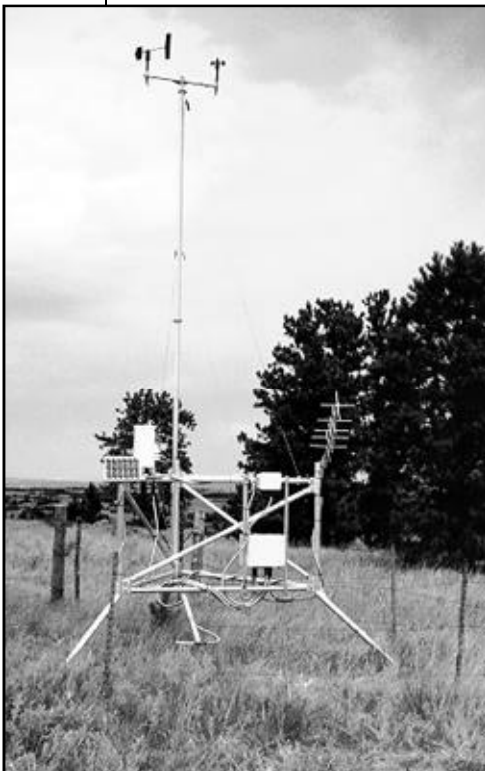
-  - The material contained herein includes proprietary and copyrighted data of Geographic Data Technology, Inc./Tele Atlas
-  - This map contains geographic information owned by the County of Riverside.
- All other layers provided by ACBCI Planning & Development Department

APPENDIX C

Remote Automatic Weather Stations

Remote Automated Weather Stations (RAWS) are weather stations set up on tripods, and they look like little “Lunar Landers.”

The data collected from these stations are used in numerous applications, including fire weather, climatology, resource management, flood warning, noxious weed control, all-risk management, and air quality management.



RAWS are often in isolated areas that are accessible only by all-terrain vehicles, helicopters, snowmobiles, or by backpacking to them.

These solar-powered units gather important weather information on an hourly basis. RAWS sensors monitor:

- Wind speed and direction
- Wind gusts
- Precipitation
- Air temperature
- Solar radiation
- Relative humidity
- Fuel moisture
- Soil moisture and temperature.

About 1,850 RAWS are strategically positioned throughout the United States.

RAWS units collect, store, and forward data hourly (via satellite 22,300 miles above the equator) to a computer system located at the National Interagency Fire Center, Boise, Idaho.

Weather information travels from the RAWS units to a satellite and then back to earth in one-quarter of a second.

Each RAWS unit operates on eight to 10 watts of power, which is nearly equivalent to the power needed to operate a hand-held radio. The battery lasts about three years.



The hourly weather information collected by the RAWS is transmitted through a satellite, back to NIFC, and then distributed to various locations via the internet.

A standard RAWS unit costs about \$13,000.

Fire RAWS are portable units that can be set up during a wildland fire to provide early warning to fire line personnel as weather conditions change, help specialists determine fire behavior and fire weather.

Additionally, Fire RAWS are installed at locations in response to disasters such as the World Trade Center and the Columbia Shuttle Recovery.



THCP Cash Flow - Expected Buildout

8/16/2010

Expressed in Current Dollars - No Inflation

Year:	TOTAL	1	2	3	4	5	6	7	8
THCP COSTS									
Administration	\$ 21,277,226	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
Habitat Preserve Assembly									
Land Acquisition	\$ 6,713,817	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553
Land Improvement	\$ 667,936	\$ 14,026	\$ 14,026	\$ 14,026	\$ 14,026	\$ 14,026	\$ 14,026	\$ 55,830	\$ 14,026
Total Habitat Preserve Assembly Costs	\$ 7,381,753								
Habitat Preserve Adaptive Management									
Adaptive Management (Personnel, Administration & Outside Services)	\$ 39,514,849	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
Monitoring	\$ 4,267,500	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
Contingency/Changed Circumstances Fund Deposits	\$ 1,050,000	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500
Total Habitat Preserve Adaptive Management	\$ 44,832,349	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265
Subtotal Costs	\$ 73,491,328	\$ 1,237,540	\$ 1,237,540	\$ 1,237,540	\$ 1,237,540	\$ 1,237,540	\$ 1,237,540	\$ 1,279,344	\$ 1,237,540
Endowment Deposits Required	\$ 12,833,333	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
Total THCP Costs & Obligations	\$ 86,324,661	\$ 1,558,373	\$ 1,558,373	\$ 1,558,373	\$ 1,558,373	\$ 1,558,373	\$ 1,558,373	\$ 1,600,177	\$ 1,558,373
THCP REVENUE									
Mitigation Fee Revenue	\$ 33,337,140	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486
Tribal Funding	\$ 41,400,114	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
Proposed Project Administration Reimbursements	\$ 28,125	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375
Endowment Earnings	\$ 44,844,820	\$ -	\$ 15,739	\$ 31,855	\$ 48,359	\$ 65,258	\$ 82,563	\$ 100,283	\$ 117,425
Total Revenue	\$ 119,610,199	\$ 1,893,322	\$ 1,909,060	\$ 1,925,177	\$ 1,941,680	\$ 1,958,580	\$ 1,975,884	\$ 1,993,605	\$ 2,010,747
THCP NET CASH FLOW	\$ 33,285,538	\$ 334,949	\$ 350,687	\$ 366,804	\$ 383,307	\$ 400,207	\$ 417,511	\$ 393,428	\$ 452,374

	9	10	11	12	13	14	15	16	17	18	19	20	21
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553
\$	14,026	\$ 14,026	\$ 14,026	\$ 14,026	\$ 14,026	\$ 14,026	\$ 77,008	\$ 14,026	\$ 14,026	\$ 14,026	\$ 14,026	\$ 14,026	\$ 14,026
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	87,500	\$ 87,500	\$ 87,500	\$ 87,500									
\$	671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	1,237,540	\$ 1,237,540	\$ 1,237,540	\$ 1,237,540	\$ 1,150,040	\$ 1,150,040	\$ 1,213,022	\$ 1,150,040	\$ 1,150,040	\$ 1,150,040	\$ 1,150,040	\$ 1,150,040	\$ 1,150,040
\$	320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
\$	1,558,373	\$ 1,558,373	\$ 1,558,373	\$ 1,558,373	\$ 1,470,873	\$ 1,470,873	\$ 1,533,855	\$ 1,470,873	\$ 1,470,873	\$ 1,470,873	\$ 1,470,873	\$ 1,470,873	\$ 1,470,873
\$	1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375
\$	135,982	\$ 154,985	\$ 174,443	\$ 194,369	\$ 214,772	\$ 237,765	\$ 261,311	\$ 283,909	\$ 308,562	\$ 333,806	\$ 359,656	\$ 386,127	\$ 413,233
\$	2,029,304	\$ 2,048,306	\$ 2,067,765	\$ 2,087,690	\$ 2,108,094	\$ 2,131,087	\$ 2,154,632	\$ 2,177,231	\$ 2,201,883	\$ 2,227,128	\$ 2,252,978	\$ 2,279,448	\$ 2,306,554
\$	470,931	\$ 489,933	\$ 509,392	\$ 529,317	\$ 637,221	\$ 660,214	\$ 620,777	\$ 706,358	\$ 731,010	\$ 756,255	\$ 782,105	\$ 808,575	\$ 835,681

	22	23	24	25	26	27	28	29	30	31	32	33	34	35
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	14,026	\$ 14,026	\$ 14,026	\$ 14,026	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	1,150,040	\$ 1,150,040	\$ 1,150,040	\$ 1,150,040	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711
\$	320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
\$	1,470,873	\$ 1,470,873	\$ 1,470,873	\$ 1,470,873	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544
\$	1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375
\$	440,989	\$ 469,411	\$ 498,516	\$ 528,319	\$ 558,838	\$ 564,765	\$ 570,834	\$ 577,049	\$ 583,413	\$ 589,930	\$ 596,603	\$ 603,437	\$ 610,434	\$ 617,600
\$	2,334,310	\$ 2,362,733	\$ 2,391,838	\$ 2,421,641	\$ 1,118,674	\$ 1,124,601	\$ 1,130,670	\$ 1,136,885	\$ 1,143,249	\$ 1,149,766	\$ 1,156,439	\$ 1,163,273	\$ 1,170,270	\$ 1,177,436
\$	863,437	\$ 891,860	\$ 920,965	\$ 950,768	\$ (73,871)	\$ (67,944)	\$ (61,874)	\$ (55,659)	\$ (49,295)	\$ (42,778)	\$ (36,105)	\$ (29,271)	\$ (22,274)	\$ (15,108)

	36	37	38	39	40	41	42	43	44	45	46	47	48	49
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711
\$	320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 1,192,544	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375
\$	624,937	\$ 632,451	\$ 640,145	\$ 648,023	\$ 656,091	\$ 664,352	\$ 672,811	\$ 681,474	\$ 690,344	\$ 699,427	\$ 708,729	\$ 718,253	\$ 728,006	\$ 737,993
\$	1,184,773	\$ 1,192,287	\$ 1,199,981	\$ 1,207,859	\$ 1,215,927	\$ 1,224,188	\$ 1,232,647	\$ 1,241,310	\$ 1,250,180	\$ 1,259,263	\$ 1,268,565	\$ 1,278,089	\$ 1,287,842	\$ 1,297,829
\$	(7,771)	\$ (258)	\$ 7,436	\$ 15,315	\$ 23,382	\$ 352,477	\$ 360,936	\$ 369,599	\$ 378,469	\$ 387,552	\$ 396,854	\$ 406,378	\$ 416,131	\$ 426,118

	50	51	52	53	54	55	56	57	58	59	60	61	62
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375
\$	748,220	\$ 758,692	\$ 769,416	\$ 780,397	\$ 791,642	\$ 803,156	\$ 814,947	\$ 827,020	\$ 839,384	\$ 852,044	\$ 865,008	\$ 878,283	\$ 891,877
\$	1,308,056	\$ 1,318,528	\$ 1,329,252	\$ 1,340,233	\$ 1,351,478	\$ 1,362,992	\$ 1,374,783	\$ 1,386,856	\$ 1,399,220	\$ 1,411,880	\$ 1,424,844	\$ 1,438,119	\$ 1,451,713
\$	436,345	\$ 446,817	\$ 457,541	\$ 468,522	\$ 479,767	\$ 491,281	\$ 503,072	\$ 515,145	\$ 527,509	\$ 540,169	\$ 553,133	\$ 566,408	\$ 580,002

	63	64	65	66	67	68	69	70	71	72	73	74	75
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250	\$ 4,250
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711	\$ 871,711
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375	\$ 375
\$	905,797	\$ 920,051	\$ 934,648	\$ 949,594	\$ 964,899	\$ 980,572	\$ 996,621	\$ 1,013,055	\$ 1,029,883	\$ 1,047,115	\$ 1,064,761	\$ 1,082,830	\$ 1,101,333
\$	1,465,633	\$ 1,479,887	\$ 1,494,484	\$ 1,509,430	\$ 1,524,735	\$ 1,540,408	\$ 1,556,457	\$ 1,572,891	\$ 1,589,719	\$ 1,606,951	\$ 1,624,597	\$ 1,642,666	\$ 1,101,708
\$	593,922	\$ 608,176	\$ 622,773	\$ 637,719	\$ 653,024	\$ 668,697	\$ 684,746	\$ 701,180	\$ 718,008	\$ 735,240	\$ 752,886	\$ 770,955	\$ 229,997

CALCULATIONS:

MCCA Development Acres (see notes re: no mitigation fee revenue)	281	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
VFPA Fluvial Sand Transport Area	315	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VFPA Section 6 Development	32	0.00	0.00	0.00	0.00	0.00	0.00	32.00	0.00
VFPA Development Acres (Subject to Mitigation Fee)	5,818	233	233	233	233	233	233	233	233
Total Development Acres	6,446	236.47	236.47	236.47	236.47	236.47	236.47	268.47	236.47
Cumulative Development Acres		236.47	472.94	709.41	945.88	1,182.35	1,418.82	1,687.29	1,923.76
MCCA Habitat Preserve Acres Dedicated	1,594	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25
VFPA Habitat Acres Dedicated by Fluvial and Development at 1:1	347	0.00	0.00	0.00	0.00	0.00	0.00	32.00	0.00
VFPA Habitat Dedicated by Specific Plan	177	0.00	0.00	0.00	0.00	0.00	0.00	177.02	0.00
VFPA Habitat Acres Acquired	1,222	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88
Total Habitat Preserve Acres	3,340	70.13	70.13	70.13	70.13	70.13	70.13	279.15	70.13
Cumulative Habitat Preserve Acres		70	140	210	281	351	421	700	770

Endowment Revenue Calculations

Endowment Deposits from Cash Flow	\$ 33,285,538	\$ 334,949	\$ 350,687	\$ 366,804	\$ 383,307	\$ 400,207	\$ 417,511	\$ 393,428	\$ 452,374
Annual Endowment Deposits	\$ 12,833,333	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
Net Deposit	\$ 46,118,872	\$ 655,782	\$ 671,521	\$ 687,637	\$ 704,140	\$ 721,040	\$ 738,345	\$ 714,261	\$ 773,207
Endowment Cumulative Balance	\$ 45,888,875	\$ -	\$ 655,782	\$ 1,327,303	\$ 2,014,940	\$ 2,719,080	\$ 3,440,120	\$ 4,178,465	\$ 4,892,726
Endowment Revenue	\$ 44,844,820	\$ -	\$ 15,739	\$ 31,855	\$ 48,359	\$ 65,258	\$ 82,563	\$ 100,283	\$ 117,425

3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
0.00	0.00	0.00	0.00	0.00	0.00	314.91	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
233	233	233	233	233	233	233	233	233	233	233	233	233
236.47	236.47	236.47	236.47	236.47	236.47	551.38	236.47	236.47	236.47	236.47	236.47	236.47
2,160.23	2,396.70	2,633.17	2,869.64	3,106.11	3,342.58	3,893.96	4,130.43	4,366.90	4,603.37	4,839.84	5,076.31	5,312.78
21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25
0.00	0.00	0.00	0.00	0.00	0.00	314.91	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88
70.13	70.13	70.13	70.13	70.13	70.13	385.04	70.13	70.13	70.13	70.13	70.13	70.13
840	910	980	1,051	1,121	1,191	1,576	1,646	1,716	1,786	1,856	1,927	1,997
\$ 470,931	\$ 489,933	\$ 509,392	\$ 529,317	\$ 637,221	\$ 660,214	\$ 620,777	\$ 706,358	\$ 731,010	\$ 756,255	\$ 782,105	\$ 808,575	\$ 835,681
\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
\$ 791,764	\$ 810,767	\$ 830,225	\$ 850,150	\$ 958,054	\$ 981,047	\$ 941,611	\$ 1,027,191	\$ 1,051,844	\$ 1,077,088	\$ 1,102,938	\$ 1,129,409	\$ 1,156,514
\$ 5,665,933	\$ 6,457,698	\$ 7,268,464	\$ 8,098,689	\$ 8,948,840	\$ 9,906,894	\$ 10,887,941	\$ 11,829,552	\$ 12,856,743	\$ 13,908,587	\$ 14,985,675	\$ 16,088,613	\$ 17,218,022
\$ 135,982	\$ 154,985	\$ 174,443	\$ 194,369	\$ 214,772	\$ 237,765	\$ 261,311	\$ 283,909	\$ 308,562	\$ 333,806	\$ 359,656	\$ 386,127	\$ 413,233

3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
233	233	233	233	233	233	233	233	233	233	233	233	233	233
236.47	236.47	236.47	236.47	236.47	236.47	236.47	236.47	236.47	236.47	236.47	236.47	236.47	236.47
5,549.25	5,785.72	6,022.19	6,258.66	6,262.41	6,266.16	6,269.91	6,273.66	6,277.41	6,281.16	6,284.91	6,288.66	6,292.41	6,296.16
21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88
70.13	70.13	70.13	70.13	70.13	70.13	70.13	70.13	70.13	70.13	70.13	70.13	70.13	70.13
2,067	2,137	2,207	2,277	2,298	2,320	2,341	2,362	2,383	2,405	2,426	2,447	2,468	2,490
\$ 863,437	\$ 891,860	\$ 920,965	\$ 950,768	\$ (73,871)	\$ (67,944)	\$ (61,874)	\$ (55,659)	\$ (49,295)	\$ (42,778)	\$ (36,105)	\$ (29,271)	\$ (22,274)	\$ (15,108)
\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
\$ 1,184,271	\$ 1,212,693	\$ 1,241,798	\$ 1,271,601	\$ 246,963	\$ 252,890	\$ 258,959	\$ 265,174	\$ 271,538	\$ 278,055	\$ 284,728	\$ 291,562	\$ 298,559	\$ 305,725
\$ 18,374,536	\$ 19,558,807	\$ 20,771,500	\$ 22,013,298	\$ 23,284,899	\$ 23,531,862	\$ 23,784,751	\$ 24,043,710	\$ 24,308,884	\$ 24,580,423	\$ 24,858,478	\$ 25,143,206	\$ 25,434,768	\$ 25,733,328
\$ 440,989	\$ 469,411	\$ 498,516	\$ 528,319	\$ 558,838	\$ 564,765	\$ 570,834	\$ 577,049	\$ 583,413	\$ 589,930	\$ 596,603	\$ 603,437	\$ 610,434	\$ 617,600

3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
6,299.91	6,303.66	6,307.41	6,311.16	6,314.91	6,318.66	6,322.41	6,326.16	6,329.91	6,333.66	6,337.41	6,341.16	6,344.91	6,348.66
21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25
2,511	2,532	2,553	2,575	2,596	2,617	2,638	2,660	2,681	2,702	2,723	2,745	2,766	2,787
\$ (7,771)	\$ (258)	\$ 7,436	\$ 15,315	\$ 23,382	\$ 352,477	\$ 360,936	\$ 369,599	\$ 378,469	\$ 387,552	\$ 396,854	\$ 406,378	\$ 416,131	\$ 426,118
\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 313,062	\$ 320,576	\$ 328,270	\$ 336,148	\$ 344,216	\$ 352,477	\$ 360,936	\$ 369,599	\$ 378,469	\$ 387,552	\$ 396,854	\$ 406,378	\$ 416,131	\$ 426,118
\$ 26,039,052	\$ 26,352,115	\$ 26,672,690	\$ 27,000,960	\$ 27,337,108	\$ 27,681,324	\$ 28,033,800	\$ 28,394,737	\$ 28,764,335	\$ 29,142,804	\$ 29,530,357	\$ 29,927,210	\$ 30,333,588	\$ 30,749,719
\$ 624,937	\$ 632,451	\$ 640,145	\$ 648,023	\$ 656,091	\$ 664,352	\$ 672,811	\$ 681,474	\$ 690,344	\$ 699,427	\$ 708,729	\$ 718,253	\$ 728,006	\$ 737,993

3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
6,352.41	6,356.16	6,359.91	6,363.66	6,367.41	6,371.16	6,374.91	6,378.66	6,382.41	6,386.16	6,389.91	6,393.66	6,397.41
21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25
2,808	2,830	2,851	2,872	2,893	2,915	2,936	2,957	2,978	3,000	3,021	3,042	3,063
\$ 436,345	\$ 446,817	\$ 457,541	\$ 468,522	\$ 479,767	\$ 491,281	\$ 503,072	\$ 515,145	\$ 527,509	\$ 540,169	\$ 553,133	\$ 566,408	\$ 580,002
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 436,345	\$ 446,817	\$ 457,541	\$ 468,522	\$ 479,767	\$ 491,281	\$ 503,072	\$ 515,145	\$ 527,509	\$ 540,169	\$ 553,133	\$ 566,408	\$ 580,002
\$ 31,175,838	\$ 31,612,183	\$ 32,059,000	\$ 32,516,541	\$ 32,985,063	\$ 33,464,830	\$ 33,956,111	\$ 34,459,182	\$ 34,974,328	\$ 35,501,836	\$ 36,042,006	\$ 36,595,139	\$ 37,161,547
\$ 748,220	\$ 758,692	\$ 769,416	\$ 780,397	\$ 791,642	\$ 803,156	\$ 814,947	\$ 827,020	\$ 839,384	\$ 852,044	\$ 865,008	\$ 878,283	\$ 891,877

3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
6,401.16	6,404.91	6,408.66	6,412.41	6,416.16	6,419.91	6,423.66	6,427.41	6,431.16	6,434.91	6,438.66	6,442.41	6,446.16
21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25
3,085	3,106	3,127	3,148	3,170	3,191	3,212	3,233	3,255	3,276	3,297	3,318	3,340
\$ 593,922	\$ 608,176	\$ 622,773	\$ 637,719	\$ 653,024	\$ 668,697	\$ 684,746	\$ 701,180	\$ 718,008	\$ 735,240	\$ 752,886	\$ 770,955	\$ 229,997
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 593,922	\$ 608,176	\$ 622,773	\$ 637,719	\$ 653,024	\$ 668,697	\$ 684,746	\$ 701,180	\$ 718,008	\$ 735,240	\$ 752,886	\$ 770,955	\$ 229,997
\$ 37,741,549	\$ 38,335,471	\$ 38,943,648	\$ 39,566,420	\$ 40,204,139	\$ 40,857,164	\$ 41,525,861	\$ 42,210,606	\$ 42,911,786	\$ 43,629,794	\$ 44,365,034	\$ 45,117,919	\$ 45,888,875
\$ 905,797	\$ 920,051	\$ 934,648	\$ 949,594	\$ 964,899	\$ 980,572	\$ 996,621	\$ 1,013,055	\$ 1,029,883	\$ 1,047,115	\$ 1,064,761	\$ 1,082,830	\$ 1,101,333

THCP Cash Flow - Expected Buildout

8/16/2010

Expressed in Current Dollars - No Inflation

Year:	TOTAL	1	2	3	4	5	6	7	8
THCP COSTS									
Administration	\$ 21,277,226	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
Habitat Preserve Assembly									
Land Acquisition	\$ 6,713,817	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553
Land Improvement	\$ 3,829,892	\$ 56,185	\$ 56,185	\$ 56,185	\$ 56,185	\$ 56,185	\$ 56,185	\$ 97,989	\$ 56,185
Total Habitat Preserve Assembly Costs	\$ 10,543,709								
Habitat Preserve Adaptive Management									
Adaptive Management (Personnel, Administration & Outside Services)	\$ 39,514,849	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
Monitoring	\$ 4,267,500	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
Contingency/Changed Circumstances Fund Deposits	\$ 1,050,000	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500
Total Habitat Preserve Adaptive Management	\$ 44,832,349	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 671,265
Subtotal Costs	\$ 76,653,284	\$ 1,279,699	\$ 1,279,699	\$ 1,279,699	\$ 1,279,699	\$ 1,279,699	\$ 1,279,699	\$ 1,321,503	\$ 1,279,699
Endowment Deposits Required	\$ 12,833,333	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
Total THCP Costs & Obligations	\$ 89,486,617	\$ 1,600,532	\$ 1,600,532	\$ 1,600,532	\$ 1,600,532	\$ 1,600,532	\$ 1,600,532	\$ 1,642,336	\$ 1,600,532
THCP REVENUE									
Mitigation Fee Revenue	\$ 33,337,140	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486
Tribal Funding	\$ 41,400,114	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
Proposed Project Administration Reimbursements	\$ 307,100	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095
Endowment Earnings	\$ 39,843,831	\$ -	\$ 14,816	\$ 29,988	\$ 45,524	\$ 61,433	\$ 77,723	\$ 94,405	\$ 110,484
Total Revenue	\$ 114,888,185	\$ 1,897,041	\$ 1,911,857	\$ 1,927,029	\$ 1,942,565	\$ 1,958,474	\$ 1,974,765	\$ 1,991,446	\$ 2,007,525
THCP NET CASH FLOW	\$ 25,401,568	\$ 296,509	\$ 311,325	\$ 326,497	\$ 342,033	\$ 357,942	\$ 374,232	\$ 349,110	\$ 406,992

	9	10	11	12	13	14	15	16	17	18	19	20	21
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ 268,553
\$	56,185	\$ 56,185	\$ 56,185	\$ 56,185	\$ 56,185	\$ 56,185	\$ 119,167	\$ 56,185	\$ 56,185	\$ 56,185	\$ 56,185	\$ 56,185	\$ 56,185
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	87,500	\$ 87,500	\$ 87,500	\$ 87,500									
\$	671,265	\$ 671,265	\$ 671,265	\$ 671,265	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	1,279,699	\$ 1,279,699	\$ 1,279,699	\$ 1,279,699	\$ 1,192,199	\$ 1,192,199	\$ 1,255,181	\$ 1,192,199	\$ 1,192,199	\$ 1,192,199	\$ 1,192,199	\$ 1,192,199	\$ 1,192,199
\$	320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
\$	1,600,532	\$ 1,600,532	\$ 1,600,532	\$ 1,600,532	\$ 1,513,032	\$ 1,513,032	\$ 1,576,014	\$ 1,513,032	\$ 1,513,032	\$ 1,513,032	\$ 1,513,032	\$ 1,513,032	\$ 1,513,032
\$	1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095
\$	127,951	\$ 145,838	\$ 164,155	\$ 182,911	\$ 202,117	\$ 223,884	\$ 246,173	\$ 267,486	\$ 290,822	\$ 314,718	\$ 339,187	\$ 364,244	\$ 389,902
\$	2,024,993	\$ 2,042,880	\$ 2,061,196	\$ 2,079,952	\$ 2,099,158	\$ 2,120,925	\$ 2,143,214	\$ 2,164,527	\$ 2,187,863	\$ 2,211,759	\$ 2,236,228	\$ 2,261,285	\$ 2,286,943
\$	424,460	\$ 442,347	\$ 460,664	\$ 479,419	\$ 586,126	\$ 607,893	\$ 567,200	\$ 651,495	\$ 674,831	\$ 698,727	\$ 723,196	\$ 748,253	\$ 773,911

	22	23	24	25	26	27	28	29	30	31	32	33	34	35
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	268,553	\$ 268,553	\$ 268,553	\$ 268,553	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	56,185	\$ 56,185	\$ 56,185	\$ 56,185	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	1,192,199	\$ 1,192,199	\$ 1,192,199	\$ 1,192,199	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870
\$	320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
\$	1,513,032	\$ 1,513,032	\$ 1,513,032	\$ 1,513,032	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704
\$	1,333,486	\$ 1,333,486	\$ 1,333,486	\$ 1,333,486	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095
\$	416,176	\$ 443,080	\$ 470,630	\$ 498,842	\$ 527,730	\$ 531,988	\$ 536,348	\$ 540,813	\$ 545,385	\$ 550,067	\$ 554,861	\$ 559,770	\$ 564,797	\$ 569,944
\$	2,313,217	\$ 2,340,122	\$ 2,367,672	\$ 2,395,883	\$ 1,091,286	\$ 1,095,544	\$ 1,099,904	\$ 1,104,369	\$ 1,108,941	\$ 1,113,622	\$ 1,118,416	\$ 1,123,326	\$ 1,128,352	\$ 1,133,500
\$	800,185	\$ 827,089	\$ 854,639	\$ 882,851	\$ (143,418)	\$ (139,160)	\$ (134,800)	\$ (130,335)	\$ (125,763)	\$ (121,081)	\$ (116,287)	\$ (111,378)	\$ (106,351)	\$ (101,204)

	36	37	38	39	40	41	42	43	44	45	46	47	48	49
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870
\$	320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 1,234,704	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095
\$	575,215	\$ 580,613	\$ 586,140	\$ 591,800	\$ 597,596	\$ 603,530	\$ 609,608	\$ 615,831	\$ 622,203	\$ 628,728	\$ 635,410	\$ 642,253	\$ 649,259	\$ 656,434
\$	1,138,771	\$ 1,144,169	\$ 1,149,696	\$ 1,155,356	\$ 1,161,151	\$ 1,167,086	\$ 1,173,163	\$ 1,179,386	\$ 1,185,759	\$ 1,192,284	\$ 1,198,966	\$ 1,205,808	\$ 1,212,815	\$ 1,219,989
\$	(95,933)	\$ (90,535)	\$ (85,008)	\$ (79,348)	\$ (73,552)	\$ 253,216	\$ 259,293	\$ 265,516	\$ 271,888	\$ 278,414	\$ 285,096	\$ 291,938	\$ 298,944	\$ 306,119

	50	51	52	53	54	55	56	57	58	59	60	61	62
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095
\$	663,781	\$ 671,304	\$ 679,008	\$ 686,896	\$ 694,974	\$ 703,246	\$ 711,716	\$ 720,390	\$ 729,272	\$ 738,367	\$ 747,680	\$ 757,217	\$ 766,982
\$	1,227,336	\$ 1,234,859	\$ 1,242,563	\$ 1,250,452	\$ 1,258,530	\$ 1,266,802	\$ 1,275,272	\$ 1,283,946	\$ 1,292,827	\$ 1,301,922	\$ 1,311,236	\$ 1,320,772	\$ 1,330,538
\$	313,466	\$ 320,989	\$ 328,693	\$ 336,581	\$ 344,659	\$ 352,931	\$ 361,402	\$ 370,075	\$ 378,957	\$ 388,052	\$ 397,365	\$ 406,902	\$ 416,668

	63	64	65	66	67	68	69	70	71	72	73	74	75
\$	283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696	\$ 283,696
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409	\$ 46,409
\$	526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865	\$ 526,865
\$	56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900	\$ 56,900
\$	583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765	\$ 583,765
\$	913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870	\$ 913,870
\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461	\$ 559,461
\$	4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095	\$ 4,095
\$	776,982	\$ 787,222	\$ 797,708	\$ 808,446	\$ 819,441	\$ 830,700	\$ 842,229	\$ 854,035	\$ 866,124	\$ 878,504	\$ 891,180	\$ 904,161	\$ 917,453
\$	1,340,538	\$ 1,350,778	\$ 1,361,264	\$ 1,372,001	\$ 1,382,996	\$ 1,394,256	\$ 1,405,785	\$ 1,417,591	\$ 1,429,680	\$ 1,442,059	\$ 1,454,736	\$ 1,467,717	\$ 921,548
\$	426,668	\$ 436,908	\$ 447,393	\$ 458,131	\$ 469,126	\$ 480,385	\$ 491,914	\$ 503,720	\$ 515,810	\$ 528,189	\$ 540,866	\$ 553,846	\$ 7,678

CALCULATIONS:

MCCA Development Acres (see notes re: no mitigation fee revenue)	3,071	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
VFPA Fluvial Sand Transport Area	315	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VFPA Section 6 Development	32	0.00	0.00	0.00	0.00	0.00	0.00	32.00	0.00
VFPA Development Acres (Subject to Mitigation Fee)	5,818	233	233	233	233	233	233	233	233
Total Development Acres	9,236	273.67	273.67	273.67	273.67	273.67	273.67	305.67	273.67
Cumulative Development Acres		273.67	547.33	821.00	1,094.67	1,368.33	1,642.00	1,947.67	2,221.33
MCCA Habitat Preserve Acres Dedicated	17,404	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
VFPA Habitat Acres Dedicated by Fluvial and Development at 1:1	347	0.00	0.00	0.00	0.00	0.00	0.00	32.00	0.00
VFPA Habitat Dedicated by Specific Plan	177	0.00	0.00	0.00	0.00	0.00	0.00	177.02	0.00
VFPA Habitat Acres Acquired	1,222	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88
Total Habitat Preserve Acres	19,149	280.93	280.93	280.93	280.93	280.93	280.93	489.95	280.93
Cumulative Habitat Preserve Acres		281	562	843	1,124	1,405	1,686	2,176	2,456

Endowment Revenue Calculations

Endowment Deposits from Cash Flow	\$ 25,401,568	\$ 296,509	\$ 311,325	\$ 326,497	\$ 342,033	\$ 357,942	\$ 374,232	\$ 349,110	\$ 406,992
Annual Endowment Deposits	\$ 12,833,333	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
Net Deposit	\$ 38,234,901	\$ 617,342	\$ 632,158	\$ 647,330	\$ 662,866	\$ 678,775	\$ 695,065	\$ 669,943	\$ 727,826
Endowment Cumulative Balance	\$ 38,227,223	\$ -	\$ 617,342	\$ 1,249,501	\$ 1,896,831	\$ 2,559,697	\$ 3,238,472	\$ 3,933,537	\$ 4,603,480
Endowment Revenue	\$ 39,843,831	\$ -	\$ 14,816	\$ 29,988	\$ 45,524	\$ 61,433	\$ 77,723	\$ 94,405	\$ 110,484

40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
0.00	0.00	0.00	0.00	0.00	0.00	314.91	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
233	233	233	233	233	233	233	233	233	233	233	233	233
273.67	273.67	273.67	273.67	273.67	273.67	588.58	273.67	273.67	273.67	273.67	273.67	273.67
2,495.00	2,768.67	3,042.33	3,316.00	3,589.67	3,863.33	4,451.91	4,725.58	4,999.24	5,272.91	5,546.58	5,820.24	6,093.91
232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
0.00	0.00	0.00	0.00	0.00	0.00	314.91	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88	48.88
280.93	280.93	280.93	280.93	280.93	280.93	595.84	280.93	280.93	280.93	280.93	280.93	280.93
2,737	3,018	3,299	3,580	3,861	4,142	4,738	5,019	5,300	5,581	5,862	6,142	6,423
\$ 424,460	\$ 442,347	\$ 460,664	\$ 479,419	\$ 586,126	\$ 607,893	\$ 567,200	\$ 651,495	\$ 674,831	\$ 698,727	\$ 723,196	\$ 748,253	\$ 773,911
\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
\$ 745,294	\$ 763,181	\$ 781,497	\$ 800,253	\$ 906,959	\$ 928,726	\$ 888,033	\$ 972,328	\$ 995,664	\$ 1,019,560	\$ 1,044,029	\$ 1,069,086	\$ 1,094,744
\$ 5,331,306	\$ 6,076,600	\$ 6,839,780	\$ 7,621,277	\$ 8,421,530	\$ 9,328,489	\$ 10,257,215	\$ 11,145,248	\$ 12,117,576	\$ 13,113,240	\$ 14,132,800	\$ 15,176,829	\$ 16,245,916
\$ 127,951	\$ 145,838	\$ 164,155	\$ 182,911	\$ 202,117	\$ 223,884	\$ 246,173	\$ 267,486	\$ 290,822	\$ 314,718	\$ 339,187	\$ 364,244	\$ 389,902

40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
233	233	233	233										
273.67	273.67	273.67	273.67	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
6,367.58	6,641.24	6,914.91	7,188.58	7,229.52	7,270.47	7,311.42	7,352.36	7,393.31	7,434.26	7,475.20	7,516.15	7,557.10	7,598.04
232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48.88	48.88	48.88	48.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
280.93	280.93	280.93	280.93	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
6,704	6,985	7,266	7,547	7,779	8,011	8,243	8,475	8,707	8,939	9,171	9,403	9,636	9,868
\$ 800,185	\$ 827,089	\$ 854,639	\$ 882,851	\$ (143,418)	\$ (139,160)	\$ (134,800)	\$ (130,335)	\$ (125,763)	\$ (121,081)	\$ (116,287)	\$ (111,378)	\$ (106,351)	\$ (101,204)
\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833
\$ 1,121,018	\$ 1,147,922	\$ 1,175,473	\$ 1,203,684	\$ 1,177,415	\$ 1,181,673	\$ 1,186,034	\$ 1,190,498	\$ 1,195,070	\$ 1,199,752	\$ 1,204,546	\$ 1,209,455	\$ 1,214,482	\$ 1,219,630
\$ 17,340,660	\$ 18,461,678	\$ 19,609,600	\$ 20,785,073	\$ 21,988,757	\$ 22,166,172	\$ 22,347,845	\$ 22,533,879	\$ 22,724,377	\$ 22,919,448	\$ 23,119,200	\$ 23,323,746	\$ 23,533,201	\$ 23,747,683
\$ 416,176	\$ 443,080	\$ 470,630	\$ 498,842	\$ 527,730	\$ 531,988	\$ 536,348	\$ 540,813	\$ 545,385	\$ 550,067	\$ 554,861	\$ 559,770	\$ 564,797	\$ 569,944

40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
7,638.99	7,679.94	7,720.88	7,761.83	7,802.78	7,843.72	7,884.67	7,925.62	7,966.56	8,007.51	8,048.46	8,089.40	8,130.35	8,171.30
232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
10,100	10,332	10,564	10,796	11,028	11,260	11,492	11,724	11,956	12,188	12,420	12,652	12,884	13,116
\$ (95,933)	\$ (90,535)	\$ (85,008)	\$ (79,348)	\$ (73,552)	\$ 253,216	\$ 259,293	\$ 265,516	\$ 271,888	\$ 278,414	\$ 285,096	\$ 291,938	\$ 298,944	\$ 306,119
\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ 320,833	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 224,901	\$ 230,298	\$ 235,826	\$ 241,485	\$ 247,281	\$ 253,216	\$ 259,293	\$ 265,516	\$ 271,888	\$ 278,414	\$ 285,096	\$ 291,938	\$ 298,944	\$ 306,119
\$ 23,967,312	\$ 24,192,213	\$ 24,422,512	\$ 24,658,337	\$ 24,899,822	\$ 25,147,103	\$ 25,400,319	\$ 25,659,612	\$ 25,925,128	\$ 26,197,016	\$ 26,475,430	\$ 26,760,526	\$ 27,052,464	\$ 27,351,408
\$ 575,215	\$ 580,613	\$ 586,140	\$ 591,800	\$ 597,596	\$ 603,530	\$ 609,608	\$ 615,831	\$ 622,203	\$ 628,728	\$ 635,410	\$ 642,253	\$ 649,259	\$ 656,434

40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
8,212.24	8,253.19	8,294.14	8,335.08	8,376.03	8,416.98	8,457.92	8,498.87	8,539.82	8,580.76	8,621.71	8,662.66	8,703.60	8,703.60
232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
13,348	13,580	13,812	14,044	14,276	14,509	14,741	14,973	15,205	15,437	15,669	15,901	16,133	16,133
\$ 313,466	\$ 320,989	\$ 328,693	\$ 336,581	\$ 344,659	\$ 352,931	\$ 361,402	\$ 370,075	\$ 378,957	\$ 388,052	\$ 397,365	\$ 406,902	\$ 416,668	\$ 416,668
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 313,466	\$ 320,989	\$ 328,693	\$ 336,581	\$ 344,659	\$ 352,931	\$ 361,402	\$ 370,075	\$ 378,957	\$ 388,052	\$ 397,365	\$ 406,902	\$ 416,668	\$ 416,668
\$ 27,657,527	\$ 27,970,993	\$ 28,291,982	\$ 28,620,675	\$ 28,957,256	\$ 29,301,916	\$ 29,654,847	\$ 30,016,248	\$ 30,386,324	\$ 30,765,281	\$ 31,153,333	\$ 31,550,698	\$ 31,957,600	\$ 31,957,600
\$ 663,781	\$ 671,304	\$ 679,008	\$ 686,896	\$ 694,974	\$ 703,246	\$ 711,716	\$ 720,390	\$ 729,272	\$ 738,367	\$ 747,680	\$ 757,217	\$ 766,982	\$ 766,982

40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
8,744.55	8,785.50	8,826.44	8,867.39	8,908.34	8,949.28	8,990.23	9,031.18	9,072.12	9,113.07	9,154.02	9,194.96	9,235.91	9,235.91
232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05	232.05
16,365	16,597	16,829	17,061	17,293	17,525	17,757	17,989	18,221	18,453	18,685	18,917	19,149	19,149
\$ 426,668	\$ 436,908	\$ 447,393	\$ 458,131	\$ 469,126	\$ 480,385	\$ 491,914	\$ 503,720	\$ 515,810	\$ 528,189	\$ 540,866	\$ 553,846	\$ 567,015	\$ 578,678
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 426,668	\$ 436,908	\$ 447,393	\$ 458,131	\$ 469,126	\$ 480,385	\$ 491,914	\$ 503,720	\$ 515,810	\$ 528,189	\$ 540,866	\$ 553,846	\$ 567,015	\$ 578,678
\$ 32,374,267	\$ 32,800,935	\$ 33,237,843	\$ 33,685,236	\$ 34,143,367	\$ 34,612,493	\$ 35,092,878	\$ 35,584,793	\$ 36,088,513	\$ 36,604,323	\$ 37,132,512	\$ 37,673,377	\$ 38,227,223	\$ 38,791,453
\$ 776,982	\$ 787,222	\$ 797,708	\$ 808,446	\$ 819,441	\$ 830,700	\$ 842,229	\$ 854,035	\$ 866,124	\$ 878,504	\$ 891,180	\$ 904,161	\$ 917,453	\$ 917,453

ASSUMPTIONS:

	# of Years to Acquire or Year to Occur	#Years for Endowment Deposit	Alternate Assumptions for MCCA at full development in 75 years	Supporting Calculations
Total MCCA Preserve	1594			
VFPA Projected Acquisitions	931			
Projected Contingency Acres to be Acquired	291			
Total VFPA Habitat Preserve Acquisitions	<u>1222</u>			1,222
Plus VFPA Dedications	<u>524</u>			
Total VFPA Habitat Preserve	<u>1746</u>			
Total MCCA & VFPA Projected Habitat Preserve	<u><u>3340</u></u>			3340
Number of years to develop/preserve VFPA		25		
VFPA Acquired Acres/Year	48.88			
VFPA Development Acres subject to Mitigation Fee	5,818			
Annual VFPA Development*	233			
VFPA Section 6 Specific Plan Dedication (onsite)	177	7		
VFPA Section 6 Specific Plan Dedication (offsite based on 1:1 development)	32	7		
VFPA Fluvial Sand Area-Section 6 Dedication	<u>315</u>	15		
VFPA Total Dedications	524			
THCP Mitigation Fee/Acre	\$5,730			
Land Improvement Cost/Acre	\$200			
Average VFPA Land Acquisition Price	\$ 5,494.12			
Total Annual Administration (reduced in final year)	\$ 283,696			\$ 283,696 Final year Administration:
Total Annual Costs Adaptive Management	\$ 526,865			\$ 526,865
Total Annual Monitoring	\$ 56,900			
Total Personnel, Administration and Adaptive Management Costs	\$ 867,461			\$ 56,900
Habitat Preserve Adaptive Management (endowed-not covered by Tribe Funding)	\$ 308,000			
Tribal Annual Funding	\$ 559,461			
Endowment Rate (net of inflation)	2.40%			\$ 229,997 Final Year Net Cash Flow
Total Endowment Deposit	\$ 12,833,333	40		
Contingency/Changed Circumstances Fund	\$ 1,050,000			
MCCA Total Acres	20,475			
MCCA Total Potential Development Acres	15% 3,071			3071
Less Adjustment for Developable Acres	0			
MCCA Total Adjusted Development Acres	<u>3,071</u>		75	
MCCA Total Conservation	<u>17,404</u>		75	
	Input Annual Calculations For this Cash Flow	For Full Buildout	Projected	
MCCA Reserve Assembly Number of Acres	<u>21.25</u>	232.05	21.25	1,594 15,810 Remaining Acres to Preserve
MCCA Development Acres	<u>3.75</u>	40.95	3.75	285 2,786
MCCA Conserved/Developed Acreage Ratio	5.67			3.75
Per Acre reimbursement fee estimate	\$ 100			
Total Conservation MCCA and VFPA				