APPENDIX G

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

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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

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[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**

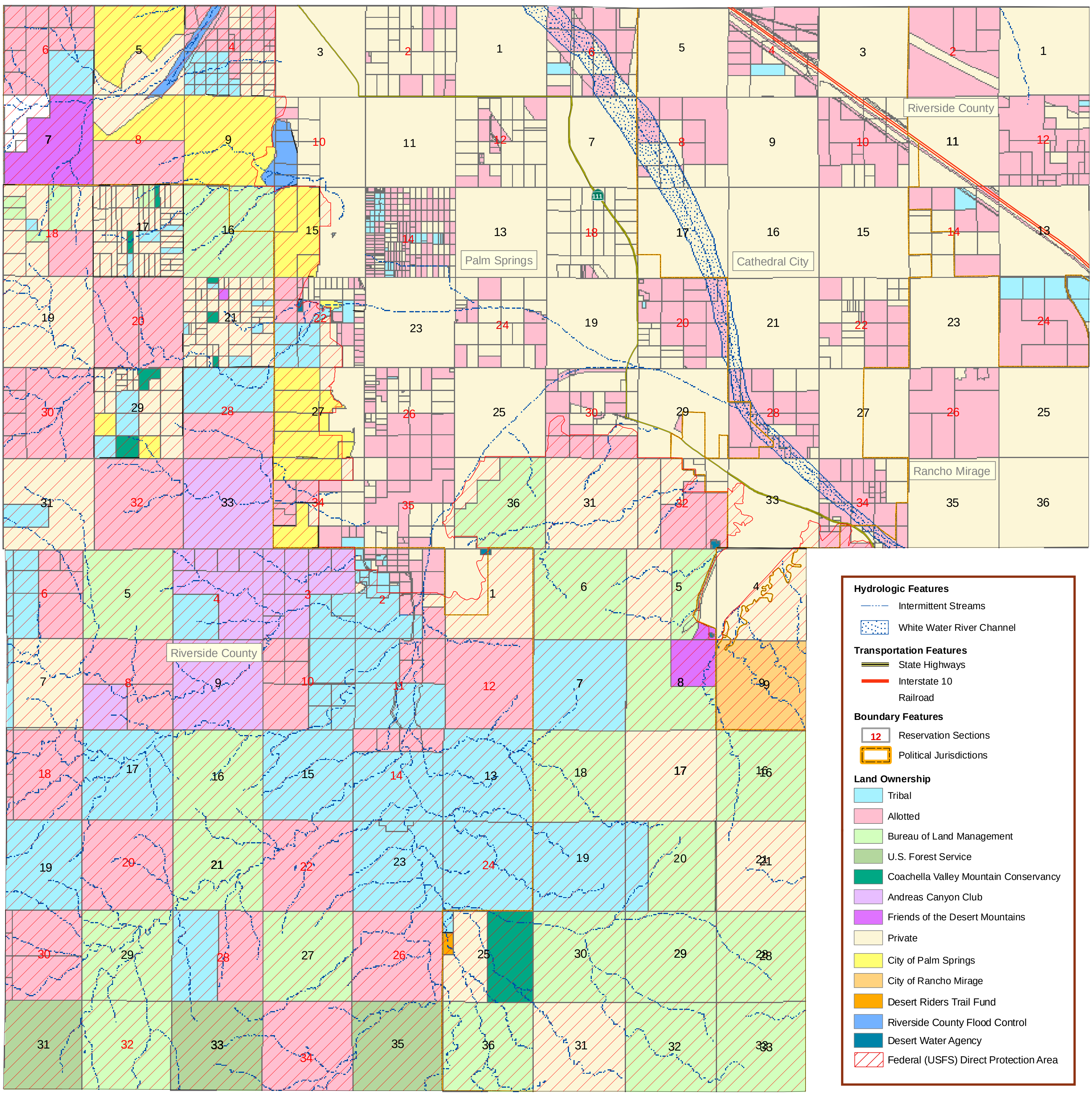
Tribal governments have broad regulatory and management authority within their jurisdictional territories. The inherent sovereign authority of tribal governments to manage and regulate their people, lands, and resources is supported by an extensive body of treaties, federal legislation and regulations, 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.

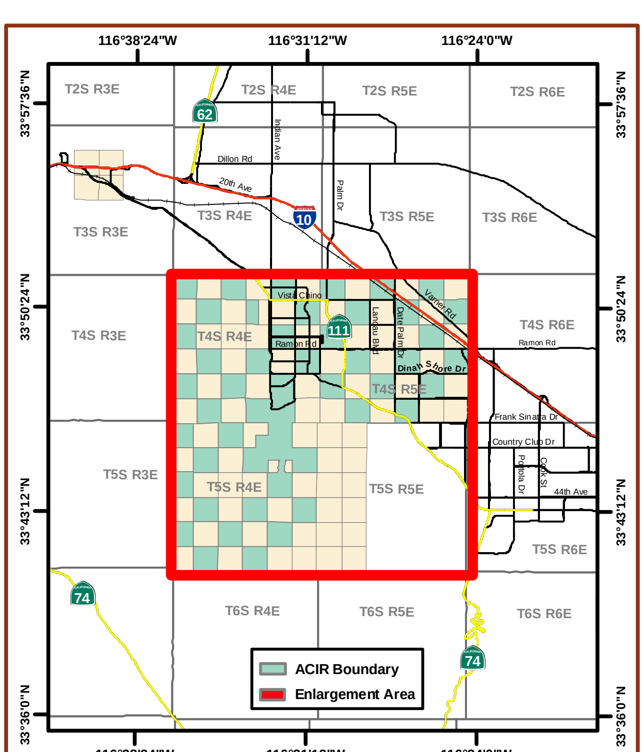
[3] USDI Part 910 DM 1: Chapter 1

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:

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0 1,500 3,000 6,000 9,000 12,000 Feet

0 500 1,000 2,000 3,000 4,000 Meters

0 0.25 0.5 1 1.5 2 Miles

- **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 Kauisiktum 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:

<u>Bureau of Land Management</u>
- 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>U.S. Forest Service</u>
- San Bernardino National Forest Land Use Management Plan

<u>National Park Service</u>
- Land Protection Plan for Joshua Tree National Park
- Joshua Tree National Park General Management Plan
- Backcountry and Wilderness Management Plan

<u>U.S. Fish and Wildlife Service</u>
- Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California

<u>California Department of Fish and Game</u>
- Carrizo Canyon Ecological Reserve Management Plan
- Hidden Palms Ecological Reserve Management Plan
- Magnesia Spring Ecological Reserve Management Plan

<u>California Department of Parks and Recreation</u>
- Mount San Jacinto State Park Management Plan

<u>Multiple Agency Plans</u>
- Coachella Valley Preserve System Management Plan
- Santa Rosa Mountains Wildlife Habitat Management Plan
- Santa Rosa and San Jacinto Mountains National Monument Management Plan

<u>Coachella Valley Association of Governments</u>
- 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

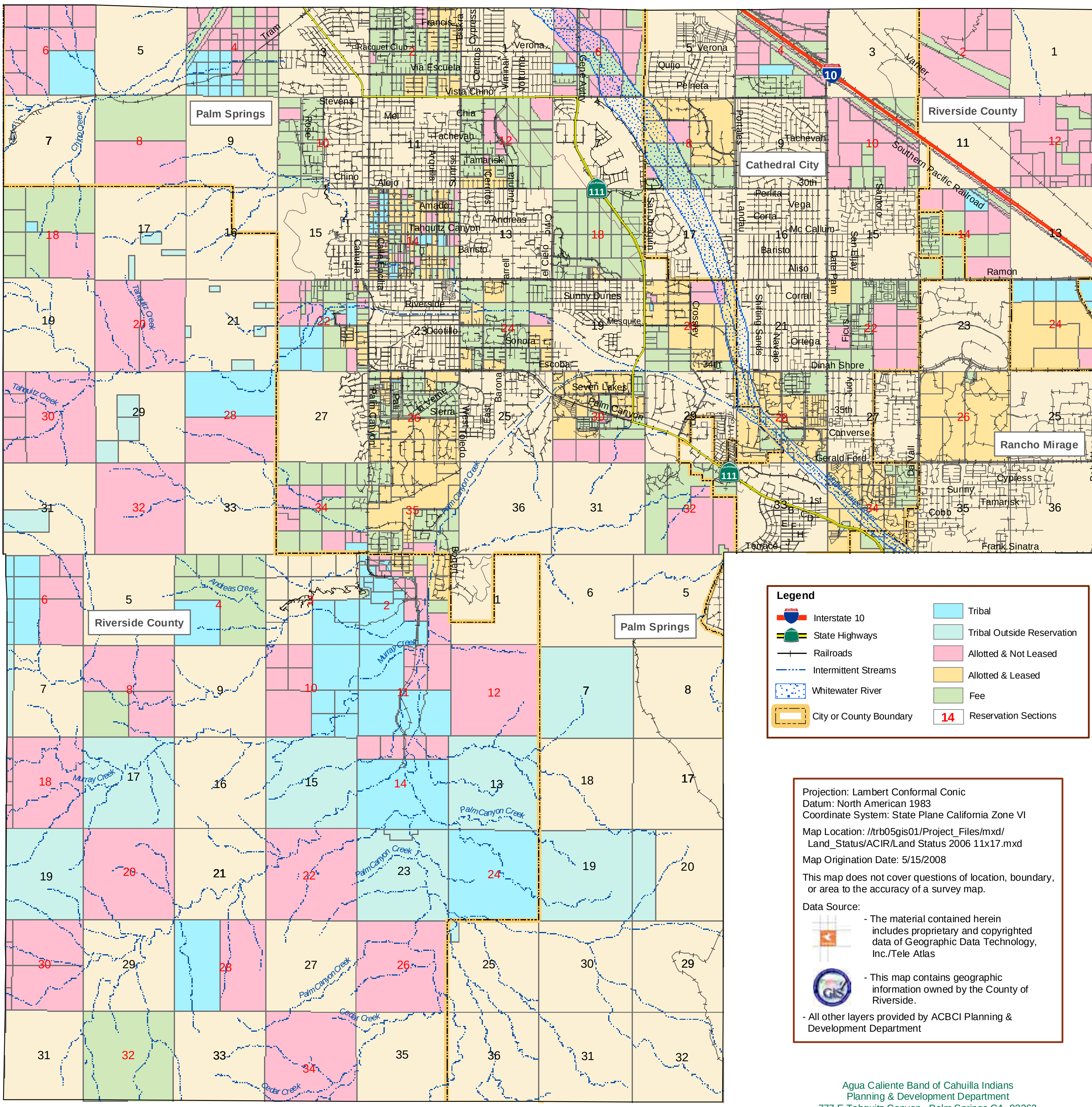
AGUA CALIENTE INDIAN RESERVATION

FIGURE 2

LAND STATUS AS OF FEBRUARY 2007

0 2,000 4,000 6,000 8,000 Feet

0 0.25 0.5 0.75 1 1.25 1.5 Miles



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

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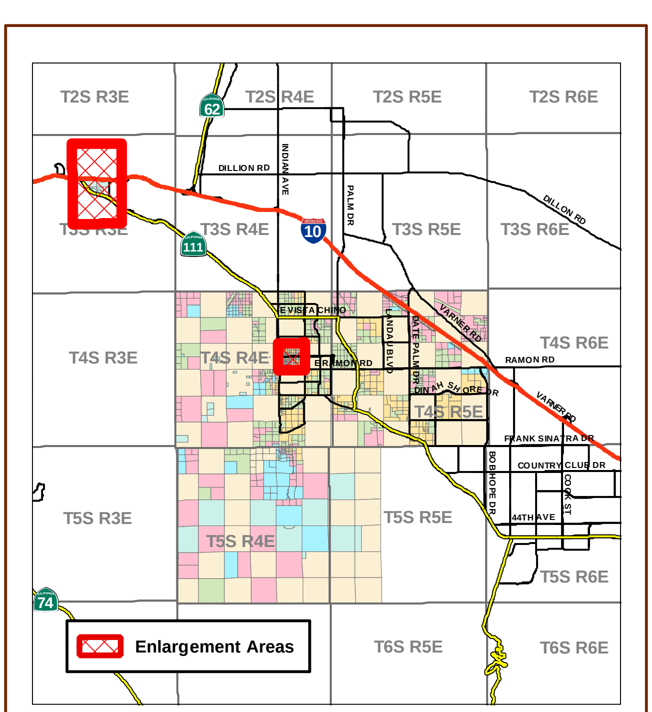
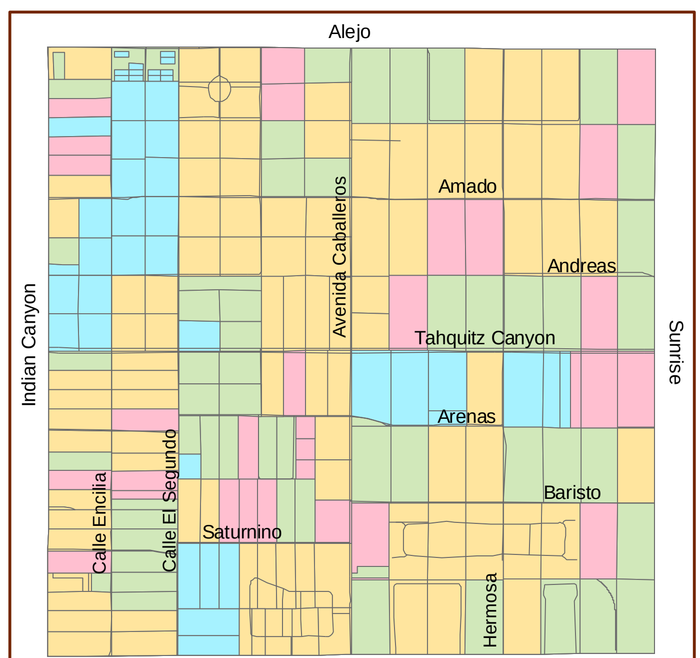
Agua Caliente Band of Cahuilla Indians
Planning & Development Department
777 E Tahquitz Canyon Palm Springs CA, 92262
Geospatial Information Services
(760) 883 - 1911/Fax (760) 883-1937





Enlargement of Section 14, T4S R4E

Township 3 South Range 3 East Land Under Tribal Jurisdiction Beyond Reservation Boundary

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,Tempalpakh, 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.

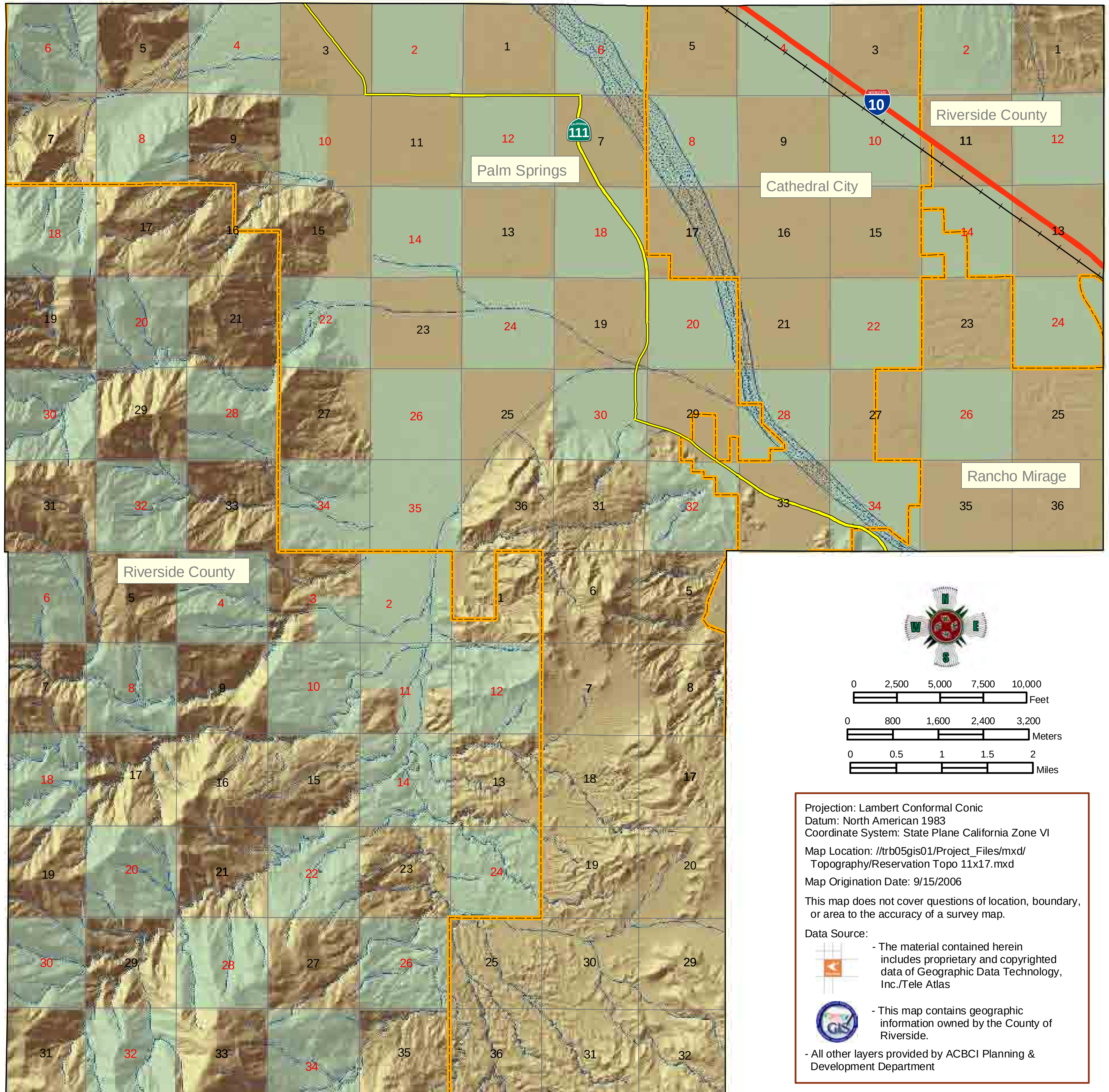
3.1.5 Climate

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

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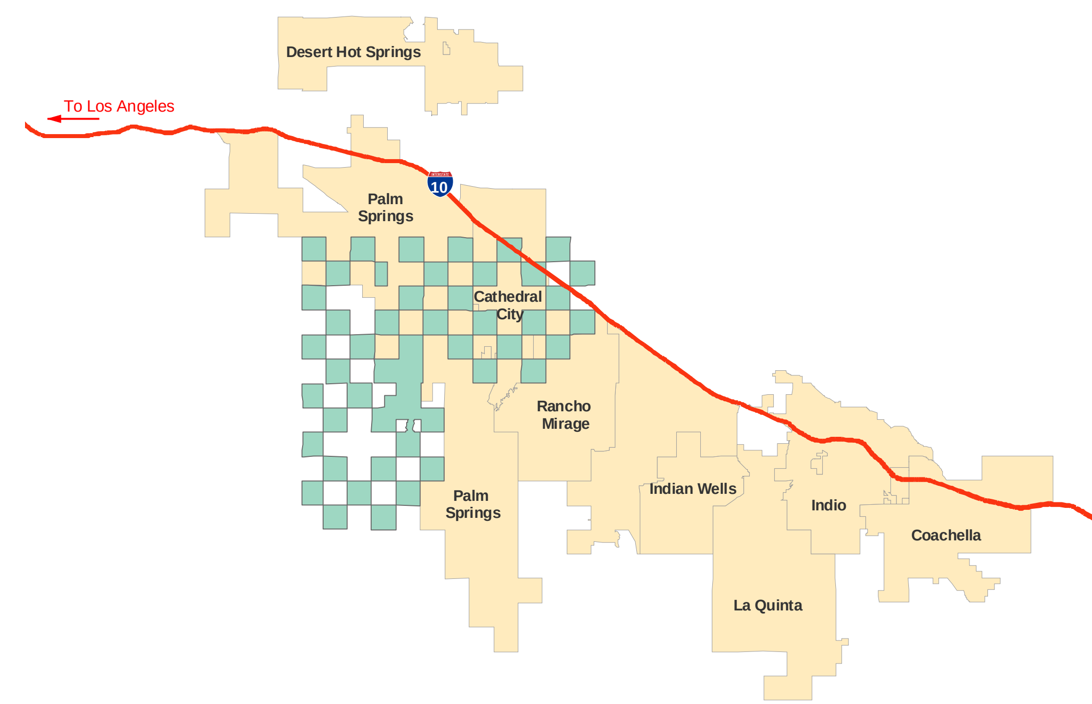
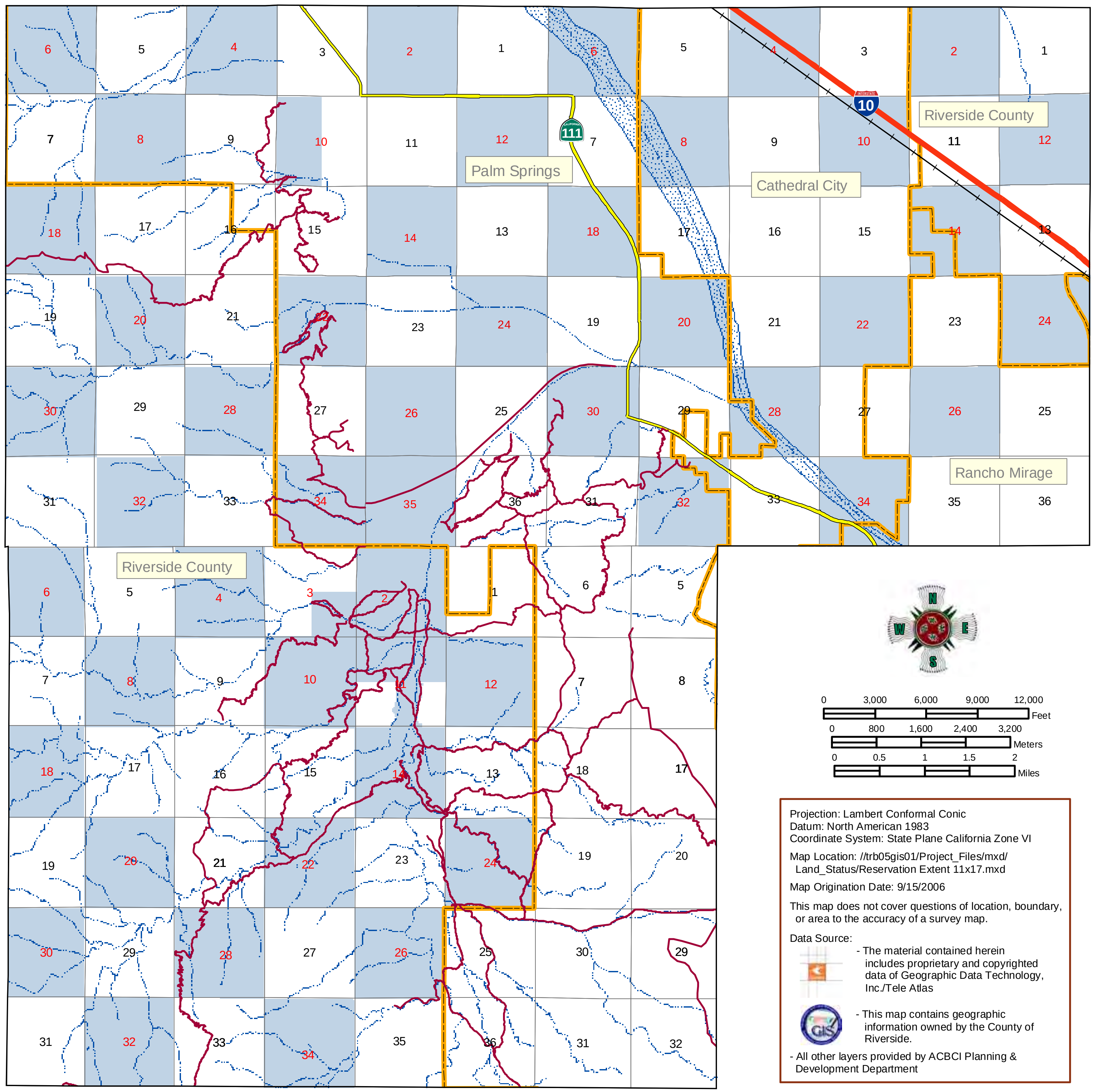


AGUA CALIENTE INDIAN RESERVATION
FIGURE 4
TRAILS MAP



- Reservation
- Political Jurisdictions
- 14 Reservation Sections
- White Water River Channel
- Intermittent Streams
- State Highway 111
- Interstate 10
- Railroad
- Trails

0 3,000 6,000 9,000 12,000 Feet
0 800 1,600 2,400 3,200 Meters
0 0.5 1 1.5 2 Miles

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

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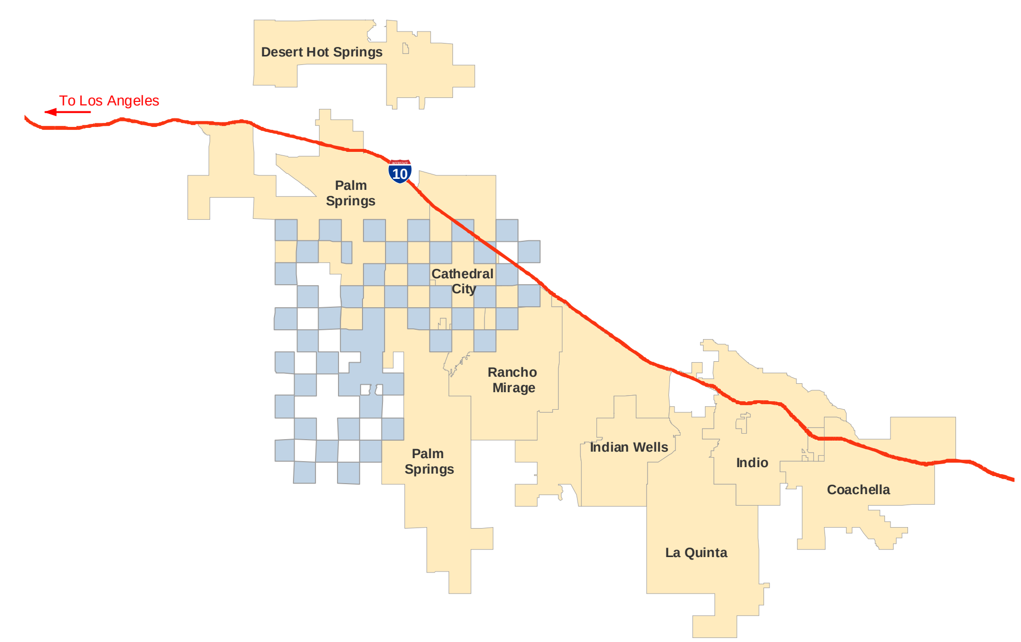


very limited rainfall and extreme temperatures. Winter precipitation generally moves into the region from the southeast, while summer rains originate in the west. Summer rains usually occur as brief, sometimes severe, thunderstorms producing short duration events with relatively large amounts of rainfall. 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 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 lightening 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 it's 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]

- *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

- *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

- *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:

- *The City of Palm Springs ~ Urban*
  12,331 acres within the ACIR

- *The City of Cathedral City ~ Urban*
  3,724 acres within the ACIR

- *The City of Rancho Mirage ~ Urban*
  941 acres within the ACIR

- *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, is 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.

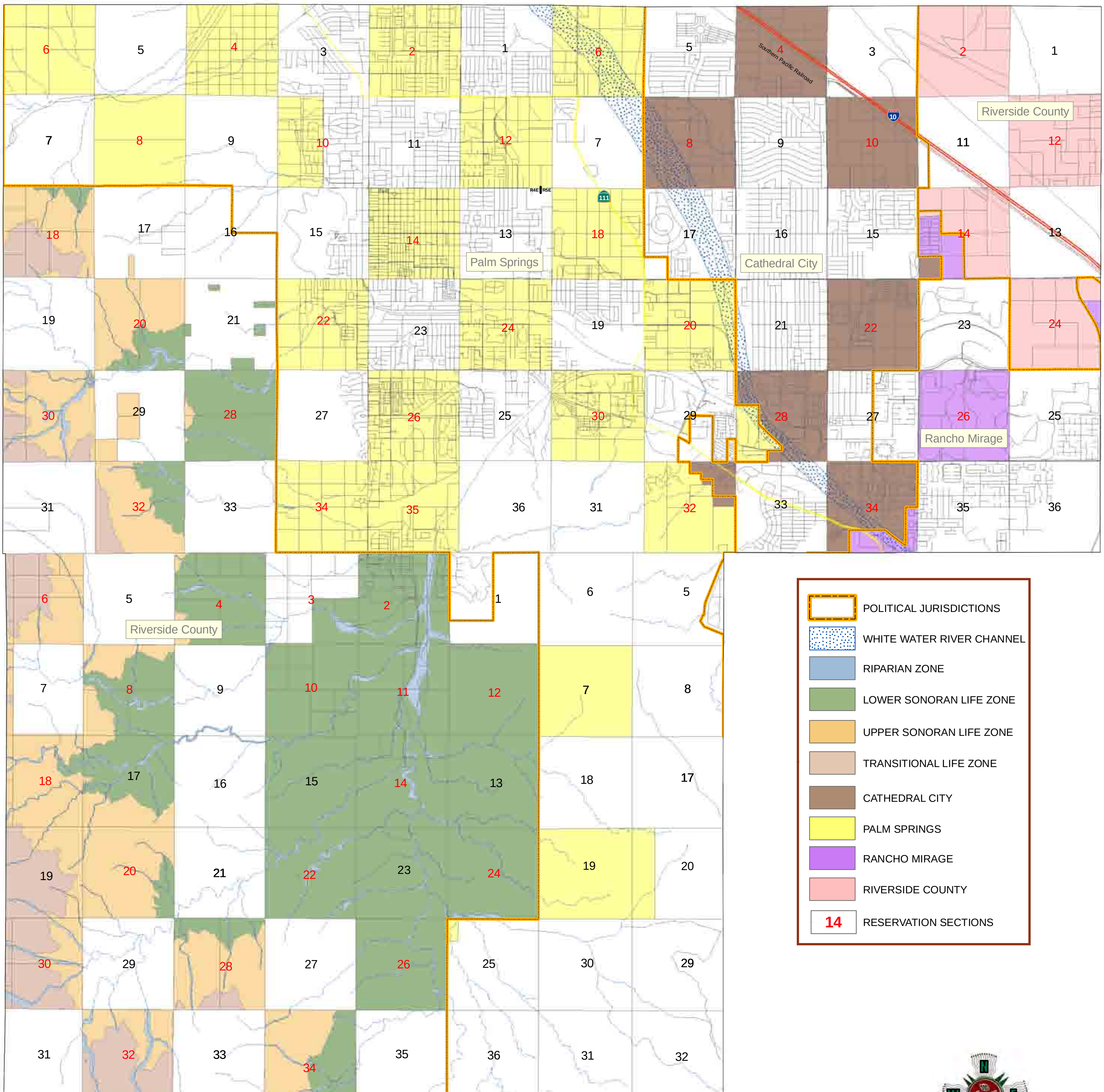
Lastly, it has been documented from oral history statements made by Tribal members that fire was utilized to manage vegetation. For instance, fire was used to i) stimulate the growth of clean shoots of deer grass for basket making, ii) keep vegetation off trails, and iii) clear areas beneath palms to enable the harvest of palm fruit to proceed without impedance.

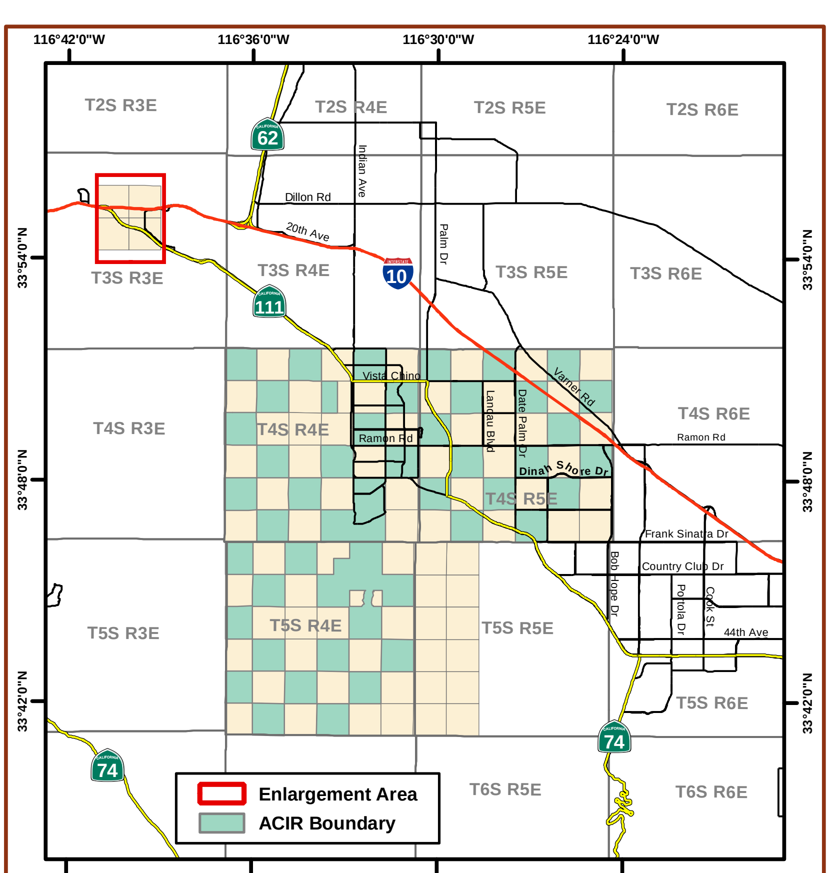
Based upon the information presented thus far, it is evident that cultural significance within the Tribe's traditional use area was highly dependent upon the botanical species available for use. This Plan relies upon that fact, rather than giving cultural significance only to such relics as burial sites, 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





Enlargement of
Sections 9 and 16, T3S R3E
Land Under Tribal Jurisdiction
Beyond Reservation Boundary

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

0 1,500 3,000 4,500 6,000 7,500 Feet

0 500 1,000 1,500 2,000 Meters

0 0.25 0.5 0.75 1 Miles

Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: State Plane California Zone VI

Map Location: //trb05gis01/Project_Files/mxd/Enviornmental/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 Precip.	Monthly Precipitation Snowfall
1922	Jan	NO DATA								
	Feb									
	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	11.7	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 Precip.	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 Precipitation Precip.	Monthly Precipitation 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**	**2**
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 Precip.	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 Precip.	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 Precip.	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 Precip.	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 Precip.	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**	

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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.	Monthly Precipitation 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**	

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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**	

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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**	

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YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Monthly Precipitation 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**	

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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**	

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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

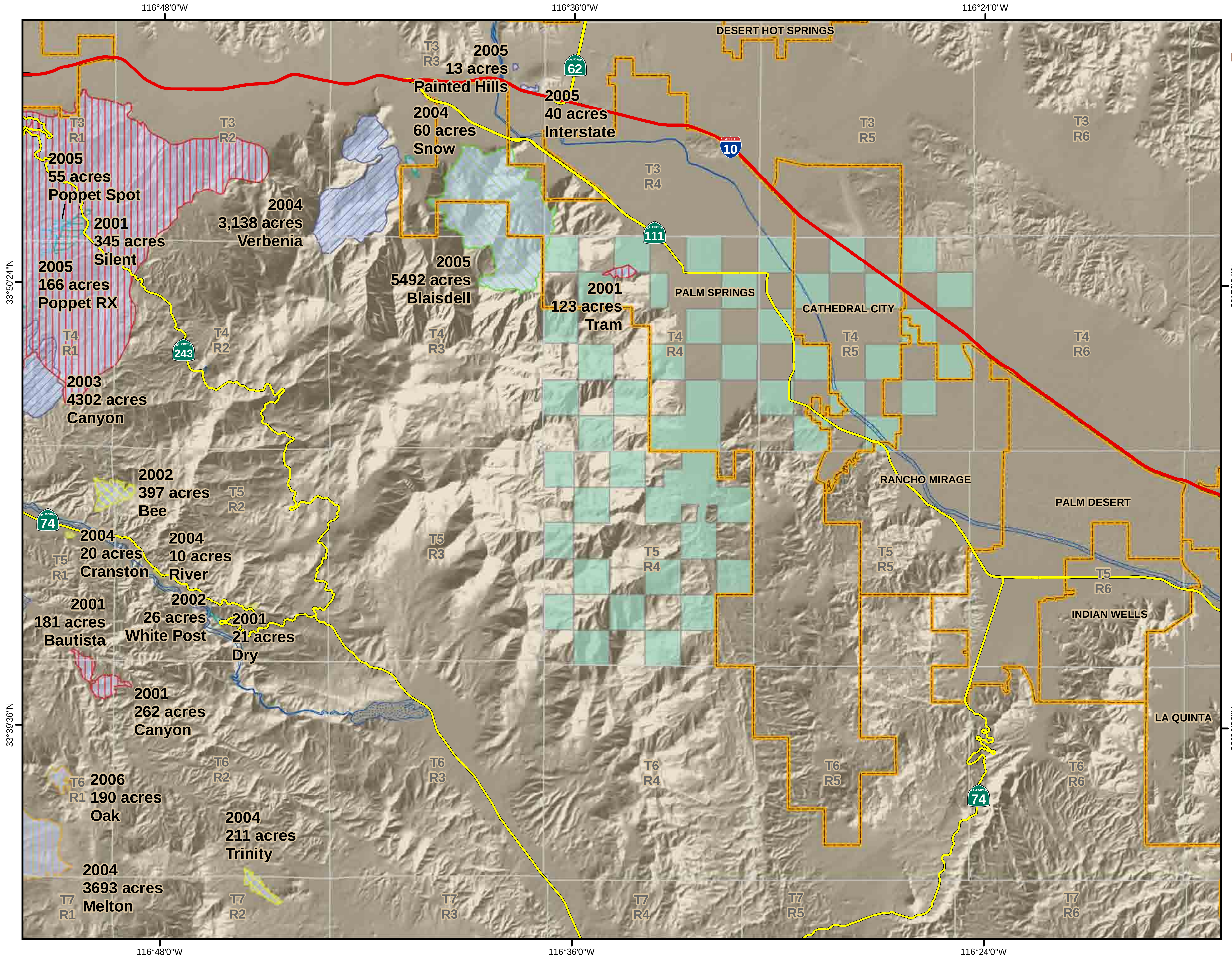
YEAR	MONTH	MEAN TEMP	MEAN MAX	MEAN MIN	HIGHEST TEMP	LOWEST TEMP	CDD	HDD	Monthly Precipitation Precip.	Snowfall
1998	Jan	57.8	69.8	45.8					0.8	
	Feb	57.0	67.4	46.6					3.4	
	Mar	63.6	76.0	51.2					0.5	
	Apr	68.4	82.7	54.2						
	May	72.4	86.6	58.2					0.1	
	Jun	81.9	97.7	66.1						
	Jul	94.5	110.1	78.8	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



AGUA CALIENTE BAND OF CAHUILLA INDIANS

- Political Jurisdictions
- ACIR
- Water Bodies
- Fire History (2000-2006)

Fire Cause:

- Unknown
- Miscellaneous
- Arson
- Equipment Use
- Lightning
- Escaped Prescribed Burn
- Campfire

N W E S

1 inch = 3 miles

0 5,000 10,000 15,000 20,000 Feet

0 1,500 3,000 4,500 6,000 Meters

0 1 2 3 4 Miles

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

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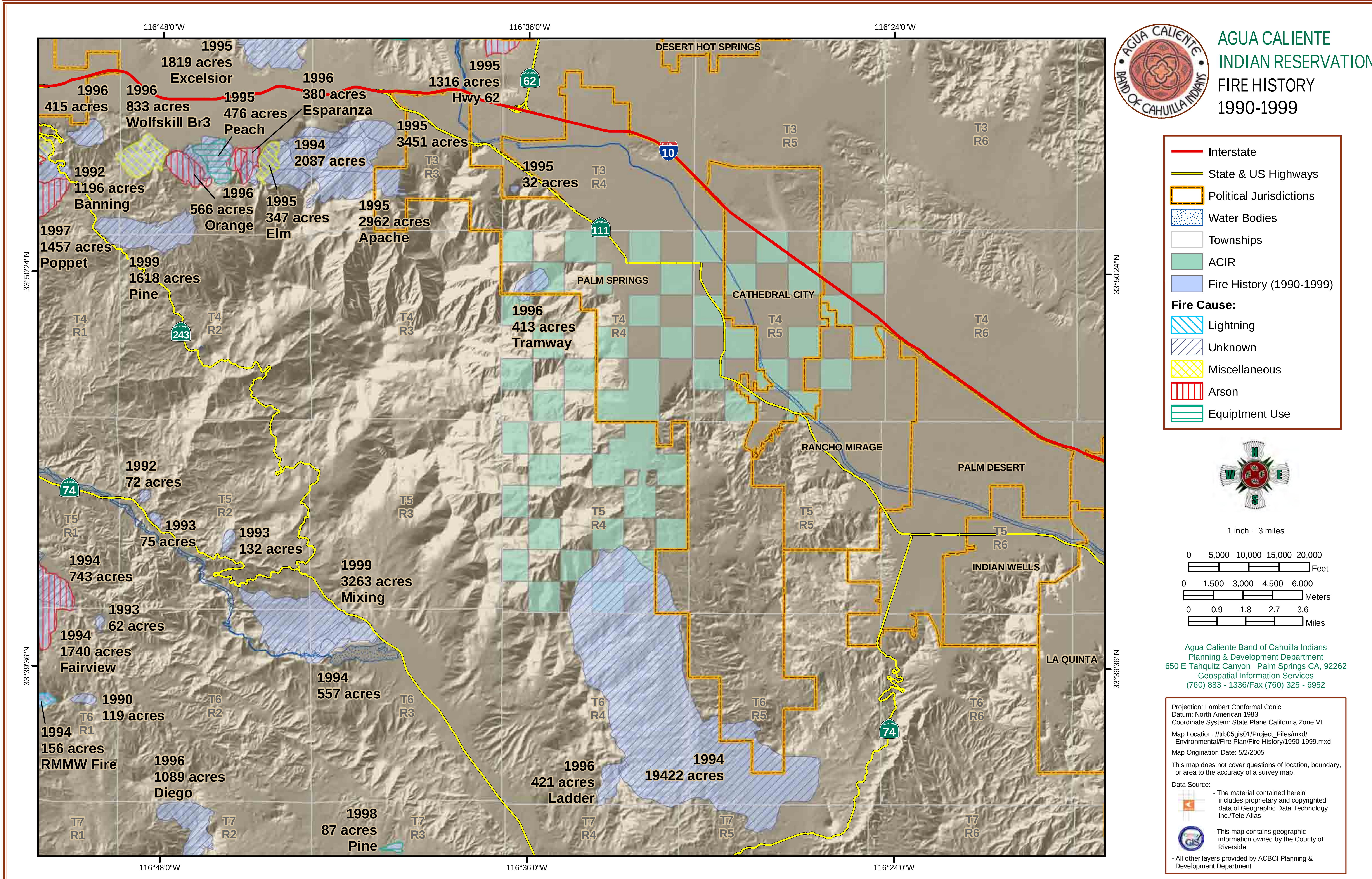
- Fire data provided by the CA Fire Alliance, 2006

- All other layers provided by ACBCI Planning & Development Department



AGUA CALIENTE INDIAN RESERVATION
FIRE HISTORY
1990-1999
AGUA CALIENTE BAND OF CAHUILLA INDIANS
Interstate
State & US Highways
Political Jurisdictions
Water Bodies
Townships
ACIR
Fire History (1990-1999)
Fire Cause:
Lightning
Unknown
Miscellaneous
Arson
Equipment Use
N
E
S
W
1 inch = 3 miles
0 5,000 10,000 15,000 20,000 Feet
0 1,500 3,000 4,500 6,000 Meters
0 0.9 1.8 2.7 3.6 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
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116°48'0"W
116°36'0"W
116°24'0"W
33°50'24"N
33°39'36"N
DESERT HOT SPRINGS
PALM SPRINGS
CATHEDRAL CITY
RANCHO MIRAGE
PALM DESERT
INDIAN WELLS
LA QUINTA
10
62
111
243
74
1995 1819 acres Excelsior
1996 415 acres
1996 833 acres Wolfskill Br3
1995 476 acres Peach
1996 380 acres Esparanza
1995 1316 acres Hwy 62
1995 3451 acres
1994 2087 acres
1995 32 acres
1992 1196 acres Banning
1996 566 acres Orange
1995 347 acres Elm
1995 2962 acres Apache
1997 1457 acres Poppet
1999 1618 acres Pine
1996 413 acres Tramway
1992 72 acres
1993 75 acres
1993 132 acres
1999 3263 acres Mixing
1994 743 acres
1993 62 acres
1994 1740 acres Fairview
1994 557 acres
1990 119 acres
1994 156 acres RMMW Fire
1996 1089 acres Diego
1998 87 acres Pine
1996 421 acres Ladder
1994 19422 acres
T3 R3
T3 R4
T3 R5
T3 R6
T4 R1
T4 R2
T4 R3
T4 R4
T4 R5
T4 R6
T5 R1
T5 R2
T5 R3
T5 R4
T5 R5
T5 R6
T6 R1
T6 R2
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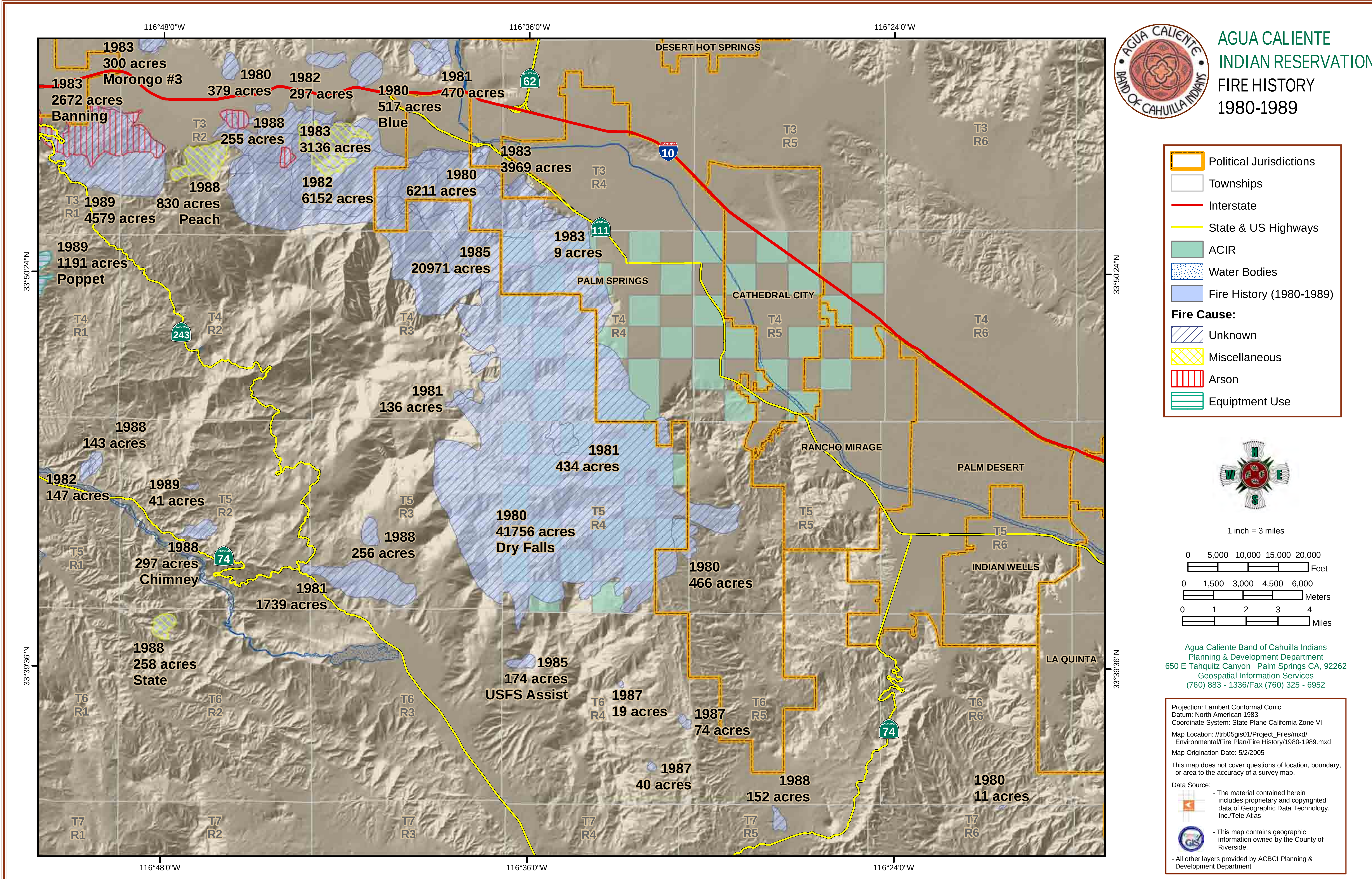
T7 R4
T7 R5
T7 R6


AGUA CALIENTE INDIAN RESERVATION
FIRE HISTORY
1980-1989
AGUA CALIENTE BAND OF CAHUILLA INDIANS
Political Jurisdictions
Townships
Interstate
State & US Highways
ACIR
Water Bodies
Fire History (1980-1989)
Fire Cause:
Unknown
Miscellaneous
Arson
Equipment Use
N
W
E
S
1 inch = 3 miles
0 5,000 10,000 15,000 20,000 Feet
0 1,500 3,000 4,500 6,000 Meters
0 1 2 3 4 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
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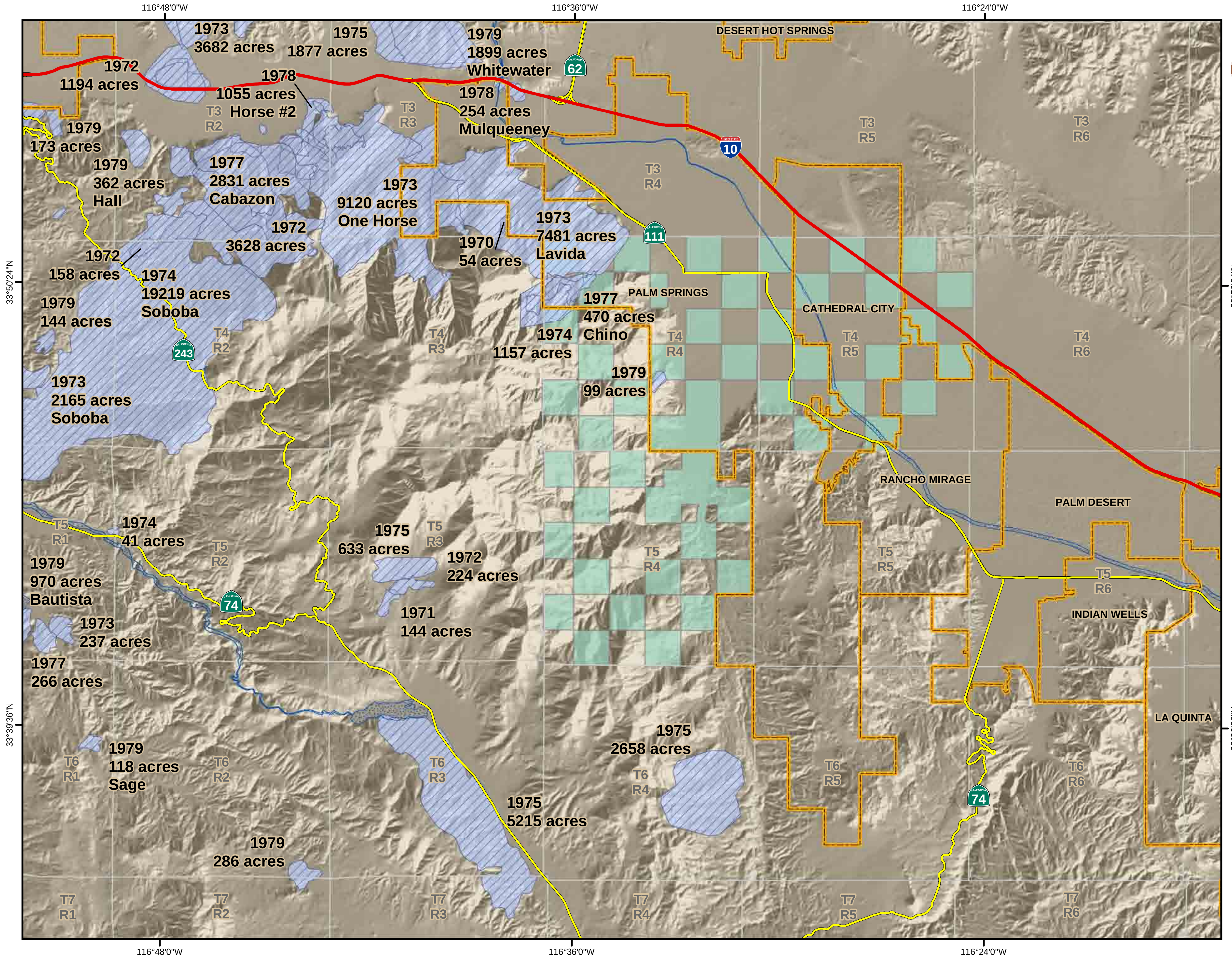
116°48'0"W
116°36'0"W
116°24'0"W
33°50'24"N
33°39'36"N
DESERT HOT SPRINGS
PALM SPRINGS
CATHEDRAL CITY
RANCHO MIRAGE
PALM DESERT
INDIAN WELLS
LA QUINTA
62
10
111
243
74
1983 300 acres Morongo #3
1983 2672 acres Banning
1980 379 acres
1982 297 acres
1980 517 acres Blue
1981 470 acres
1988 255 acres
1983 3136 acres
1983 3969 acres
1988 830 acres Peach
1982 6152 acres
1980 6211 acres
1989 4579 acres
1989 1191 acres Poppet
1983 9 acres
1985 20971 acres
1981 136 acres
1988 143 acres
1981 434 acres
1982 147 acres
1989 41 acres
1980 41756 acres Dry Falls
1988 256 acres
1988 297 acres Chimney
1981 1739 acres
1980 466 acres
1988 258 acres State
1985 174 acres USFS Assist
1987 19 acres
1987 74 acres
1987 40 acres
1988 152 acres
1980 11 acres
T3 R1
T3 R2
T3 R4
T3 R5
T3 R6
T4 R1
T4 R2
T4 R3
T4 R4
T4 R5
T4 R6
T5 R1
T5 R2
T5 R3
T5 R4
T5 R5
T5 R6
T6 R1
T6 R2
T6 R3
T6 R4
T6 R5
T6 R6
T7 R1
T7 R2
T7 R3
T7 R4
T7 R5
T7 R6

AGUA CALIENTE INDIAN RESERVATION
FIRE HISTORY 1970-1979



Interstate
State & US Highways
Political Jurisdictions
Water Bodies
Townships
ACIR
Fire History (1970-1979)

Fire Cause:

Unknown

N W E S

1 inch = 3 miles

0 5,000 10,000 15,000 20,000 Feet

0 1,500 3,000 4,500 6,000 Meters

0 1 2 3 4 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

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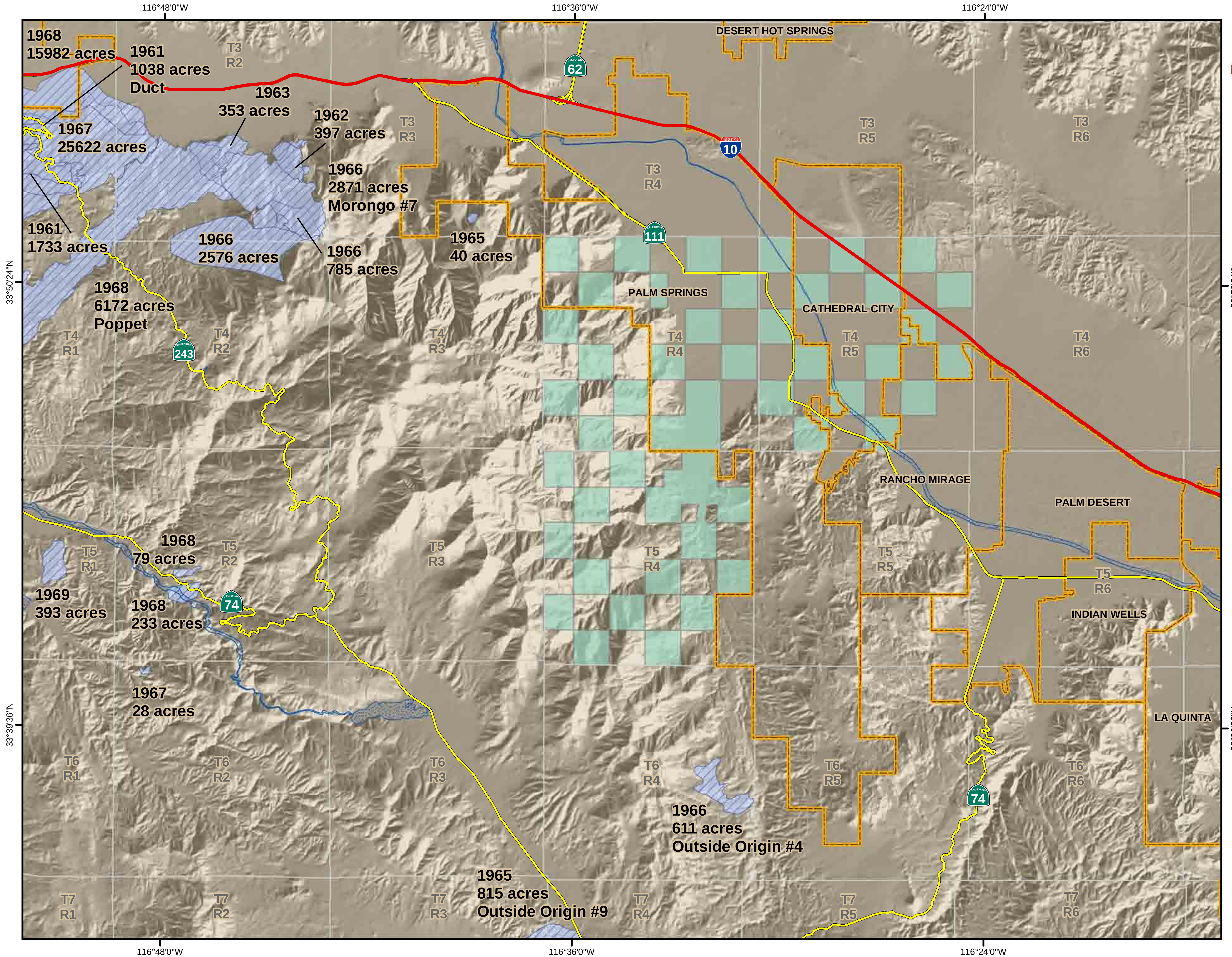
AGUA CALIENTE INDIAN RESERVATION

FIRE HISTORY 1960-1969



- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1960-1969)

Fire Cause:

- Unknown

1 inch = 3 miles

0 5,000 10,000 15,000 20,000 Feet

0 1,500 3,000 4,500 6,000 Meters

0 1 2 3 4 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

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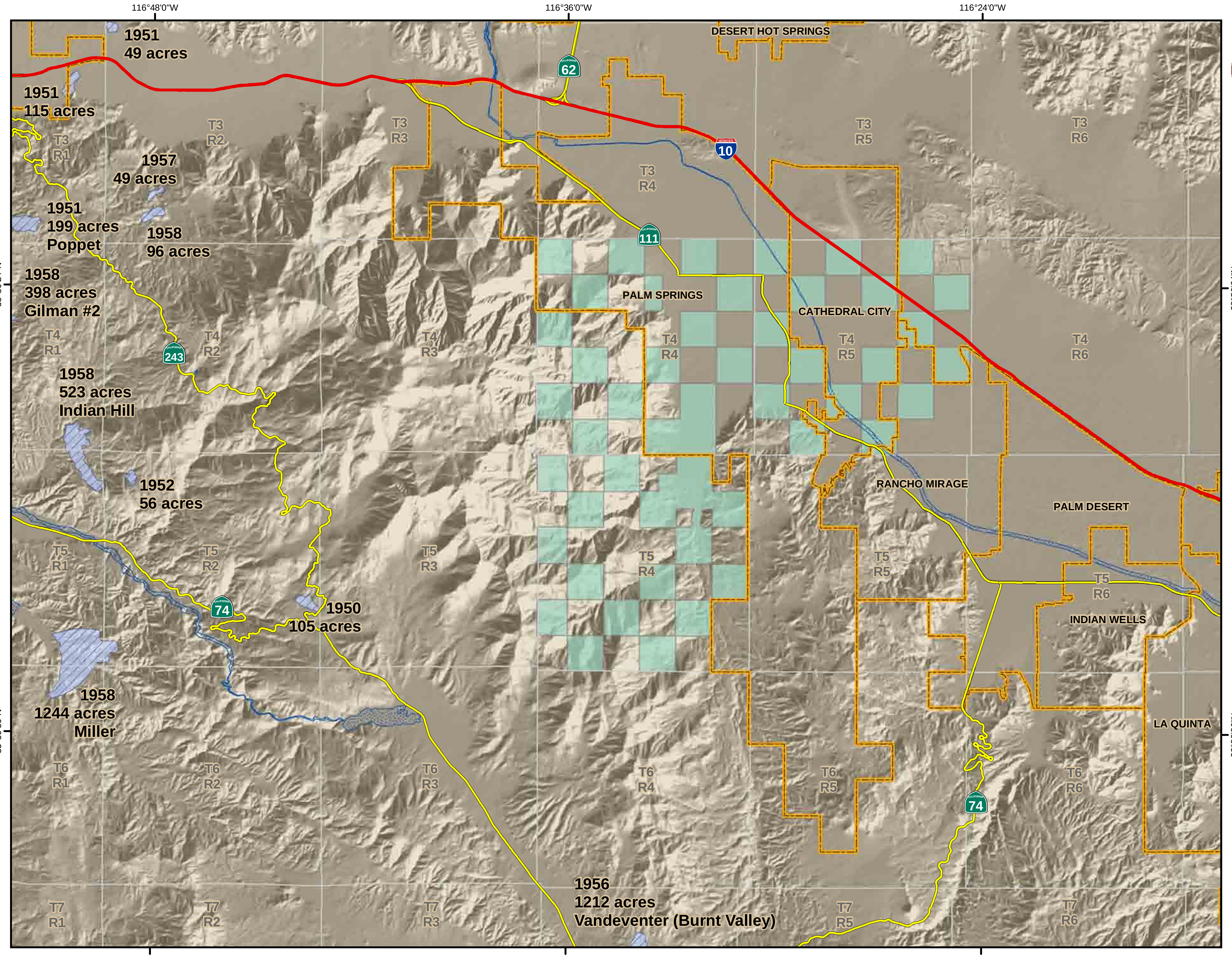

AGUA CALIENTE INDIAN RESERVATION

FIRE HISTORY 1950-1959

- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1950-1959)

Fire Cause:

- Unknown

N E S W

1 inch = 3 miles

0 5,000 10,000 15,000 20,000 Feet

0 1,500 3,000 4,500 6,000 Meters

0 1 2 3 4 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

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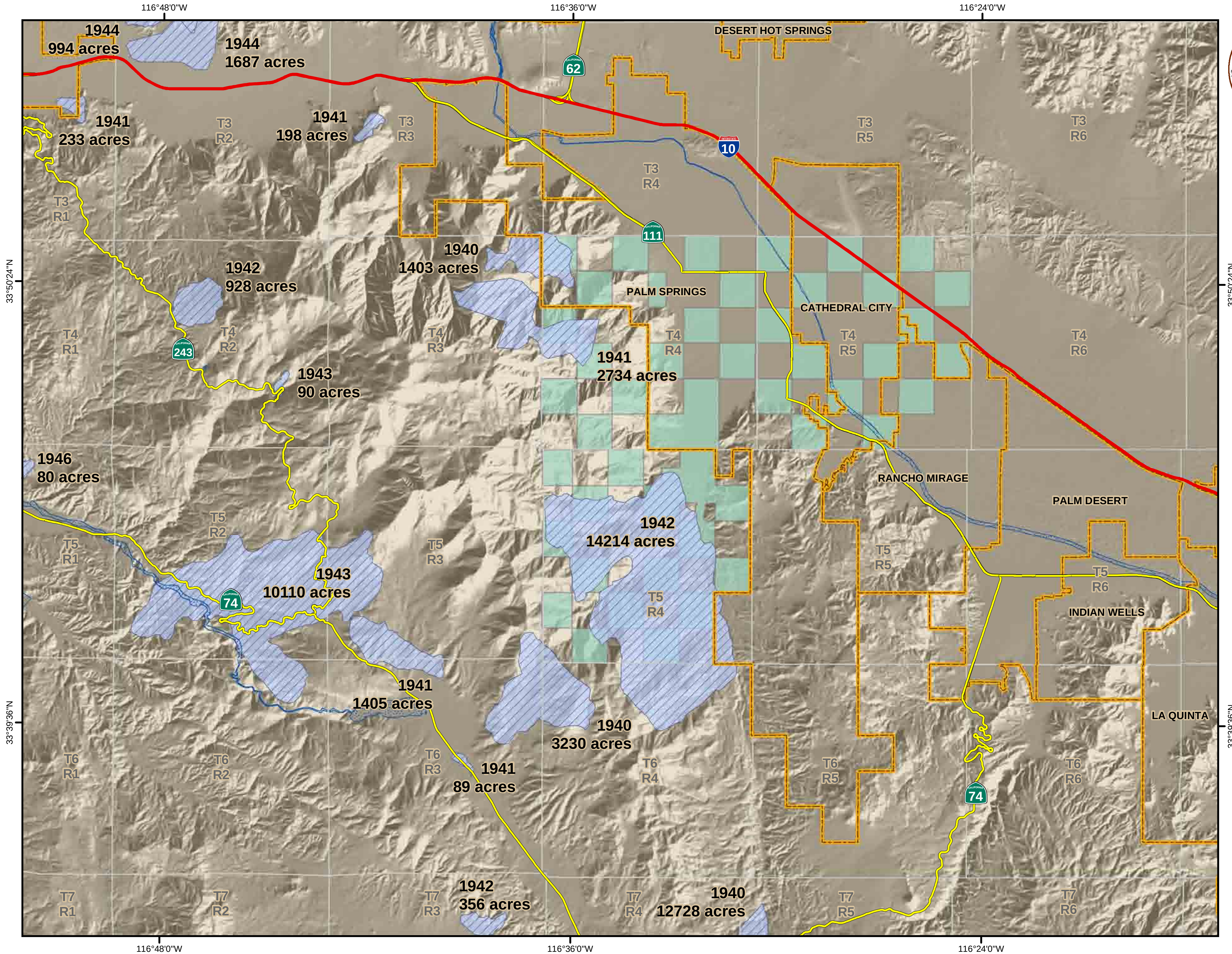

AGUA CALIENTE INDIAN RESERVATION

FIRE HISTORY 1940-1949

- Interstate
- State & US Highways
- Political Jurisdictions
- Townships
- Water Bodies
- ACIR
- Fire History (1940-1949)

Fire Cause:

- Unknown

N W E S

1 inch = 3 miles

0 5,000 10,000 15,000 20,000 Feet

0 1,500 3,000 4,500 6,000 Meters

0 1 2 3 4 Miles

Agua Caliente Band of Cahuilla Indians
Planning & Development Department
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Geospatial Information Services
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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

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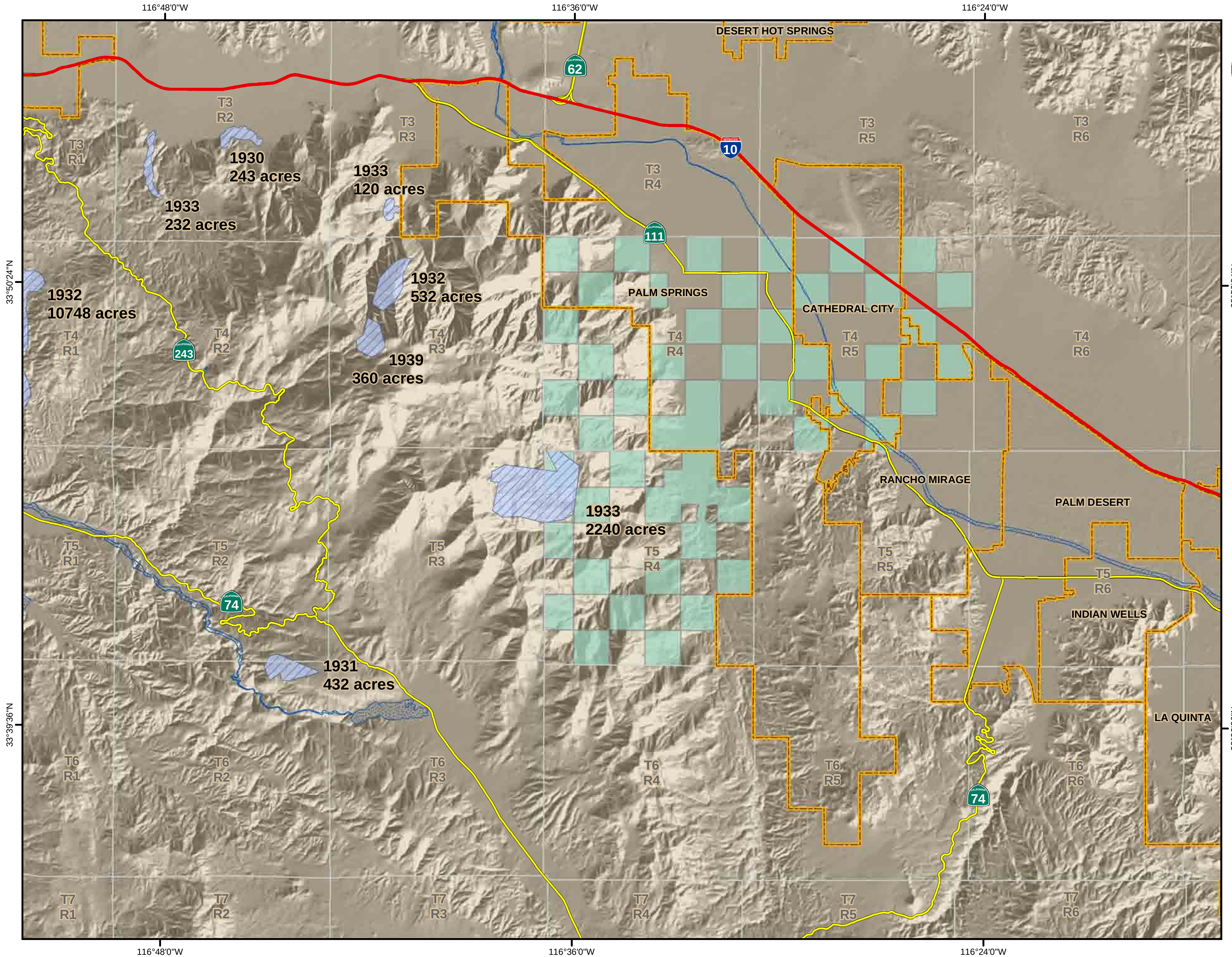
AGUA CALIENTE INDIAN RESERVATION
FIRE HISTORY 1930-1939



- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1930-1939)

Fire Cause:

- Unknown

1 inch = 3 miles

0 5,000 10,000 15,000 20,000 Feet

0 1,500 3,000 4,500 6,000 Meters

0 1 2 3 4 Miles

Agua Caliente Band of Cahuilla Indians
Planning & Development Department
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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

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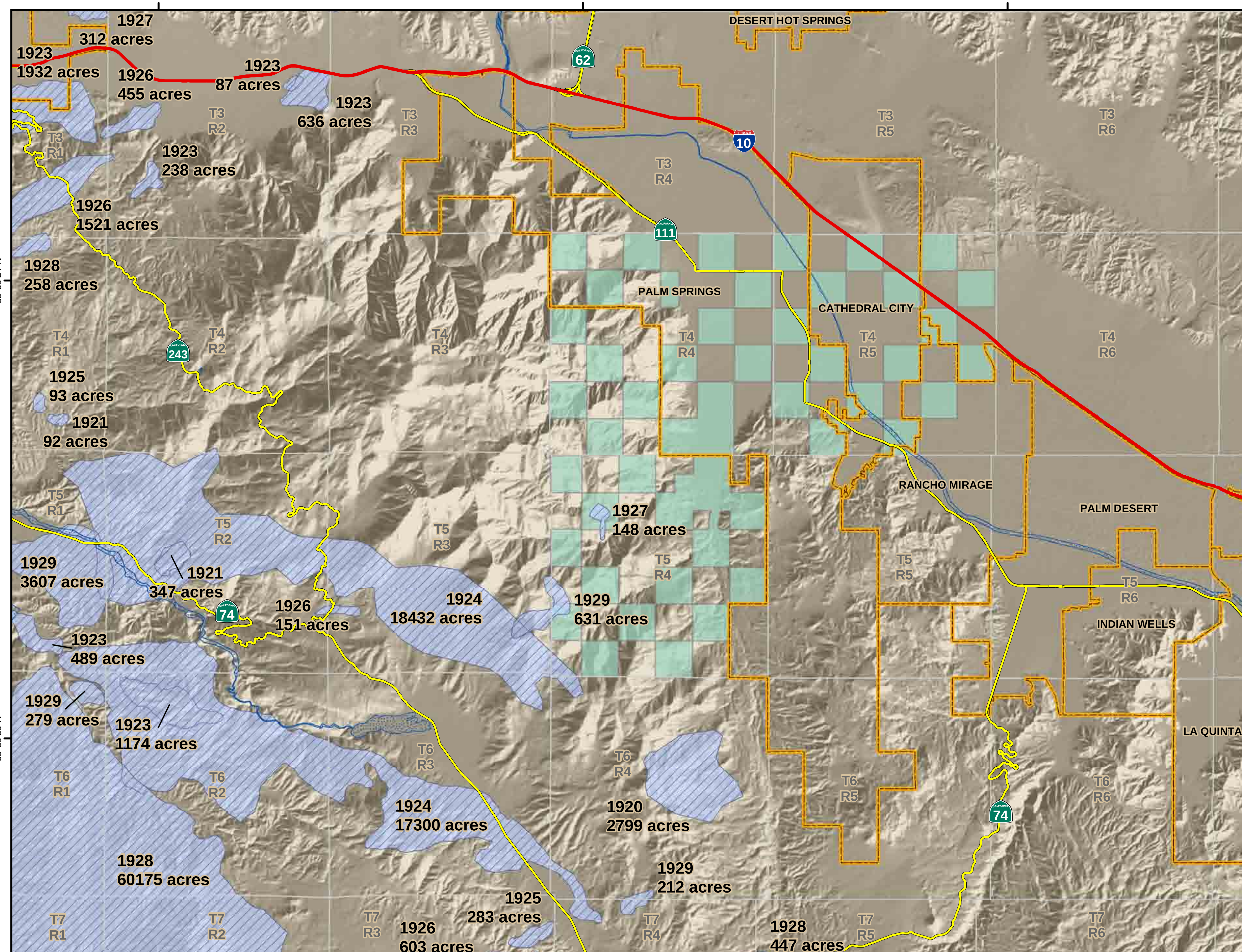
AGUA CALIENTE INDIAN RESERVATION
FIRE HISTORY 1920-1929



Interstate
State & US Highways
Political Jurisdictions
Water Bodies
Townships
ACIR
Fire History (1920-1929)

Fire Cause:

Unknown

N E S W

1 inch = 3 miles

0 5,000 10,000 15,000 20,000 Feet

0 1,500 3,000 4,500 6,000 Meters

0 1 2 3 4 Miles

Agua Caliente Band of Cahuilla Indians
Planning & Development Department
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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

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Data Source:

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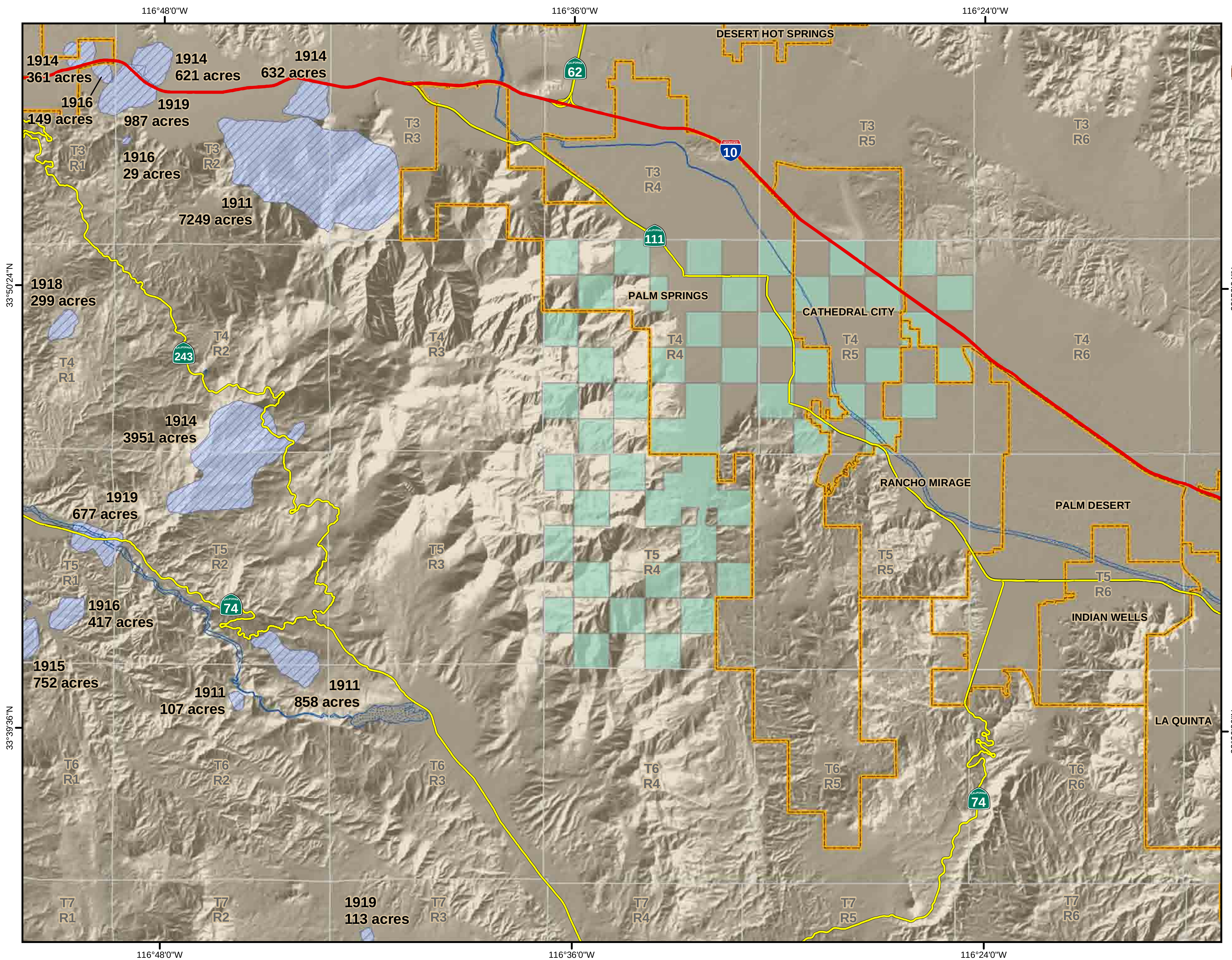

AGUA CALIENTE INDIAN RESERVATION

FIRE HISTORY 1910-1919

- State & US Highways
- Interstate
- Townships
- Political Jurisdictions
- ACIR
- Water Bodies
- Fire History (1910-1919)

Fire Cause:

- Unknown

N W E S

1 inch = 3 miles

0 5,000 10,000 15,000 20,000 Feet

0 1,500 3,000 4,500 6,000 Meters

0 1 2 3 4 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

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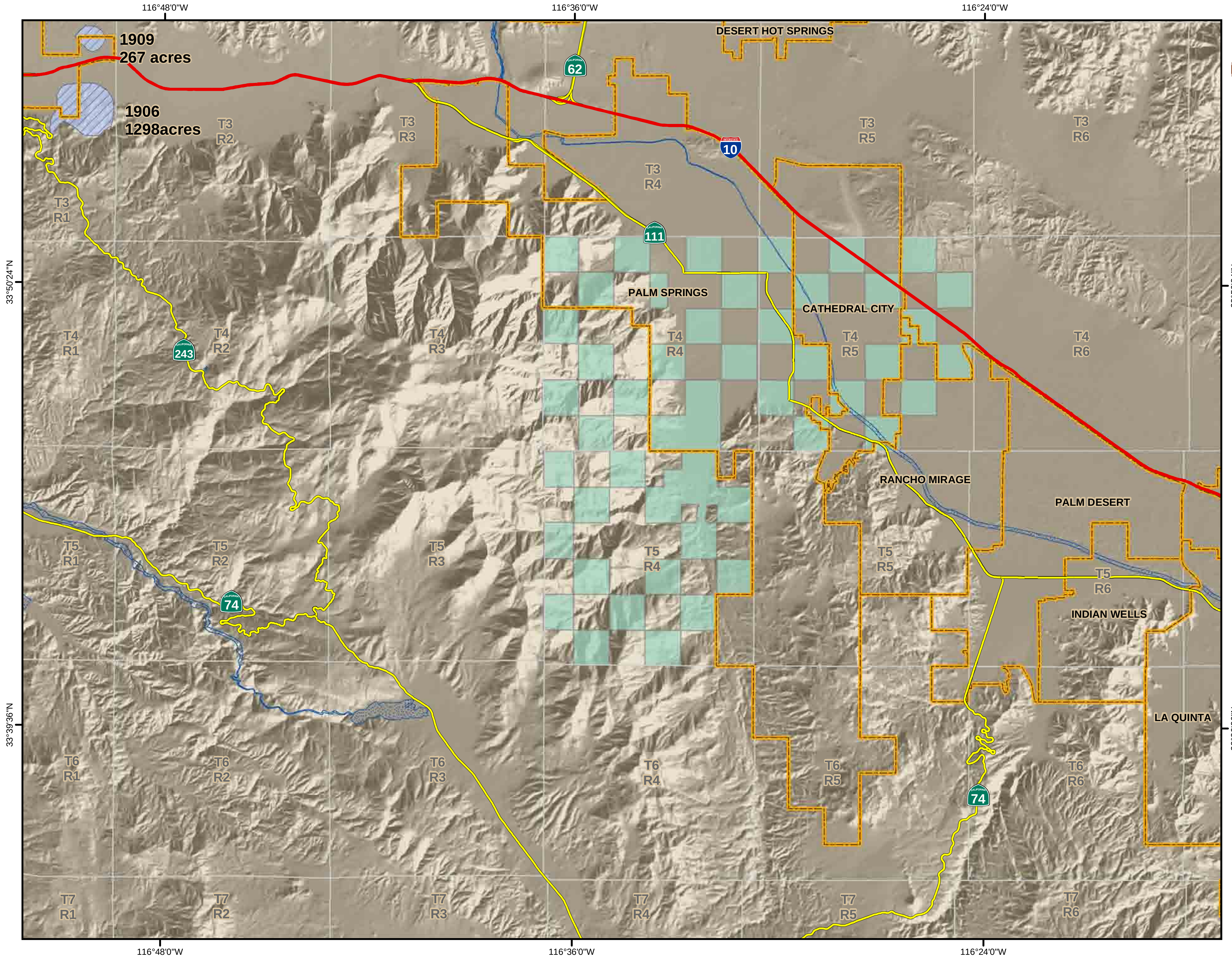
AGUA CALIENTE INDIAN RESERVATION
FIRE HISTORY 1900-1909



- Interstate
- State & US Highways
- Political Jurisdictions
- Water Bodies
- Townships
- ACIR
- Fire History (1900-1909)

Fire Cause:

- Unknown

N E S W

1 inch = 3 miles

0 5,000 10,000 15,000 20,000 Feet

0 1,500 3,000 4,500 6,000 Meters

0 1 2 3 4 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

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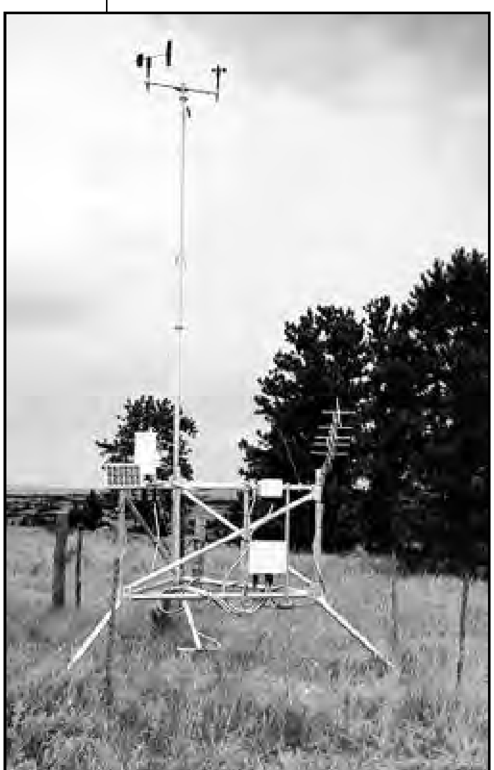
APPENDIX C

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 distrbuted to varous 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.