DRAFT

MEMORANDUM

Date: August 16, 2000

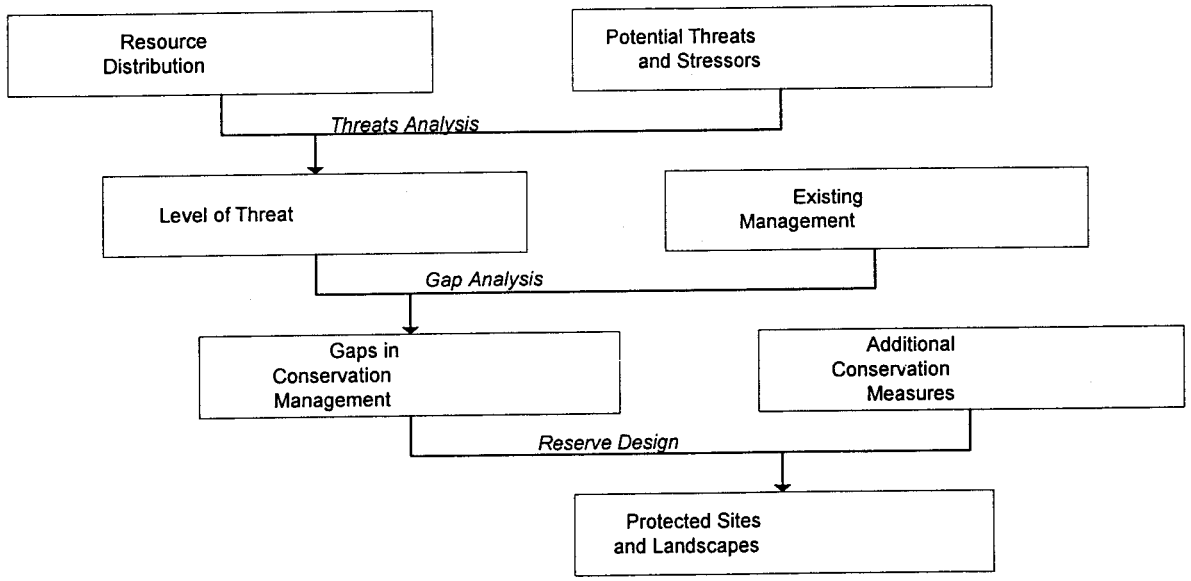
To: The Honorable Chair and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

Re: **Preliminary Cultural Resources Element**

I. Overview

In March of 1999, the Board directed staff to develop the Sonoran Desert Conservation Plan, which includes six elements. The attached report is the draft *Preliminary Cultural Resources Element*. It provides a detailed review of the known and predicted cultural resources in Pima County -- going back 12,000 years -- and the report provides an analysis of the conservation potential of various landscapes. This memorandum summarizes and presents highlights from the *Preliminary Cultural Resources Element* by organizing the substantial data set in a manner that is parallel to the biological resources work product. As depicted in the flow chart below, I will briefly present information about the cultural resource base itself; threats to the resource base; and management by various jurisdictions, including descriptions of gaps in management. Read together, these factors start to sketch the conservation potential of different subareas, and alternatives for reserve design in the area of cultural resources. We can now, with the help of interested members of the community, begin the process of prioritizing cultural resource protection strategies and integrating ideas about this reserve system with other elements of the Sonoran Desert Conservation Plan, including the biological (habitat and corridor), mountain park, riparian and ranch land reserves.



Project Work Flow

II. The Cultural Resource Base

A. Cultural Resources Defined by Type and Time, and Described by Place

The Cultural Resources Element of the Sonoran Desert Conservation has a spectacular scope: the experiences of hundreds of generations of individuals across several million acres of land during the last twelve thousand years of history are brought before us. Through the hints left on the landscape by past residents of Southern Arizona, we are able to piece together the story of this place.

1. Resources defined by type: Three major categories of cultural resources help make the topic more accessible. Defined below, these categories are archaeological resources, historical resources, and traditional cultural places.

- Archaeological resources are any material remains of past human life or activities which are preserved in their original setting that are important to understanding the past. These sites or districts may include occupation sites, work areas, farming sites, burials, artifacts, campsites, hearths, rock art, trails, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain.

- Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years.

- A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's beliefs, customs, and practices.

2. Resources defined by time: Additional divisions based on time periods provide a context for discussions about cultural resources. Mentioned below, these periods include:

- The PaleoIndinan Period covers that time from approximately 12,000 B.C. to 8000 B.C. The PaleoIndian Period is believed to have been a time when small bands of highly mobile people hunted and gathered their food following a seasonal round that covered large territories. PaleoIndian sites are very rare in the southwest. Only 55 sites of this time period are known for all of Arizona. Two PaleoIndian sites are reported in Pima County, both are found in the Altar Valley subarea.

- The Archaic Period represents a vast stretch of time period between 8000 B.C. and A.D. 200. Beginning around '3500 years ago, people began to grow their own food, dig irrigation canals, experiment with making pottery, and settle in large seasonally occupied villages along the banks of well watered rivers, such as the Santa Cruz River. A total of 256 Archaic sites have been found in eastern Pima County, most of which (142) were recorded along Cienega Creek and in the adjoining highlands to the east.

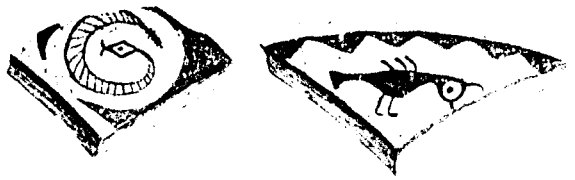
- The Ceramic Period covers the time from approximately A.D. 200 to the end of the Prehistoric era defined by the first appearance of Europeans into the Southwest in A.D. 1540. During this time, Archaic populations made the full transition from a mobile society dependant upon hunting and gathering wild food, to a sedentary society dependant upon agriculture. From approximately A.D. 700 to A.D. 1450, the Hohokam Indians dominated central and southeastern Arizona: 1890 archaeological sites have been recorded from the Ceramic Period presenting the single largest number of sites from any time period, before or since.

- The Historic Period ranges in time from A.D. 1540 to 1950. Of the 338 historic sites recorded in Pima County, most are of ranching, mining, and farming.

3. Resources described by place: Data related to the Sonoran Desert Conservation Plan is organized at several scales, including at the landscape scale by watershed subarea planning units. When the number of known archaeological sites, historic resources (including ranches and mines), and traditional cultural places are summarized, a numerical assessment can be obtained, as the following charts reflect. This site data tells us something about the level of research activity, and it defines areas of known importance. When coupled with landscape level information about past settlement patterns -- discussed later -- we begin to see zones of high sensitivity for cultural and historical resources, which suggest a reserve design for protecting this resource.

WATERSHED SUBAREA	Archaeological Resources	Historic Resources	Traditional Cultural Places	Total
Middle San Pedro	153	15	27	195
Cienega-Rincon	554	58	20	632
Upper Santa Cruz	472	46	17	535
Middle Santa Cruz	737	130	74	941
Tortolita Fan	970	33	147	1150
Altar Valley	514	79	59	652
Avra Valley	141	25	29	195
Western Pima County	443	13	39	495
TOTAL	3984	399	412	4795

ARCHAEOLOGICAL DATA AT THE WATERSHED LEVEL



6B. Avra Valley

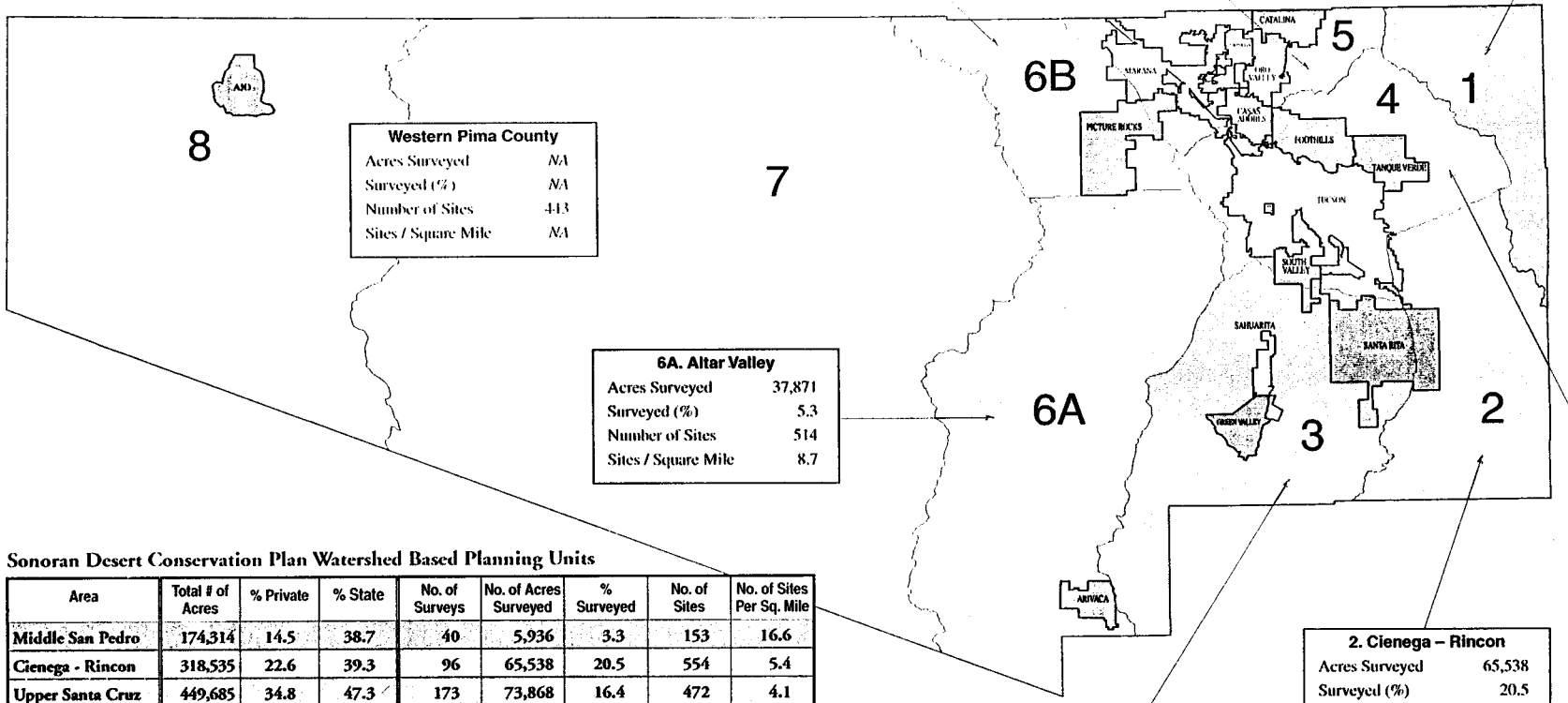
Acres Surveyed	17,900
Surveyed (%)	8.0
Number of Sites	141
Sites / Square Mile	5.0

5. Tortolita Fan

Acres Surveyed	71,447
Surveyed (%)	35.1
Number of Sites	970
Sites / Square Mile	8.7

1. Middle San Pedro

Acres Surveyed	5,936
Surveyed (%)	3.3
Number of Sites	153
Sites / Square Mile	16.6



Western Pima County

Acres Surveyed	*NA*
Surveyed (%)	*NA*
Number of Sites	443
Sites / Square Mile	*NA*

6A. Altar Valley

Acres Surveyed	37,871
Surveyed (%)	5.3
Number of Sites	514
Sites / Square Mile	8.7

Pima County Archaeological Data Basemap Watershed Comparison

SDCP Planning Units (Watersheds)
Incorporated Areas
Unincorporated Urbanizing Areas
Pending Incorporated Areas

Incorporated Areas
1. Marana
2. Oro Valley
3. Sahuarita
4. South Tucson
5. Tucson
Unincorporated Urbanizing Areas
1. Ajo
2. Arivaca
3. Catalina
4. Foothills
5. Green Valley
6. Picture Rocks
7. Santa Rita
8. South Valley
9. Tanque Verde
Pending Incorporated Areas
1. Casas Adobes
2. Tortolita

N

Pima County Graphic Design: SROLL 12-00

4. Middle Santa Cruz

Acres Surveyed	24,144
Surveyed (%)	6.6
Number of Sites	737
Sites / Square Mile	19.5

2. Cienega – Rincon

Acres Surveyed	65,538
Surveyed (%)	20.5
Number of Sites	554
Sites / Square Mile	5.4

3. Upper Santa Cruz

Acres Surveyed	73,868
Surveyed (%)	16.4
Number of Sites	472
Sites / Square Mile	4.1

Sonoran Desert Conservation Plan Watershed Based Planning Units

Area	Total # of Acres	% Private	% State	No. of Surveys	No. of Acres Surveyed	% Surveyed	No. of Sites	No. of Sites Per Sq. Mile
Middle San Pedro	174,314	14.5	38.7	40	5,936	3.3	153	16.6
Cienega - Rincon	318,535	22.6	39.3	96	65,538	20.5	554	5.4
Upper Santa Cruz	449,685	34.8	47.3	173	73,868	16.4	472	4.1
Middle Santa Cruz	361,852	55.6	5.5	1506	24,144	6.6	737	19.5
Tortolita Fan	203,546	52.3	22.7	458	71,447	35.1	970	8.7
Altar Valley	713,807	20.0	45	141	37,871	5.3	514	8.7
Avra Valley	221,404	31.5	22	52	17,900	8.0	141	5.0
Tohono O'odham	2,354,911	0.7	1.3					
W. Pima Co.	1,082,282	1.2	.25	*NA*	*NA*	*NA*	443	*NA*
Pima Co. Totals	5,880,337						3,984	
E. Pima Co. Totals	2,443,144			2,466	296,704	12.1	3,541	7.6

B. Highlights of the Known Historic Resource Base

Only 12 percent of the land base in Pima County has been formally investigated, yet the diversity of our past experience has created a fascinating inventory of known resources. The following is a description of cultural resource highlights, with a focus on historic resources.

- Pima County has been continuously occupied for approximately 12,000 years from the end of the last Ice Age to the present day.

- There are 121 places listed on the National Register of Historic Places, the nation's honor role of historically important properties. Twenty-five of these are districts that contain multiple buildings or archaeological sites. The City of Tucson has 16 such districts alone, five of which are also city designated districts.

- There are ten historic communities, each of which is 50 years old or older. These are Silverbell, Marana, Rillito, Catalina, Redington, Vail, Continental, Sahuarita, Arivaca, Sasabe, and Tucson itself.

- Thirteen communities have been abandoned and are now ghost towns, including Greaterville and Total Wreck in the Cienega Valley, Twin Buttes and Helvetia in the Upper Santa Cruz Valley, Cerro Colorado in the Altar Valley, the Silverbell mining camp in the Avra Valley, and Clarkstown on the west side of the Tohono O'odham reservation. These reflect the importance of mining silver, gold, lead and copper, in Pima County's history.

- There are three historically significant trails. The Anza Trail of 1775-1776 was used by Captain Juan Bautista de Anza in his excursions to the Pacific Coast. The Camino del Diablo linked Sonora with southern California during the 18th and 19th centuries. Finally, the Butterfield Trail, an overland mail route between St. Louis and San Francisco that was used between 1858 and 1861.

- Middle San Pedro Subarea (Subarea 1):

HISTORIC COMMUNITIES
Redington
Individual ranches may qualify

- Cienega-Rincon Subarea (Subarea 2):

HISTORIC COMMUNITIES	GHOST TOWNS	NATIONAL REGISTER	HISTORIC TRAILS
Vail	Greaterville	Empire Ranch	Butterfield Stage Line
	Rosemont	Cienega Bridge	
	Total Wreck	Colossal Cave Historic District	
		Kentucky Camp	
		Rincon Mnt. Arch. District	
		Davidson Canyon Arch. Dist.	
1	3	6	1

- Upper Santa Cruz Subarea (Subarea 3):

HISTORIC COMMUNITIES	GHOST TOWNS	NATIONAL REGISTER	HISTORIC TRAILS
Continental	Helvetia	Air Force Missile Site	Anza
Sahuarita	Olive		
	Twin Buttes		
1	3	1	1

- Middle Santa Cruz Subarea (Subarea 4):

HISTORIC DISTRICTS			
Armory Park	El Montevideo	Pie Allen	Speedway-Drachman
Barrio Libre	El Presidio	Sam Hughes	University of Arizona
Colonia Solana	Fort Lowell	Iron Horse Expansion	Tucson Warehouse
El Encanto Estates	Menlo Park	John Spring	West University
			16

- Tortolita Fan (Subarea 5):

HISTORIC COMMUNITIES	HISTORIC LANDSCAPE	NATIONAL REGISTER	HISTORIC TRAILS
Catalina	Marana Mound	Sutherland Wash Arch. Dist	Anza
Marana		Sutherland Wash Rock Art Dist	Butterfield Stage Line
Rillito			
3	1	2	2

- Altar Valley Subarea (Subarea 6A):

HISTORIC COMMUNITIES	GHOST TOWNS	NATIONAL REGISTER	HISTORIC TRAILS
Arivaca	Cerro Colorado	Gunsight Mnt. Arch. District	Buenos Ayres Ranch
Sasabe			
2	1	1	1

- Avra Valley Subarea (Subarea 6B):

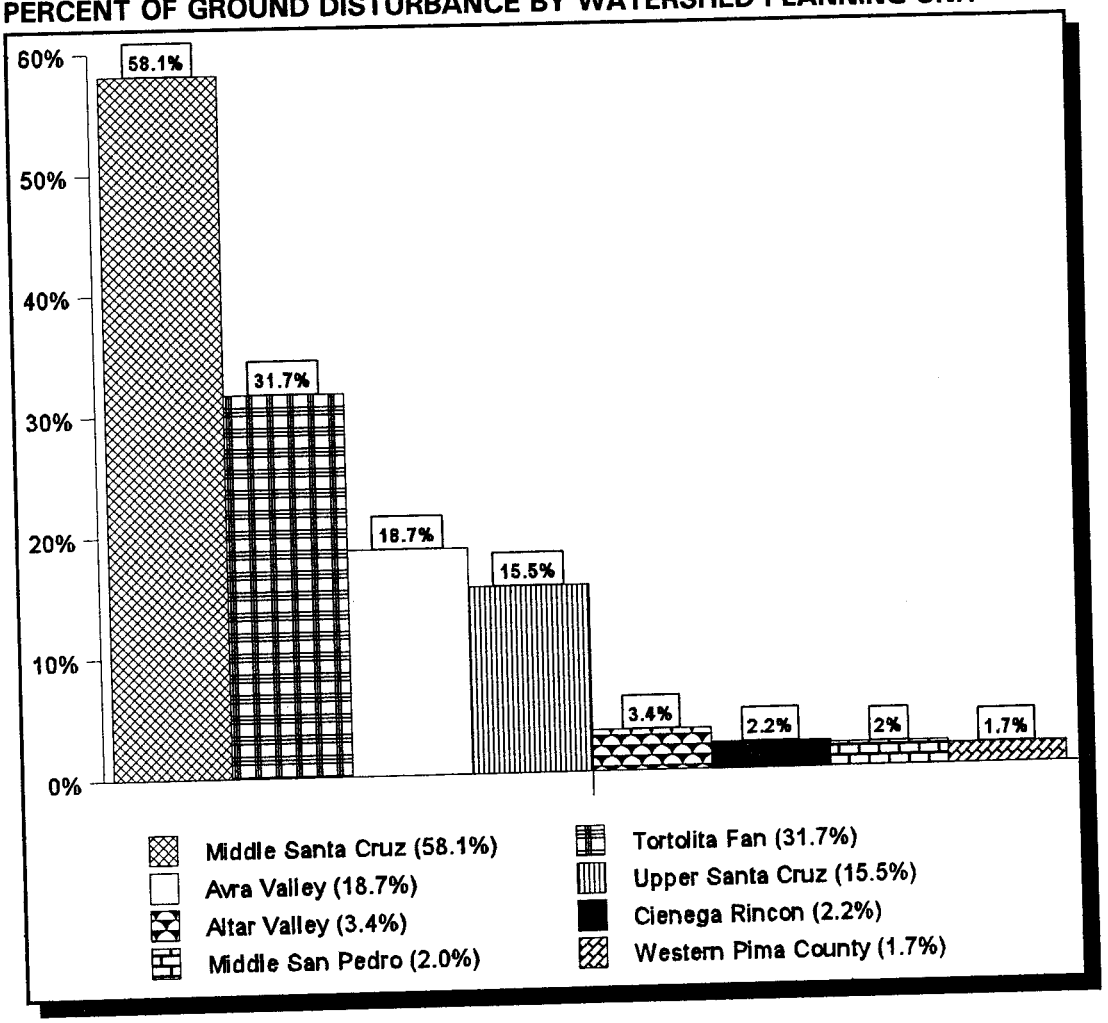
HISTORIC COMMUNITIES	GHOST TOWNS	NATIONAL REGISTER
Silverbell	Silverbell	Cocoraque Butte Archaeological District
		Los Robles Archaeological District
		Santa Anna del Chiquiburitac Mission Site
1	1	3

III. Threats to the Cultural Resource Base

Cultural resources are valued by the expert community when the contextual relationship between artifacts and the landscape features is not disrupted. The information potential of a site is lost in proportion to the degree of disruption to the surrounding landscape. The attached report quantifies the resource integrity of each subarea by measuring total ground disturbance from four sources that historically have been damaging to cultural and historical resources: urbanization, agriculture, mining and road construction. This provides a means of assessing which subareas have the highest and lowest potential for having intact resources still in existence. The chart below presents this data in order from highest to lowest threat by watershed subarea planning unit.

WATERSHED SUBAREA	Urban Area	Agriculture	Mining	Roads	Total Acres	Percent Subarea
Middle Santa Cruz	170,453	108		39,806	210,367	58.1%
Tortolita Fan	30,848	22,341	700	10,694	64,583	31.7%
Avra Valley	4,892	29,666	1,648	5,378	41,584	18.7%
Upper Santa Cruz	15,860	13,182	28,872	12,019	69,933	15.5%
Altar Valley	9,572	6,683		15,275	24,853	3.4%
Cienega Rincon	693	1,042		5,273	7,008	2.2%
Middle San Pedro	0	2,131		1,483	3,614	2.0%
Western Pima County	5,539	127	2,390	10,369	18,425	1.7%
TOTAL	237,857	68,603	33,610	100,297	440,367	

PERCENT OF GROUND DISTURBANCE BY WATERSHED PLANNING UNIT



Summary

- Threats to cultural resources exist in the greatest degree in the urbanizing areas of the Middle Santa Cruz and Tortolita Fan watershed subarea planning units.

IV. Management by Various Jurisdictions and Gaps in Protection of Resources

The attached draft *Preliminary Cultural Resources Element* finds that legal protection for cultural and historical resources is largely a function of landownership.

- Highest Protection Available:

  Federal Lands: Cultural resources on federal lands have the highest legal protection of any lands. The Antiquities Act of 1906 was the first piece of preservation legislation passed by Congress providing a legal means to ensure the preservation of archaeological sites on federal lands. The National Historic Landmark program was created in 1935 under the Historic Sites Act establishing a program whereby the nation could recognize places of historic importance. The National Historic Preservation Act of 1966 is the nation's premier preservation law and is the model for most state preservation laws. It created the National Register program as a means by which cultural resources can be evaluated for their significance and recognized for their historical importance on the local, regional, and national levels. Additional federal law also requires protection of archaeological sites on federal land (the Archaeological Resources Protection Act 1979), as well as Native American burials (the Native American Graves Protection and Repatriation Act 1989). The National Environmental Policy Act of 1966 links compliance with its provisions with those of the National Historic Preservation Act, and further requires consideration of impacts to a wide variety of cultural and social resources in the planning of federally sponsored actions. Finally, the Wilderness Act of 1964 allows federal lands that meet specific conditions to be set aside for conservation purposes protecting natural and cultural resources for the future.

  State Parks and County Parks Land: State Parks (Catalina State Park) and County Parks lands (Tortolita Mountain, Tucson Mountain Park, Colossal Cave, and the Cienega County Natural Preserve) have been included with this category because both the county and the state have legal control over these areas and both protect their cultural resources for the benefit of the public. Catalina State Park has been surveyed and the Sutherland Archaeological National Register District was created within its boundaries. The County has surveyed the lands around Colossal Cave and it too is listed on the National Register of Historic Places. Cultural Resources within Cienega Creek Natural Preserve have been recorded as a result of private research; however, a complete inventory of the Tucson and Tortolita Mountain Park has yet to be achieved. Nonetheless, by law and policy, cultural resources in these areas are protected from both public and private actions.

- Lowest Protection Available: The second group in the analysis is the state trust land. State trust lands are a commodity and the mission of the Land Department is to dispose of this commodity, not to protect and manage its cultural and natural resources. These lands are subject to state law that require state agencies to abide by regulations controlling the effect of their actions on cultural resources. The Arizona Historic Preservation Act passed in 1982 is modeled after the National Historic Preservation Act. This authority

enables State Land to require mitigation of effects to cultural resources on state trust lands when, for instance, trust lands are sold to a private developer. The state Antiquities Act (1973) also enables the Arizona State Museum to control archaeological investigation on state lands including state trust lands. Finally the State's burial protection law (1990) protects unmarked human graves and their contents against unauthorized disturbance. By in large, the state laws are reactionary.

- Little or No Protection Available: The last land ownership category is private lands. Cultural resources on private lands are not protected by law, with some exceptions. The aforementioned State Burial Protection Act also applies to private lands. It is unlawful to disturb an unmarked human grave on private land in the state of Arizona without authorization. This law, while laudable, has created an odd situation whereby graves can be protected but not the site on which the graves are located meaning that disturbance of archaeological sties on private land is not prohibited until a human grave is discovered.

- Degree of Protection and Gaps in Protection Offered by Local Government Regulations

There is only one other instance when cultural resources may be protected on private land and that is when local governments have included these protections in local law.

Pima County has a set of cultural resources requirements in the County Code that regulates certain kinds of development through its approval of land rezonings and when grading permits are issued prior to construction. While in place preservation of cultural resources is always preferred, the county has no way to mandate this course of action. As such, the legal requirements work to control the destruction of cultural resources through a mitigation process whereby information is recovered from the cultural resources prior to their destruction through development. There are limitations to this, however. The state's subdivision law allows splitting and development of five or fewer lots without having to meet subdivision planning requirements. Pima County's cultural resources requirements do not apply in these situations and therefore cultural resources within areas under going "wildcat" development are not protected in any way. In a practical sense, this means that cultural resources may be destroyed before they are even recorded. Pima County is the only county government in Arizona that has such a set of preservation requirements in place. They apply only in the unincorporated portions of Pima County. Several other local governments within the county are addressing the preservation issue on their own.

Oro Valley has a cultural resources preservation ordinance on the books that is tied to its development review process, although these provisions are minimal.

The Town of Marana has begun to impose preservation requirements on development projects in its jurisdiction, but does so on a case by case basis without the benefit of a preservation ordinance.

The City of Tucson has a preservation ordinance, however, it is geared towards preserving buildings more than archaeological sites and the city lacks the same legal means as the county to require surveys in advance of development.

Sahuarita has no preservation law at all, nor does it consider cultural resources preservation in its development review process.

In short, cultural resources on private lands are protected by law under certain circumstances and not in others and when the law does apply, it almost always means that some form of mitigation is employed to control destruction not to achieve conservation for the future.

- Resource Protection by Land Status: The chart below presents this data in order from highest to lowest level of protection by watershed subarea planning unit.

WATERSHED SUBAREA	HIGH: Percent Federal Land, County or State Park	MEDIUM: Percent State Trust Land	LOW: Percent Private Land
Western Pima County	98.4%	0.2%	1.2%
Middle San Pedro	47%	38.4%	14.5%
Altar Valley	34.8%	44.9%	20.2%
Cienega Rincon	39.8%	39.4%	20.6%
Avra Valley	45%	22%	31%
Upper Santa Cruz	19.8%	47.3%	34.8%
Tortolita Fan	27.1%	22%	50.4%
Middle Santa Cruz	38.8%	5.4%	53.8%

V. Conservation Potential of Watershed Landscapes, Recommendations and Reserve Design

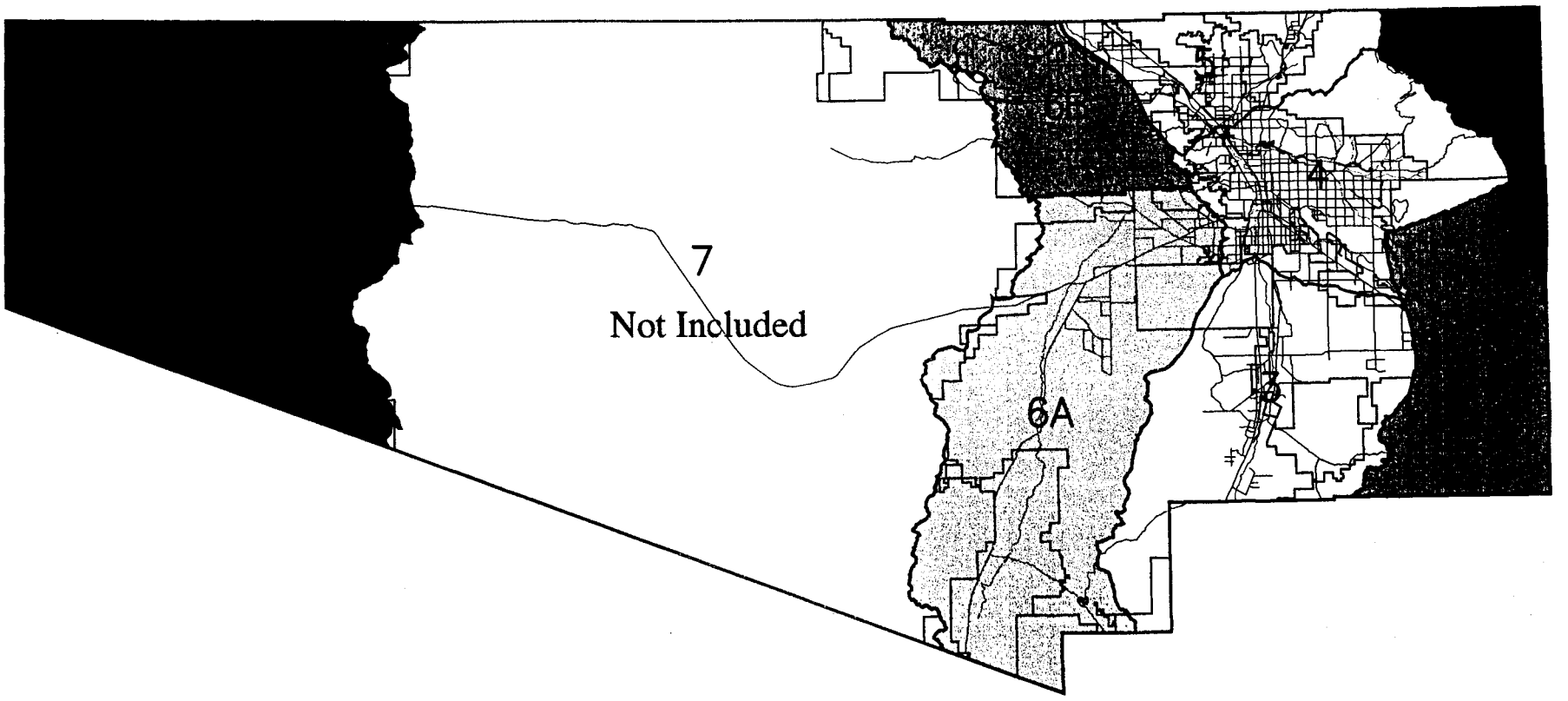
A. Conservation Potential of Watershed Landscapes

An analysis of the conservation potential of each watershed for cultural resources was conducted based on these variables: resource distribution (sensitivity); threats assessment (degree of landscape integrity of level of development pressure); existing legal or management protection. The charts below rank the watershed subareas by conservation potential in qualitative and quantitative formats, with the watersheds that possess the highest potential for conservation listed at the top of the chart.

WATERSHED SUBAREA	Resource Value	Threat to Site (Development)	Threat to Landscape (Integrity)	Level of Protection
Western Pima County	medium	low	high	high
Middle San Pedro	medium	low	high	high
Cienega-Rincon	high	medium	medium	medium
Avra Valley	medium	medium	medium	medium
Altar Valley	medium	medium	medium	medium
Upper Santa Cruz	medium	medium	medium	low
Tortolita Fan	high	high	low	low
Middle Santa Cruz	medium	high	low	medium

WATERSHED SUBAREA OVERALL COMPARATIVE RANKING	Resource Value Comparative Ranking (1 = high)	Threat to Site Comparative Ranking (1 = low)	Level of Protection Comparative Ranking (1 = high)
1.Western Pima County	4	1	1
2. Middle San Pedro	4	2	2
3. Cienega-Rincon	1	4	5
4. Avra Valley	3	3	3
5. Altar Valley	6	6	6
6. Upper Santa Cruz	5	5	8
6. Tortolita Fan	2	7	7
7. Middle Santa Cruz	4	8	4

Conservation Potential



PIMA COUNTY DEPARTMENT OF TRANSPORTATION

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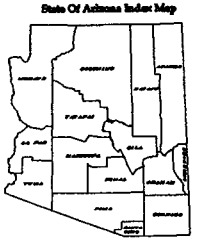
Highest Potential for Land Conservation

- 1 Western Pima County
- 2 San Pedro Valley
- 3 Cienega-Rincon Valley
- 4 Avra Valley
- 5 Altar Valley
- 6 Upper Santa Cruz Valley
- 6 Tortolita Fan
- 7 Middle Santa Cruz Valley



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Plotted: 6/29/00

B. Recommendations

Mr. David Cushman is a Pima County staff member and the primary author of the draft *Preliminary Cultural Resources* document. Based on his experience working with the Cultural Resources Technical Advisory Team and the local expert community, Mr. Cushman states, and I agree that cultural and historical resources conservation can be achieved through the Sonoran Desert Conservation Plan in the following general manner:

1. Conservation efforts should be directed at the level of the landscape within each subarea. This is needed to ensure that cultural and historical resources are protected along with the contextual evidence of past human interactions with the environment through time and across space.

2. There are known places that have high cultural and historical value, including but not limited to those listed on the National and State Registers of Historic Places, that must be included as conservation priorities under all preserve design scenarios.

3. Cultural and historical resources will tend to co-occur with other valued resources considered under the Sonoran Desert Conservation Plan (ranch lands, recreational areas, riparian zones, biological corridors, and critical and sensitive habitat). Maximum conservation benefit will be achieved by including cultural and historical resources in designing conservation scenarios for these resources. Consideration should be given to conservation of cultural resources that do not co-occur with other valued resources.

4. Priorities for conserving lands containing cultural and historical resources should be multi scalar based on the integrity of the subarea, the cultural resources sensitivity of specific areas within the subarea, and the of threat of future land disturbance from development.

5. Protection of cultural and historical resources should be achieved through both pro-active land acquisition strategies and preservation laws. Where needed, legal tools should be developed and utilized to correct existing inadequacies in law and to enhance consistency in resource protection.

6. The long term protection of cultural and historical resources requires that the public be informed about the past and engaged in saving their heritage for the future.

I will place more specific recommendations before the Board when the *Preliminary Sonoran Desert Conservation Plan* is issued next month.

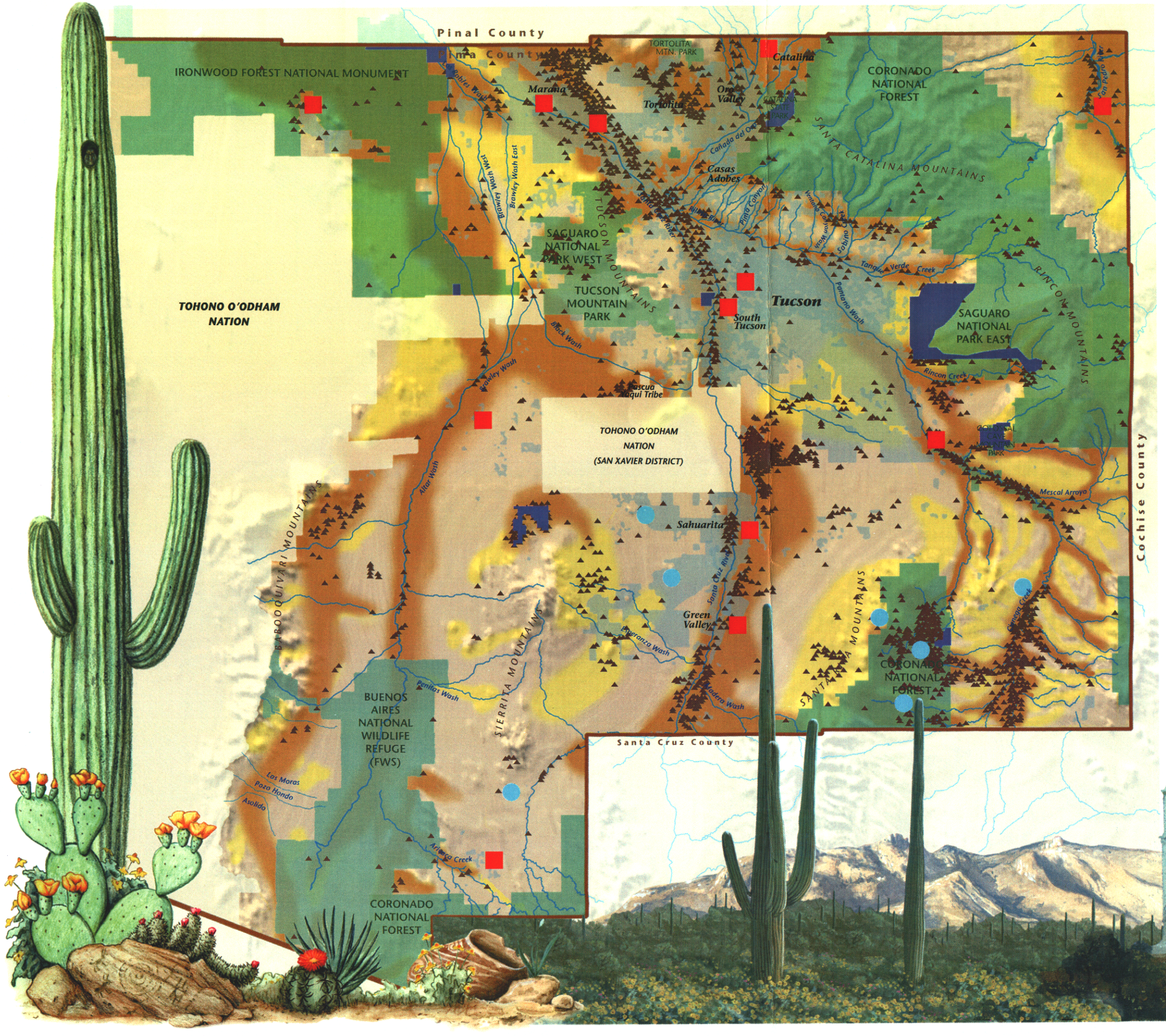
C. Reserve Alternatives Based on Site Protection and Medium and High Sensitivity Zones

Based on the information compiled to date in the area of cultural and historic resources, protection opportunities exist at the site and system level. The map on the following page reflects specific important cultural sites, zones of high sensitivity, and zones of medium sensitivity for cultural resource protection. This data, and similar information for other Elements combine to frame the discussion of alternatives that will take place in the near future with the Board, Steering Committee, and interested members of the community.

Sonoran Desert Conservation Plan

Cultural Resources

- High Sensitivity Archaeological Zone
- Medium Sensitivity Archaeological Zone
- Archaeological Sites
- Historic Communities
- National Register
- Ghost Towns
- Urban/Private Property
- Existing Reserves
- Indian Nation



Saving the Past for the Future:
An Objective of the Sonoran Desert Conservation Plan
Pima County, Arizona

Prepared by County Staff
August, 2000

TABLE OF CONTENTS

I. Executive Summary- Findings and Recommendations 1

II. Introduction 4
1. Purpose of Report 4
2. Definition of Cultural and Historical Resources 4
3. Value of Cultural and Historical Resources 5
4. Historic Preservation and the Sonoran Desert Conservation Plan 6
5. Organization of Report 6

III. Data 7
1. Sources 7
2. Variables 7
3. Limitations 8

IV. Subareas 9
1. San Pedro Valley 10
2. Altar Valley 17
3. Cienega-Rincon 28
4. Avra Valley 41
5. Upper Santa Cruz Valley 55
6. Western Pima County 72
7. Tortolita Fan 88
8. Middle Santa Cruz Valley 105

V. Findings 126
1. Archaeological Sites 126
A. Survey and Site Data 126
B. Temporal Data 128
C. Functional Data 130
2. Historic Resources 132
A. Historic Communities, Ghost Towns, National Register Properties, and Historic trails 132
B. Ranches and Mines 134
3. Traditional Cultural Places 135
4. Ranking Resource Abundance by Subarea 137
5. Modeling 138
A. Proximity to Water 138
B. Site Sensitivity 140

VI. Resource Integrity 144
1. Ground Disturbance and Cultural Resources Integrity 144
2. Estimated Effect of Ground Disturbance on Archaeological Sites 146

VII. Resource Protection 147
1. Law and Policy 147
2. Resource Protection by Land Status 149

VIII. Resource Threat 155
1. Sources of Threat 155
A. Physical 155
B. Legal 155
2. Location of Threat 156
3. Ranking Resource Threat by Subarea 156

IX. Recommendations 159
1. Constraints 159
2. Ranking Resource Conservation Potential by Subarea 159
3. Conservation Recommendations 161
4. Means of Achieving Conservation 162

X. Summary 165
1. Review of Cultural and Historical Resources in Pima County 165
2. Resource Loss, Yesterday, Today, and Tomorrow 166
3 The Future of Resource Protection in Pima County 166

XI. Sources 167

Appendix A - Preliminary Constraints List 172

I. Executive Summary - Findings and Recommendations

In March of 1999, the Pima County Board of Supervisors directed staff to develop the Sonoran Desert Conservation Plan. This plan will be used to facilitate and direct future growth while enabling the protection of natural and cultural resources for the benefit of the citizens. One of the six planning elements in the Plan is cultural and historical resources preservation. Cultural and historical resources are those places that are produced by, and reflect upon, the people who have lived for thousands of years in what is today Pima County, Arizona. These places include archaeological sites of both historic and prehistoric times; buildings, structures and engineered features, as well as historically modified landscapes; and finally, places of importance to the beliefs, practices and historical identity of traditional communities. In May of 1999, Pima County staff prepared a status report on cultural and historical resources that characterized these places and the limited extent of knowledge about them. Beginning the next month, county staff launched an effort to prepare a detailed and comprehensive summary of all that is known about cultural and historical resources in Pima County for the Sonoran Desert Conservation Plan. This report is the result of that effort.

Pima County has a remarkable wealth of cultural and historical resources both in quantity and quality. Here are some of the findings.

- Pima County has been continuously occupied for approximately 12,000 years from the end of the last Ice Age to the present day.

- A total of 3984 sites archaeological sites are known in the county yet only 12.1% of the land base has ever been formally investigated.

- More than 4000 historic buildings have been recorded, most of which are within Tucson city limits. In general, these represent settlement during the 19th and early 20th centuries when Tucson emerged from a fortified village to a major metropolitan center.

- There are 121 places listed on the National Register of Historic Places, the nation's honor role of historically important properties. Twenty-five of these are districts that contain multiple buildings or archaeological sites. The City of Tucson has 16 such districts alone, five of which are also city designated districts.

- There are ten historic communities, each of which is 50 years old or older. These are Silverbell, Marana, Rillito, Catalina, Redington, Vail, Continental, Sahuarita, Arivaca, Sasabe, and Tucson itself.

- Thirteen communities have been abandoned and are now ghost towns, including Greaterville and Total Wreck in the Cienega Valley, Twin Buttes and Helvetia in the Upper Santa Cruz Valley, Cerro Colorado in the Altar Valley, the Silverbell mining camp in the Avra Valley, and Clarkstown on the west side of the Tohono O'odham reservation. These reflect the importance of mining silver, gold, lead and copper, in Pima County's history.

- There are three historically significant trails. The Anza Trail of 1775-1776 was used by Captain Juan Bautista de Anza in his excursions to the Pacific Coast. The Camino del Diablo linked Sonora with southern California during the 18th and 19th centuries. Finally, the Butterfield Trail, an overland mail route between St. Louis and San Francisco that was used between 1858 and 1861.

- Five traditional cultural places have been identified, four of which are important to the Tohono O'odham Nation and one that is important to the Mexican American community in Tucson

This report details these findings on the level of eight subarea planning units and then analyzes the results on a regional level. This is followed by an analysis of conservation potential that examines four variables important to the future protection of cultural and historical resources: sensitivity, integrity, legal protection, and development threat. Sensitivity is a measure of cultural and historical resources potential and utilizes the findings of two predictive models. Integrity measures total ground disturbance from four sources that historically have been damaging to cultural and historical resources: urbanization, agriculture, mining and road construction. This provides a means of assessing which subareas have the highest and lowest potential for having intact resources still in existence. Legal protection for cultural and historical resources is largely a function of landownership and the county is broken down into three basic land categories to discuss vulnerability. Lastly, future threats to cultural and historical resources are predicted on the basis of land status and proximity to existing development.

The results of the analysis described above ranking the eight subareas in Pima County from highest to lowest for the conservation potential, is presented below in Table I.1.

Table I.1. Comparative Analysis of Conservation Potential by Subarea

Rank by Subarea	**Integrity**	**Sensitivity**	**Legal Protection**	**Future Threat**
1. Western Pima Co.	High	Medium	High	Low
2. San Pedro Valley	High	Medium	High	Low
3. Cienega-Rincon	Medium	High	Medium	Medium
4. Avra Valley	Medium	Medium	Medium	Medium
5. Altar Valley	Medium	Medium	Medium	Medium
6. Upper Santa Cruz	Medium	Medium	Low	Medium
6. Tortolita Fan	Low	High	Low	High
7. Middle Santa Cruz	Low	Medium	Medium	High

See page 161 for more detail.

An analysis was also done below the subarea level. This brought together the findings of site sensitivity, legal protection, and future development threat to identify specific areas that are sensitive for cultural and historic resources, are legally vulnerable, and are most immediately threatened by future development.

Based on the findings of these studies, it is recommended that cultural and historical resources conservation be achieved through the Sonoran Desert Conservation Plan in the following manner.

1) Conservation efforts should be directed at the level of the landscape within each subarea. This is needed to ensure that cultural and historical resources are protected along with the contextual evidence of past human interactions with the environment through time and across space.

2) There are known places that have high cultural and historical value, including but not limited to those listed on the National and State Registers of Historic Places, that must be included as conservation priorities under all preserve design scenarios.

3) Cultural and historical resources will tend to co-occur with other valued resources considered under the Sonoran Desert Conservation Plan (ranch lands, recreational areas, riparian zones, biological corridors, and critical and sensitive habitat). Maximum conservation benefit will be achieved by including cultural and historical resources in designing conservation scenarios for these resources. The county must be prepared, however, to seek land conservation in order to protect cultural and historical resources that do not co-occur with other valued resources.

4) Priorities for conserving lands containing cultural and historical resources should be multi scalar based on the integrity of the subarea, the cultural resources sensitivity of specific areas within the subarea, and the of threat of future land disturbance from development.

5) Protection of cultural and historical resources should be achieved through both pro-active land acquisition strategies and re-active preservation laws. Where needed, legal tools should be developed and utilized to correct existing inadequacies in law and to enhance consistency in resource protection.

6) The long term protection of cultural and historical resources requires that the public be informed about the past and engaged in saving their heritage for the future.

II. Introduction

1. Purpose of Report

The purpose of this report is to inform the public about Pima County's cultural resources assets in order to assist in the preparation of the Sonoran Desert Conservation Plan so that informed decisions can be made about where to invest limited resources in preserving the record of the past. This report is the beginning, not the end, of a planning process that will involve the collection and analysis of data as part of an increasingly refined effort to develop viable conservation alternatives. As such, the information presented herein is general in nature and its recommendations are preliminary.

Pima County is blessed with an abundance of cultural resources that reflect a rich and proud heritage. Each period in the county's history is represented within its borders from the earliest Native American occupations of the land, through the Spanish Colonial and succeeding Mexican periods, followed by the American territorial era culminating in Arizona's statehood, and finally, the most recent past. Pima County's archeological sites, its buildings, churches and shrines, its ranches and railroads, its rural landscapes and open spaces, are all a part of this legacy that together stand as reminders of how deep our heritage goes and how important it is to who we are and where we live. When these places are lost, a part of our lives is diminished as one more piece of what makes Pima County different from everywhere else is removed from the total number of cultural resources assets. These resources are finite in number, fragile, and constantly threatened by both natural and man-made agencies. By including a cultural and historical resources element in the Sonoran Desert Conservation Plan, Pima County recognizes the value of these places in the lives of its citizens and the need to preserve them when warranted for the benefit of future generations.

2. Definition of Cultural and Historical Resources

Cultural and historical resources are terms given to a wide variety of material manifestations of past human behavior that include archaeological sites, historic buildings and structures, bridges, dams, roadways, and other engineering features. Yet they are broad enough in definition to also include places that are sacred to traditional peoples, such as Native Americans, as well as landscapes that have been modified through traditional land use practices, such as ranching. Collectively, cultural and historical resources are the product of human interaction with the physical world of the Sonoran desert, but also the social and cultural environments of the people who have lived in what is today southern Arizona through time and across space. The space that is the subject of this report is Pima County, an area of some five million acres located in Southern Arizona, which is currently home to approximately 800,000 people, most of whom live in the region's biggest city, the City of Tucson. The time that is the subject of this report covers the last 12,000 years from the earliest known occupation of the region by native peoples to the middle 20th century. This 12,000 year span of time represents approximately 600 human generations, each of which made their mark on the land as they struggled for existence. Later generations added to and in some cases obscured or destroyed the places used by earlier peoples, and so the present landscape in Pima County is a pastiche of these products of human behavior representing different uses of the land by different people over thousands of years of time. Collectively, these are referred to as cultural and historical resources, which for brevity will be referred to as cultural resources in the following report.

There are three principle kinds of cultural resources that are the subject of this report: Archaeological sites, historic resources and traditional cultural places, each of which is defined by the National Park Service and presented below.

Archaeological sites are any material remains of past human life or activities which are preserved in their original setting that are important to understanding prehistory or history. These sites or districts may include occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain.

Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years.

A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices.

There are two other concepts that need to be defined: preservation and conservation. The American Heritage Dictionary states that to preserve is to "protect from injury or peril" and to conserve is to "protect from loss or depletion." The word "protect" is shared by both definitions, but there is a significant difference in how this achieved in the field of historic preservation. As practiced, preservation is about saving significant cultural resources for the future by means of legally prescribed mitigation strategies that require recovery of information before the resource is adversely affected by private or public actions. What gets preserved is often not the resource itself but the historical and cultural information that is derived from the resource. Preservation in place through physical avoidance is sometimes possible, as are modifications that maintain the historic character of a resource, but these are exceptions rather than the rule. On the other hand, conservation is the practice of protecting land that contains cultural resources for the purpose of saving them from harm and maintaining them for the future. In many cases preservation is reactive, that is a specific threat, such as a development project, is identified as having the potential to damage a significant cultural resource requiring mitigation of those effects. Conservation is usually pro-active in that efforts are made to save land containing a valued resource from the possibility of threat in the future. This is the distinction that is used in this report when referring to preservation versus conservation.

3. The Value of Cultural and Historical Resources

Cultural resources, like those discussed above, can have scientific, educational, recreational, economic, and even spiritual values. Archaeological sites provide an opportunity to study how people lived and adapted to their world over hundreds, even thousands of years by accessing information that is unavailable through any other source. To some, archaeological sites have other more profound importance. Native Americans often value archaeological sites as sacred ancestral places important to tribal origin myth and as physical evidence of past territory. Buildings and other architectural constructions can also have multiple values associated with them. Churches for instance often reflect the architectural traditions of their era and the history of a religious order. They are thus important as a source of information on social history, but they are also places of worship. In many cases buildings, such as private residences or public architecture, can be associated with notable people or events that have contributed to the history of a

community, a state or the nation and therefore they have value as symbols of the past. Even roads, trails and railway lines can be viewed as having historic value for their association with the development of certain technologies as well as the movement of people across the land and the growth of the nation. Lastly, places of historic and prehistoric interest have become important commercial assets as sources of heritage tourism, a significant economic force in the world today.

4. Historic Preservation and the Sonoran Desert Conservation Plan

It is because these values are recognized by a growing segment of the public that cultural resources are increasingly protected through law and public policy on the local, state, and federal levels of government. The underlying assumption to these efforts is that preserving the record of a shared past is a public benefit that is consistent with and derived from the authority of the U.S. Constitution to protect the public welfare. As such, the historic preservation movement has developed as an ethic that is backed by law and regulation. These laws attempt to strike a balance between private land rights and public interest in preserving the past, by providing mechanisms that enable public debate on the merits of both in deciding the future existence of cultural resources. Thus, historic preservation is inextricably linked to land use because how land is utilized and whether that is regulated by government effects what will happen to the cultural resources that the landscape may contain. Inserting cultural resources into the Sonoran Desert Conservation Plan is a logical extension of the Pima County's desire to develop tools to help make land use decisions affecting a wide variety of resources.

5. Organization of Report

The following report on cultural resources in Pima County first presents information on the data that have been collected and its uses and limitations in Section III. This is followed by a report on cultural and historical resources in each of the eight watershed subarea units presented in Section IV. These reports are full length versions of the same reports presented by county staff to the Sonoran Desert Conservation Plan Steering Committee between March and May, 2000. Editing was done to add new information received after the reports were written, correct errors, and for clarification where needed, but over all was kept to a minimum. The subarea reports contain the most detailed information available for each subarea. Section V summarizes the data for the three major types of cultural resources on a regional level based on the data presented in the subarea reports. New data and analysis are added where ever possible to make this section as up to date and as comprehensive as possible. Section VI focuses the discussion on cultural resources integrity as a function of past land use practices to provide a sense of the degree of damage done to the resource base in Pima County. Section VII addresses the issue of cultural resources protection by describing where preservation is being achieved as a matter of law, policy and practice. Since a large part of historic preservation is influenced by land ownership, this relationship is examined. Following this is a discussion of future threat in Section VIII that focuses on where land use is expected to occur that may adversely affect cultural resources. Section IX ranks the subareas for their conservation potential by pulling together the variables used in the analysis and specific recommendations for where conservation efforts would have the highest return. Included is a preliminary list of places that have high value that should be protected under all planning scenarios because of their importance to the history and prehistory of Pima County. This is presented at the end of the report in Appendix A. Section X is the summary, where themes introduced in the beginning of the report are reviewed in light of the findings of the report. Recommendations on changes needed to enhance future conservation efforts in Pima county are provided as well. Section XI presents a listing of the source consulted in the preparation of the report.

III. The Data

1. Sources

Information on cultural resources was collected from a number of different sources depending largely on the nature of the resource. Archaeological data were provided under contract to Pima County by the Arizona State Museum (ASM) as part of Pima County's effort to build an electronic data base using the Museum's archaeological sites and survey records. The Museum is the region's premier source of this information going back to the last century. Over the past four years ASM has automated their files creating the AZSITE computer data base. The museum updated their records for Pima County, entered them into the data base and transferred the data to the county as two data layers that can be manipulated using geographic information systems (GIS) technology. This has enabled the county to compare site and survey data in relation to other kinds of information on hydrology, topography, vegetation, roadways, urban development, jurisdictional boundaries and landownership among others. These electronic data were supplemented with information collected from archaeological reports and manuscripts describing individual surveys and sites, as well as the history of archaeological research. More information on archaeological subjects was available from all sources than any other kind of cultural resource, which reflects both the abundance of this resource and the extent of archaeological research that has been conducted in certain areas of Pima County.

Information on historic resources was also collected from books, reports and other manuscripts including maps, and some photographs all of which provided insights on settlement and land use over time. The National Register of Historic Places and Arizona State Register of Historic Places were also consulted at the Arizona State Historic Preservation Office in Phoenix and information was also made available through the City of Tucson Historic Preservation Office. Despite the many sources consulted for this report, there is not a lot of formal historical research on Pima County outside of the City of Tucson. This is unfortunate because every valley has a different tale to tell and given the fast pace of change that is occurring in many places in eastern Pima County there is a great need to record those tales before they are lost.

Traditional cultural places, known for short as TCPs, is the least well represented in terms of information on places actually definable as such. This is a relatively new concept in the world of historic preservation dating to around 1990. It has become important in recent years because as a concept it recognizes places that have important cultural meaning to particular groups, such as but not limited to Native Americans. In some instances, TCPs have no physical manifestation of cultural behavior, making identification possible only to those who know of them and can inform on how they are used by traditional communities. These may include mountains, peaks, caves and springs, that are known through oral tradition for their role in origin myth, but also include areas used for gathering plants and minerals used in traditional healing rituals and for other kinds of ceremony. Other kinds of TCPs do have signs of cultural use, such as archaeological sites and petroglyph or rock art sites. Nonetheless, Native Americans in particular are reluctant to speak of these places of great importance with outsiders. This reluctance and the very limited ethnographic work that has been done in the region, limits the kind and quantity of information available on places with these values. Aside from those classes of archaeological sites that typically have traditional cultural value, there are only a handful of TCPs known in Pima County, although many more may exist.

2. Variables

Archaeological site and survey data were analyzed for number of surveys performed within a subarea, the type of survey, the total number of sites recorded, the total acres of survey and the percent of survey coverage within the subarea. This enabled estimates of how intensively each subarea has been investigated over time,

where those investigation have occurred, and the number of archaeological sites per square mile of surveyed space. The site data was analyzed for location, site count, time period, site function, as well as landownership and proximity to water.

Historic resources were broken down into four main categories: Historic communities, meaning any community established prior to 1950; ghost towns, those places that were once occupied but have been abandoned; National Register properties, both districts and individually listed properties that have met the criteria for listing as historic places; and, historic trails, meaning a route followed as part of a historic event or process. Historic communities were described and dated as were ghost towns, which were given a date range from origin to abandonment. National Register properties were described and the justification for listing was presented in brief along with the date of listing. The location of ranches and mines as depicted on historic maps was also identified. Finally, historic trails were described and their date of significance was given. All historic properties were plotted on subarea maps when ever possible.

Traditional cultural properties were described, although locations were not provided nor were they mapped given their sensitivity.

Other variables used in the analysis of cultural resources included, water, vegetation, topography, roads, land ownership, land use, settlement and jurisdictional boundaries.

3. Limitations.

The greatest limitation to the data was its lack of availability; this is particularly true for traditional cultural places. As mentioned, information on historic resources was also limited, especially synthetic analysis by basin or river valley. While data on archaeological sites was the most plentiful, this too suffered from a variety of problems pertaining to how the data have been collected and how they are presented.

First, survey coverage is limited to about 12 percent of the county, meaning that the vast majority of Pima County has never been formally investigated. Some areas have received so little survey that the level of confidence in any predictive statements based on the data is low. Second, the areas that have been investigated have been examined through a myriad of unrelated projects so that in most cases a patch work of coverage exits. This too limits use of the data to general kinds of analysis. Third, the data are made available through the Arizona State Museum AZSITE database, which is still under construction. At present, information on archaeological sites lacks the attributes that would enable an analysis of site distribution by time period or function, which would greatly enhance preservation planning. Instead, all sites from all time periods are mapped and described as a whole, while temporal and functional data are presented in table form. There is also the problems of erroneous and missing site and survey data. Fifth and last, the data that Pima County used for its GIS analysis in the preparation of the subarea reports (see section IV) was current almost a year ago, whereas data used in the regional analysis in Section V reflects current updated information provided by the Arizona State Museum. As a result, the totals for site count and survey coverage differ between the two sections in some instances.

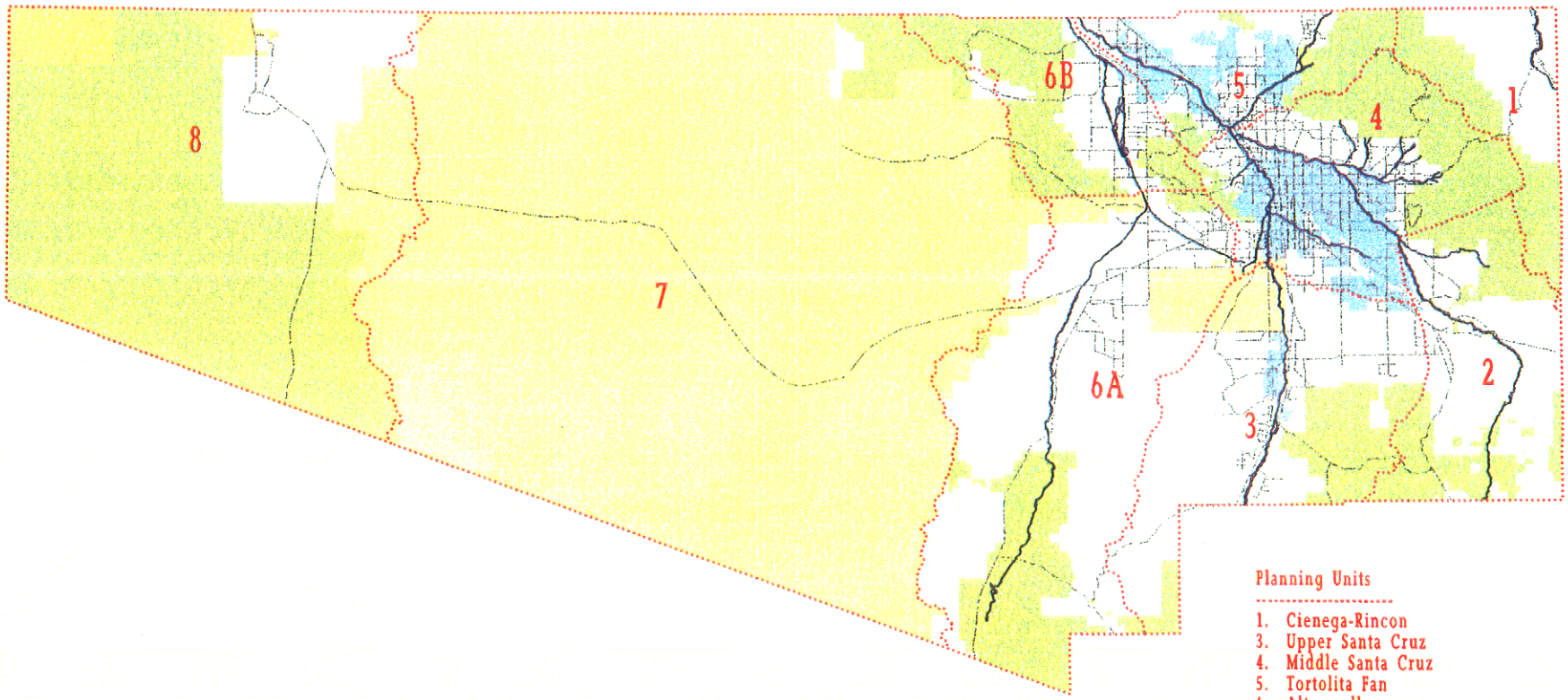
In short the Archaeological data base is in flux as new data are added to the computerized system, missing data are found and the holes are filled, and old problems are corrected. Having explained these limitations, it is important to point out that these problems are typical of computerized data bases, especially when under construction, and that by virtue of having used the data base, Pima County is helping the Museum make corrections that in the future will enhance the quality and utility of the data for the county.

What follows is the best information that can be provided given the limitations discussed above.

IV. Subareas

The following reports were prepared for the Sonoran Desert Conservation Plan Steering Committee to describe in summary form what is known about three kinds of cultural resources in each of the subareas in Pima County: archaeological sites, historic resources, and traditional cultural places. These reports were intended to provide baseline information needed to consider cultural resources in the Sonoran Desert Conservation Planning process. Each was prepared as a stand alone document and so certain portions of the text are repeated. Also, the format changed as the report writing evolved over the course of a three month time period. The reports are presented in the order they were prepared for the Steering Committee between March and May, 2000. Editorial changes have been made for clarification, to correct errors, and in a few cases to present new information that was not previously available. To help orient the reader for the following discussion, a map entitled, **Watershed Planning Units for Pima County,** is provided showing the subarea boundaries defined for the Sonoran Desert Conservation Planning process. These are the primary units of observation and analysis used in this report.

Watershed Planning Units for Pima County



Planning Units

1. Cienega-Rincon
3. Upper Santa Cruz
4. Middle Santa Cruz
5. Tortolita Fan
6a. Altar valley
6b. Avra Valley
7. Tohono O'odham
8. Western Pima County

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/pygmyowl2/sonora/cultural/asmjoined/plan_all/amls/planbnd.aml

- Planning Unit Boundaries
- National Parks / Monuments
- Military Range
- Tribal Nations
- Incorporated Cities

State Of Arizona Index Map

Index Map Scale 1:5,000,000

N

Scale 1: 260, 000

THE SEAL OF PIMA COUNTY · ARIZONA ·

Plotted: 6/20/00

1. San Pedro Valley Subarea

I. SUBAREA: The subarea defines the San Pedro Valley watershed west of the Santa Catalina and north of the Rincon mountains, and is bounded by Pinal county to the north and Graham and Cochise counties to the east as indicated on the map entitled, **"Modern Communities, Transportation, and Ownership.** " This area encompasses approximately 278 square miles and includes the community of Redington. The San Pedro River is the principle drainage, which is one of the few remaining "live" rivers in southern Arizona. As such, the valley bottom is ideal farm land and has been used for farming since prehistoric times. Today, the San Pedro Valley retains its rural character with farming, ranching, and mining being the principle economic forces. The subarea contains an estimate 66 people and Redington is the only settlement of any size. As is the case elsewhere, federal and state lands make up the bulk of the land base in the subarea as indicated in the table below.

Table IV.1.1. San Pedro Valley Subarea - Land Ownership by Acres and Percent

Ownership	**Acres**	**Percent**
Military Reservation	62	<1
National Forest Lands	73,032	41.9
National Parks/Monuments	8,903	5.1
Private Lands	25,343	14.5
State Lands	66,975	38.4
Total	**174,315**	**100**

II. CULTURAL RESOURCES: This section presents information and analysis of current data on archaeological sites, historic resources and traditional cultural places within the subarea.

A. Archaeological sites

"Archaeological sites are any material remains of past human life or activities which are preserved in their original setting that are important to understanding prehistory or history. These sites or districts may include occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Archaeologists learn about the past by collecting information in the field in two ways: through survey and by excavation. Survey involves inspecting the ground surface in a particular area and recording concentrations of artifacts and features (hearths, roasting pits, pit houses, etc.) as archaeological sites. A site represents the physical remains of past human behavior in a single location dating to one or more periods of use in time. Surveys are often done systematically by groups of archaeologist who sweep the land in regularly spaced lines looking for artifacts. Some surveys, however, are judgmental in that archaeologists only look where sites are expected to be found and not elsewhere. In all cases, survey offers an extensive

perspective on past land use.

The second kind of information on archaeological sites is gained through excavation. This is the systematic recording, recovery, and analysis of artifacts and features from within a site's limits. Critical information is gained by understanding the spatial relationship of all artifacts and features within a three dimensional context. This enables interpretation about how the site was used, by whom, when, whether the site was used more than once and what happened after it was abandoned. Often, archaeological sites are not fully excavated but are only partially sampled. This saves what is left of the site for future investigations. Archaeological excavation provides highly detailed information about the use of one limited spatial area during one or more use episodes. Archaeologists use survey information in conjunction with site excavation information to build regional time lines over broad areas such as a river valley.

Survey data: Archaeologists perform two kinds of surveys: Linear and block. Linear surveys involve inspection of a right-of-way for construction of a road, sewer line, telephone cable or other linear feature. These surveys tend to be done in compliance with legal mandates requiring environmental studies during project planning. Block surveys involve the examination of properties ranging from a few acres to 1000s of acres. These are typically done either in compliance with legal mandates or through academic research projects. The Map entitled **Archaeological Site/Survey Locations** shows in blue the areas within the subarea that have been archaeologically surveyed. Some linear surveys are evident on the map, but most of the surveys shown near the river are a result of judgmental sampling of the river's terraces. Presented below is a breakdown of survey data by acreage and survey type including the percentage of the subarea that has been investigated.

Table IV.1.2
San Pedro Valley Subarea - Survey Acreage by Survey Type

Survey Type	Acres Surveyed	Percent of Subarea
Linear	1,680	0.9
Block	4,256	2.4
Total	**5,936**	**3.3**

The total acreage figures indicate that more than 96 percent of the area has not been formally investigated. This limits what can be said about cultural resources in general and archaeological sites in particular. However, the San Pedro River Valley, its terraces and the adjacent bajadas have been the focus of considerable research, and much of it within the last ten years.

Archaeological research in the San Pedro Valley began in the 1950s when the University of Arizona recorded numerous Hohokam village sites north of the town of Mammoth; however it wasn't until the 1970s that full attention was given to the area. Testing and excavations of sites along the San Pedro produced large quantities of information on the Hohokam people who occupied the San Pedro Valley, and much of southern and central Arizona, between approximately A.D. 700 and A.D. 1450. Extensive survey and test excavations conducted by the Center for Desert Archaeology in the 1990s has turned the San Pedro Valley into an archaeological laboratory where theories are being tested about the development of Hohokam culture and the interaction of the Hohokam with prehistoric Puebloan groups from the north and east

Site data: The following is a summary of archaeological data for the subarea that is presented by general time period and site function. This information was made available by the Arizona State Museum.

Table IV.1.3. . San Pedro Valley Subarea - Archaeological Site Data by Function.				
	Prehistoric	**Historic**	**Unknown**	**Total**
Agriculture	34	2	0	36
Art	2	1	1	4
Communication	0	1	0	1
Habitation	22	7	3	32
Resource Processing	6	0	0	6
Resource Procurement	0	1	0	1
Religious	2	1	0	3
Transportation	0	4	0	4
Unknown	39	2	25	66
Total	**105**	**19**	**29**	**153**

As can be seen by this table, prehistoric sites out number the historic sites by five and a half to one and Agriculture is the most common of the identifiable functions, followed by habitation. This reflects a strong emphasis on agrarian settlement in the San Pedro subarea, particularly during prehistoric times. Third in order are sites identified as having a Resource Processing function, such as food preparation. Art, meaning rock art, and sites with a religious element indicated by the presence of a ceremonial structure such as a shrive (stone circle) or even a Puebloan style Kiva, which are known to occur on sites in this area. As is typical of archaeological site data anywhere, a large number of occupations cannot be assigned a function. This is because the data that are used here are collected during survey where only surface characteristics of sites are recorded without the benefit of excavation. The map entitled "Archaeological Site/Survey Locations" does not fully reflect the data presented in Table IV.1.2 due to incomplete entry of site data into the county's computerized database.

The next two tables tally the number of sites by time period.

Table IV.1.4. San Pedro Valley Subarea Prehistoric Archaeological Site Data by Time Period.				
PaleoIndian 12,000 B.C - 10,000 B.C.	**Archaic** 10,000 B.C-A.D. 200	**Ceramic** A.D. 200-A.D. 1450	**Unknown**	**Total**
0	**2**	**77**	**26**	**105**

No occupations from the PaleoIndian time period are known with the subarea, although several sites dating to this time have been recorded in the San Pedro Valley further to the south. Only two components dating to the succeeding Archaic Period are known within the Subarea. During these ancient times, people are believed to have lived in small, highly mobile, bands by hunting and gathering wild plants and animals as food resources became seasonably available throughout the year. During the PaleoIndian Period, these bands appear to have favored hunting large game animals including mammoth, horse, camel, bear, and bison, all of which are now extinct. The environment became considerably warmer in the succeeding Archaic Period, the large game animals disappeared and were replaced by new plant and animal species. Human beings continued to hunt and gather their food but archaeological evidence suggests that they became more generalized in their diet and more efficient in processing their food. Towards the end of the period several significant changes began to occur. First, the environment stabilized by 4500 years ago approaching modern conditions. Second, population seems to have increased and some evidence suggests that people roamed within more circumscribed areas as a result. Third, by approximately 3500 years ago, people began to experiment with growing their own food. This change also co-occurred with more permanent settlement along well watered reaches of the Santa Cruz River and perhaps other regional drainages including the San Pedro.

The Ceramic Period covers the time in prehistory between the adoption of ceramic technology in the third and fourth centuries after Christ to the end of the Hohokam sequence around A.D. 1450. Few sites are known from the early centuries of this time period in the San Pedro Subarea. This was a time during which Archaic Period populations made the transition from hunting and gathering to an agricultural based, village oriented existence in southern Arizona and elsewhere. By the time the Hohokam culture emerged in a recognizable form around A.D. 700, this commitment to an agricultural economy was complete. A total of 27 sites have been firmly identified as Hohokam in the San Pedro Subarea reflecting a sustained presence in the valley for over 700 years. The Hohokam flourished along the rivers throughout the region and also adapted to the desert lands to the west. They lived in permanently settled villages, practiced agriculture and supplemented their diet by hunting and gathering. The Hohokam are known for their well executed pottery traditions, a distinctive style of arrowheads, ritual items such as sensors and carved stone pallets, as well as shell jewelry, to mention only a few examples of their material culture. Prior to about A.D. 1100, people lived in a variety of settlements ranging from small houses located near their fields, to hamlets consisting of a few houses, to large villages consisting of multiple groupings of house clusters, each representing families or extended families. Ritual appears to have played an important part of life and large oblong shaped depressions called "ball courts" were used providing social and political cohesion through ceremony, the exact nature of which is unknown.

During the Late Ceramic Period from approximately A.D. 1150 - 1450, mounded earthen platforms replace the ball courts as the center of religious life in the main villages. Housing style also changes from building houses in shallow pits with mud over wood and brush exteriors to above ground rooms built out of adobe, either as separate structures or in blocks of rooms. Frequently, these houses were surrounded by a low wall that defined the settlement as a separate compound consisting of related families. Subsistence continued to rely heavily on growing corn, beans, and squash, and just as in earlier times, large investments of labor were put into both irrigated agriculture and dry farming techniques. It is also at this time that the Hohokam began to intensively cultivate agave as a food source along the upper bajadas of the major rivers such as the Santa Cruz and the San Pedro. By the end of the Hohokam period, people had moved into a few, very large settlements. A period of environmental instability resulting in a series of floods in the A.D. 1300s appears to have weakened the agricultural economy to the point where the Hohokam were no longer able to produce food in sufficient quantifies and with enough consistency to support large populations. Some researchers have suggested that disease or warfare may have brought down the Hohokam, but whatever the cause, by

A.D. 1450, the large villages were abandoned and shortly thereafter the remaining people that archaeologists recognize as the Hohokam passed into human history.

The San Pedro was a boundary between several culture groups as defined by archaeologist. Seven of the 77 Ceramic Period sites have been identified as Salado, a Puebloan culture group that originated from the north of the San Pedro Valley and who were contemporaries of the Hohokam in the Late Ceramic Period. Another 13 sites are described as Salado/Hohokam mixed reflecting the presence of material traits from both groups on the same site, and two more sites are labeled Mogollon, a culture group to the east of the San Pedro. Twenty-eight more sites from this time period could not be culturally identified.

Very little is known of the period following the collapse of the Hohokam and before the earliest entrance of the Spanish into the region in A.D. 1540. The Proto-Historic Period, marking the years between A.D. 1540 and the Pima Revolt in 1751 is equally murky, despite some written accounts, and sites dating to both times are very rare. The region appears to have been occupied by only a few people whose style of pottery, housing, and burial practices differed from the former Hohokam occupants reflecting a return to an earlier, simpler way of living. Life continued to involve the cultivation of crops supplemented by hunting and gathering, but the level of technical sophistication and social and religious cohesion characteristic of the Hohokam is missing in these later populations. The people who occupied the region are believed to be the descendants of the Hohokam who filled the vacuum left by their disappearance and emerged as the groups that in the San Pedro were known to the Spanish historically as the Sobaipuri, and to the west of the Santa Cruz River, the Tohono O'odham. No components dating to late prehistoric times are known in the San Pedro subarea. Several sites from this time period are known in the San Pedro Valley subarea as indicated in Table IV.1.5.

Table IV.1.5.
San Pedro Valley Subarea - Historic Archaeological Site Data by Affiliation

Proto-Historic	Euro-American	O'odham	Unknown Native American	Total
2	**11**	**1**	**5**	**19**

European occupation of the San Pedro dates primarily to the mid to late 19th century. A total of 11 such sites have been identified in the subarea dating to this time period, six of which are habitations, four are transportation (roads, trails, stage stops, etc.) related features and one is related to communication functions (cairn, telegraph/telephone line, monument etc) as indicated in Table IV.1.3. In addition, there are six sites identified as Native American, one of which was positively identified as O'odham and the other are not specified. Historically, the Sobaipuri lived in the San Pedro River Valley until they moved to the Middle Santa Cruz in the 1760s for their protection against Apache attacks. It may be that some of these sites are Sobaipuri in origin. Generally, researchers have not focused on the historic period as a subject of archaeological interest and the low number of sites recorded in the valley dating to this time period reflects this bias.

B. Historical Resources

"Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons

significant in our history that have gained importance in the last 50 years"(Preserving Cultural and Historic Resources, Pima County, May 1999).

Historical resources are largely constructed or engineered elements of the built environment including buildings used for residential purposes such as houses but also commercial stores, industrial facilities, civic centers, and places of worship. Roads, bridges, irrigation canals, mining works, and rail road tracks are also historical resources . Information on these places is recovered through drawings and design plans, photographs, maps, surveys, and personal recollections.

Historic Communities: Historic Communities are those settlements that are in existence today that were established 50 years or more ago as indicated by a founding date or the date the first post office opened. The following description is derived from "Arizona's Names" by Byrd Howell Granger, The Falconer Publishing Company, 1983.

- Redington is a historic community that contains buildings that may have historic value, and may also contain historic archaeological deposits dating to the end of the last century and the beginning of the 20th century. Redington was settled as a result of a post office being opened by Henry and Lem Redfield in 1875 at their ranch located approximately six miles south of the present town. Lem Redfield was hung by a mob at Florence in 1883 for allegedly participating in a stage robbery that resulted in a murder. They wanted a post office, but the post office would not allow the use of their name, so they used "Redington." In 1879, the post office was formally established by Henry Redfield.

There may also be individual ranches or farmsteads within the subarea that qualify as having importance to the history of the settling of the San Pedro River Valley. Some of these may be part of larger historic landscapes that are recognizable entities that have historic value. Historic Landscapes a special subcategory of historic resources. As defined by the National Park Service, a rural historic landscape is "that portion of the exterior natural environment that has been modified, influenced, or given special cultural meaning by people who shaped the landscape to serve human needs. A rural historic landscape is a geographical area that historically has been used by people or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways and natural features. Historic landscapes may reflect the beliefs, attitudes, traditions, and values of these people."

C. Traditional Cultural Places

"A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices "(Preserving Cultural and Historic Resources, Pima County, May 1999).

Pima County has been occupied by indigenous peoples for thousands of years and the modern descendants of these prehistoric cultures still live in the region today. All of Pima County is claimed as ancestral lands by the Ak-Chin Indian Community, the Gila River Indian Community, and the Tohono O'odham Nation. The Tohono O'odham claim direct ancestral affiliation with the prehistoric Hohokam Indians who inhabited much of southern and central Arizona. Other Indian groups also claim ancestral ties to the Pima County area including the Zuni of central western New Mexico and the Hopi of northeastern Arizona based on both a recognition of prehistoric archaeological sites as ancestral and based upon oral histories and myth that

identify southern Arizona as a place of origin for these tribes. The Apaches also lived in the region for hundreds of years and therefore they too can claim an ancestral connection to the land and the places of traditional value to them that it may contain.

Places of traditional cultural value, as defined, are special to the community and must often remain secret to non-members; there are no specific traditional cultural places recorded in the San Pedro Subarea. This, however, does not mean they don't exit. These might be places where in the past natural resources were collected for ceremony or where natural features on the landscape are still recognized as having significance. Native Americans in particular identify prehistoric rock art sites of which there are two and all archaeological sites containing human graves as having qualities that make them recognizable as traditional cultural places. Habitation sites often contain graves and since there are 22 prehistoric and three historic Native American sites of this type in the subarea used for habitation, it is reasonable to assume that Native Americans would identify these places as having traditional cultural value.

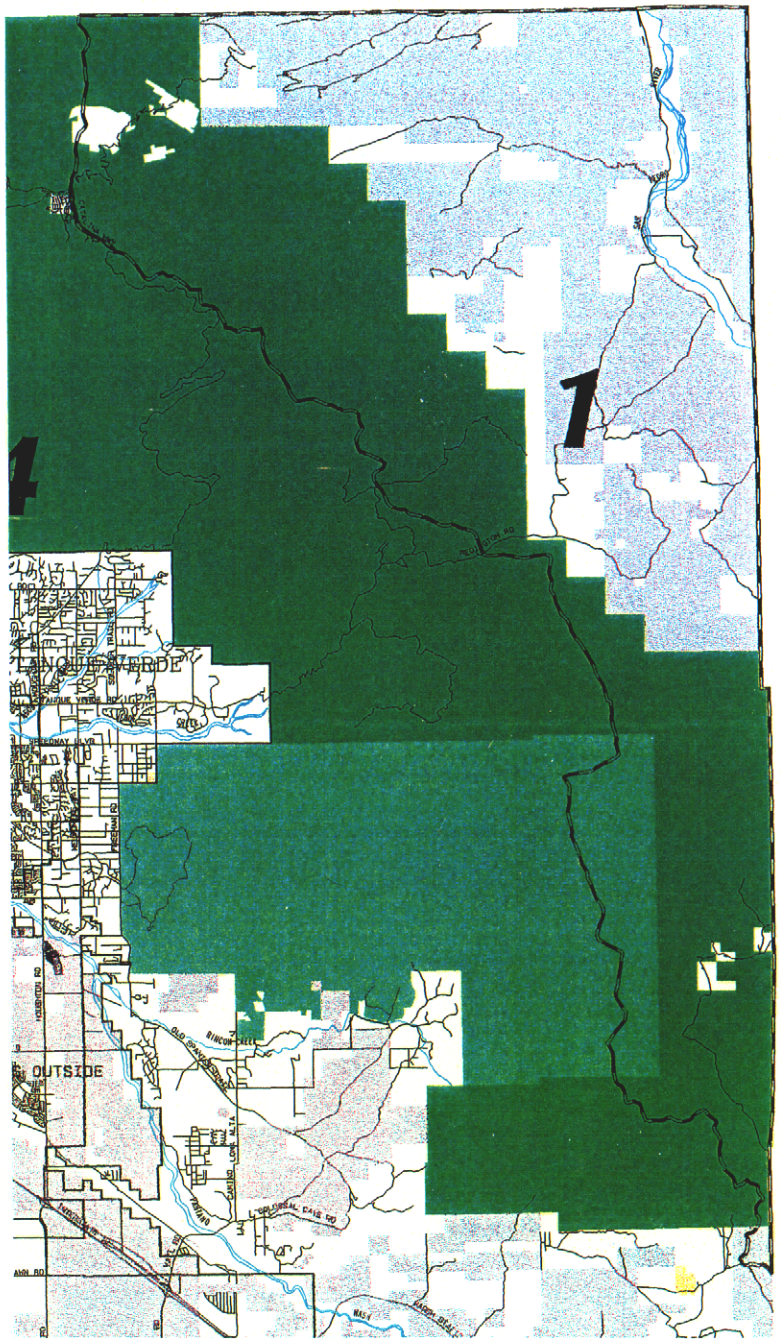
III. SUMMARY

By far the most common cultural resource known with the San Pedro Subarea is archaeological, of which the majority are prehistoric sites. To illustrate the point, the attached map entitled, **"Zone of Archaeological Sites Along the Lower San Pedro River,"** prepared by the Center for Desert Archaeology in Tucson, shows the distribution of archaeological sites within the middle and lower San Pedro River, including the subarea. It clearly demonstrates the richness of the flood plain and the adjoining river terraces. As of 1997, a total of 559 archaeological sites were recorded in the area between Benson and Winkelman. The San Pedro Subarea, which encompasses the valley floor and Buehman Canyon on the west and Redfield Canyon on the east, has been a focal point for human occupation for over 1200 years dating from at least A.D. 800 to the present day. This area has a large number of relatively undisturbed archaeological sites that have high scientific and educational value. Redington is a historic community that is a product of 19th century frontier settlement with potential archaeological and architectural assets. Lastly, Native American claims identify the San Pedro as part of their traditional use areas and so the possibility that places with traditional cultural value exist in the subarea is high, especially those places associated with the archaeological record. In short, the subarea is rich in cultural and historical resources value.

In effort to predict the locations of areas with high sensitivity for cultural and historical resources, proximity to water is used under the assumption that places closer to water will tend to have been used more heavily by past human populations than places more removed from water sources. The map entitled **"Cultural Resources High Sensitivity Areas"** identifies areas within the subarea that are predicted to be highly sensitive for cultural resources. These areas include springs in the subarea, almost all of which are located in the foothills of the Santa Catalina and Rincon Mountains and the San Pedro River drainage, an area known to have been the primary focus of human occupation for several thousand years.

Modern Communities Transportation And Ownership

SDCP PLANNING UNIT 1

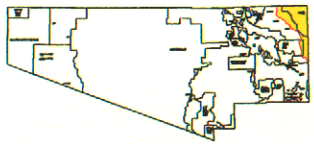


- Streets And Roads
- Washes
- Modern Communities
- Subarea Boundary
- National Parks And Monuments
- Bureau Of Land Management (BLM)
- Military Reservations
- State Lands
- Private Lands
- National Forest Lands

2000 ESTIMATED POPULATION
SDCP PLANNING UNIT 1: 66

1	MILITARY RESERVATIONS	62
1	NATIONAL FOREST LANDS	73,032
1	NATIONAL PARKS AND MONUMENTS	8,903
1	PRIVATE LANDS	25,343
1	STATE LANDS	66,975
	TOTAL	174,315

Pima County Index Map



Index Map Scale 1:1,500,000

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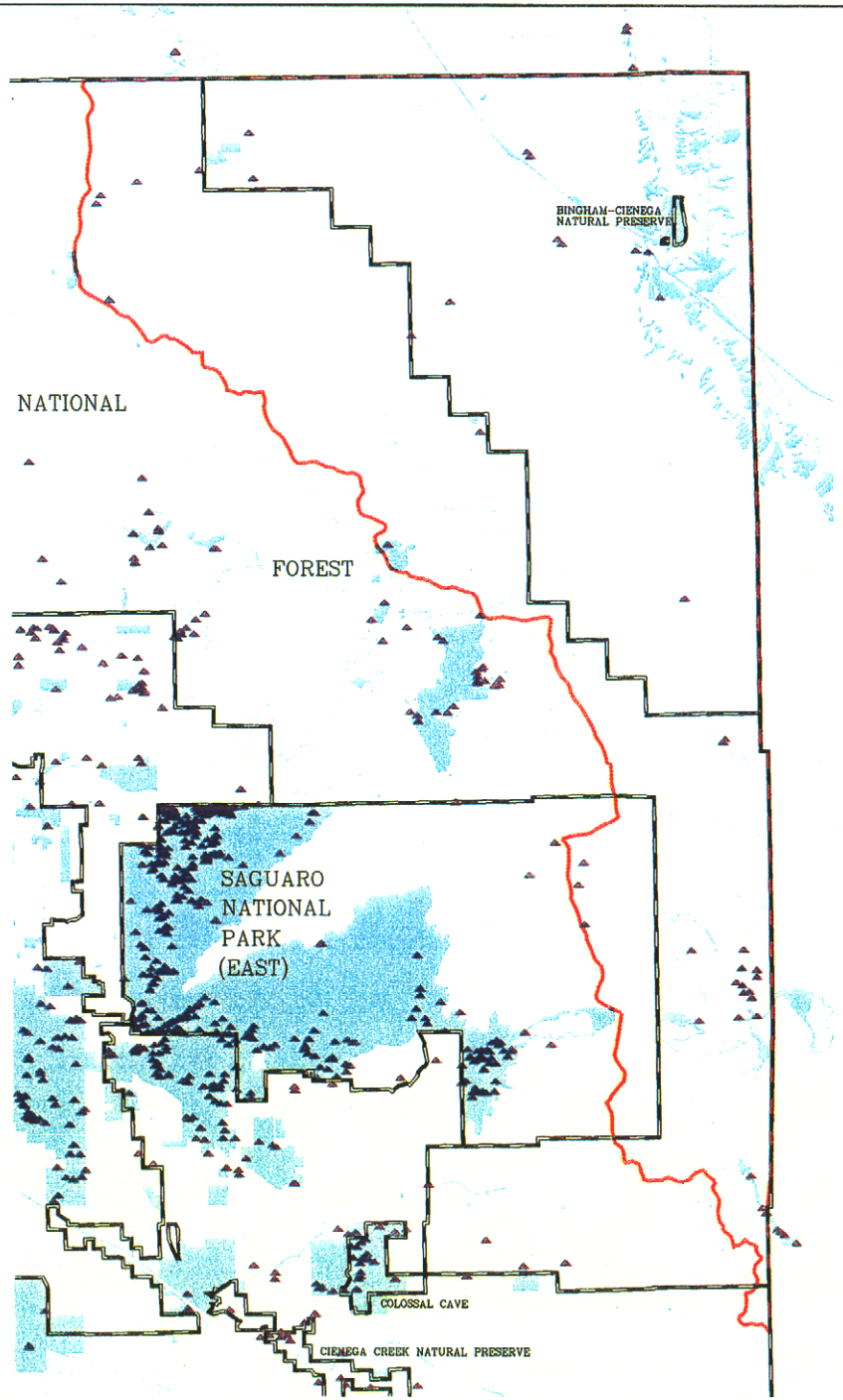
/pygmyowl2/sonora/cultural/completed/plan1/selo/cities1.aml Plotted 03/01/00

Archaeological Site/Survey Locations



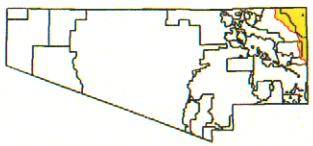
SDCP PLANNING UNIT 1

Archaeology Surveys

Archaeology Sites

STATISTICS
****
TOTAL NUMBER OF SITES: 40
AREA FOR POLYGONAL SURVEYS: 4,256.40 AC
LENGTH FOR LINEAR SURVEYS : 487,921.10 FT
92.41 MI

Pima County Index Map



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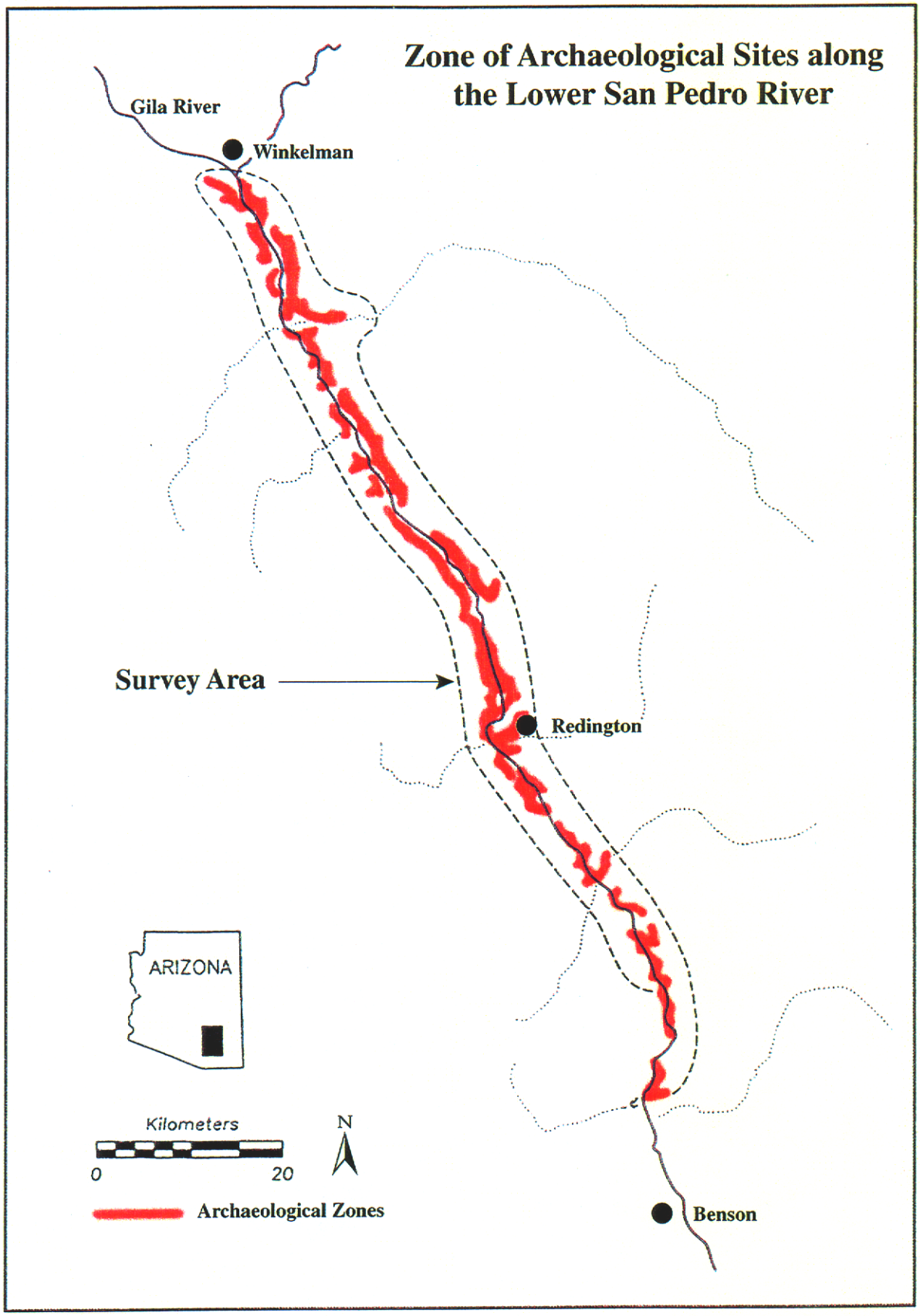
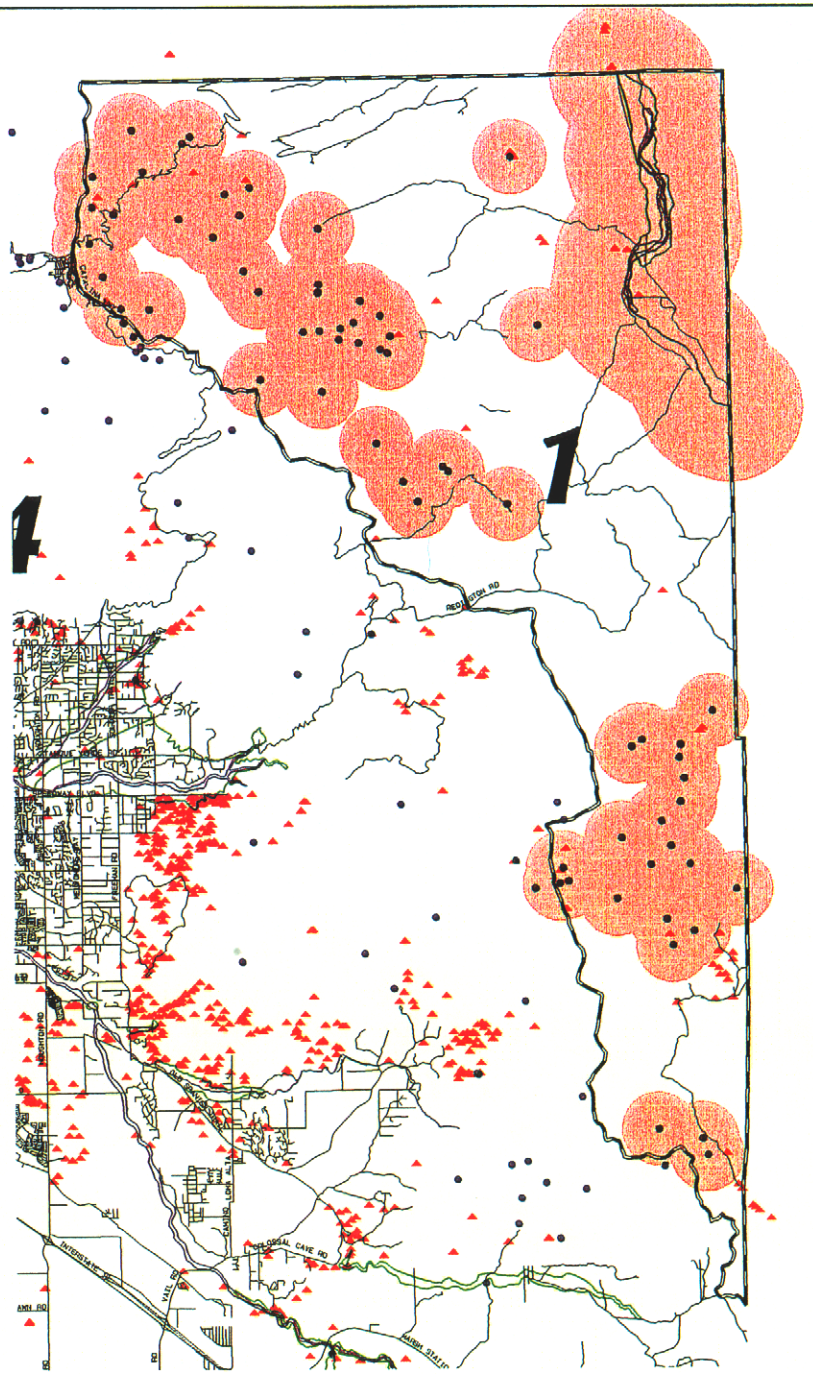
03/02/00

/pygmyowl2/sonora/cultural/asmjoined/plan1/amls/surv_site.aml


Zone of Archaeological Sites along the Lower San Pedro River
Gila River
Winkelman
Survey Area
Redington
Benson
ARIZONA
Kilometers
0
20
N
Archaeological Zones

Cultural Resources
High Sensitivity Areas



SDCP PLANNING UNIT 1

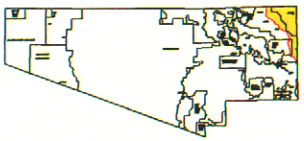
- One Mile Buffer Around Springs And Major Washes
- Streets And Roads
- Major Washes
- Subarea Boundary
- Shallow Ground Water
- Archaelogical Sites
- Springs

2 MILE WASH BUFFER = 36,648 AC.
1 MILE SPRING BUFFER = 67,733 AC.

TOTAL NUMBER OF ARCHAEOLOGY SITES: 40

NUMBER OF SITES WITHIN BUFFERED WASH AREA: 3
NUMBER OF SITES WITHIN BUFFERED SPRING AREA: 18

Pima County Index Map



Index Map Scale 1:1,500,000

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/pygnyowl2/sonora/cultural/asajoined/plan1/asla/wash1.aml Plotted 7/28/00

2. Altar Valley Subarea

I. SUBAREA: The Altar Valley subarea is a long, narrow trough approximately 52 miles (83 km) long and 20 miles (32 km) wide characterized by high mountains on either side and a wide valley floor through which the Altar Wash flows northward from the Mexican border as indicated on the map entitled, **"Modern Communities, Transportation, and Ownership.** " The subarea is defined by the eastern edge of the Tohono O'odham reservation along the Baboquivari and Coyote Mountains on the west. Its northern edge is marked by the Garcia Strip of the Tohono O'odham Nation and passes through a portion of the Tucson Mountains just west of the City of Tucson. On the east, the boundary follows along the tops of Black Mountain, the Sierrita Mountain chain, the Cerro Colorado Mountains and skirts the town of Arivaca to the east. The southern limit is defined by the Pima/Santa Cruz County line and the U.S. Mexican international border.

The population level in the Altar Valley Subarea for the year 2000 is estimated to be approximately 23,902. There are several principle communities in the subarea, the towns of Sasabe and Arivaca on the southern end of the planning unit and the community of Three Points (Robles Junction) at the northern end. However, significant population is concentrated in the northeast corner of the subarea in the vicinity of the Ajo Highway (State Route 86) and west of the San Xavier District of the Tohono O'odham Nation at Diamond Bell Ranch. These areas represents settlement along the rural edge of the greater Tucson Metropolitan area, which is experiencing rapid growth. Other sources of population exist in an unplatted development north and east of the Coyote Mountains and on ranches spread throughout the area on private lands in close association with state trust and federal lands open to grazing. Grazing remains a principle part of the local economy; however, approximately 6600 acres along the Altar Wash are presently under cultivation.

The Altar Valley subarea contains approximately 713, 807 acres, 320,706 (44.9.%) of which is state trust land. Private lands follow in rank with 144,230 acres (20.2%). Third, is the land in the Buenos Aires Wildlife Refuge that covers the southern third of the Alter Wash and its tributaries. This area contains 112, 345 acres (15.7 %). Indian lands, Forest Service lands, BLM lands, and non federal (county) park lands makes up the majority of the remainder as indicated in the table below.

Table IV.2.1. Altar Valley Subarea - Land Ownership by Acres and Percent

Ownership	**Acres**	**Percentage**
Bureau of Land Management	27,169	3.8
Indian Lands	73,223	10.2
Military Reservations	21	<1
National Forest Lands	29,889	4.18
National Wildlife Refuge	112,345	15.7
County Parks	6,154	0.8
Private Land	144,230	20.2
State Lands	320,706	44.9
Other	70	<1
Total	**713,807**	**100**

II. CULTURAL RESOURCES: This section presents information and analysis of current data on archaeological sites, historic resources and traditional cultural places within the subarea.

A. Archaeological sites

"Archaeological sites are any material remains of past human life or activities which are preserved in their original setting that are important to understanding prehistory or history. These sites or districts may include occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Archaeologists learn about the past by collecting information in the field in two ways: through survey and by excavation. Survey involves inspecting the ground surface in a particular area and recording concentrations of artifacts and features (hearths, roasting pits, pit houses, etc.) as archaeological sites. A site represents the physical remains of past human behavior in a single location dating to one or more periods of use through time. Surveys are often done systematically by groups of archaeologist who sweep the land in regularly spaced lines looking for artifacts. Some surveys, however, are judgmental in that archaeologists only look where sites are expected to be found and not elsewhere. In all cases, survey offers an extensive perspective on past land use.

The second kind of information on archaeological sites is gained through excavation. This is the systematic recording, recovery, and analysis of artifacts and features from within a site's limits. Critical information is gained by understanding the spatial relationship of all artifacts and features within a three dimensional context. This enables interpretation about how the site was used, by whom, when, whether the site was used more than once and what happened after it was abandoned. Often, archaeological sites are not fully excavated but are only partially sampled. This saves what is left of the site for future investigations. Archaeological excavation provides highly detained information about the use of one limited spatial area during one or more use episodes. Archaeologist use survey information in conjunction with site excavation information to build regional time lines over broad areas such as a river valley.

Survey data: There are two kinds of systematic investigations of the ground surface called surveys that archaeologists perform: Linear and block. Linear surveys involve inspection of a right-of-way for construction of a road, sewer line, telephone cable or other linear feature. These surveys tend to be done in compliance with legal mandates requiring environmental studies during project planning. Block surveys involve the examination of properties ranging from a few acres to 1000s of acres. These are typically done either in compliance with legal mandates, or through academic or preservation related research projects. The Map entitled **"Archaeological Site/Survey Locations"** shows the areas within the subarea that have been archaeologically surveyed and the sites that have been found. Some linear surveys are evident on the map as are the few block surveys most notably south of Tucson Mountain Park and in the Gunsight Mountain area. Overall, the map demonstrates that very little of the subarea has been surveyed. Presented below is a breakdown of survey data by acreage and survey type including the percentage of the subarea that has been investigated. Please note that the data include survey performed on the Tohono O'odham Nation, within the limits of the San Xavier District, and the Pasque Yaqui reservation, but survey locations are not plotted for Indian lands.

Table IV.2.2. Altar Valley Subarea - Survey Acreage by Survey Type			
Survey	**Number**	**Acres Surveyed**	**Percent of Subarea**
Linear	43	2,294	0.3
Block	98	35,577	5.0
Total	**141**	**37,871**	**5.3**

The total acreage figures indicate that more than 94 percent of the area has not been formally investigated. This limits what can be said about cultural resources in general and archaeological sites in particular. However, the Altar Valley, particularly the northern third, has been the focus of limited research, much of it within the last ten to fifteen years.

The Altar Valley has been investigated on and off since the 1920s with individual researchers conducting informal surveys and excavations in areas of interest to them. Many of these researchers were from the Arizona State Museum or were members of the faculty at the University of Arizona in Tucson. However, systematic investigations didn't begin until the 1970s and 1980s and were conducted for both research purposes and in compliance with environmental laws. Several large scale block surveys were conducted in 1980s, the most notable of which are the Coyote Mountains Project and the Gunsight Mountain survey. The Coyote Mountains survey conducted in 1989 was a research project directed to investigating the transition between the prehistoric and historic periods in southern Arizona. The Gunsight Mountain Survey conducted a few years earlier was also research driven and sought to understand the prehistoric occupation of the northern Altar Valley in comparison to other better known locations. Both surveys identified dozens of site spanning the period from approximately B.C. 7500 to A.D. 1450. The Gunsight Mountain survey eventually resulted in a nomination to the National Register of Historic Places. In the 1990s, several smaller surveys have been conducted on the Buenos Aires National Wildlife Refuge on the southern end of the subarea, and two surveys were conducted along 45 miles of State Road 286 to the north. Beyond these few projects, very little systematic and intensive archaeological investigation has occurred in the Altar Valley subarea.

Site data: The following is a summary of archaeological data for the subarea that is presented by gross time period and site function. This information is made available by the Arizona State Museum, University of Arizona.

Table IV.2.3. Atlar Valley Subarea - Archaeological Site Data by Time Period and Function					
PERIOD	**Prehistoric**	**Historic**	**Both**	**Unknown**	**Total**
FUNCTION					
Agriculture	5	1	0	0	**6**
Art	11	0	4	0	**15**
Communication	0	1	0	1	**2**
Disposal	1	1	1	0	**3**
Government	2	3	0	0	**5**
Habitation	45	5	5	1	**56**
Resource Processing	121	1	8	1	**131**
Resource Procurement	1	0	0	1	**2**
Religion	1	0	0	0	**1**
Storage	3	0	0	0	**3**
Transportation	1	2	1	0	**4**
Unknown	245	4	6	31	**286**
Total	**436**	**18**	**25**	**35**	**514**

As can be seen in Table IV.2.3, prehistoric sites vastly out number the historic sites and in some cases, occupations from both major time periods are present on the same site. In all, Resource Processing and Habitation are the most common of the identifiable functions, followed by Art (rock art) localities and Agricultural uses. The "Unknown" category consists of artifact scatters, such as pottery and stone chips, a wall feature, an ambiguous depression, and other items where function cannot be assessed. That so many sites (286) have unidentifiable functions and dates (35) is to be expected because the data presented here are collected during survey where only surface characteristics of sites are recorded without the benefit of excavation.

Tables IV.2.4 and IV.2.5 tally the number of sites within each of the two major time periods.

Table IV.2.4.
Altar Valley Subarea - Prehistoric Archaeological Site Data by Time Period

PaleoIndian 12,000 B.C. - 8,000 B.C.	**Archaic** 8,000 B.C.- A.D. 200	**Ceramic** A.D. 200- A.D. 1500	**Unknown Prehistoric**	**Total**
2	**12**	**95**	**327**	**436**

Two occupations from the PaleoIndian time period are known with the subarea and twelve components date to the succeeding Archaic Period. Together, these two time periods represent approximately 12,000 years or 600 human generations. These low numbers are a product of very low estimated populations levels, the low visibility of these archaeological sites, and a lack of formal investigation in the Altar Valley

The term "PaleoIndian" describes the earliest period of human occupation in the Americas. This was a time following the end of the ice age when the environment was cooler and wetter than it is today. Many species of now extinct animals including mammoth, horse, camel, bear, bison, and lions lived during this period. Numerous archaeological sites found in the west indicate that hunting these large animals was an important part of the subsistence of PaleoIndian people and as such they are commonly referred to as "big game hunters." While very little is known about these people, it is believed that they lived in small groups or bands by hunting and gathering as food became seasonably available throughout the year. Archaeological evidence suggest that they were highly mobile covering thousands of square miles in a year as they moved across the landscape. Toward the end of this period, the climate changed becoming warmer and drier, the big game animals disappeared, and new plant and animal communities emerged.

The Archaic Period represent a time span of approximately 6000 years during which human beings adjusted their way of living in response to new conditions. In order to survive, people became generalists in their subsistence practices, hunting and gathering a wide diversity of plants and animals and becoming more efficient in how they processed their food as indicated by the advent of grinding stones found on sites of this period. Again, people appeared to have lived in small groups by hunting a gathering wild plants and animals over large areas through a seasonal round. Sites from the early and middle parts of the Archaic are rare in southern Arizona suggesting low population levels in response to the unfavorable environmental conditions believed to exist at that time; however, toward the end of the period several significant changes occurred laying the foundation for subsequent cultural development. First, the environment stabilized by 4500 years ago approaching modern conditions by that time. Second, population levels appear to have increased and some evidence suggests that people roamed within more restricted territories as a result. Third, by approximately 3500 years ago, people began to experiment with growing their own food as a supplement to their diet. This change also co-occurred with more permanent settlement along well watered reaches of the major drainages in the region.

A total of 95 sites dating to the Ceramic Period in prehistory are known within the Altar Valley subarea. The Ceramic Period covers the time between the adoption of ceramic technology in the third and fourth centuries after Christ to the end of the prehistoric sequence around A.D. 1540. It was during the early part of the period between approximately A.D. 200 to A.D. 700, that Archaic Period populations completed the transition from mobile hunting and gathering to settled, village based, agricultural existence in southern Arizona and

elsewhere. The principal pottery bearing people in the region during prehistory were the Hohokam, who emerged as a distinct culture in the eighth century and dominated central and southern Arizona until around A.D. 1450. The Hohokam flourished along the river valleys of southern Arizona but were also well adapted to the desert lands to the west. They lived in settled, permanent villages, grew their own food using irrigation and dry farming techniques, developed a rich ceremonial life, and traded extensively with their neighbors throughout the region. A period of environmental instability during the A.D. 1300s is believed have weakened the agricultural economy to the point where the Hohokam were no longer able to produce food in sufficient quantifies and with enough consistency to support large populations and the culture collapsed after A.D. 1450. Of interest to research in the Altar Valley, another culture group centered in northern Mexico co-existed and interacted with the Hohokam. The Trincheras culture refers to agriculturalists who lived between approximately A.D. 750 and A.D. 1300. Trincheras sites, typically identified by rock terraced hillsides and distinctive purple on red pottery, have been recorded in the southern reaches of the Altar Valley; however, little is known of this prehistoric culture.

Following the collapse of the Hohokam, the region is believed to have been occupied in very low numbers by an O'odham (upper Piman speaking) people whose settlement and subsistence practices reflect a return to an earlier, simpler way of living. Life continued to involve the cultivation of crops supplemented by hunting a gathering, but the level of technical sophistication and social and religious cohesion characteristic of the Hohokam is missing in these later populations. These people are believed to be the descendants of the Hohokam, but are recognized as separate culture groups. Archaeologists know very little about the period that represents the end of the Hohokam and the beginning of the Spanish Colonial presence in southern Arizona. It appears to have been a time of flux when the vacuum left by the disappearance of the Hohokam was filled by groups that the Spanish recognized as the Sobaipuri and the Tohono O'odham in the 17th and 18th centuries. No sites dating to late prehistoric times are known in the Altar Valley.

Table IV.2.5.
Altar Valley Subarea - Historic Archaeological Site Data by Affiliation

Euro-American	Mexican-American	Native American	Unknown	Total
9	**3**	**4**	**2**	**18**

The Historic Period spans the years between A.D. 1540 and 1950. European occupation of the Altar Valley subarea dates to the early 19th century with the establishment of the Rancho del La Osa near Arivaca in 1812. By the 1860s and 1870s, large ranches were owned by Pedro Aguirre, Estaban Aros, Jesus Robles, and the Redondo family in the Avra and Altar Valleys. The Aros ranch, established in the 1880s, was situated 17 miles north of Sasabe, and the Santa Marguerita ranch , owned by the Ronstadt family, lies farther to the north. The Native American populations also lived in the subarea during this time; Arivaca is said to be the location of an 18th century O'odham village site that was abandoned after the Piman revolt of 1751. A total of 9 Euro-American sites have been identified in the subarea, four of which are habitations, two are transportation (roads, trails, stage stops, etc.) related features. Three Mexican-American sites have been recorded all of which are relate to government functions in some fashion (public buildings, park, plaza, big house, etc.). Four historic Native American occupations have also been identified, all of which are believed to be Tohono O'odham. There are also two sites that could not be securely identified as to cultural affiliation. The low numbers of sites dating to the historic time period is probably a reflection of research bias and not a lack of resources dating to this time period.

Despite the low survey coverage, or perhaps because of it, clusters of archaeological sites do exist, most notably in the area of Gunsight Mountain (the National Register District), on the western margin of the subarea near the Coyote Mountains, and further to the south along the base of the Baboquivari Mountains. Individual sites and site clusters have also been reported in other locations scattered throughout the subarea. Overall, the site distribution pattern suggests occupation of the ecotonal break between the upper bajada areas and the mountain pediment in association with known springs. Only a few sites are plotted along the central axis of the valley itself, but archaeological research does suggests that Hohokam village sites dating to the period from A.D. 800 - A.D. 1150 will be found close to the Altar Wash. This pattern of settlement between the valley bottom and upper bajadas is consistent with historic Winter/Summer village locations practiced by Tohono O'odham in historic times.

B. Historical Resources

"Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Historical resources are largely constructed or engineered elements of the built environment including buildings used for residential purposes such as houses but also commercial stores, industrial facilities, civic centers, and places of worship. Roads, bridges, irrigation canals, mining works, and rail road tracks are also historical resources . Information on these places is recovered through drawings and design plans, photographs, maps, surveys, and personal recollections.

The Altar Valley has a number of places of historic importance including occupied historic communities, abandoned settlements or ghost towns, and places that have been recognized for their historical value and registered on the National Register of Historic Places.

Historic Communities: Historic Communities are those settlements that are in existence today that were established 50 years or more ago as indicated by a founding date or the date the first post office opened. The following description is derived from "Arizona's Names" by Byrd Howell Granger, The Falconer Publishing Company, 1983.

- Arivaca was the site of a Tohono O'odham village site prior to the Piman Revolt of 1751 and subsequent efforts at silver mining by the Spanish. In the early 19th century, Spanish settlers attempted to ranch land in the vicinity. By mid century, silver mining in the nearby Cerro Colorado mining district influenced Euro-American settlement in the area. A post office was opened in Arivaca in 1878.

- Sasabe is also believed to have originated as the site of a village occupied by the Tohono O'odham called "Shashovuk." Various settlements named Sasabe have existed on both sides of the U. S. Mexican border and for a time the location of the modern town of Sasabe was called "San Fernando" until 1926 when the name was changed.

Ghost Towns: Many communities were established only to be abandoned. These places were typically mining towns, or in some cases, milling towns, that thrived until economic forces eliminated the driving force of their existence. Established during the later part of the 19th and early 20th centuries, these places remain time capsules that reflects a by-gone era. The following descriptions are derived from "Ghost Towns of Arizona" by James E. and Barbara H. Sherman, University of Oklahoma Press, 1969.

- Cerro Colorado was a mining town that grew in association with silver mining in the Cerro Colorado mining district on the eastern edge of the Altar Valley. Mining began after the Gadsden purchase in 1853 and the town site developed near the mine works. Operations continued through the Civil war until the Union Troops pulled out of the region and Apache attacks disrupted mining activities. Mining continued intermittently throughout the rest of the 19th century and the town associated with the mines was abandoned in the early 20th century. A post office was established at the settlement in 1879 (note, the Cerro Colorado ghost town is technically located in the Upper Santa Cruz subarea but historically it is linked to both Arivaca and Tubac, so it will be discussed in both subarea reports).

National Register Properties: The National Register of Historic Places were created as a part of the National Historic Preservation Act of 1966. It is the nation's premier honor roll for places deemed of national, regional, or local importance. The criteria for listing include a) association with a person who has contributed to history; b) association with an event important to history; c) associated with the work of a master artist or craftsman or typical of a style or type of workmanship; d) yielding or having the potential to yield information important to history or prehistory. Listing in no way effects the rights of private property owners to do what they wish with their property. Federal agencies; however, are required to consider the effects of their actions on listed properties. The following description is derived from the National Register nomination available at the State Historic Preservation Office in Phoenix, Arizona.

- Gunsight Mountain Archaeological District: The Gunsight Mountain Archaeological District was listed on the National Register of Historic Places in 1991 for its extraordinary potential to yield information about the history and prehistory of the Altar Valley. Located in the northern most peak of the Sierrita Mountains, the District encompasses some 3,334 acres of private and state trust lands containing 123 archaeological sites spanning the last 9000 years of human history.

Rural Historic Landscapes: There may also be individual ranches or farmsteads within the subarea that qualify as having importance to the history of the settling of the Altar Valley. Some of these may be part of larger historic landscapes that are recognizable entities that have historic value. Historic Landscapes a special subcategory of historic resources. As defined by the National Park Service, a rural historic landscape is "that portion of the exterior natural environment that has been modified, influenced, or given special cultural meaning by people who shaped the landscape to serve human needs. A rural historic landscape is a geographical area that historically has been used by people or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways and natural features. Historic landscapes may reflect the beliefs, attitudes, traditions, and values of these people."

- The Buenos Ayres Ranch, founded by Pedro Aguirre in 1870, and incorporated within the Buenos Aires National Wildlife Refuge, is an example of a rural historic landscape because of its association with ranching as a historic activity that affected how the land was used and is perceived today.

C. Traditional Cultural Places

"A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Pima County has been occupied by indigenous peoples for thousands of years and the modern descendants of these prehistoric cultures still live in the region today. All of Pima County is claimed as ancestral lands by the Ak-Chin Indian Community, the Gila River Indian Community, and the Tohono O'odham Nation. The Tohono O'odham claim direct ancestral affiliation with the prehistoric Hohokam Indians who inhabited much of southern and central Arizona. Other Indian groups also claim ancestral ties to the Pima County area including the Zuni of central western New Mexico and the Hopi of northeastern Arizona based on both a recognition of prehistoric archaeological sites as ancestral and based upon oral histories and myth that identify southern Arizona as a place of origin for these tribes. The Apaches also lived in the region for hundreds of years and therefore they too can claim an ancestral connection to the land and the places of traditional value to them that it may contain. Other groups with potential claims to places of traditional cultural value include the Hispanic and Anglo communities.

Places of traditional cultural value, as defined, are special to the community and must often remain secret to non-members; this is particularly true among Native Americans. These might be places where in the past natural resources were collected for ceremony or where natural features on the landscape are still recognized as having significance. One such place is known in the Altar Valley Subarea.

- Baboquivari Peak: This natural prominence is located on the western edge of the subarea in the Baboquivari Mountains. It is well known as a place with high traditional cultural value to the Tohono O'odham who believe it to be the center of their world and part of a cultural landscape that they identify as their homeland.

Other places with traditional cultural value of particular importance to Native Americans are rock art sites and all archaeological sites containing human graves. Fifteen of the components within the Subarea are identified as rock art localities, and an additional 45 were used for habitation purposes, which often contain human graves. It is reasonable to assume, that Native Americans would identify these places as having traditional cultural value.

III. DISCUSSION: The next map, entitled **"Archaeological Sites and Land Ownership"** shows the distribution of sites in relation to land ownership. Note that with few exception, the bulk of the 338 reported sites in the subarea are on state and private lands. Legal protections against unauthorized disturbances are afforded archaeological sites and other cultural and historical resources on federal and state lands with varying degrees of efficacy, but only one law, the Arizona State Burial Protection Act, applies on private land. Cultural resources on county lands are also covered by legal protections defined under county law and policy. Data are presented in the table below showing site count by land status and degree of legal protection for cultural resources.

Table IV.2.6. Altar Valley Subarea - Archaeological Sites by Landownership and Legal Protection

Jurisdiction	**No. of Archaeological Sites**	**Protection Status/Level**
BLM	6	Protected/high
National Forest Lands	1	Protected/high
National Wildlife Refuge	14	Protected/high
State Lands	216	Protected/moderate
County owned Lands	2	Protected/moderate
Private Lands	99	Unprotected/low
Total	**338**	

Only 21 of the 338 sites have high protection status, 218 are moderately protected from public and private actions, and the remaining 99 have low protection status. Since state lands can be sold for development, and private lands are subject only to local zoning, the majority of known archaeological sites may be affected by development, should that occur within the subarea. Furthermore, since 94% of the land base in the subarea has never been archaeologically surveyed, potentially hundreds, even thousands of sites that exit but have never been recorded could be affected.

The loss of cultural and historical resources and the threat of further loss in the Altar Valley subarea can be summarized as follows.

Resource Loss:

- Relatively low levels of public and private development have occurred in the Altar Valley with the exception of residential growth at the north end of the valley, west of the Tohono O'odham San Xavier District, and north of the District in the vicinity of the Ajo Tucson Highway. Furthermore, the historic communities of Arivaca and Sasabe have not experienced rapid population growth. Because of this, cultural resources have not been affected to the same degree as elsewhere.

Resource Threat:

- The greatest area of threat is in the north valley where private development and the construction of public infrastructure is already occurring and will continue to occur as the Tucson Metropolitan area pushes to the south and west. The fact that private land can be subdivided and developed without platting under current state law, and that state trust land is vulnerable to sale for the "highest and best use," increases the potential for resource loss in the future. On the southern end of the Valley, development pressures are far less intense and thus less of a threat to cultural and historical resources

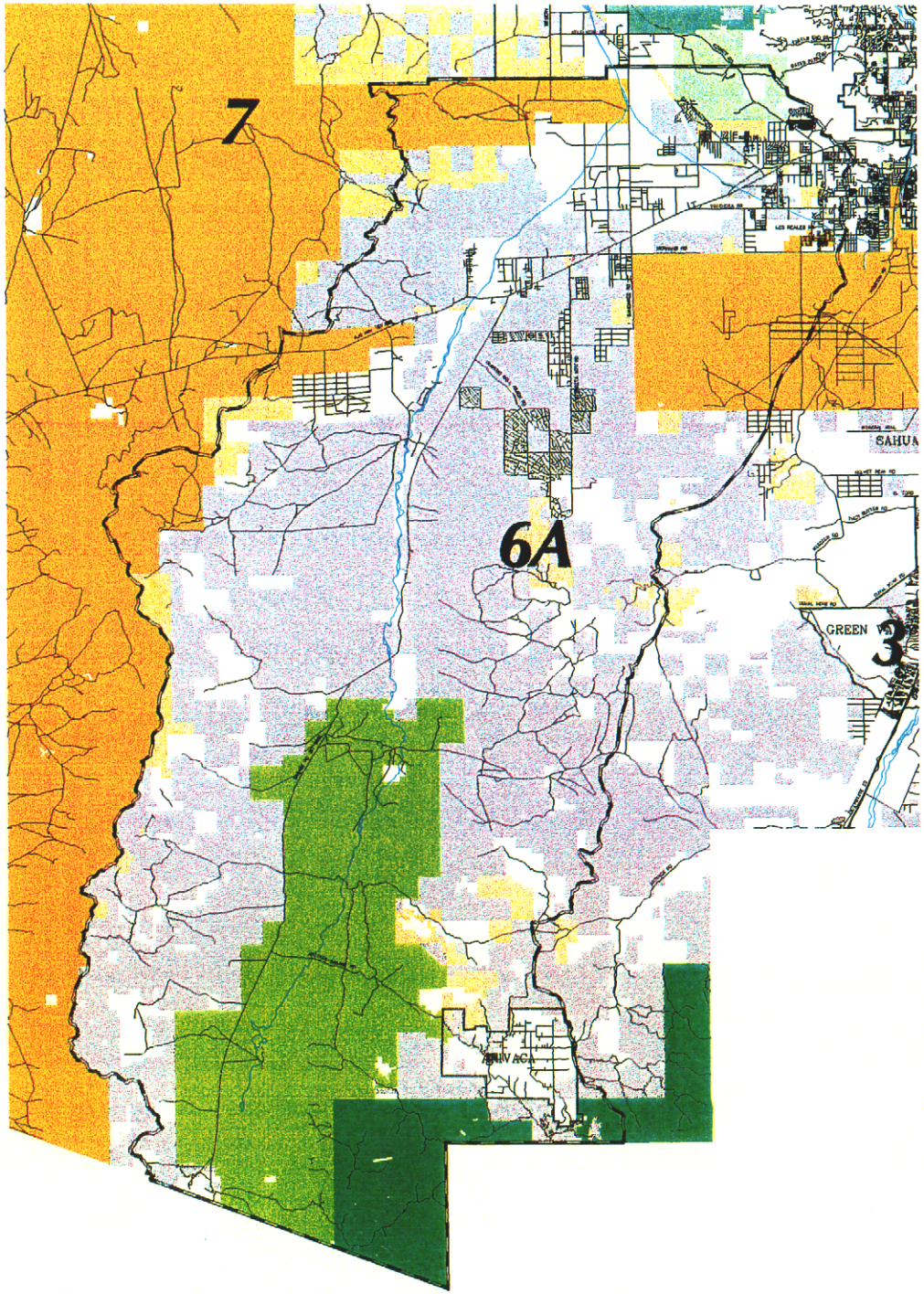
Because the distribution of the majority of cultural resources is unknown, assessing risk and making conservation recommendations is difficult. In effort to predict areas with high sensitivity for cultural and historical resources, proximity to water is used under the assumption that places closer to water will tend to have been used more heavily by past human populations than places more removed from water sources. The map entitled **"Cultural Resources High Sensitivity Areas"** identifies areas within the subarea that are predicted to be highly sensitive for cultural resources. These areas include springs in the subarea, almost all of which are located in the foothills of the Baboquivari, Sierrita, and San Luis Mountains. Areas around shallow ground water in the vicinity of Arivaca are predicted to be sensitive as well. There are limitations to this attempt to model sensitive areas, for instance, the map does not predict the Gunsight Mountain Archaeological District east of the Diamond Bell Ranch. More refined environmental data are needed to capture areas along secondary drainages. Nonetheless, given human needs for water and the pattern of distribution for archaeological sites in particular, the predicted high sensitivity areas should capture many cultural and historical resources within the Altar Valley subarea.

IV. SUMMARY

The most important observation that can be made about cultural and historic resources in the Altar Valley subarea is how little is known of the area. Only a little more than five percent of the area has been investigated meaning that the vast majority of the landscape and the cultural resources it contains is unknown. Comparison of the maps showing archaeological survey and site locations and land ownership demonstrates that where investigations have occurred in the past, archaeological sites are found, leading to a further conclusion that more inspection will result in more sites being identified. Despite the limited degree of archaeological survey coverage, what information has been collected demonstrates that over 11,000 years of human history is represented in the Alter Valley. This makes the Altar Valley one of the few basins in

the region to contain a record of each period in the sequence of human development through time enhancing its potential as a place with high scientific and educational value.

Both Arivaca and Sasabe are historic communities that are products of Euro-American frontier settlement in 19th century with potential archaeological and architectural assets, as is the Cerro Colorado ghost town site. Lastly, Native American claims identify the Altar Valley as part of their traditional use areas. Baboquivari Peak, on the western edge of the subarea is a known and highly significant traditional cultural place and the possibility that other places with traditional cultural value exist in the subarea is high, especially those places associated with the archaeological record. In short, the subarea, while virtually unknown, has rich cultural and historical resources values that will only be increase as more data are collected. Since the majority of the Subarea is composed of state trust lands, and since these lands are potentially convertible into private lands for development, there is a further need to identify cultural and historical resources, evaluate their significance and where warranted, protect them for future generations.



Modern Communities Transportation And Ownership

SDCP PLANNING UNIT 6A

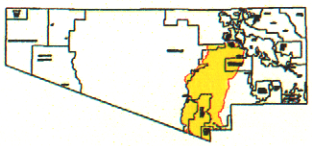
- Streets And Roads
- Washes
- Modern Communities
- Subarea Boundary
- National Parks And Monuments
- Bureau Of Land Management (BLM)
- Military Reservations
- State Lands
- Private Lands
- National Forest Lands
- Non-Federal Parks
- Indian Lands
- National Wildlife Refuge

2000 ESTIMATED POPULATION
SDCP PLANNING UNIT 6A: 23,902

SDCP PLANNING UNIT 6A ACREAGE AND LAND OWNERSHIP

6A	BLM	27,169
6A	INDIAN LANDS	73,223
6A	MILITARY RESERVATIONS	21
6A	NATIONAL FOREST LANDS	29,889
6A	NATIONAL WILDLIFE REFUGE	112,345
6A	NON-FEDERAL PARKS	6,154
6A	OTHER	70
6A	PRIVATE LANDS	144,230
6A	STATE LANDS	320,706
	TOTAL	713,807

Pima County Index Map



Index Map Scale 1:1,500,000

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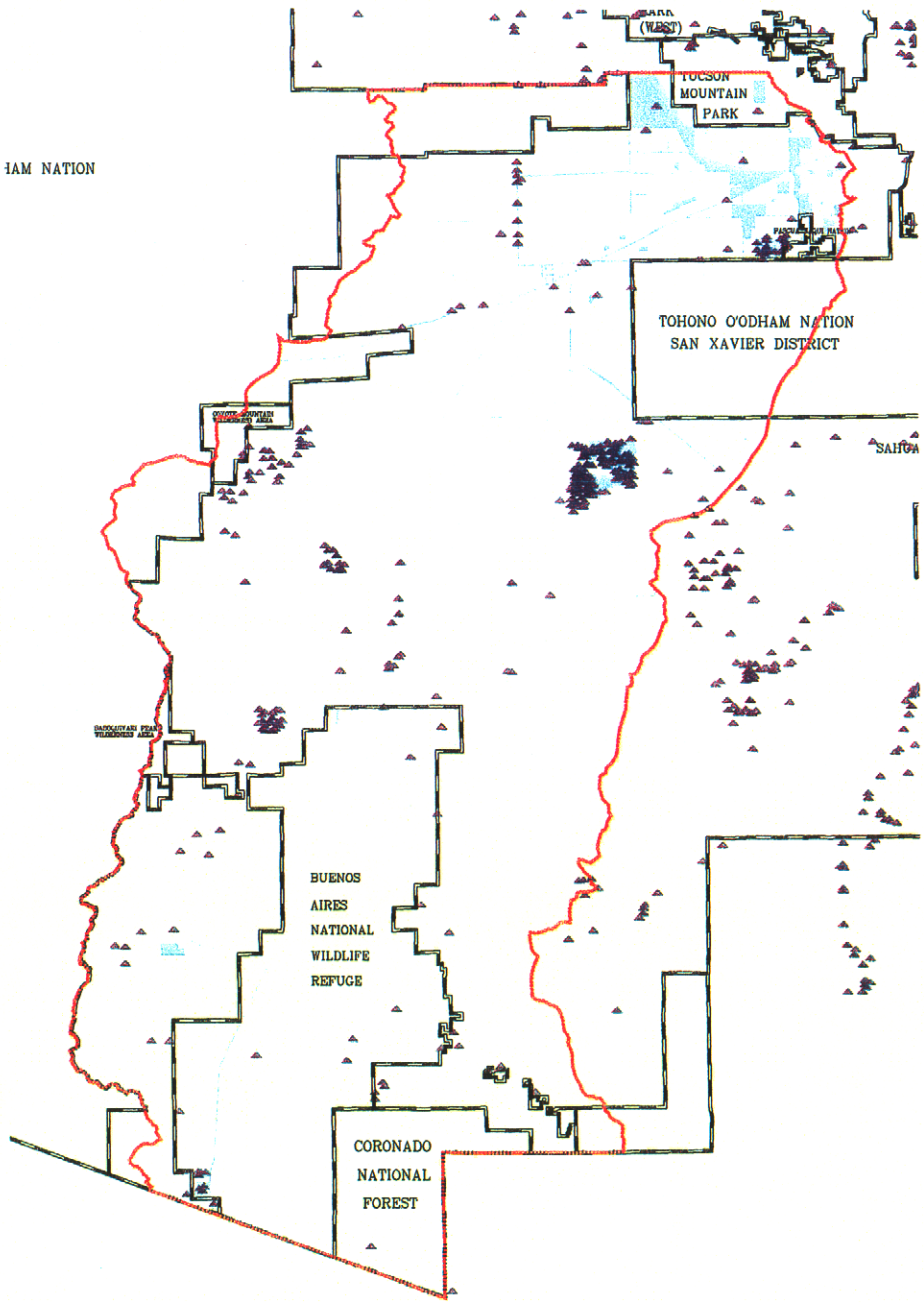
Archaeological Site/Survey Locations



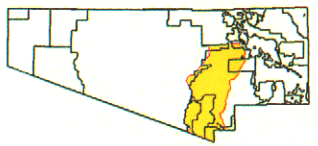
SDCP PLANNING UNIT 6a

Archaeology Surveys

Archaeology Sites

STATISTICS
****
TOTAL NUMBER OF SITES: 679
AREA FOR POLYGONAL SURVEYS: 35,577.36 AC
LENGTH FOR LINEAR SURVEYS : 639,640.09 FT
121.14 MI

Pima County Index Map



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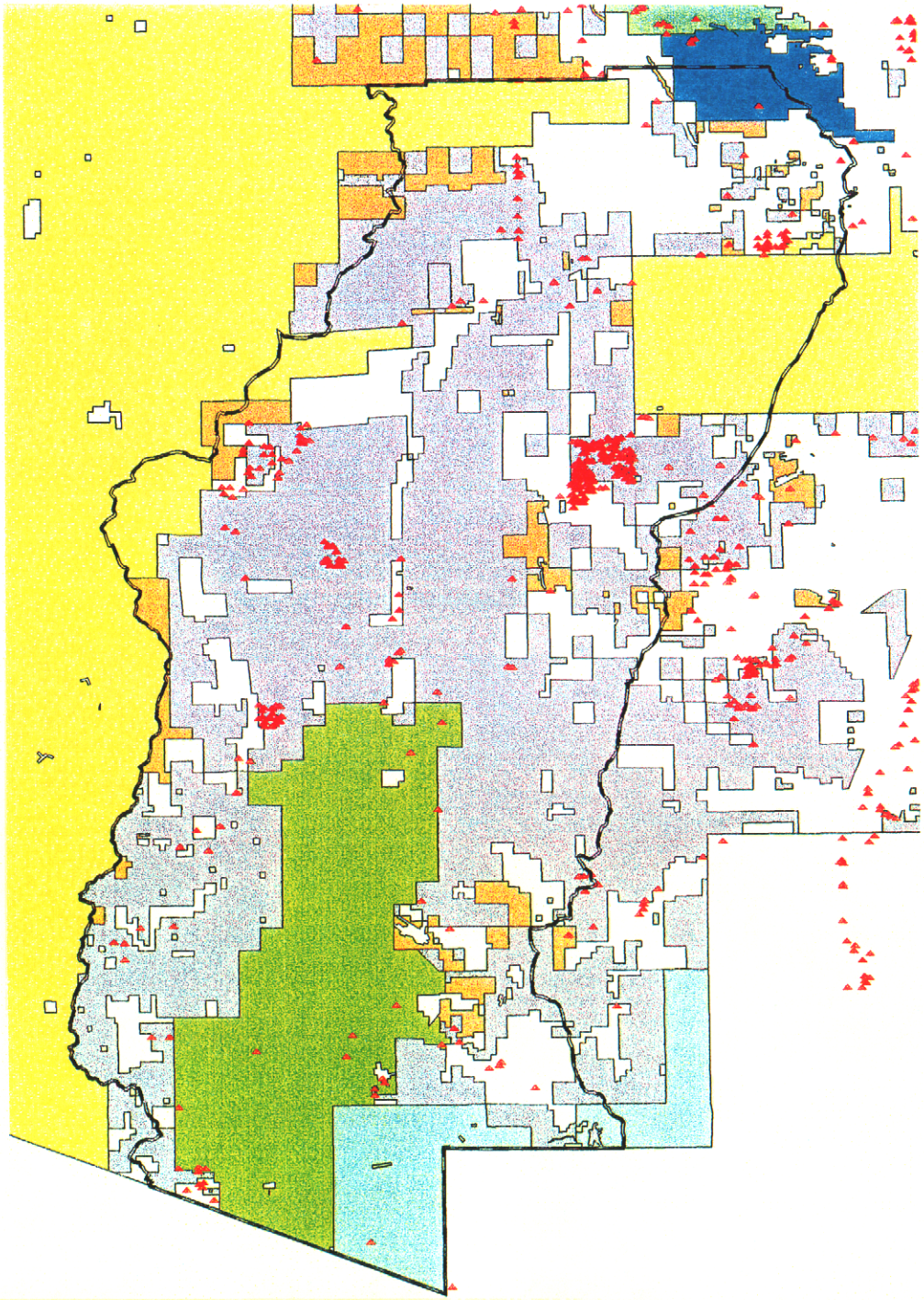


Archaeological Sites and Land Ownership

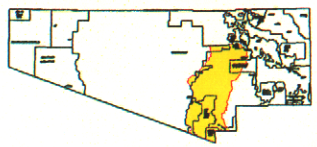
SDCP PLANNING UNIT 6a

- Watershed Planning Boundary
- Archaeology Sites
- BLM
- COUNTY PARKS
- INDIAN LANDS
- GOLDWATER GUNNERY RANGE
- MILITARY RESERVATIONS
- NATIONAL FOREST LANDS
- NATIONAL PARKS AND MONUMENTS
- NATIONAL WILDLIFE REFUGE
- PRIVATE LANDS
- STATE LANDS
- STATE PARKS

STATISTICS

JURISDICTION	# OF SITES
BLM	6
COUNTY PARK	2
GOLDWATER GUNNERY RANGE	0
MILITARY RESERVATIONS	0
NATIONAL FOREST LANDS	1
NATIONAL PARKS AND MONUMENTS	0
NATIONAL WILDLIFE REFUGE	14
PRIVATE LANDS	99
STATE LANDS	216
STATE PARKS	0
COUNTY OWNED LAND	0
TOTAL	338

Pima County Index Map



Index Map Scale 1:1,500,000

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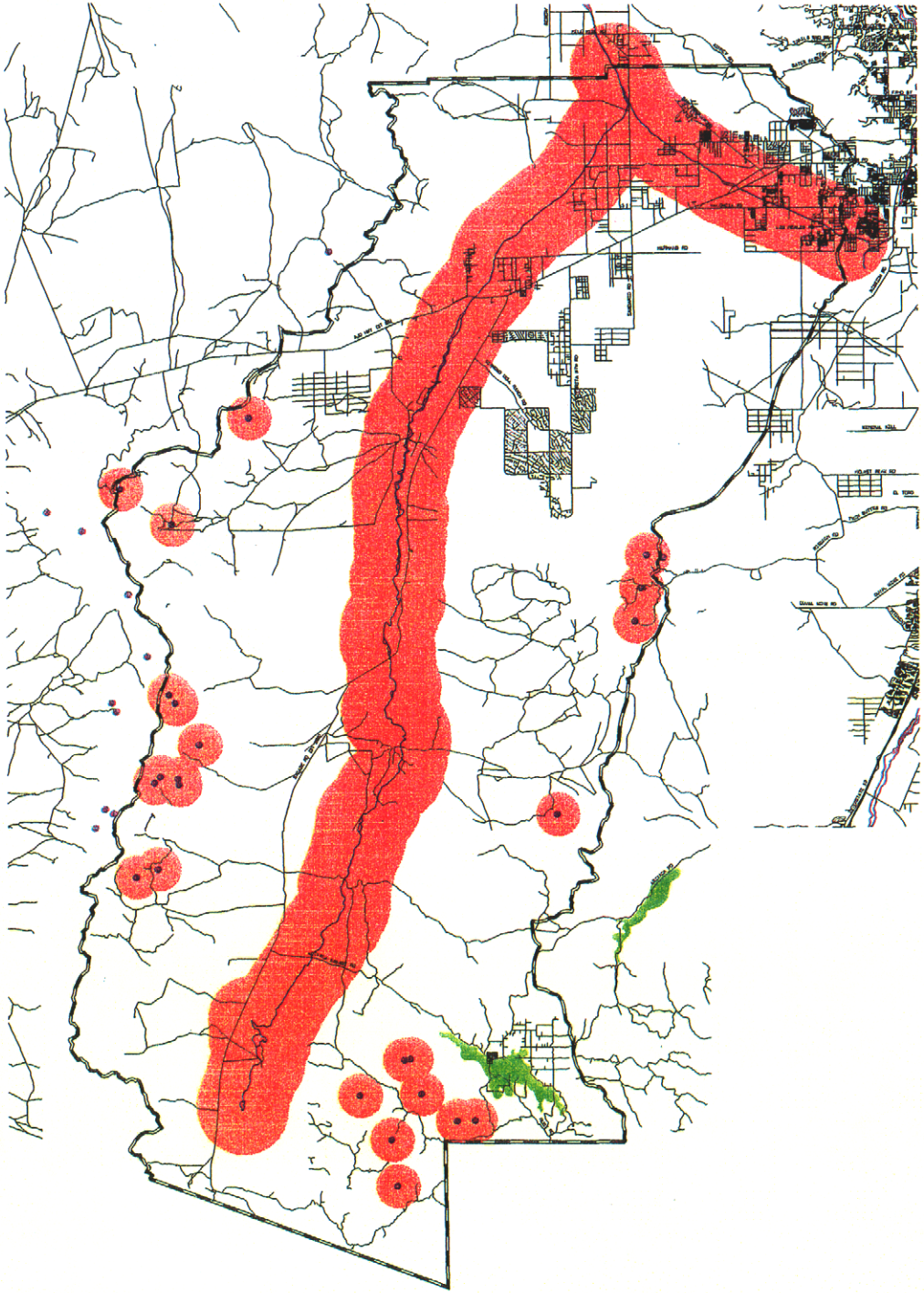
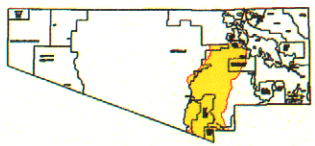


Cultural Resources
High Sensitivity Areas

SDCP PLANNING UNIT 6A

- Shallow Ground Water
- 2 Mile Buffer - Major Washes
  1 Mile Buffer - Springs
- Streets And Roads
- Major Washes
- Subarea Boundary
- Springs

Pima County Index Map



Index Map Scale 1:1,500,000

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/pygpyowl2/sonora/cultural/sssjoinsd/plan6a/eps/wash6a.eps Plotted 3/8/00

3. Cienega-Rincon Subarea

I. SUBAREA: The subarea defines the watersheds formed by the Santa Rita and Empire Mountains on the west, the Whetstone mountains on the east and the Rincon Mountains to the north and drains Cienega Creek and Pantano Wash, the subarea's primary watercourses. The southern boundary of the planning unit is marked by the Pima County/Santa Cruz County line and its northern limit passes through the Eastern District of the Saguaro National Park as indicated on the map entitled, **"Modern Communities, Transportation, and Ownership."** This area encompasses approximately 498 square miles.

The Cienega-Rincon subarea contains approximately 318,535 acres, within which land status is broken down as presented in the table below. As is the case for much of eastern Pima County, state land makes up the majority of the land base, followed by private lands and National Forest lands. National Parks and Monuments, public lands administered by the Bureau of Land Management, Pima County lands, and a small holding of military property follow in order of rank.

Table IV.3.1. Cienega-Rincon Subarea - Land Ownership by Acres and Percent

Ownership	**Acres**	**Percentage**
Bureau of Land Management	36,741	11.5
Military Reservations	16	<1
National Forest Lands	53,715	16.7
National Parks/Monuments	30, 866	9.6
Private Land	65,703	20.6
State Lands	125,584	39.4
County Lands	5,910	1.8
Other	16	<1
Total	**318, 535**	**100**

The year 2000 population estimate for the Cienega-Rincon subarea is 3,312. There are several communities in the subarea as mentioned above, including the historic town of Vail located on the west side of the subarea adjacent to the Southern Pacific railroad line. Newer settlements, such as Mescal, exist on the eastern limit of the subarea adjacent to I-10, in Davidson Canyon along the Sonoita Mountain View Highway to the south, and north of I-10 in the vicinity of Old Spanish Trail where urban expansion of the Tucson metropolitan area is rapidly occurring. Additional population is distributed within the subarea on private ranches in close association with state trust and federal lands open to grazing. Historically, the subarea has depended upon a mixture of ranching, mining, farming, and since the end of the 19th century, railroad related commerce and transportation services. Ranching continues in the subarea today and just over 1000 acres remain in cultivation along the Cienega Creek.

II. CULTURAL RESOURCES: This section presents information and analysis of current data on archaeological sites, historic resources and traditional cultural places within the subarea.

A. Archaeological Sites

"Archaeological sites are any material remains of past human life or activities which are preserved in their original setting that are important to understanding prehistory or history. These sites or districts may include occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Archaeologists learn about the past by collecting and analyzing information in two ways: through survey and by excavation. Survey involves inspecting the ground surface in a particular area and recording concentrations of artifacts and features (hearths, roasting pits, pit houses, etc.) as archaeological sites. A site represents the physical remains of past human behavior in a single location dating to one or more periods of use through time. Surveys are often done systematically by groups of archaeologist who walk the land in regularly spaced lines looking for artifacts. Some surveys, however, are judgmental in that archaeologists only look where sites are expected to be found and not elsewhere. In all cases, survey offers an extensive perspective on past land use.

The second kind of information on archaeological sites is gained through excavation. This is the systematic recording, recovery, and analysis of artifacts and features from within a site's limits. Critical information is gained by understanding the spatial relationship of all artifacts and features within a three dimensional context. This enables interpretation about how the site was used, by whom, when, whether the site was used more than once and what happened after it was abandoned. Often, archaeological sites are not fully excavated but are only partially sampled. This saves what is left of the site for future investigations. Archaeological excavation provides highly detained information about the use of one limited spatial area during one or more use episodes. Archaeologist use survey information in conjunction with site excavation information to build regional time lines over broad areas such as a river valley.

Survey data: There are two kinds of surveys that archaeologists perform: Linear and block. Linear survey involves inspecting a right-of-way for construction of a road, sewer line, telephone cable or other linear feature. These surveys tend to be done in compliance with legal mandates requiring environmental studies during project planning. Block survey involves examining non-linear properties ranging in size from a few acres to 1000s of acres. These are typically done either in compliance with legal mandates, or through academic or preservation related research projects. The Map entitled **"Archaeological Survey Locations"** shows the areas within the subarea that have been archaeologically surveyed. Linear surveys are evident on the map in blue and block surveys appear in purple. Overall, the map demonstrates that federal lands in the Coronado National Forest and Saguaro National Park Eastern District have received the bulk of formal survey in the past. Presented below is a breakdown of survey data by acreage and survey type including the percentage of the subarea that has been investigated.

Table IV.3.2. Cienega-Rincon Valley Subarea - Survey Acreage by Survey Type

Survey Type	Number	Acreage	Percent of Subarea
Linear	40	2983	0.9
Block	56	34,696	10.9
Total	**96**	**37,854**	**11.8**

The total acreage figures indicate that more than 88 percent of the area has not been formally investigated. This limits what can be said about cultural resources in general and archaeological sites in particular. However, recent survey along Cienega Creek within the Cienega Creek Natural Preserve and on Bureau of Land Management lands to the south, has almost doubled this coverage to 65,538 acres representing 20.5 percent of the subareas. This work, which has yet to be published, was conducted by a graduate student at the University of Arizona and represents only the latest research in an area that has received considerable attention, much of it within the last twenty years.

Archaeological research in the Rincon Valley area began in the 1920s with excavation at the Tanque Verde ruin, a late prehistoric Hohokam village site located south of Saguaro National Park Eastern District. Between the mid 1960s and the early 1990s, the Saguaro National Park (then a monument) was the subject of multiple survey and follow up excavation projects that resulted in the discovery of hundreds of new archaeological sites along the hilly flanks of the Rincon Mountains. With the expansion of the Tucson metropolitan area to the south and east in the 1980s and 1990s, private development has also prompted archaeological survey in the Rincon Valley. The proposed Rocking K Ranch subdivision is the most notable example. Survey conducted between 1988 and 1996 has covered approximately 5800 acres of private and state lands during which 83 archaeological sites were recorded dating from the Late Archaic through to the end of the Hohokam sequence, a period covering approximately 4000 years. More recently, private development just south of Rocking K has identified an another 25 sites on 1750 acres within the proposed Rancho del Lago subdivision, adding new data on prehistoric settlement along the Pantano Wash.

Between 1975 and 1982, archaeological investigation within the northern Santa Rita Mountains on the west side of the subarea revealed prehistoric uses of the uplands. A 23 square mile area of National Forest land was surveyed for the proposed Anamax-Rosemont land exchange, leading to the identification of 621 cultural manifestations dating to Archaic, Hohokam, and Historic Periods (see discussion below). Excavation of 10 Archaic sites demonstrated ancient use of the highlands at least 7000 years ago. The Cienega Creek itself has received its share of research attention beginning in the 1920s with investigations conducted by archaeologists from the University of Arizona. In the 1950s, survey and testing along the Creek identified pre-ceramic (Archaic) sites buried under the deep alluvium covering the Cienega Creek flood plain. In 1982, a number of these ancient sites were excavated to investigate the origins of agriculture in prehistory. More recently, beginning in 1995, a doctoral student at the University of Arizona surveyed thousands of acres along Cienega Creek and several of its tributaries. As a result, site counts have been increased to 554 for the subarea, representing a span of time from approximately 6000 B.C. to the present day. This effort confirms both the antiquity and the richness of Cienega Creek and its tributaries. In sum, archeological survey and follow up research continues to demonstrates the importance of the subarea as a source of information on the past.

Site data: The following is a summary of archaeological data for the subarea that is presented by gross time period and site function. This analysis uses data from the Arizona State Museum, University of Arizona.

Table IV.3.3. Cienega-Rincon Subarea - Archaeological Site Data by Site Function					
PERIOD	**Prehistoric**	**Historic**	**Both**	**Unknown**	**Total**
FUNCTION					
Agriculture	7	8	1	4	**20**
Art	2	1	1	5	**9**
Communication	0	1	1	0	**2**
Disposal	4	4	0	2	**10**
Government	0	5	0	0	**5**
Habitation	16	12	1	8	**37**
Resource Processing	29	6	1	22	**58**
Resource Procurement	9	5	1	12	**27**
Religion	2	0	0	0	**2**
Storage	1	0	0	0	**1**
Transportation	0	3	0	0	**3**
Unknown	133	8	5	53	**199**
Total	**203**	**53**	**11**	**106**	**373**

As can be seen in Table 3, prehistoric sites out number the historic by four to one, and in a few cases, occupations form both major time periods are present on the same site. In all, Resource Processing, Habitation, and Resource Procurement, are the most common of the identifiable functions, indicating that residential needs, the acquisition of critical resources (either food or non-food items) and the processing of those resources were the primary activities in the subarea during both prehistoric and historic times. This is followed by Agricultural uses, Disposal (trash dumps) and Art (rock art) in order of their representation. The "Unknown" category consists of artifact scatters, such as pottery and stone chips, where function cannot be assessed. That so many components (199) have unidentifiable functions and cannot be accurately dated (106) is to be expected because the data presented here are collected during survey where only surface characteristics of sites are recorded without the benefit of subsurface excavation.

Table IV.3.4. Cienega-Rincon Valley Subarea - Prehistoric Archaeological Site Data by Time Period					
TIME PERIODS	**PaleoIndian** 12,000 B.C. - 8,000 B.C.	**Archaic** 8,000 B.C.- A.D. 200	**Ceramic** A.D. 200- A.D. 1540	**Unknown**	**Total**
Site Count	**0**	**20**	**84**	**99**	**203**

Table IV.3.4 presents information on both the number of prehistoric sites in the subarea as reported by the Arizona State Museum. New information not yet available to the Museum boosts the number of recorded Archaic sites to 142 and Ceramic Period sites to 281, marking a huge increase in site from both time periods but especially the earlier Archaic times. This period was the focus of the doctoral research and demonstrates that cultural deposits of extreme antiquity are present in Pima County. As a whole, the data presented here clearly indicate that portions of the subarea area in proximity to permanent water were heavily occupied throughout much of the prehistoric sequence. Missing from the prehistoric sequence is any evidence of occupation of the subarea during the PaleoIndian Period.

While no sites dating to the PaleoIndian Period have yet been reported in the subarea, four sites dating to this time period are known in the San Pedro River Valley to the east. The term "PaleoIndian" describes the earliest period of human occupation in the Americas. This was a time following the end of the last ice age when the environment was cooler and wetter than it is today. Many species of now extinct animals including mammoth, horse, camel, bear, bison, and lions lived during this period. Numerous archaeological sites found in the west indicate that hunting these large animals was an important part of the subsistence of PaleoIndian people and as such archaeologists refer to them as "big game hunters." While very little is known about these people, it is believed that they lived in small groups or bands by hunting and gathering as food became seasonably available throughout the year. Archaeological evidence suggest that they were highly mobile covering thousands of square miles in a year as they moved across the landscape. Early in the succeeding Archaic Period, the environment became warmer, the large game animals disappeared, and modern plant and animal species were established.

The Musuem has records on 20 sites dating to the Archaic Period. The Archaic Period represent a time span of almost 8000 years during which human beings adjusted their way of living in response to new environmental conditions. In order to survive, people became generalists in their subsistence practices, hunting and gathering a wide variety of plants and animals and becoming more efficient in how they processed their food as indicated by the presence of grinding stones found on sites of this period. Again, people appeared to have lived in small groups by hunting a gathering wild plants and animals over large areas through a seasonal round. Sites from the early and middle parts of the Archaic are rare in southern Arizona suggesting low population levels in response to the unfavorable environmental conditions believed to exist at that time; however, toward the end of the period several significant changes occurred laying the foundation for subsequent cultural development. First, the environment stabilized by 4500 years ago approaching modern conditions by that time. Second, population levels appear to have increased and some evidence suggests that people roamed within more restricted territories as a result. Third, by approximately 3500 years ago, people began to experiment with growing their own food as a supplement to their diet. This change also co-occurred with more permanent settlement along well watered reaches of the major drainages in the region.

A total of 84 sites dating to the Ceramic Period in prehistory are known within the Cienega-Rincon subarea. The shear number of sites and site components dating to this period in prehistory indicates that the subarea was strongly favored by ceramic period populations. The Ceramic Period covers the time between the adoption of ceramic technology in the third and fourth centuries after Christ to the end of the prehistoric sequence around A.D. 1540. It was during the early part of the period, between approximately A.D. 200 to A.D. 700, that Archaic Period populations completed the transition from mobile hunting and gathering to settled, village based, agricultural existence in southern Arizona and elsewhere. The principal pottery bearing people in the region during prehistory were the Hohokam, who emerged as a distinct culture in the eighth century and dominated central and southern Arizona until around A.D. 1450. The Hohokam flourished along the river valleys of southern Arizona but were also well adapted to the desert lands to the west. They lived in settled, permanent villages, grew their own food using irrigation and dry farming techniques,

developed a rich ceremonial life, and traded extensively with their neighbors throughout the region. A period of environmental instability during the A.D. 1300s is believed have weakened the agricultural economy to the point where the Hohokam were no longer able to produce food in sufficient quantifies and with enough consistency to support large populations and the culture collapsed around A.D. 1450.

Following the collapse of the Hohokam, the region is believed to have been occupied in very low numbers by an O'odham (upper Piman speaking) people whose settlement and subsistence practices reflect a return to an earlier, simpler way of living. Life continued to involve the cultivation of crops supplemented by hunting a gathering, but the level of technical sophistication and social and religious cohesion characteristic of the Hohokam is missing in these later populations. These people are believed to be the descendants of the Hohokam, but are recognized as separate culture groups. Archaeologists know very little about the period that represents the end of the Hohokam and the beginning of the Spanish Colonial presence in southern Arizona. It appears to have been a time of flux when the vacuum left by the disappearance of the Hohokam was filled by groups that the Spanish recognized as the Sobaipuri and the Tohono O'odham in the 17th and 18th centuries. No components dating to late prehistoric times are known in the Cienega-Rincon Valley subarea.

Table IV.3.5.
Cienega-Rincon Subarea - Historic Archaeological Site Data by Affiliation

Euro-American	Native American	Unknown	Total
32	**1**	**20**	**53**

Table 5 presents archaeological data on the Historic Period, spanning the years between A.D. 1540 and 1950. European settlement of the Cienega-Rincon subarea dates from the latter half of the 19th century. New survey data pushes the total number of sites from the Historic Period to 77, although no breakdown is available as of yet. Trails existed over the Rincon Mountains and the Cienega Creek was used since Spanish Colonial times to connect the Tucson area with the San Pedro River Valley. The Mormon Battalion, for instance, constructed a wagon road through Cienega Creek in 1846. While several early ranches were established in the eastern Tucson Basin as early as the 1860s, large scale ranching in the area did not begin until the 1870s. Several notable examples include the Empire Ranch, the Cienega Ranch, and the Tanque Verde Ranch. Smaller ranches and farmsteads were established during the 1870s, but it was the coming of the railroad in 1880 and the cessation of Apache hostilities in 1886, that opened the area up to new settlement. The largest settlement in the eastern Tucson Basin was at Pantano, founded in the early 1880s by the Southern Pacific Railroad company; it was abandoned in the 1950s. Historic use of the Rincon Valley in the 1880s and 1890s involved homesteading and ranching, with dairy farming, woodcutting, and quicklime production being the focus of economic activity.

The Cienega Creek saw the San Antonio and San Diego Stage Company pass through it in 1857 and the succeeding Butterfield Overland Mail line in 1858. Freight from Messilla, New Mexico was carried through the valley in the 1860s and 1870s. Ranches, such as the Empire ranch mentioned above, were established in the Cienega at this time along with others in the area including the Sanford, Kane and Gardiner Ranches, all of which were absorbed during the 1880s and 1890s by the expansion of the Empire ranch. Mining, while not an important activity in the lower Cienega, occurred along its western margins in the Empire and Santa Rita Mountains, and communities associated with these enterprises also flourished for a time before disappearing from the valley in the early 20th century.

A total of 32 Historic Period sites have been identified in the subarea by the Arizona State Museum. Twelve of these are Habitations, six are Resource Processing (mortar/metate, roasting pit, kiln, ore processing, etc), two are transportation (roads, trails, stage stops, etc.) related features and three are related to government (public buildings, park, plaza, big house, etc.). Four historic Native American occupations have also been identified, three of which are believed to be Tohono O'odham. There are also two components that could not be securely identified as to cultural affiliation. The low numbers of components dating to the historic time period is probably a reflection of research bias and not a lack of resources dating to this time period. Recent research in the area conducted within the Cienega Natural Preserve and to the south along Cienega Creek confirms this observation. Sixty-five Historic Period sites have been newly recorded including several identified as Sobaipuri and Apache in origin. Also recorded were the remains of ranches (Empire, Gardiner, O'Leary, Hopley and Kane), historic towns (Greaterville and Pantano), mines (Total Wreck) historic travel routes (Butterfield Stage Line and Southern Pacific Railroad) and historic road alignments (State roads 83 and 88).

The map entitled **"Cienega-Rincon Valley Subarea Archaeological Sensitivity Zones"** shows the distribution of all known sites and components reported from all sources for the subarea. This map demonstrates that clusters of archaeological sites exist on the landscape, most notably in association with the major drainages and their tributaries. Its important to remember that the pattern of site distribution evident in this figure is more a reflection of where archaeological surveys have been conducted than the actual pattern of land use in the past. Nonetheless, there is enough data to illustrate the co-occurrence of sites with water and additional investigation of springs and the secondary drainages in the subarea will no doubt produce more evidence of intensive occupation. While this figure lacks topographic relief, the pattern of settlement in the subarea is similar to that seen in other basins in the region. Two areas of main occupation are suggested, one at the ecotonal break between the upper bajada areas and the mountain highlands in association with known springs, and the other along the valley's primary drainage. This pattern of settlement between the valley bottom and upper bajadas is consistent with historic Winter/Summer village locations practiced by Tohono O'odham in historic times.

B. Historical Resources

"Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Historical resources are largely constructed or engineered elements of the built environment including buildings used for residential purposes, such as houses, but also commercial stores, industrial facilities, civic centers, and places of worship. Roads, bridges, irrigation canals, mining works, and railroad tracks are also historical resources. Information on these places is recovered through drawings and design plans, photographs, maps, surveys, and personal recollections.

The Cienega-Rincon subarea has a number of places of historic importance including occupied historic communities, abandoned settlements or ghost towns, places that have been recognized for their historic value and registered on the National Register of Historic Places, and a historic trail. These are represented on the attached map entitled, **"Historic Communities, Ghost Towns, National Register Properties, and Trails."**

Historic Communities: Historic Communities are those settlements that are in existence today that were established 50 years or more ago as indicated by a founding date or the date the first post office opened. The

following description is derived from "Arizona's Names" by Byrd Howell Granger, The Falconer Publishing Company, 1983)

- The town of Vail, Arizona, is located south of Pantano Wash and adjacent to the southern Pacific railroad line. The community owes its existence to the railroad and was originally a station along the line between Tucson and El Paso beginning in 1881. The Southern Pacific Railroad received permission to cross ranch land owned by brothers Walter and Edward Vail in 1880, hence the name of the settlement. This station was located between the Empire and Rita stations on old maps of the area. By 1883, a post office was opened in nearby Pantano, now a historic archaeological site. Today, Vail continues to exist as a small settlement in a rapidly growing area

Ghost Towns: Many communities were established, even thrived, only to be abandoned. These places were typically mining towns, or in some cases, milling towns, that boomed until economic forces eliminated the reason for their existence. Established during the later part of the 19th century and early 20th century, these places remain time capsules that reflects a by-gone era. The following descriptions are derived from "Ghost Towns of Arizona" by James E. and Barbara H. Sherman, University of Oklahoma Press, 1969.

- Greaterville
  The discovery of placer gold in the foothills of the Santa Rita mountains in 1874 sparked the creation of the Greaterville Mining District. Within a few years, hundreds of miners settled in the village of the same name. Mining continued until the gravel bearing deposits were depleted in the 1880s. In its hay day, the town offered several dance halls, saloons, shops, and in 1882 a school opened. The post office opened in 1879, closing in 1946. Mining at a much reduced level has continued off and on and a small number of families still occupy this once bustling community.

- Rosemont
  Starting in the 1870s, copper ore was pulled from the Santa Rita Mountains at Rosemont camp, a small community located in the southwest corner of the subarea. In its day, Rosemont supported 150 people, had a school, a hotel, and some stores. Mining continued for several decades before the mines closed down and the community was abandoned. The post office opened in 1894 and closed in 1910.

- Total Wreck
  In 1879, silver/lead ore was discovered in the Empire Mountains. Named after the appearance of the hill in which the deposits were found, Total Wreck began mining operations in 1881 after the arrival of the railroad. By 1883, there were two hundred residents, fifty houses, three stores, three hotels, four saloons, a butcher shop and a lumber yard. By the end of 1884, the mine was closed. The post office opened in 1881 and was closed in 1890.

National Register Properties: The National Register of Historic Places was created as a part of the National Historic Preservation Act of 1966. It is the nation's premier honor roll for places deemed of national, regional, or local historic importance. The criteria for listing include: a) association with a person who has contributed to history; b) association with an event important to history; c) associated with the work of a master artist or craftsman or typical of a style or type of workmanship; d) yielding or having the potential to yield information important to history or prehistory. Listing in no way effects the rights of private property owners to do what they wish with their property. Federal agencies; however, are required to consider the effects of their actions on listed properties. The following descriptions are based on the individual National Register nomination forms available at the State Historic Preservation Office in Phoenix, Arizona.

- Empire Ranch
  The Empire Ranch is located among rolling grasslands adjacent to the Empire Gulch, an intermittent stream in the middle of the Cienega Valley. Started in 1876 as 160 acre holding, the ranch became one of the largest in the west eventually covering an area 60 miles north/south by 30 miles east/west stretching from the Rincon Mountains to the Mexican Border. Owned initially by a number of men, the ranch was bought in 1881 by Walter Vail, after which the town of Vail is named in part (see above). Vail expanded the ranch in the mid 1880s, taking time to also serve in the territorial legislature and on the Pima County Board of Supervisors. Vail was killed in a street car accident in Los Angeles in 1906. The adobe ranch house was listed on the National Register of Historic Places in 1975.

- Cienega Bridge
  The Cienega Bridge was built in 1921 as part of the Borderland Highway project across southern Arizona. The bridge is a concrete and reinforced steel structure designed as a medium-span concrete arch with a two-span concrete girder viaduct over a branch of the Southern Pacific Railroad. It was one of three virtually identical open-spandrel concrete arches that were build in Pima, Pinal, and Yavapai counties, although the Cienega bridge was the longest with a span of 146 feet. The bridge was nominated to the National Register for its significance to local transportation history and placed on the National Register of Historic Places in 1988.

- Colossal Cave Historic District
  Discovered in 1879, by a local ranch hand looking for stray cows, Colossal Cave consists of 39 miles of subterranean caverns and connecting tunnels, two miles of which are currently open to the public. Attempts to develop the cave for public access began in earnest in 1917 and by 1922 a formalized trail system was in place. Between 1934 and 1937, the Civilian Conservation Corps occupied a portion of the nearby Posta Quemada cattle ranch, and implemented an ambitious plan to upgrade and expand the visitor's facilities. The results transformed Colossal Cave into a modern tourist destination. Of note is the visitor's center, a two-story building of southwestern vernacular design constructed from shaped stone quarried from the local hillside. Other facilities built by the CCC include picnic and barbecue areas, rock walls, paths and footbridges, as well as the trail and lighting system in the cave itself. These historic features and those of the Posta Quemada Ranch complex were nominated as a historic district for their tourism, educational, and ranching themes and placed on the National Register of Historic Places in 1992. The cave is now a part of Pima County's Park system and is open to the public.

- Kentucky Camp Historic District
  Located on the Coronado National Forest, the Kentucky Camp Historic District includes buildings, structures, and archaeological sites relating to hydraulic placer mining in southeastern Arizona. Kentucky Camp was constructed as the headquarters of the Santa Rita Water and Mining company which was founded in 1902 to revitalize the worked-out Greaterville gold placers with intensive hydraulic mining. Despite its ambitious scale of operations, the endeavor proved an economic failure and closed in 1906. The District includes elements that together represent the system of hydraulic mining employed at the Kentucky Camp. The site was nominated to the National Register of Historic Places because of its association with early 20th century mining technology and listed in 1995.

- Rincon Mountain Foothills Archaeological District
  The Rincon Mountain Foothills Archaeological District is located within the Saguaro National Park Eastern District. The nomination was prepared as a result of multiple archaeological surveys that were conducted in the Park from the mid 1960s to the late 1970s. These efforts resulted in the discovery of 110 historic and prehistoric archaeological sites dating from the Archaic, Ceramic (Hohokam) and

Historic Periods within a 25 square mile area, making it the largest property listed on the National Register in the subarea. The District was listed in 1979 for its potential to yield information important to understanding the history and prehistory of the eastern Tucson Basin.

- Upper Davidson Canyon Archaeological District
  This district is a by-product of a proposed land exchange in the Coronado National Forest in the mid 1970s that required survey of approximately 23 square miles. The Davidson Canyon portion of that survey proved so rich in archaeological sites, that in 1980 it was excluded from the proposed land exchange and set aside for listing on the National Register. A total of 29 prehistoric sites dating from the Archaic and succeeding Ceramic (Hohokam) Period are included within 1300 acres. The district was listed in 1992 for its potential to yield information important to understanding prehistoric use of the upland areas in southern Arizona.

Historic Trails: In many places historic and even prehistoric trails crossing the landscape often become the basis for historic roads and modern highways. One historic trail is reported for the subarea. The following description is derived from "Retracing the Butterfield Overland Tail Through Arizona," by Gerald T. Ahnert, Westernlore Press, 1973).

- Butterfield Stage Line. The Butterfield Overland Company was one of the first continental mail carriers. It opened in 1858 connecting St. Louis, Missouri and San Francisco, California; however, by 1861 it had ceased operations. In Arizona, the company used parts of existing trails to forge a route some 437 miles in length. In 1869, Wells Fargo operated over the old Butterfield stage lines and in the 1870s, the Southern Pacific railroad surveyed along the approximate route. In the Cienega-Rincon subarea, the trail followed the south side of Cienega Creek for most of its length, crossing to the north to follow Mescal Arroyo. Vestiges of the Cienega Creek stage stop, located adjacent to the creek in the vicinity of Marsh Station Road, still exists

Rural Historic Landscapes:
There may also be individual ranches or farmsteads within the subarea that qualify as having importance to the history of the settling of the Cienega-Rincon Valley subarea. Some of these may be part of larger historic landscapes that are recognizable entities that have historic value. Historic Landscapes a special subcategory of historic resources. As defined by the National Park Service, a rural historic landscape is "that portion of the exterior natural environment that has been modified, influenced, or given special cultural meaning by people who shaped the landscape to serve human needs. A rural historic landscape is a geographical area that historically has been used by people or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways and natural features. Historic landscapes may reflect the beliefs, attitudes, traditions, and values of these people."(National Register Bulletin 30, Department of the Interior)

The most likely candidates for places with these values in the subarea are ranches where the connection between historic ranch properties, ranch lands and ranching as a traditional activity remains intact. Examples where these connections may still be demonstrated are the Empire Ranch, the Empirita Ranch and the Posta Quemada Ranch.

C. Traditional Cultural Places
"A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural

significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices" (Preserving Cultural and Historic Resources, Pima County, May 1991).

Pima County has been occupied by indigenous peoples for thousands of years and the modern descendants of these prehistoric cultures still live in the region today. All of Pima County is claimed as ancestral lands by the Ak-Chin Indian Community, the Gila River Indian Community, and the Tohono O'odham Nation. The Tohono O'odham claim direct ancestral affiliation with the prehistoric Hohokam Indians who inhabited much of southern and central Arizona. Other Indian groups also claim ancestral ties to the Pima County area including the Zuni of central western New Mexico and the Hopi of northeastern Arizona based on oral histories and myth that identify southern Arizona as a place of origin for these tribes. The Apaches also lived in the region for hundreds of years and therefore they too can claim an ancestral connection to the land and the places of traditional value to them that it may contain. Other groups with potential claims to places of traditional cultural value include the Hispanic and Anglo communities.

Places of traditional cultural value, as defined, are special to the community and must often remain secret to non-members; this is particularly true among Native Americans. These might be places where in the past natural resources were collected for ceremony or where natural features on the landscape are still recognized as having significance. Other places with traditional cultural value of particular importance to Native Americans are rock art sites and all archaeological sites containing human graves. Two of the sites within the subarea are identified as prehistoric rock art localities, and an additional 16 more were used for habitation purposes, which often contain human graves. It is reasonable to assume, that Native Americans would identify these places as having traditional cultural value. Again, recent survey information suggests that many more places with these kinds of values may exist in the Cienega Creek area.

III. DISCUSSION:

The next map, entitled **"Archaeological Sites and Land Ownership"** shows the distribution of sites in relation to land status. Most of the 361 sites reported in the subarea by the Arizona State Museum are on federal or state lands, with a significant clustering of sites in the northwest of the subarea located on private lands. Legal protections against unauthorized disturbances are afforded archaeological sites and other cultural and historical resources on federal and state lands with varying degrees of efficacy, but only one law, the Arizona State Burial Protection Act, applies on private land. Cultural resources on county lands are also covered by legal protections defined under county law and policy. Data are presented in the table below showing the number of archaeological components by land status and degree of legal protection for cultural resources.

Table IV.3.6.
Cienega-Rincon Subarea - Archaeological Sites by Landownership and Legal Protection

Jurisdiction	No. of Archaeological Sites	Protection Status/Level
BLM	12	Protected/high
National Forest Lands	61	Protected/high
National Parks/Monuments	117	Protected/high
State Lands	41	Protected/moderate
County owned Lands	30	Protected/moderate
Private Lands	100	Unprotected/low
Total	**361**	

A total of 191 of the 361 sites have high protection status, reflecting the high percentage of federal lands in the subarea (37.8%), but also the effort that has been made by the federal agencies to identify cultural resources on these lands. Seventy-one sites are moderately protected from public and private actions, 30 of which are within county park lands at Colossal Cave or are located within Pima County's Cienega Creek Natural Preserve. The remaining 100 sites have low protection status. Since state lands can be sold for development, and private lands are subject only to local zoning, 141 of the 361 known archaeological sites may be affected by future development in the subarea. Furthermore, since the majority of the land base in the subarea has never been archaeologically surveyed, potentially hundreds, even thousands of sites that exist but have never been recorded could be affected. One way to estimate this number is to divide the number of square miles surveyed in the subarea (59.1) by the number of reported archaeological sites (361) to get an estimate of 6.1 archaeological components per square mile. New site and survey information suggests the site density is lower at 5.4 sites per square mile. With a total of 498 square miles in the subarea, this produces a total estimate of 2,689 sites using the lower density figure and 3,037 sites using the higher figure. Thus between 1059 and 1200 sites may be on state land (39.4%) and between 553 and 670 on private land (20.6%) This analysis suggest that on the high end between 1500 and 1900 archaeological sites could be potentially vulnerable. While crude, this provides some means of measuring the potential loss of archaeological resources in the subarea.

The loss of cultural and historical resources and the threat of further loss in the Cienega-Rincon Valley subarea can be briefly summarized as follows.

Resource Loss:

- Relatively low levels of public and private development have occurred in the Cienega-Rincon Valley subarea, with the exception of residential growth north of I-10. The presence of the Saguaro National Park on the northern margins of the subarea area, the listing of six National Register properties, combined with the creation of parks (Colossal Cave), preserves (County Natural Preserve) and conservation areas (Empire-Cienega), have contributed to a greater sensitivity towards natural and cultural resources conservation in the Cienega-Rincon subarea.

Resource Threat:

- The greatest area of threat continues to be in the north and west of the subarea where large scale platted communities are being constructed. Subdivision housing and the construction of public infrastructure is occurring and will continue to occur in this area as the Tucson Metropolitan area pushes to the south and east. Potentially hundreds of archaeological sites and other cultural resources will be affected. The fact that private land can be subdivided and developed without platting under current state law, and that state trust land is vulnerable to sale for the highest and best use, increases the potential for resource loss in the future. On the southern end of the subarea, development pressures are far less intense and thus less of a threat to cultural and historical resources.

Because the distribution of the majority of cultural resources is unknown, assessing risk and making conservation recommendations is difficult. In effort to predict areas with high sensitivity for cultural and historical resources, proximity to water is used as a predictor under the assumption that in the desert places closer to water will tend to have been used more heavily by past human populations than places more removed from water sources. The map entitled **"Cultural Resources High Sensitivity Areas"** identifies zones within the subarea that are predicted to be highly sensitive for cultural resources. These include Cienega Creek and Pantano Wash, areas around shallow ground water in the vicinity of Davidson Canyon and along Agua Verde Creek, and springs, almost all of which are located in the foothills of the surrounding mountains. Different buffers widths are used for the sensitivity model. As the major drainages in the

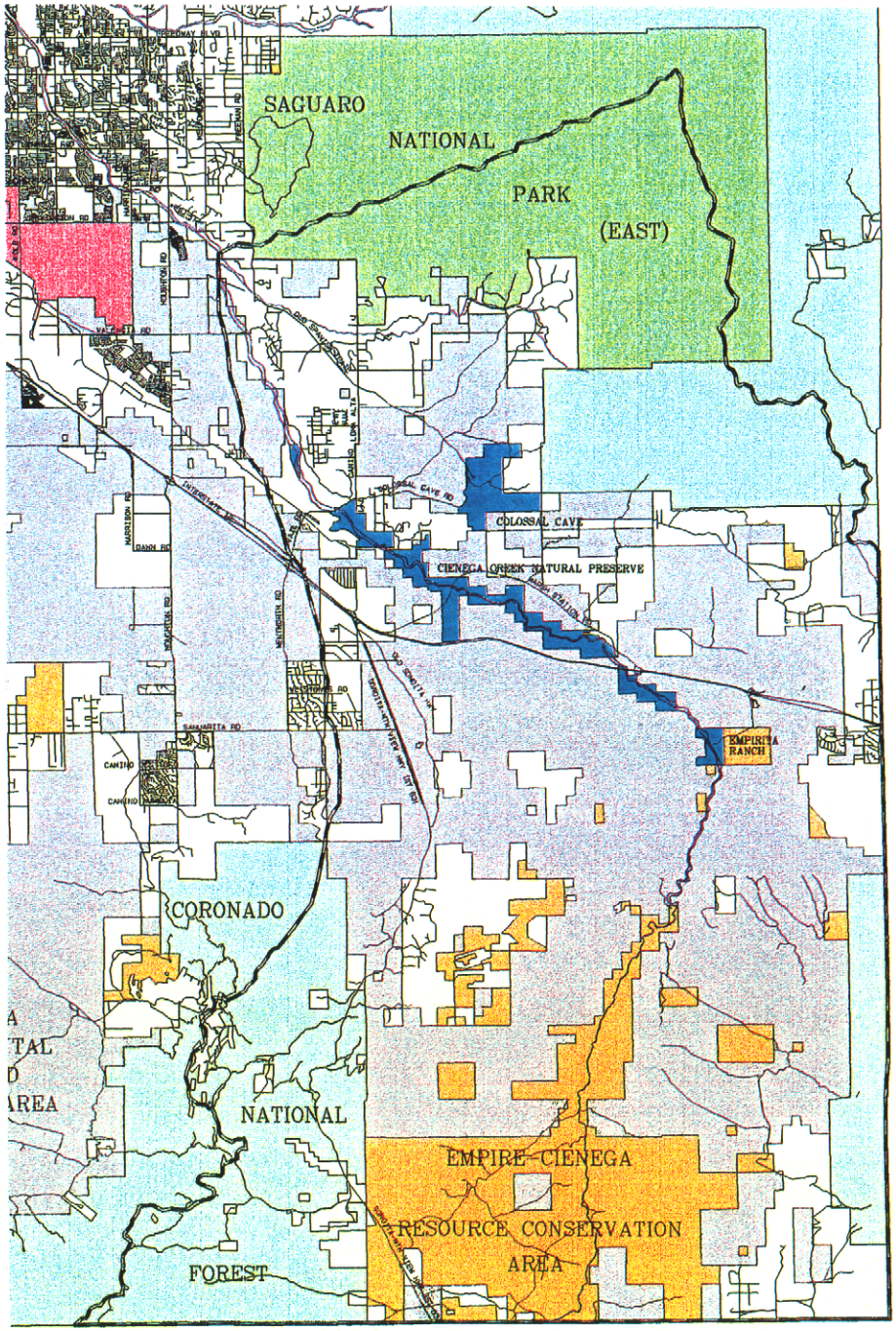
subarea, the Cienega Creek and Pantano Wash each are buffered by two miles on either side for a total of four miles in width. One mile buffering is used for the areas with the shallow ground water along the Agua Verde and Davidson Canyon tributaries, and all springs are buffered with a one mile area. While the model is simplistic, given human needs for water and the pattern of distribution for archaeological sites in particular, the high sensitivity areas as shown are predicted to capture most cultural and historical resources within the Cienega-Rincon Valley subarea. A comparison of this map with the archaeological sensitivity zone map and the map showing the distribution of historic resources confirms that much of the subarea determined to be sensitive is included in the buffered areas.

IV. SUMMARY: The most important observation that can be made about cultural and historic resources in the Cienega-Rincon Valley subarea is how little is actually known of the area. Only about 12 percent of the area has been previously investigated. Even with new survey data from Cienega Creek, the majority of the landscape and the cultural resources it contains remain unknown to archaeologists. Comparison of the maps showing archaeological survey and site locations and land ownership demonstrates that where investigations are conducted, archaeological sites are found, leading to a further conclusion that more inspection will result in more sites being identified. This is aptly demonstrated by the new survey results along Cienega Creek reported here. Despite the limited degree of archaeological survey coverage, what information has been collected demonstrates that over 10,000 years of human history is well represented in the Cienega-Rincon Valley subarea enhancing its importance as a place with high scientific and educational value.

The town of Vail is a historic community that is a product of Euro-American frontier settlement in 19th century with potential archaeological and architectural assets. Three ghost town sites important to the history of mining occur within the subarea and six places have been listed on the National Register of Historic Places for their importance to the history and prehistory of the region. The subarea also contains one of the few historic trails used to open the West. Lastly, Native American claims identify the Cienega-Rincon Valleys as part of their traditional use areas and the possibility that places with traditional cultural value exist in the subarea is high, especially those places associated with the archaeological record. In short, the subarea, while still mostly unrecorded has rich cultural and historical resource values that will only increase as more data are collected. Since the majority of the Subarea is composed of state trust lands, and since these lands are potentially convertible into private lands for development, there is a further need to identify cultural and historical resources, evaluate their significance, and where warranted protect them for future generations. To this end, it is worth noting that the proposed National Conservation Area now before Congress is sufficient in size and scope to encompass most of the predicted high sensitivity areas for cultural resources and would thus extend a measure of protection for these resources in a manner that is consistent with the goals of the Sonoran Desert Conservation Plan.

Modern Communities Transportation And Ownership

SDCP PLANNING UNIT 2



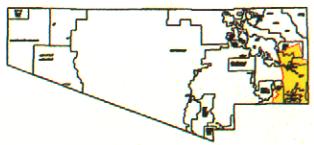
- Streets And Roads
- Washes
- Subarea Boundary
- BLM
- COUNTY PARKS
- INDIAN LANDS
- GOLDWATER GUNNERY RANGE
- MILITARY RESERVATIONS
- NATIONAL FOREST LANDS
- NATIONAL PARKS AND MONUMENTS
- NATIONAL WILDLIFE REFUGE
- PRIVATE LANDS
- STATE LANDS
- STATE PARKS

2000 ESTIMATED POPULATION: 3,312

SDCP PLANNING UNIT 2 ACREAGE AND LAND OWNERSHIP

BLM	36,741
COUNTY PARK	5,910
NATIONAL FOREST LANDS	53,715
NATIONAL PARKS AND MONUMENTS	30,866
PRIVATE LANDS	65,703
STATE LANDS	125,584
OTHER	16
TOTAL	318,519

Pima County Index Map



Index Map Scale 1:1,500,000

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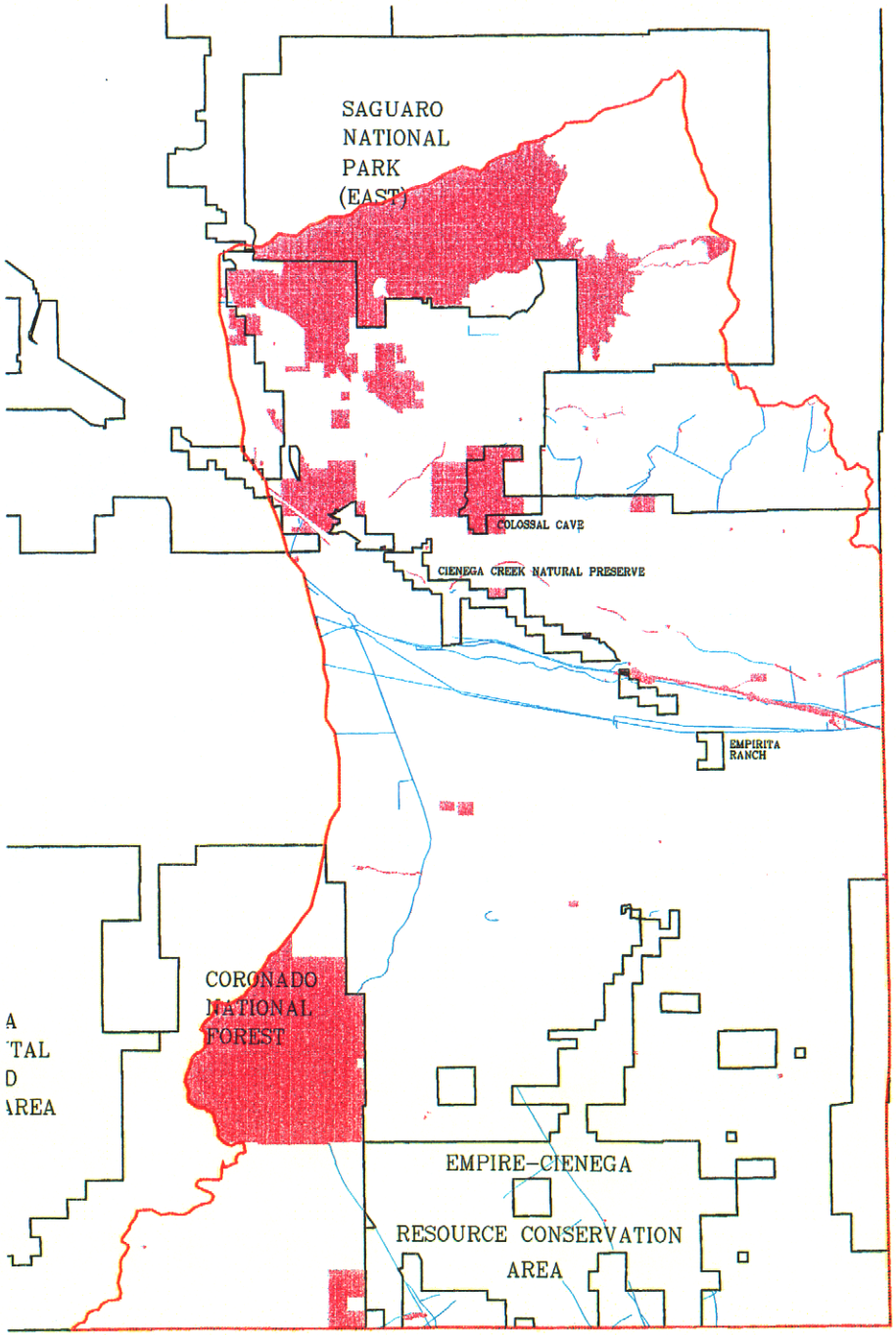


Archaeological Survey Locations

SDCP PLANNING UNIT 2

Linear Surveys

Polygonal Surveys

LINEAR SURVEY STATISTICS

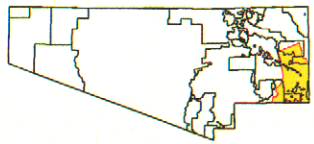
Surveys: 40
Total length : 866,451.51 ft.
Shortest length: 839.07 ft.
Longest length : 109,996.19 ft.
Average length : 21,661.29 ft.

****

POLYGONAL SURVEY STATISTICS

Surveys: 56
Total area : 34,696.95 ac.
Smallest area: .13 ac.
Largest area : 12,305.64 ac.
Average area : 619.59 ac.

Pima County Index Map



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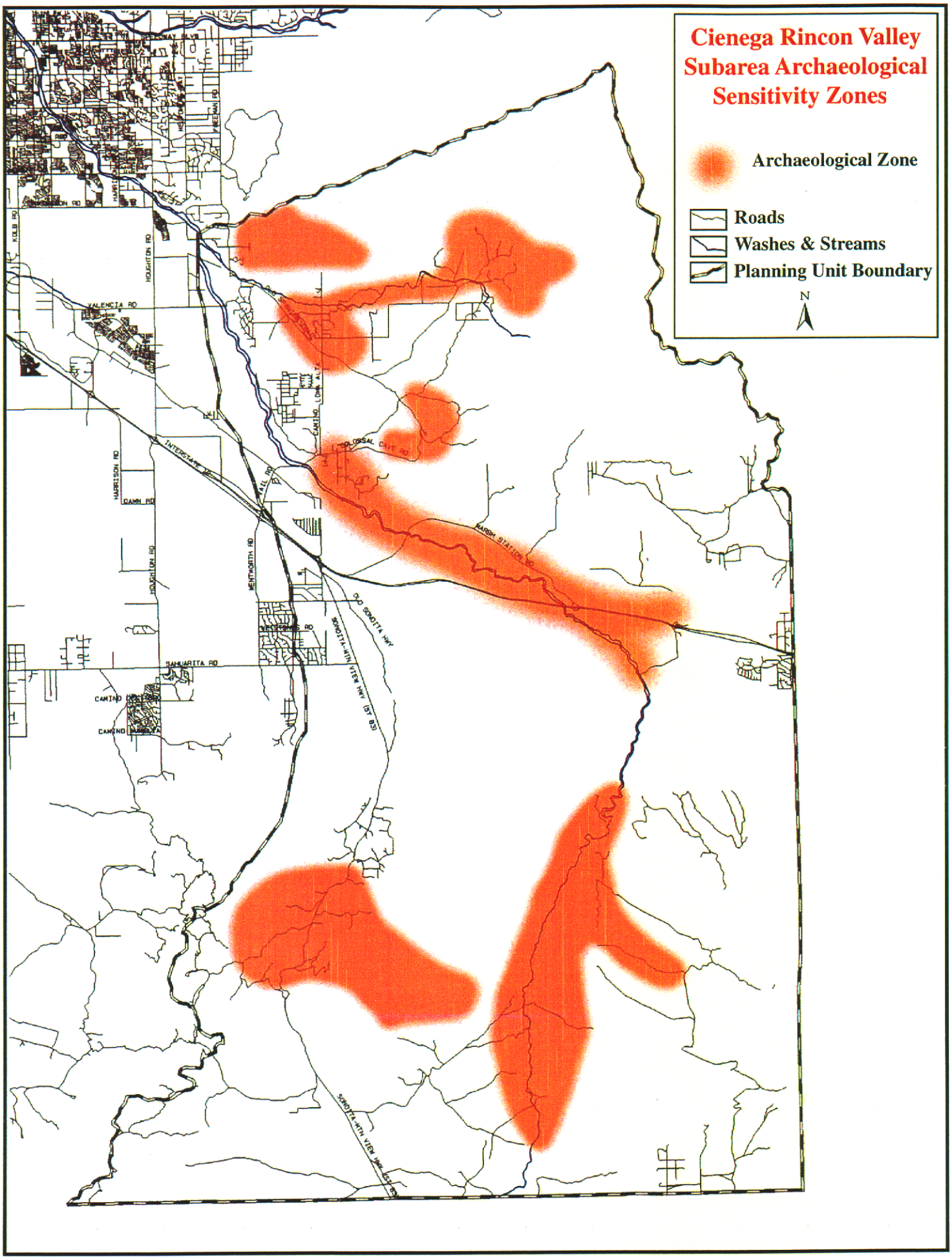
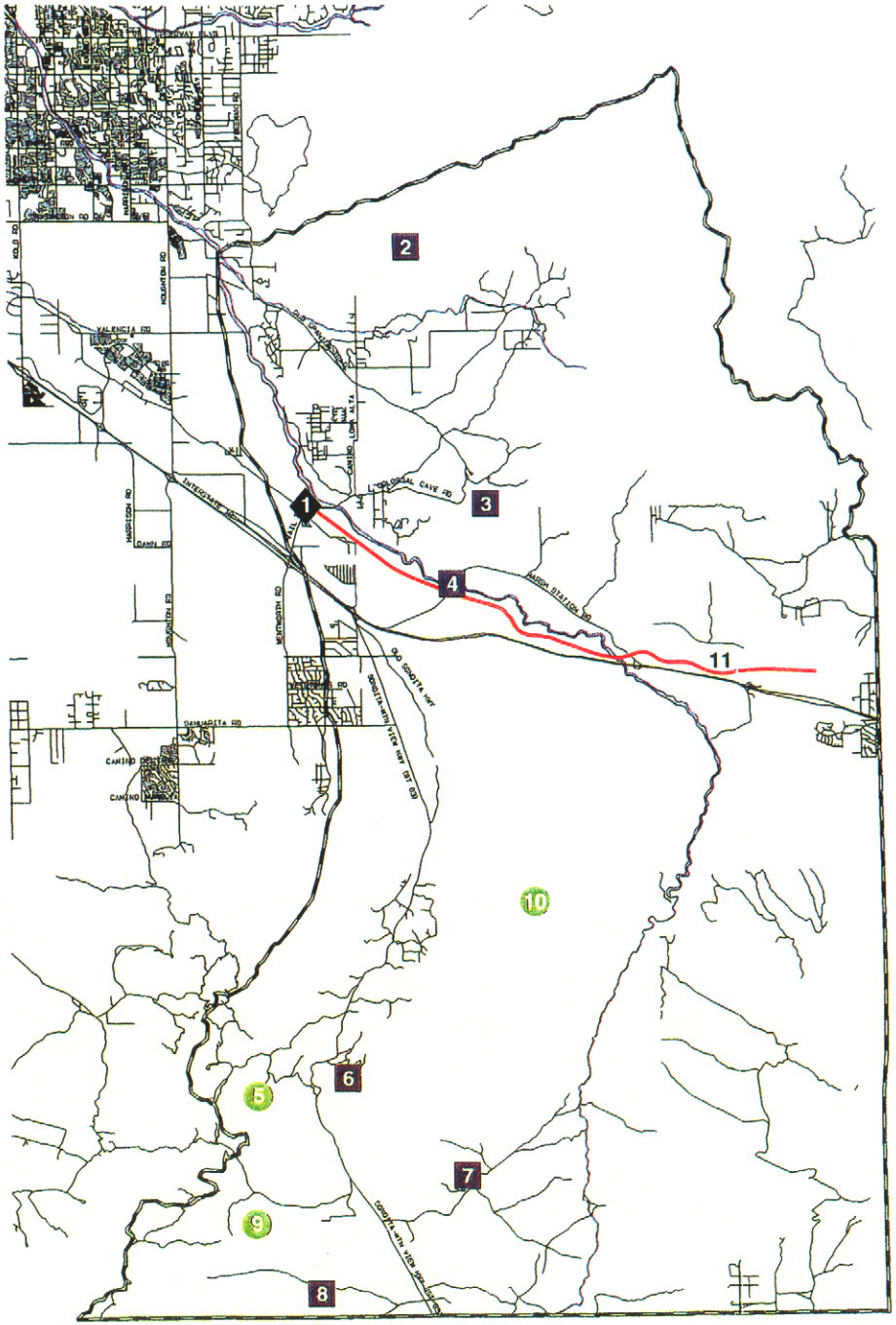

Cienega Rincon Valley
Subarea Archaeological
Sensitivity Zones
Archaeological Zone
Roads
Washes & Streams
Planning Unit Boundary
N
VALENCIA RD
HOUGHTON RD
KOLB RD
HARRISON RD
CAMINO LOMA ALTA
CAMINO DE ORSAL
MARSH STATION RD
MENDENHALL RD
OLD SONOITA HWY
SONOITA-ELGIN VIEW HWY (ST 83)
SAHUARITA RD
CAMINO

Historic Communities, Ghost Towns, National Register Properties and Trails

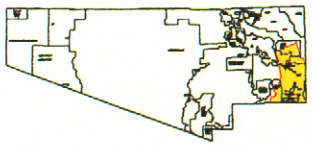


SDCP PLANNING UNIT 2

- Historic Community
- National Register Historic Place
- Ghost Town
- Trail

1 Vail
2 Rincon Mountain Foothills Archaeological District
3 Colossal Cave Preservation Park Historic District
4 Cienega Bridge
5 Rosemont
6 Upper Davidson Canyon Archaeological District
7 Empire Ranch
8 Kentucky Camp Historic District
9 Greaterville
10 Total Wreck
11 Butterfield Stage Line

Pima County Index Map



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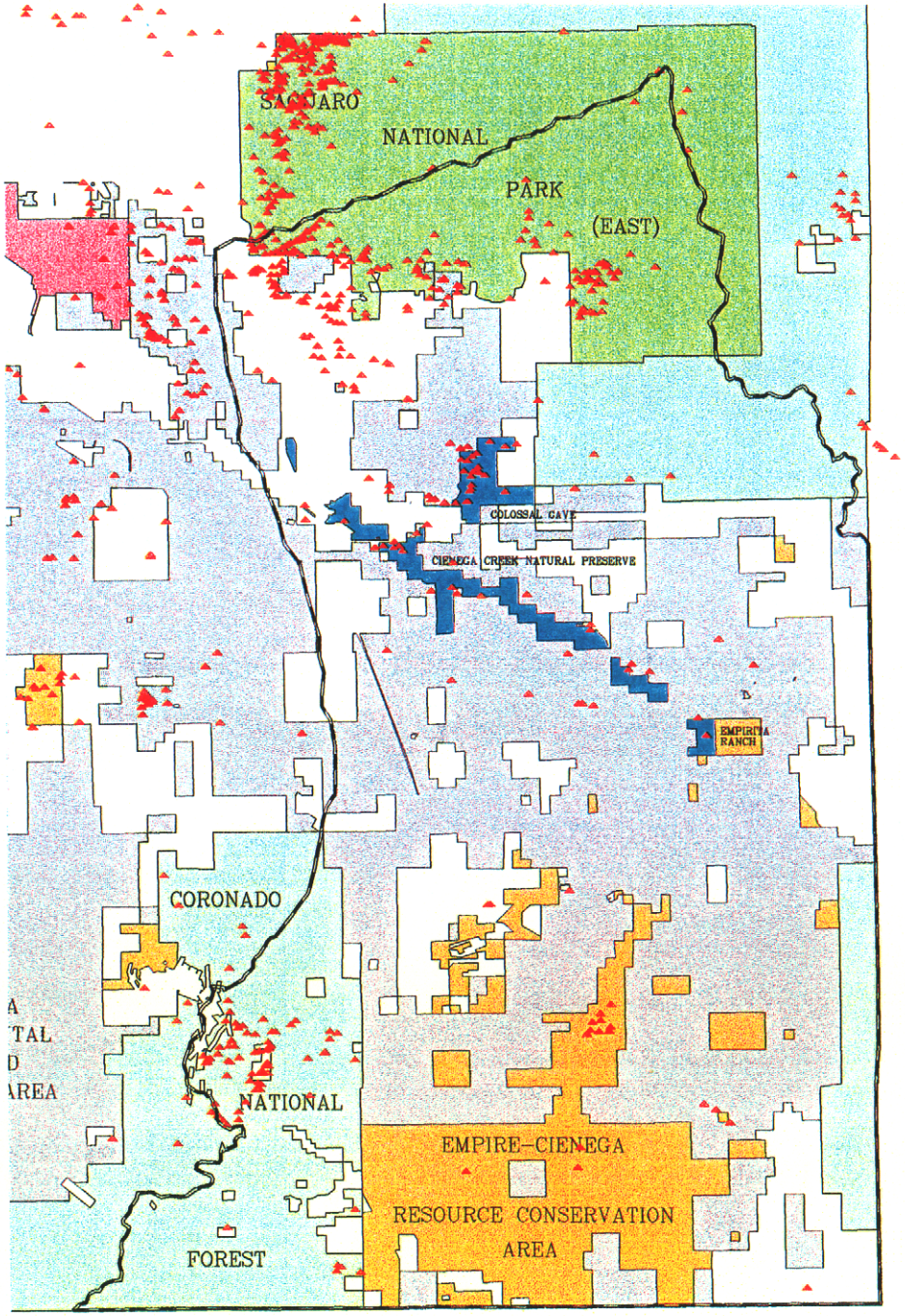


Archaeological Sites and Land Ownership

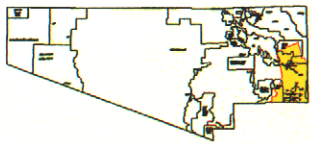
SDCP PLANNING UNIT 2

- Watershed Planning Boundary
- Archaeology Sites
- BLM
- COUNTY PARKS
- INDIAN LANDS
- GOLDWATER GUNNERY RANGE
- MILITARY RESERVATIONS
- NATIONAL FOREST LANDS
- NATIONAL PARKS AND MONUMENTS
- NATIONAL WILDLIFE REFUGE
- PRIVATE LANDS
- STATE LANDS
- STATE PARKS

STATISTICS

JURISDICTION	# OF SITES
BLM	12
COUNTY PARK	30
GOLDWATER GUNNERY RANGE	0
MILITARY RESERVATIONS	0
NATIONAL FOREST LANDS	61
NATIONAL PARKS AND MONUMENTS	117
NATIONAL WILDLIFE REFUGE	0
PRIVATE LANDS	100
STATE LANDS	41
STATE PARKS	0
COUNTY OWNED LAND	0
TOTAL	361

Pima County Index Map



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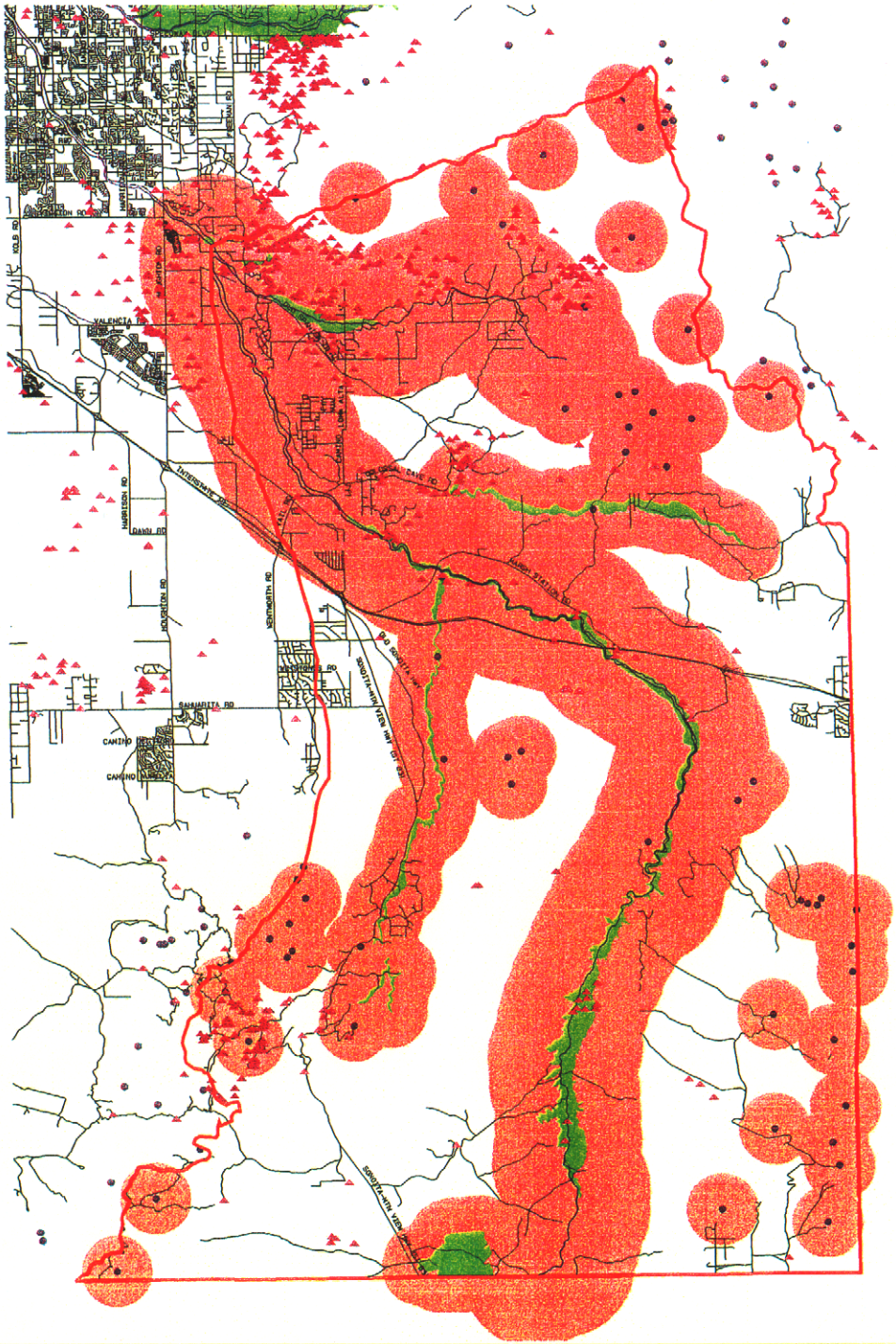


Cultural Resources
High Sensitivity Areas

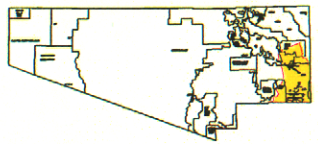
SDCP PLANNING UNIT 2

- Shallow Ground Water
- 2 Mile Buffer - Major Washes
  1 Mile Buffer - Springs
- Streets And Roads
- Major Washes
- Subarea Boundary
- Springs
- Archaeological Stites

STATISTICS FOR UNIT 2

ACRES OF BUFFERED WASH, SPRING, AND SHALLOW FROUND WATER: 172,183 AC.

Pima County Index Map



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/pygmyowl2/sonora/cultural/ssmjoined/plan2/smls/wash2.eml Plotted 4/10/00

4. Avra Valley Subarea

I. SUBAREA: The subarea is defined on the west by the Roskruge, the Waterman, and the Silverbell Mountains, which drain runoff into three major washes, the Blanco, the Brawley and the Los Robles, which in turn empty into the Santa Cruz River north of the Pima/Pinal County line. The southern boundary is defined by the Garcia Strip of the Tohono O'odham Nation and the eastern edge passes through Tucson Mountain Park and Saguaro National Monument West District following the east side of Los Robles Wash to the Pima/Pinal County line as indicated on the map entitled, **"Modern Communities, Transportation, and Ownership."** This area encompasses approximately 346 square miles.

Unlike most of eastern Pima County where state land makes up the majority of the land base in the Avra Valley subarea, federal lands rank first, followed by private property, state lands, and finally Pima County parks and Indian lands in descending order as indicated in Table 1 below.

Table IV.4.1. Avra Valley Subarea - Land Ownership by Acres and Percent

Ownership	Acres	Percent
Bureau of Land Management	85,388	38.6
County Park	4503	2.0
Indian Lands	806	0.3
National Parks/Monuments	13,434	6.1
Private Lands	68,619	31.0
State Lands	48,634	22.0
Other	20	<1
Total	**221,404**	**100**

This area includes the community of Picture Rocks, a large unplatted settlement east of the Saguaro National Park (West) and residential subdivisions located to the north of Avra Valley Road on either side of Anway Road. The town of Silverbell, located at the base of the Silverbell Mountains on the western edge of the subarea, is the only "historic" community in the subarea, having been established in 1948. In all, the subarea is on the northwestern edge of the growing Tucson Metropolitan area and is characterized by rapid private development. The pattern of growth is dominated by unregulated development of individual lots and to a lesser degree, platted residential subdivisions. Historically, the subarea has depended upon a mixture of mining, ranching and farming, all of which continue today. The year 2000 population estimate for the Avra Valley subarea is 10,052. This reflects growth in the east and southeast portions of the subarea as settlement expands along the margins of the greater Tucson Metropolitan area.

II. CULTURAL RESOURCES: This section presents information and analysis of current data on archaeological sites, historic resources and traditional cultural places within the subarea.

A. Archaeological sites

"Archaeological sites are any material remains of past human life or activities which are preserved in their original setting that are important to understanding prehistory or history. These sites or districts may include

occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Archaeologists learn about the past by collecting and analyzing information in two ways: through survey and by excavation. Survey involves inspecting the ground surface in a particular area and recording concentrations of artifacts and features (hearths, roasting pits, pit houses, etc.) as archaeological sites. A site represents the physical remains of past human behavior in a single location dating to one or more periods of use through time. Surveys are often done systematically by groups of archaeologist who walk the land in regularly spaced lines looking for artifacts. Some surveys, however, are judgmental in that archaeologists only look where sites are expected to be found and not elsewhere. In all cases, survey offers an extensive perspective on past land use.

The second kind of information on archaeological sites is gained through excavation. This is the systematic recording, recovery, and analysis of artifacts and features from within a site's limits. Critical information is gained by understanding the spatial relationship of all artifacts and features within a three dimensional context. This enables interpretation about how the site was used, by whom, when, whether the site was used more than once and what happened after it was abandoned. Often, archaeological sites are not fully excavated but are only partially sampled. This saves what is left of the site for future investigations. Archaeological excavation provides highly detained information about the use of one limited spatial area during one or more use episodes. Archaeologist use survey and excavation data together to interpret the past; however, as new information becomes available and as new ideas about the past are developed, this interpretation changes over time.

Previous Research:
Like the Altar Valley to the south, early archaeological investigations in the Avra Valley were conducted by Byron Cummings, head of the Department of Anthropology at the University of Arizona, and his students during the 1920s and 1930s. These efforts were largely directed at Cerro Prieto in the Samaniego Hills at the northern end of the valley and just outside of the subarea. Cerro Prieto is the location of a well known and highly significant hill side settlement or "trincheras" site occupied in the 13th century A.D., and both this prominence and nearby hills contain extensive rock art images. Despite the richness of the area, the Avra Valley saw little formal investigation until the 1960s, beginning with survey inventories conducted by the National Park Service within the Saguaro National Park. It wasn't until the 1980s, however, that large scale site inventory surveys began to accumulate significant information on past land use within the subarea.

During 1983-1984, the first of many large scale archaeological surveys was conducted in the subarea as part of the Tucson Aqueduct Project (Central Arizona Project). This resulted in a formal investigation of a strip of land running down the eastern margins of the Avra Valley from the Santa Cruz River to west of Black Mountain. In all, 34 archaeological sites were recorded almost all of which were occupied late in prehistory by the Hohokam Indians, although evidence of earlier Archaic Period occupation was also found (See Site Data - Chronology). Follow up excavations of a Hohokam village site and two smaller farmsteads produced highly detailed information on Hohokam society in a single slice of time between A.D 850 and A.D 950.

In 1985 and 1986 two large block surveys were conducted on Indian lands for the Papago Water Supply project. One of these was located just to the south of the subarea within the Garcia Strip of the Tohono

O'odham Nation. In all, some 6800 acres were inventoried recording 71 sites. Subsequent excavation of ten of these sites added new information about the late prehistoric and early historic eras in the Avra Valley. At the same time, survey was conducted on two parcels in the south central basin by the U.S. Bureau of Land Management. The Chon study area centered on Blanco Wash and the Cocoraque Study area to the east totaled 6200 acres and resulted in the recording of 39 sites. A second survey was conducted just east of the Garcia Strip in 1986, also in conjunction with the Central Arizona Project, involving 2700 acres producing 10 newly recorded sites.

More recently, 2880 acres west of Brawley Wash were surveyed in 1996 for the Central Avra Valley Storage and Recovery Recharge Project sponsored by the City of Tucson. The project identified 10 sites, including three Archaic Period occupations, eight of which were tested. Also in the mid 1990s, survey in the Saguaro National Park Tucson Mountain District in 1995 and 1996, covered approximately 2280 acres in the uplands of the Tucson Mountains identifying 12 new sites, including several historic mines, and revisiting 31 that had been previously recorded.

While much new information has been gathered on the historic and prehistoric uses of the southern and central portions of the subarea, the northern Avra Valley and portions of the lower Santa Cruz Valley have also been investigated. Between 1981 and 1989, three archaeological surveys were conducted by the Arizona State Museum in Pinal County that also included portions of the northern end of the subarea. These investigations were sponsored by Bureau of Reclamation as part of the Central Arizona Project. One of these included the Los Robles Archaeological Survey conducted in 1985 and 1986 to explore a prehistoric community associated with the Los Robles Mound Site, a Late Prehistoric Hohokam settlement on the west bank of Los Robles Wash. Intensive and non-intensive sample survey was conducted within a 109 square mile area during which 145 new sites were recorded and 31 known sites were revisited. These sites consisted of prehistoric villages, hamlets, farmsteads, agricultural fields, and special activity areas.

What made this project so informative was the opportunity it provided to view an entire complex of prehistoric occupations relating to a single community that began around A.D. 700 and peaked between A.D. 1150 - 1300. It was through this work that the the Los Robles Archaeological District was nominated and listed on the National Register of Historic Places (see below). Lastly, between 1983 and 1986, the Cerro Prieto Mapping Project was conducted by volunteers from the University of Arizona Department of Anthropology. This survey re-examined Cerro Prieto and thoroughly recorded the trincheras site with all its associated features.

Taken together, archaeological survey and excavation within and adjacent to the subarea has changed the perceptions of the prehistory of the Avra Valley and added to our understanding of the historic era. While previously viewed as a "marginal" area between the Tucson Basin and the Hohokam heartland in the Phoenix basin, archaeological investigation in the Avra Valley has revealed evidence of intensive and long term occupation in prehistory over many thousands of years. In particular, this work has contributed to knowledge on Hohokam chronology, settlement, subsistence, social organization, and community development and interaction.

Survey Data:
Archaeological survey is the first step in characterizing the nature, age and distribution of archaeological sites within an area like the Avra Valley and there area two different kinds of survey that archaeologists typically perform: Linear surveys and block surveys. Linear survey involves inspecting a right-of-way for construction of a road, sewer line, telephone cable or other linear feature. These surveys tend to be done in compliance with legal mandates requiring environmental studies during project planning. Block survey

involves examining non-linear properties ranging in size from a few acres to 1000s of acres, such as the large scale inventories mentioned above. These are performed either in compliance with legal mandates, or through academic or preservation related research projects. The Map entitled **"Archaeological Survey and Site Locations"** shows the areas within the subarea that have been archaeologically surveyed and the sites that have been recorded.

Overall, the map demonstrates that the eastern and southern portions of the subarea have received the bulk of intensive survey in the past. Noticeably absent in this figure are surveys on the west and northwest side of the valley. This area has been surveyed to a limited degree; however, survey coverage has not been intensive (does not cover 100% of the area) and thus these surveys are not represented on the map. Nonetheless, archaeological sites are reported in these areas. Presented in Table 2 below is a breakdown of survey data by acreage and survey type including the percentage of the subarea that has been intensively investigated. The data are provided by Arizona State Museum but have been augmented by information on two additional block surveys totaling 6200 acres not in the Museum's data files.

Table IV.4.2. Avra Valley Subarea -Archaeological Survey Acreage by Survey Type

Survey	Number	Acres	Percent of Subarea
Linear	14	498	0.2
Block	38	17,402	7.8
Total	**52**	**17, 900**	**8.0**

The survey total indicates that despite numerous archaeological surveys conducted within the subarea, only a small portion of the landscape has been intensively investigated, and that conversely the vast majority of the land within the subarea, 92 percent, has not. Despite this shortcoming, 141 archaeological sites, representing thousands of years of human occupation, are reported within the Avra Valley subarea.

Site Data - Chronology:

Table IV.4.3 presents information on the number of prehistoric sites in the subarea by time period as reported by the Arizona State Museum.

Table IV.4.3. Avra Valley Subarea - Prehistoric Archaeological Site Data by Time Period

TIME PERIODS	**PaleoIndian** 12,000 B.C. - 8,000 B.C	**Archaic** 8,000 B.C.- A.D. 200	**Ceramic** A.D. 200- A.D. 1540	**Unknown**	**Total**
Site Counts	0	6	94	12	**112**

While no sites dating to the PaleoIndian Period have yet been reported in the subarea, four sites dating to this time period are known in the San Pedro River Valley to the east and several diagnostic spear points have been found on the Tohono O'odham reservation to the west. The term "PaleoIndian" describes the earliest period of human occupation in the Americas. This was a time following the end of the last ice age when the environment was cooler and wetter than it is today. Many species of now extinct animals including

mammoth, horse, camel, bear, bison, and lions lived during this period. Numerous archaeological sites found in the west indicate that hunting these large animals was an important part of the subsistence of PaleoIndian people, and as such, archaeologists refer to them as "big game hunters." While very little is known about these people, it is believed that they lived in small groups or bands by hunting and gathering wild foods as they became seasonably available throughout the year. Archaeological evidence suggest that they were highly mobile covering thousands of square miles in a year as they moved across the landscape. Early in the succeeding Archaic Period, the environment became warmer, the large game animals disappeared, and modern plant and animal species were established.

The Archaic Period is minimally represented in the subarea with 6 sites, none of which can be more accurately dated. The Archaic Period represent a time span of almost 8000 years during which human beings adjusted their way of living in response to new environmental conditions. In order to survive, people became generalists in their subsistence practices, hunting and gathering a wide variety of plants and animals and becoming more efficient in how they processed their food as indicated by the presence of grinding stones found on sites of this period. Again, people appeared to have lived in small groups by hunting a gathering wild plants and animals over large areas through a seasonal round. Sites from the early and middle parts of the Archaic are rare in southern Arizona suggesting low population levels in response to the unfavorable environmental conditions believed to exist at that time; however, toward the end of the period several significant changes occurred laying the foundation for subsequent cultural development. First, the environment stabilized by 4500 years ago approaching modern conditions by that time. Second, population levels appear to have increased and some evidence suggests that people roamed within more restricted territories as a result. Third, by approximately 3500 years ago, people began to experiment with growing their own food as a supplement to their diet. This change also co-occurred with more permanent settlement along well watered reaches of the major drainages in the region.

A total of 94 sites dating to the Ceramic Period are known within the subarea indicating intensive use of the Avra Valley during this time in prehistory. The Ceramic Period covers the time between the adoption of ceramic technology in the third and fourth centuries after Christ to the end of the prehistoric sequence around A.D 1540. It was during the early part of the period, between approximately A.D. 200 to A.D. 700, that Archaic Period populations completed the transition from mobile hunting and gathering to settled, village based, agricultural existence in southern Arizona and elsewhere. The principal pottery bearing people in the region during prehistory were the Hohokam, who emerged as a distinct culture in the eighth century and dominated central and southern Arizona until around A.D. 1450. The Hohokam flourished along the river valleys of southern Arizona, including the Avra Valley, but were also well adapted to the desert lands to the west. They lived in settled, permanent villages, grew their own food using irrigation and dry farming techniques, developed a rich ceremonial life, and traded extensively with their neighbors throughout the region. A period of environmental instability during the A.D. 1300s is believed have weakened the agricultural economy to the point where the Hohokam were no longer able to produce food in sufficient quantifies and with enough consistency to support large populations and the culture collapsed around A.D 1450.

Following the collapse of the Hohokam, the region is believed to have been occupied in very low numbers by an O'odham (upper Piman speaking) people whose settlement and subsistence practices reflect a return to an earlier, simpler way of living. Life continued to involve the cultivation of crops supplemented by hunting a gathering, but the level of technical sophistication and social and religious cohesion characteristic of the Hohokam is missing in these later populations. These people are believed to be the descendants of the Hohokam, but are recognized as separate culture groups. Archaeologists know very little about the period that represents the end of the Hohokam and the beginning of the Spanish Colonial presence in southern

Arizona. It appears to have been a time of flux when the vacuum left by the disappearance of the Hohokam was filled by groups that the Spanish recognized as the Sobaipuri and the Tohono O'odham in the 17th and 18th centuries.

A single site dating to late prehistoric times (A.D. 1300-1500) is known in the Avra Valley; however, it is unknown whether this post dates the Hohokam collapse.

Table IV.4.4.
Avra Valley Subarea - Historic Archaeological Site Data by Affiliation

Euro-American	Mexican American	Native American	Unknown	Total
15	**3**	**0**	**1**	**19**

Table IV.4. 4 presents archaeological data on the Historic Period, spanning the years between A.D. 1540 and 1950. Historical information on settlement in the Avra Valley subarea is very sparse. From what little is known, it appears that settlement in the subarea dates to the latter half of the 19th century and is associated initially with mining. Copper ore was discovered in the Silverbell Mountains in the 1860s and several companies organized to work claims until the 1880s. It was not until after the turn of the century that large scale mining began and the town of Silverbell formed (see under Ghost towns below). Attempts to mine in the Tucson Mountains were also made beginning in the 1880s and evidence from the Saguaro National Park Western District indicates that both mining for ore and limestone for quicklime production occurred periodically into the 1930s. Today, limestone quarrying at Twin Buttes is an extension of this historic activity.

The 1893 Roskruge map shows a few ranch/farmsteads in the valley, mostly along foothills of the Roskruge Mountains. These were the Cocoraque, Agua Blanco and Grismare settlements. The original Avra Ranch is shown just to the north of the Ajo road in the Altar Valley subarea. The ranch moved to the north in the vicinity of the present day community of Picture Rocks after the Garcia Strip was created in 1916. The 1941 Cocoraque Butte 15' USGS topographic map shows the Garcia Ranch on tribal lands, the Cocoraque Ranch just to the north and the La Tortugas Ranch located south of the Garcia Strip. No settlement activity is shown for the northern end of the subarea. It wasn't until the 1950s that large scale agriculture was possible in the subarea and only after wells were drilled, the land was leveled, and concrete irrigation canals were constructed. Today, lands along the east branch of the Brawley Wash are still under agricultural production.

A total of 19 Historic Period sites have been identified in the subarea by the Arizona State Museum, 15 of which are Euro-American, three are Mexican American in ethnic origin and one is unknown. It is notable that no Native American sites are represented given the historic presence of both the Tohono O'odham and the Apache in the region. Low sample size, the greater visibility of some sites and not others, and a lack of research interest in the archaeology of the historic time period distorts the true picture of historic period land use in the subarea.

Site Data - Function:
The site data from both the historic and prehistoric eras can also be examined from a functional perspective to highlight land use trends within the subarea. The following is a summary of archaeological site data for the subarea that is presented by gross time period and site function. These data are made available by the Arizona State Museum, University of Arizona. Please note: the data presented in table 5 represents the most

current information available at the Museum. The data used by Pima County to prepare Table 6 and the map figures showing site distributions are current as of 1999 and so there are minor differences between the two in their total site counts.

Table IV.4. 5. Avra Valley Subarea - Archaeological Site Data by Time Period and Site Function

PERIOD	Prehistoric	Historic	Both	Unknown	Total
FUNCTION					
Agriculture	1	2	0	1	**4**
Art	17	0	0	0	**17**
Communication	0	1	0	0	**1**
Disposal	1	0	0	1	**2**
Government	0	2	0	0	**2**
Habitation	9	6	1	0	**16**
Resource Processing	10	1	1	1	**13**
Resource Procurement	1	1	0	0	**2**
Religion	2	2	0	0	**4**
Unknown	71	4	0	5	**80**
Total	**112**	**19**	**2**	**8**	**141**

As can be seen in Table IV.4.5, prehistoric sites out number the historic by almost six one, and in a few cases, occupations from both major time periods are present on the same site. The prehistoric site counts are dominated by Art (rock art), Resource Processing (food and non food resources) and Habitation (residential) as the most common of the identifiable functions. If the counts for Religion (ritual/ceremonial) are combine with those of rock art, which is religious in nature, then spiritual uses of the subarea are highly represented, followed by Resource Processing and Habitation in that order. This reflects the large number of prehistoric rock art sites that have been found in the Roskruge Mountains, the Samaniego Hills, and the Tucson Mountains. That Agriculture (i.e. fields, water control features), Disposal (trash), and Resource Procurement (food and non food resources) activities are so under represented is probably a function of low sample size and bias towards recording larger, more visible sites.

The historic components emphasize residential needs, with Habitation being the primary functional category represented. However, Communication (i.e. claim markers, telegraph/telephone) and Government (civic) related functions are present as well, with places associated with religion , such as a church or a cemetery, being represented to a limited degree. The greatest number of sites with unknown functions is in the prehistoric column where often survey data are not sufficient to either date or assign functional use to archaeological remains.

To sum the information on archaeological sites, the Avra Valley subarea has witnessed intensive archaeological survey and site excavation, but only in certain areas. Most of the subarea is either unknown or known through small, isolated or non-intensive surveys. Nonetheless, the subarea exhibits evidence of prehistoric settlement systems consisting of villages, hamlets, farmsteads, agricultural features, and a variety of specialized activity areas including resource procurement and processing sites as well as an unusually high number of petroglyph or rock art sites. To a lesser degree, historic archaeological sites associated with mining and homesteading have also been recorded. In addition, two archaeological site districts have been listed on the National Register of Historic Places - Los Robles Archaeological District and the Cocoraque Butte Archaeological District (see under National Register Properties below). Taken as a whole, the archaeological record within the subarea has high research potential that will grow as more is learned about the subarea.

B. Historical Resources

"Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Historical resources are largely constructed or engineered elements of the built environment including buildings used for residential purposes, such as houses, but also commercial stores, industrial facilities, civic centers, and places of worship. Roads, bridges, irrigation canals, mining works, and railroad tracks are also historical resources. Information on these places is recovered through drawings and design plans, photographs, maps, surveys, and personal recollections.

The Avra Valley subarea has several places of historic importance including one abandoned settlement or ghost town and two places that have been recognized for their historic value and registered on the National Register of Historic Places. These are represented on the attached map entitled, **"Avra Valley Subarea Historic Resources."**

Historic Communities: Historic Communities are those settlements that are in existence today that were established 50 years or more ago as indicated by a founding date or the date the first post office opened.

- The town of Silverbell, established in 1948, is the modern descendent of the Silverbell mining camp, now a ghost town.

Ghost Towns: Many communities were established only to be abandoned. These places were typically mining towns, or in some cases, milling towns, that thrived until economic forces eliminated the driving force of their existence. Established during the later part of the 19th and early 20th centuries, these places remain time capsules that reflects a by-gone era. The following description is derived from "Ghost Towns of Arizona" by James E. and Barbara H. Sherman, University of Oklahoma Press, 1969.

- Silverbell known as the "Hell hole of Arizona" was a copper mining boom town that sprung up in the Silverbell Mountains following the organization of the Imperial Copper company in 1902. With the construction of a rail link between Red Rock and Silverbell in 1904, the pace of mining increased and the size of the camp swelled to 3000. In 1911 the company went bankrupt, but the mines were bought out by the American Smelting and Refining Company, which began operations in 1915 and continued until 1921 when low copper prices shut down operations. In 1934 the rail road tracks linking the mine

with Red Rock were torn up and the smelter was dismantled. The new town of Silverbell is located some four miles southeast of the old mining camp.

National Register Properties:
The National Register of Historic Places was created as a part of the National Historic Preservation Act of 1966. It is the nation's premier honor roll for places deemed of national, regional, or local historic importance. The criteria for listing include: a) association with a person who has contributed to history; b) association with an event important to history; c) associated with the work of a master artist or craftsman or typical of a style or type of workmanship; d) yielding or having the potential to yield information important to history or prehistory. Listing in no way effects the rights of private property owners to do what they wish with their property. Federal agencies, however, are required to consider the effects of their actions on listed properties. The following descriptions are derived from the individual National Register nomination forms available at the State Historic Preservation Office in Phoenix, Arizona.

- Cocoraque Butte Archaeological District. This property is one of the best recorded examples of ancient "Desert Hohokam" village sites in the Avra Valley. The Desert Hohokam are not as well known as the Hohokam Indians who practiced canal irrigation farming along the river bottoms in southern and central Arizona between A.D. 700 and A.D. 1450. Instead, these people were flood water farmers who settled in the vast Papagueria to the west of the Santa Cruz Valley adapting to an environment that lacked perennial rivers and streams. The district is located on 480 acres of BLM and private lands and contains evidence of prehistoric residential activity, but is also well known for extensive and well preserved rock art panels that are exceptional for their complexity of design and the number of elements. Like many rock art sites, Cocoraque Butte is considered to be a traditional cultural place by the Tohono O'odham and Hopi Indian tribes. The district was listed on the National Register in 1975 in recognition of its contribution to understanding the prehistory of southern Arizona.

- Los Robles Archaeological District. This is one of two National Register Districts included under the thematic listing of "Hohokam Platform Mound Communities of the Lower Santa Cruz River Basin," which was created to preserve and give recognition to the high archaeological values associated with a dense concentration of Hohokam sites located along the western edge of Los Robles Wash dating between approximately A.D. 1050 and A.D 1450. During this time, Hohokam society under went radical change resulting the emergence of new forms of social control centered on communities with a kind of public architecture referred to as "platform mounds." The district contains a total of 129 archaeological sites within an area encompassing 12, 894 acres of state and Bureau of Land Management land that includes Cerro Prieto in Pinal County. Cerro Prieto is also the location of one of the most important examples of prehistoric hillside settlements called "trincheras" sites in southern Arizona. The district was nominated for its contribution to understanding the late prehistoric period in southern Arizona and the southwest region as a whole and listed on the National Register in 1989.

- Santa Anna del Chiquiburitac Mission Site: The mission site of Santa Anna del Chiquiburitac was placed on the National Register in 1975. This property is located adjacent to the Tohono O'odham reservation outside and to the west of the Avra Valley subarea. On an 80 acre parcel of land lie the ruins of a small mission founded and constructed in 1811 for the Tohono O'odham Indians by Father Juan Bautista Llorens, the priest who completed construction of the Mission San Xavier del Bac in 1797. It was the last of the missions constructed in the Primeria Alta and the farthest north of any within the mission system linking the frontier with what is today Sonora, Mexico. The church was abandoned in the 1840s and never re-occupied. While not located in the subarea and not shown on the map, it is nonetheless an important National Register site with a historic connection to the Avra Valley.

Rural Historic Landscapes:
There may also be individual ranches or farmsteads within the subarea that qualify as having importance to the history of the settling of the Avra Valley subarea. Some of these may be part of larger historic landscapes that are recognizable entities that have historic value. Historic Landscapes a special subcategory of historic resources. As defined by the National Park Service, a rural historic landscape is "that portion of the exterior natural environment that has been modified, influenced, or given special cultural meaning by people who shaped the landscape to serve human needs. A rural historic landscape is a geographical area that historically has been used by people or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways and natural features. Historic landscapes may reflect the beliefs, attitudes, traditions, and values of these people." (National Register Bulletin 30, Department of the Interior)

The most likely candidates for places with these values in the subarea are ranches where the connection between historic ranch properties, ranch lands and ranching as a traditional activity remains intact. The Cocorque Butte Ranch may be a viable candidate as a rural historic landscape.

C. Traditional Cultural Places
"A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices" (Preserving Cultural and Historic Resources, Pima County, May 1991).

Pima County has been occupied by indigenous peoples for thousands of years and the modern descendants of these prehistoric cultures still live in the region today. All of Pima County is claimed as ancestral lands by the Ak-Chin Indian Community, the Gila River Indian Community, and the Tohono O'odham Nation. The Piman speaking groups (including the Salt River Pima Maricopa Indian Community) claim direct ancestral affiliation with the prehistoric Hohokam Indians who inhabited much of southern and central Arizona. Other Indian groups also claim ancestral ties to the Pima County area including the Zuni of central western New Mexico and the Hopi of northeastern Arizona based on oral histories and myth that identify southern Arizona as a place of origin for these tribes. The Apaches also lived in the region for hundreds of years and therefore they too can claim an ancestral connection to the land and the places of traditional value to them that it may contain. Other groups with potential claims to places of traditional cultural value include the Hispanic and Anglo communities.

Places of traditional cultural value, as defined, are special to the community and must often remain secret to non-members; this is particularly true among Native Americans. These might be places where in the past natural resources were collected for ceremony or where natural features on the landscape are still recognized as having significance. Other places with traditional cultural value of particular importance to Native Americans are rock art sites and all archaeological sites containing human graves. Seventeen sites within the subarea are identified as prehistoric rock art localities and Cocoraque Butte is claimed as such by the Tohono O'odham and Hopi Indian tribes. In addition, nine prehistoric sites were used for habitation, which often contain human graves. It is reasonable to assume, that Native Americans would identify these places as having traditional cultural value. More than likely, there are many places with these kinds of values that exist in the Avra Valley subarea.

III. THREAT ASSESSMENT: The next map, entitled **"Archaeological Sites and Land Ownership"** shows the distribution of sites in relation to land status. Most of the 131 sites reported in the subarea by the Arizona State Museum are on state lands followed in order by federal lands (BLM and National Park Service), private property, and Pima County land (Tucson Mountain Park) in that order. This reflects the dominance of the state and federal governments as land holders within the subarea. Legal protections against unauthorized disturbances are afforded archaeological sites and other cultural and historical resources on state and federal lands, but only one law, the Arizona State Burial Protection Act, applies on private land. Cultural resources on county lands are also covered by legal protections defined under county law and policy. Data are presented in Table 6 below showing the number of archaeological sites by land status and degree of legal protection for cultural resources.

Table IV.4. 6.
Avra Valley Subarea - Archaeological Sites by Landownership and Legal Protection

Jurisdiction	**No. of Archaeological Sites**	**Protection Status/Level**
BLM	21	Protected/high
National Parks/Monuments	20	Protected/high
State Lands (Trust)	48	Protected/moderate
County Parks	4	Protected/moderate
Private Lands	38	Unprotected/low
Total	**131**	

A total of 41 of the 131 sites have high protection status because of their location on federal lands. Fifty-two are moderately protected from public and private actions, 48 of which are on state lands and four are within County parks. The remaining 38 sites are on private lands and thus have low protection status. Since state lands can be sold for development, and private lands are subject only to local zoning, 86 of the 131 or 65% of the total number of known archaeological sites are potentially threatened by future development in the subarea. Furthermore, since the majority of the land base in the subarea has never been archaeologically surveyed (92%), hundreds even thousands of sites may exist in the subarea that could be affected.

One way to estimate this number is to divide the number of square miles surveyed in the subarea by the number of reported archaeological sites to get an average of the number of archaeological sites per square mile. This is complicated by the addition of survey and site information that the Arizona State Museum does not have in its data base and is not reflected in their figures. The Cohn and Cocoraque surveys on BLM land covered 6200 acres of land in which 39 sites were recorded. This information added to the Museum's data gives a total of 17,900 acres (27.96 square miles) surveyed and 170 sites recorded for an average of 6.1 site per square mile. The Museum's data reports 11,700 acres (18.28 square miles) and 131 sites recorded for 7.2 acres per square mile. These averages are consistent with site density estimates of 6.8 sites per square mile for all of eastern Pima County estimated by county staff (See "Preserving Cultural and Historical Resources" May, 1999). The subarea is approximately 346 square miles. If the site density averages from both calculation are used, then by one estimate as many as 2102 sites potentially exist in the subarea and as many as 2477 sites exist by the other. State lands represent 22% of the subarea and private lands represent 31%. Using the lower, more conservative site density average of 6.1 sites per square mile and multiplying

the state and private land percentage into 2,102, indicates that as many as 462 sites may be located on state lands and another 651 sites may be on private land. In all, over 1000 archaeological sites could be vulnerable to future developmental pressure. This figure is even greater if the higher density figure of 7.16 sites per square mile is used for a total of 1313 estimated sites on state and private land. Archaeological sites are not evenly distributed across the landscape because people do settle on or utilize the land in a uniform manner; some areas are far more heavily occupied than others. As such, site densities will be lower than the average of approximately 6 sites per square mile in some places and higher in others. Low survey coverage and bias in survey recording makes the foregoing exercise a guess at best. Even so, the results suggests the scale of the potential loss in the subarea and the conversely the size of the conservation problem.

The loss of cultural and historical resources and the threat of further loss in the Avra Valley subarea can be summarized as follows.

Resource Loss:
Intensive agricultural development in the subarea during the 1950s has damaged or destroyed an unknown number of archaeological sites through land leveling, canal construction, and plowing. Archaeologists encounter the remains of these sites on the valley floor, but it is not possible to quantify the full extent of the disturbance to the archaeological record without additional research. Within recent years, unplatted residential growth in the Picture Rocks area, subdivision development along Anway Road, and continued mining activity on the western edge of the subarea have contributed to loss, which again, cannot be quantified since there are few if any requirements to check for cultural resources prior to construction. The reality is that there is little means of knowing what is being lost. Site vandalism is a perennial problem in all areas of the state including the Avra Valley subarea, but the relatively low levels of population to date and the remote locations of archaeological sites and historic resources have mitigated against widespread resource loss. The presence of the Saguaro National Park Western District and the Sonoran Desert Museum, both of which espouse a conservation message may actually contribute to a greater sensitivity towards natural and cultural resources conservation in the subarea.

Resource Threat:
The area of highest threat to cultural resources in the subarea is in the eastern half of the valley along the valley bottom and the foothills of the Tucson Mountains. This is where development is occurring and will continue to occur in the future. Since private land can be split into five lots or less and developed without platting under current state law, and state trust land is vulnerable to sale for residential development, the potential for resource loss in the future will increase with population growth. In unincorporated Pima County, development of unplatted land as individual parcels or in "lot split subdivisions" is not subject to the same environmental regulations, including cultural resources requirements, as formally platted subdivisions. Thus, cultural resources may be destroyed without first being recorded and no opportunities exist for in place preservation through avoidance. Even in cases where development is subject to full review by the county, cultural resources may be destroyed provided they are first investigated. Thus both platted and unplatted residential growth threatens cultural resources, particularly archaeological sites.

The map entitled, "Modern Communities, Transportation, and Ownership" shows the extent of private holdings concentrating along the valley bottom on either side of the major washes. Pima County currently defines this portion of the subarea as "urbanizing." Moreover, as discussed above, there is evidence to suggest that high concentrations of archaeological sites, especially prehistoric villages and other residential sites, can be expected in this same area. Continued development on the valley bottom and eastern mountain foothills therefore will have a highly negative effect on the archaeology of the Avra Valley subarea. State lands west of the Silverbell Mountains, along Los Robles Wash, and between Brawley Wash and the Santa

Cruz River, also have high potential for archaeological sites and other cultural resources. On the west side of the valley, less information is available about cultural and historical resources, but development pressures are lower too. This area is mostly federal lands (BLM) and thus has a higher degree of protection for cultural resources.

Sensitivity Zone:
Because the distribution of the majority of cultural resources is unknown, assessing risk and making conservation recommendations is difficult. In an effort to predict areas with high sensitivity for cultural and historical resources, proximity to water is used as an objective predictor under the assumption that in the desert places closer to water will tend to have been used more heavily by past human populations than places more removed from water sources. The map entitled, **Cultural Resources High Sensitivity Areas**, identifies zones within the subarea that are predicted to be highly sensitive for cultural resources. These include the Blanco, Brawley and Los Robles Washes, as well as the Santa Cruz River to the east of the subarea. Different buffers widths are used for the sensitivity model. The three major washes in the area are each buffered by two miles on either side for a total of four miles in width. There are no springs in the subarea but shallow ground water is indicated east of the Silverbell Mountains in the vicinity of Cocio Wash. One mile buffering is used for this area. The distribution of known archaeological sites is also provided in this figure and demonstrates that many, but not all known sites are captured within the sensitivity area as defined. It is notable that the buffered area around the Blanco, Brawley and Los Robles Washes encompasses most of the private land in the valley, an area believed to have high concentrations of archaeological sites based on survey data.

What is not captured within the buffered areas are historic resources associated with ranching and mining that are predominantly located in the upland bajadas of the Roskruge, Waterman, Silverbell and West Silverbell Mountains on the west side of the Valley, and the Tucson Mountains on the east side. Other factors besides the availability of surface water conditioned use of these areas for ranching and mining and drilling for ground water was another option available to historic era populations. In addition, the buffered areas do not include the extensive prehistoric rock art sites that are known to exist in these same areas. Again, proximity to large drainages was not the sole determiner in conditioning the use of the uplands for rock art. While the model presented here is simplistic, it does indicate where some, but not all, areas with high cultural resources sensitivity may be expected within the subarea.

IV. SUMMARY: The cultural resources of the Avra Valley subarea are the product of thousands of years of human settlement from the earliest prehistoric times to the modern day. In that sense, they represent a collective history of the Valley that can inform and educate future generations about the past. But these resources are non renewable: there are only so many archaeological sites, historic buildings or places with traditional cultural value, and once they are gone there are no replacements. It is for this reason that Pima County has included cultural resources in its planning for the Sonoran Desert Conservation Plan.

This report provides information on known cultural resources within the subarea describing their nature and distribution and attempts to predict where other cultural resources may be found. Clearly, much more is known about the archaeological record than either historic resources or traditional cultural places. This is because more formal study has been directed to the archaeological record, whereas research on historic resources is limited, and ethnographic information on traditional cultural properties is almost completely lacking. It is also apparent that the subarea has received different levels of research attention in different locations over the years. While archaeological survey data indicate that approximately 8% of the subarea has been intensively investigated, the primary focus of this research has been in its eastern half, and as a consequence, less is known of the western subarea. Despite the low survey coverage, those areas that have

been studied suggests that up to 10,000 years of human history is represented in the subarea, and that the peak use of the Valley occurred during late prehistory when the subarea was occupied by the Hohokam Indians. Historic uses of the valley for mining, ranching and agriculture contribute to its importance as a place with high scientific, educational and recreational potential, an assessment that is further supported by site density estimates indicating that as many as several thousand archaeological sites may be within the subarea

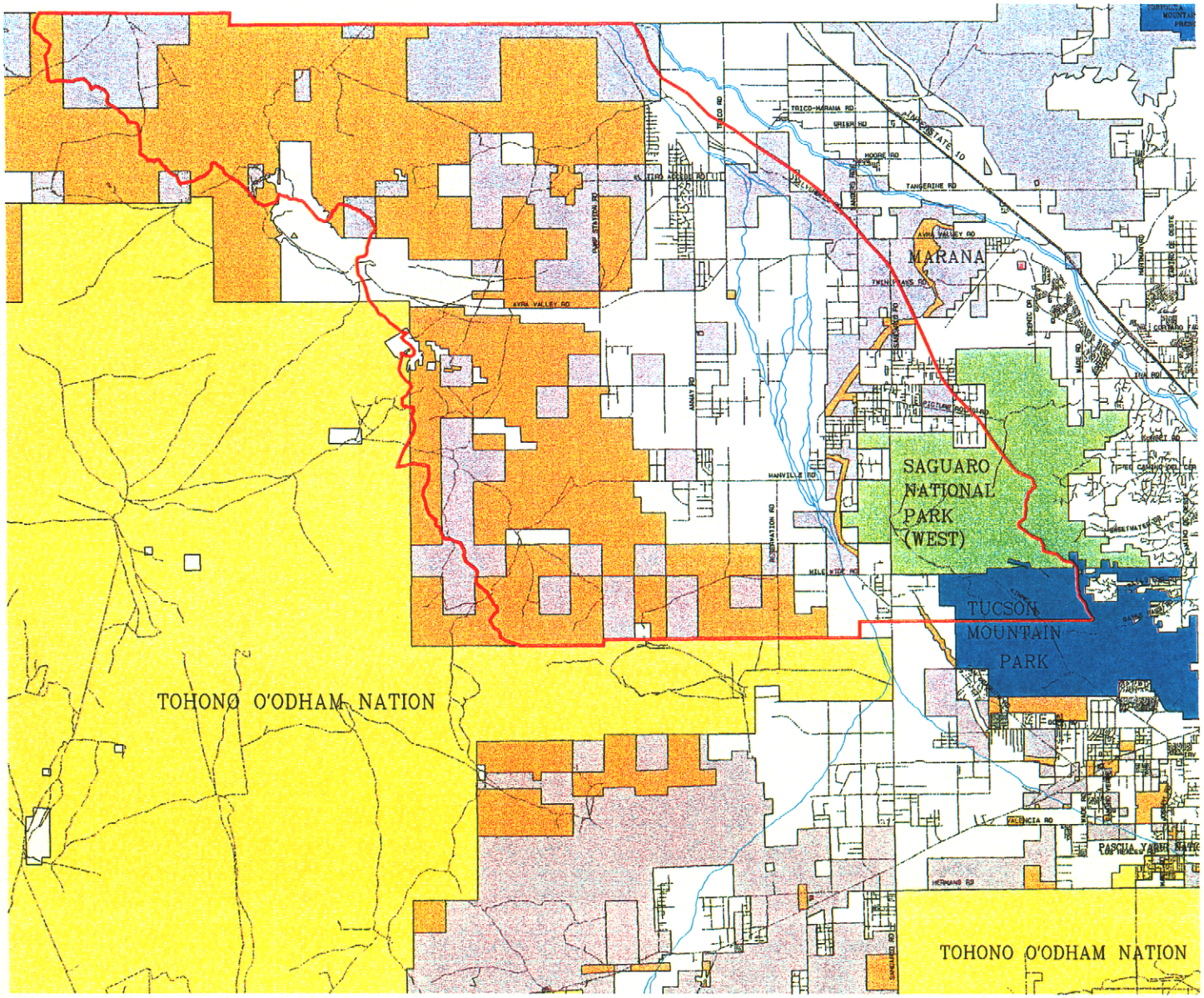
The town of Silverbell and its precursor, the Silverbell ghost town, are examples of communities historically linked to mining in the west, an major economic force that contributed to opening the western frontier in the 19th and 20th centuries. The Silverbell ghost town is now completely part of the archaeological record and thus represents a sealed time capsule on an important period in the history of the Avra Valley.

The subarea has two places that have been listed on the National Register of Historic Places and a third is located just to the west of the subarea boundaries. These locations have been recognized for their contribution to understanding the prehistory and history of the region and stand as a tribute to the Avra Valley.

Lastly, Native American claims identify the Avra Valley as part of their traditional use areas and the possibility that places with traditional cultural value exist in the subarea is high, especially those associated with the archaeological record. In short, the subarea, while still mostly unrecorded, has rich record of cultural and historical resources with a high potential for many more resources than are currently known. Since the majority of the Subarea is composed of private lands and state trust lands that are potentially convertible into private lands for development, there is a further need to identify cultural and historical resources, evaluate their significance, and where warranted protect them for future generations. It is worth noting that the Ironwood Preserve proposed by Pima County encompasses areas in the Silverbell, Waterman, and Roskruge Mountains is known to contain prehistoric sites, including extensive rock art, as well as evidence of historic ranching and mining, and has a high potential for containing additional cultural resources. The Preserve would thus extend a measure of protection for these resources in a manner that is consistent with the goals of the Sonoran Desert Conservation Plan.

Modern Communities Transportation And Ownership

SDCP PLANNING UNIT 6b



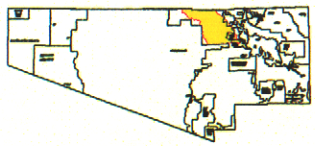
- Planning Unit Boundary
- Major Washes
- Roads
- BLM
- County Park
- Indian Lands
- Military Reservations
- National Forest Lands
- National Parks and Monuments
- National Wildlife Refuge
- Private Lands
- State Lands
- State Park

LAND OWNERSHIP

BLM	85,388	AC
COUNTY PARK	4,503	AC
MILITARY RESERVATIONS	0	AC
INDIAN LANDS	806	AC
NATIONAL FOREST LANDS	0	AC
NATIONAL PARKS AND MONUMENTS	13,434	AC
STATE LANDS	48,634	AC
STATE PARKS	0	AC
PRIVATE LANDS	68,619	AC
TOTAL	221,384	AC

ESTIMATED 2000 POPULATION: 10,052

Pima County Index Map



Index Map Scale 1:1,500,000

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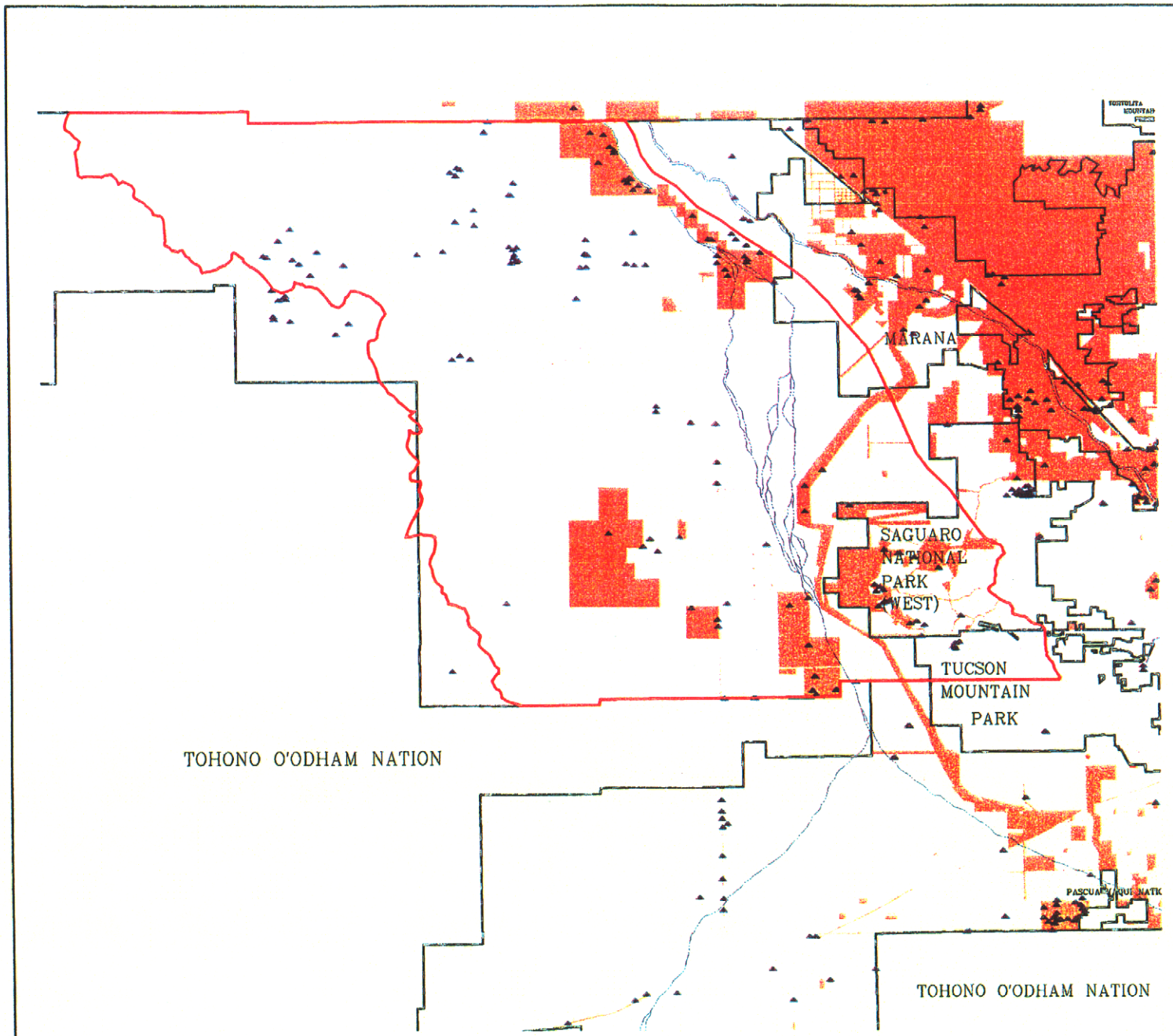
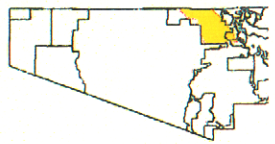


Archaeological Survey and Site Locations

SDCP PLANNING UNIT

- Major Washes
- Linear Archaeology Surveys
- Polygonal Archaeology Surveys
- Archaeology Sites

Pima County Index Map



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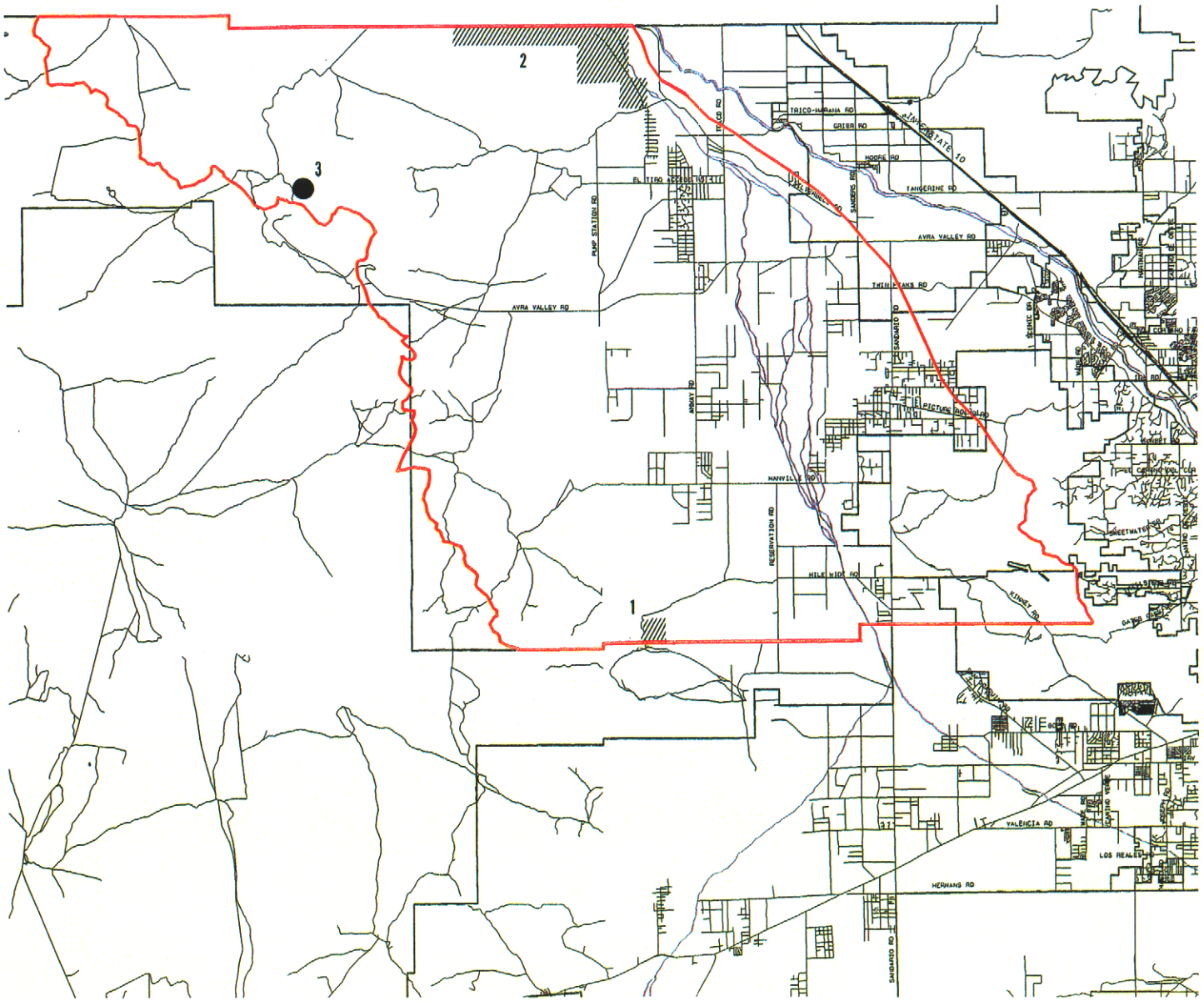
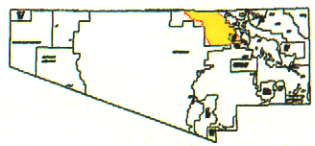


AVRA VALLEY SUBAREA

Historic Resources

1. Cocoraque Butte Archaeological District
2. Los Robles Archaeological District
3. Silverbell Ghost Town

Pima County Index Map



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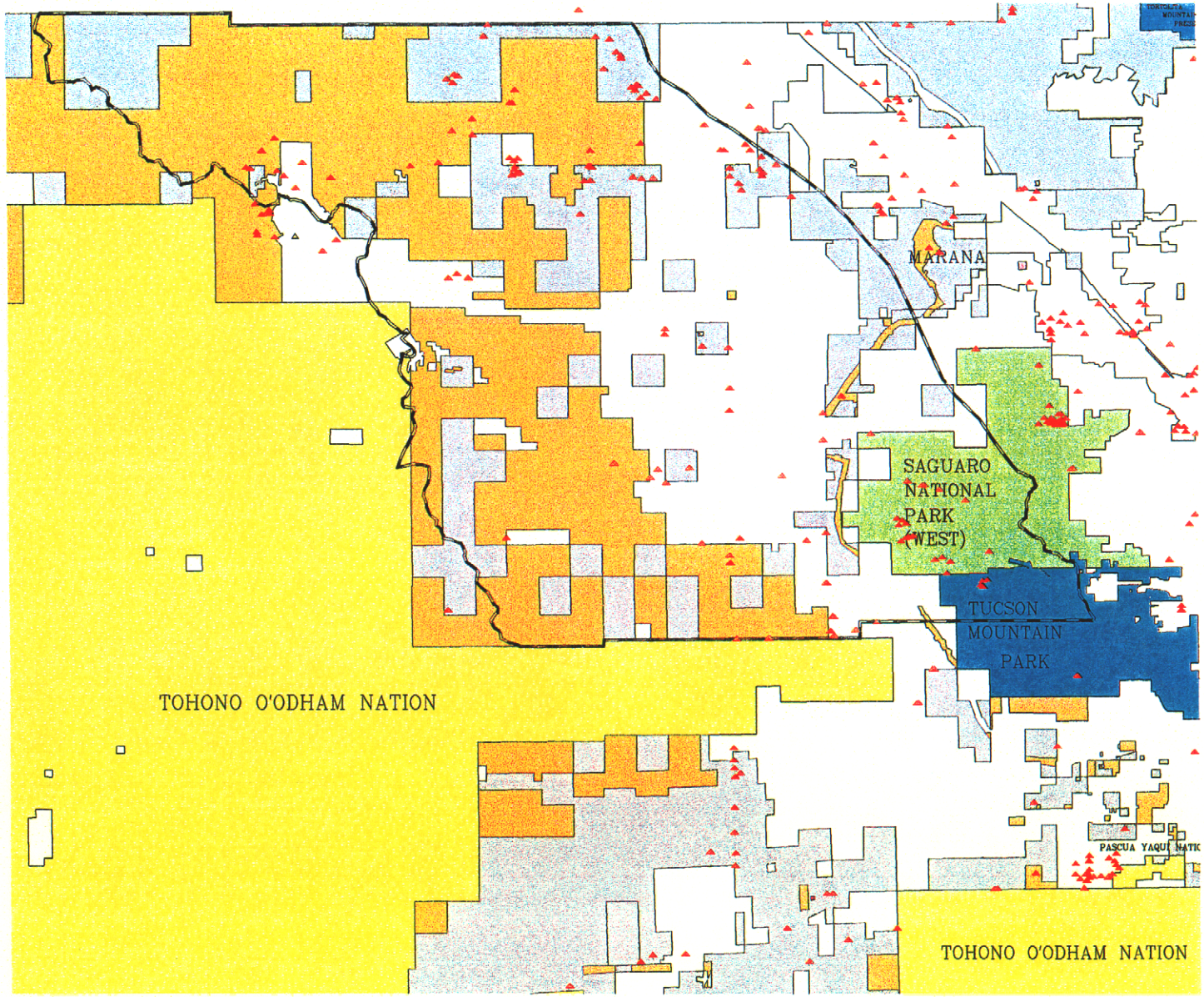
Archaeological Sites and Land Ownership

SDCP PLANNING UNIT 6b

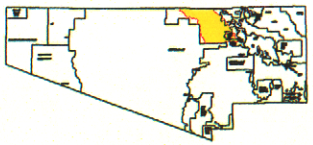


- Watershed Planning Boundary
- Archaeology Sites
- BLM
- County Park
- Indian Lands
- Military Reservations
- National Forest Lands
- National Parks and Monuments
- National Wildlife Refuge
- Private Lands
- State Lands
- State Park

STATISTICS FOR ARCHAEOLOGY SITES

JURISDICTION	# OF SITES
BLM	21
COUNTY PARK	4
GOLDWATER GUNNERY RANGE	0
MILITARY RESERVATIONS	0
NATIONAL FOREST LANDS	0
NATIONAL PARKS AND MONUMENTS	20
NATIONAL WILDLIFE REFUGE	0
PRIVATE LANDS	38
STATE LANDS	48
STATE PARKS	0
TOTAL	131

Pima County Index Map



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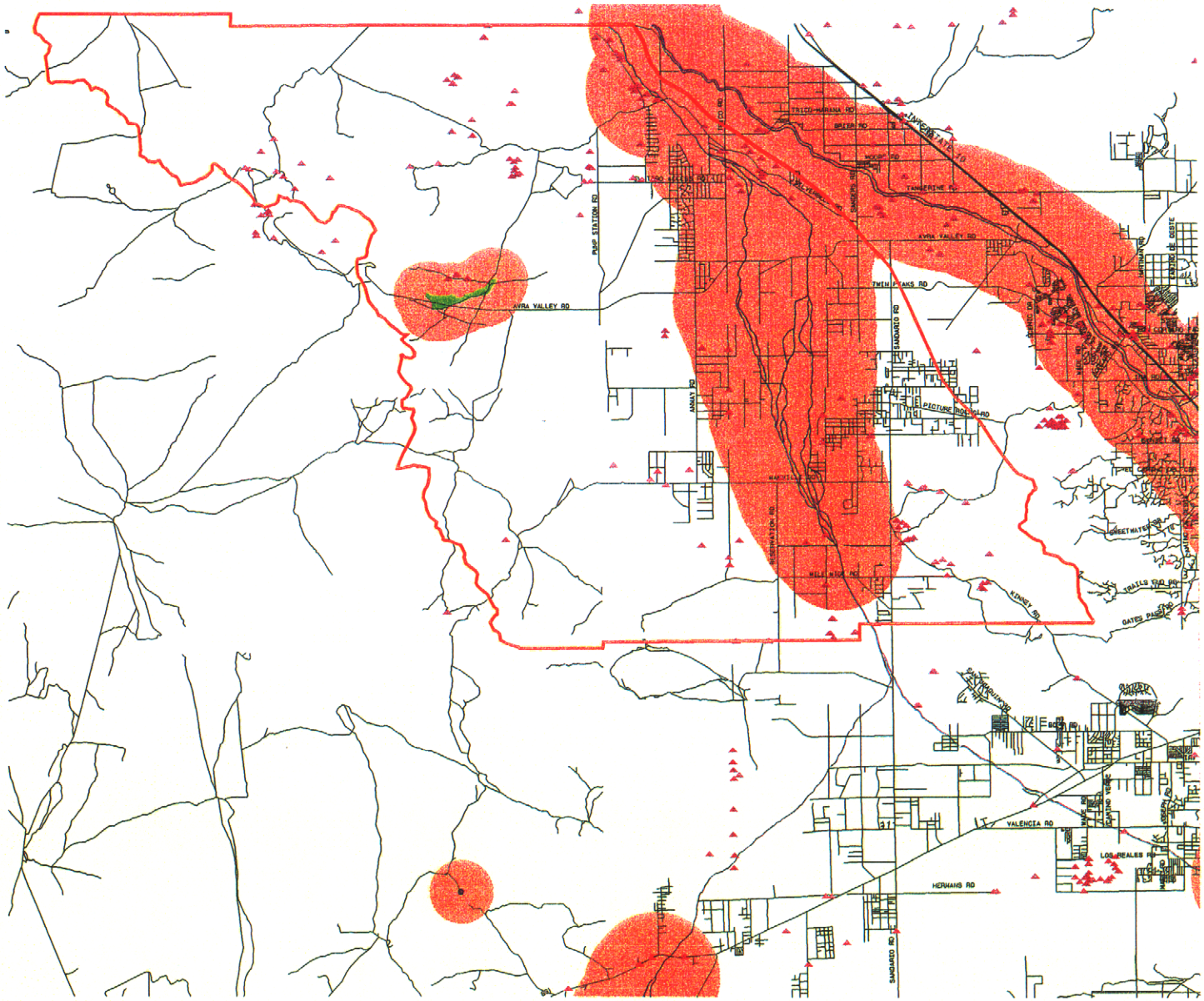
Cultural Resources
High Sensitivity Areas



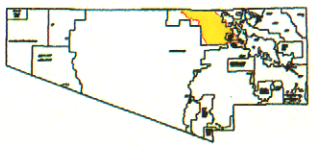
SDCP PLANNING UNIT 6b

- Shallow Ground Water
- 2 Mile Buffer - Major Washes
  1 Mile Buffer - Springs
  1 Mile Buffer - Shallow Ground Water
- Streets And Roads
- Major Washes
- Subarea Boundary
- Springs
- Archaeology Sites

STATISTICS FOR UNIT 6b

ACRES OF BUFFERED WASH, SPRING, AND SHALLOW FROUND WATER: 60,263 AC.

Pima County Index Map



Index Map Scale 1:1,500,000

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/pygmyowl2/sonora/cultural/ssmajonas/plan6b/arcs/wash6b.ai 4/5/00

5. Upper Santa Cruz Valley

I. SUBAREA: The subarea defines the watershed draining the Sierrita Mountains on the west and the Santa Rita Mountains on the east into the Santa Cruz River, the subarea's primary watercourse. The southern boundary of the planning unit is marked by the Pima County Santa Cruz County line and its northern end runs along the City of Tucson's South Valley as indicated on the map entitled, **Modern Communities, Transportation, and Ownership**. This area encompasses approximately 702 square miles.

The Upper Santa Cruz Valley subarea contains approximately 449,684 acres, within which land status is broken down as presented in the table below. Like many parts of Pima County, State Lands make up a sizeable portion of the countryside. This is followed by private lands, federal lands, and Indian land in that order.

Table IV.5.1. Upper Santa Cruz Valley Subarea
Land Ownership by Acreage and Percent

Ownership	Acres	Percent
Bureau of Land Management	7,724	1.7
Indian Lands	31,612	7.1
National Forest Lands	41,034	9.1
Private Land	156,454	34.8
State Lands	212,745	47.3
Other	114	<1
Total	**449, 684**	**100**

Principal communities in the subarea are Arivaca Junction, Canoa, Continental, Green Valley, Sahuarita, Corona de Tucson, and portions of the South Valley of Tucson. Additional population is dispersed on ranches and other rural settlements throughout the area. Traditionally, the economy has been dominated by mining, ranching, farming, which continue to the present day. However, a growing service sector is associated with those areas experiencing rapid urbanization such as Green Valley. The population estimate for the year 2000 is 31,030.

II. CULTURAL RESOURCES: This section presents information and analysis of current data on archaeological sites, historic resources and traditional cultural places within the subarea.

A. Archaeological sites

"Archaeological sites are any material remains of past human life or activities which are preserved in their original setting that are important to understanding prehistory or history. These sites or districts may include occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Archaeologists learn about the past by collecting and analyzing information in two ways: through survey and by excavation. Survey involves inspecting the ground surface in a particular area and recording concentrations of artifacts and features (hearths, roasting pits, pit houses, etc.) as archaeological sites. A site represents the physical remains of past human behavior in a single location dating to one or more periods of use through time. Surveys are often done systematically by groups of archaeologist who walk the land in regularly spaced lines looking for artifacts. Some surveys, however, are judgmental in that archaeologists only look where sites are expected to be found and not elsewhere. In all cases, survey offers an extensive perspective on past land use.

The second kind of information on archaeological sites is gained through excavation. This is the systematic recording, recovery, and analysis of artifacts and features from within a site's limits. Critical information is gained by understanding the spatial relationship of all artifacts and features within a three dimensional context. This enables interpretation about how the site was used, by whom, when, whether the site was used more than once and what happened after it was abandoned. Often, archaeological sites are not fully excavated but are only partially sampled. This saves what is left of the site for future investigations. Archaeological excavation provides highly detained information about the use of one limited spatial area during one or more use episodes. Archaeologist use survey and excavation data together to interpret the past; however, as new information becomes available and as new ideas about the past are developed, this interpretation changes over time.

Previous Research

Archaeological investigations in the Upper Santa Cruz Subarea have been conducted since the 1920s, and over the years, evidence has accumulated suggesting that human beings have occupied the valley and its highland margins for the last seven millennia. The first investigations involved sampling prehistoric pottery found on archaeological sites located between Tubac and Sahuarita in an effort to build a cultural time line for the region. Exploration of ruins in Sonora Mexico in the early 1930s also included the southern reaches of the subarea. It was noted at the time that similarity between Red on buff decorated pottery found in southern Arizona and pottery found in Sonora, Mexico suggested a connection between the two areas. In the mid 1940s Ted Danson (father of actor Ted Danson Jr.) conducted a large scale survey of the Upper Santa Cruz Valley recording over 200 archaeological sites dating to the prehistoric and historic time periods. From this work Danson was able to recognize differences in the artifacts between the upper and lower portions of the Santa Cruz Valley suggesting different cultural groups lived in these areas during prehistory. These early investigations of the Upper Santa Cruz Valley were conducted at a time when archaeologists throughout the Southwest region were attempting to describe the extent of archaeologically recognizable cultures in time and space.

In the early 1950s, Paul Frick, a graduate student at the University of Arizona, investigated the flood plain and lower terraces of the Santa Cruz River, again between Tubac and Sahuarita, to identify and record sites for his Master's thesis. This effort resulted in 216 sites being recorded within an area covering approximately 80 square miles. Frick was able to discern patterns in where people settled on the landscape, noting several site concentrations suggesting distinct communities. He further distinguished between places that were used for habitation from those that appeared to have been used for food production and was able to classify sites by time period within the Hohokam archaeological sequence (A.D. 700 - 1450). Frick noted that the highest number of sites appeared to date to between A.D. 950 and 1150 suggesting a peak population in the valley during that time period. Excavations at the Paloparado Ruin near Otero by Charles Di Peso in 1953 revealed that the site had been periodically occupied during the Hohokam, historic Piman, and early Spanish Colonial times spanning a period from AD 900 to the 1700s.

With the passage of environmental laws in the mid to late 1960s, federally funded or authorized projects required an assessment of impacts to archaeological sites and other kinds of cultural resources prior to development. As a consequence, the number of archaeological surveys and excavations in the Upper Santa Cruz Valley increased notably with a concomitant increase in information about and understanding of the past. This occurred at a time in the discipline of American archaeology when the questions of interest shifted from descriptive inquiries of what happened in the past, where and when, to an emphasis on explaining how cultural behavior changes through time and why.

Work during the 1980s revealed a more complete picture of human land use in the Upper Santa Cruz River Valley through time. While most archaeological survey investigations involve looking at the ground surface in relatively small areas on the level of tens of acres or smaller, a number of surveys involving many thousands of acres were conducted during this time revealing past land use pattering over a broad area. Large scale surveys were conducted east of the Sierrita Mountains in the Tinaja Hills; on the Tohono O'odham Reservation, San Xavier District; north of Sahuarita on the east side of the Santa Cruz River; within the Santa Rita Experimental Range; and, on adjacent land in the Coronado National Forest. These investigations were prompted by a combination of legal mandates, publicly funded research, and academic studies that in total covered thousands of acres of federal, tribal, state, and private lands. Hundreds of archaeological sites were recorded from a variety of ecological and elevational settings, and a number of these were subject to partial testing and full excavation programs. It was during this time that archaeologists were able to correlate shifts in the position of the Santa Cruz River over time with changes in how the Hohokam Indians practiced farming along the valley floor. After about AD 1000, it appears that the east side of the river was favored for settlement and the populace began to make extensive use of the upland bajadas for the cultivation of agave through dry farming, a pattern also identified in the Tortolita Mountains to the north.

While research on the late prehistoric time period associated with the pottery bearing Hohokam culture expanded during the 1980s, research on the pre-ceramic or "Archaic" period added time depth to human occupation in the Upper Santa Cruz and elsewhere in the region. For instance,, survey conducted for a land exchange on US Forrest Service land in the Rosemont area of the northern Santa Rita Mountains resulted in the excavation of 10 sites dating to the Middle and Late Archaic time Period spanning the years 4800 B.C. to A.D 350. This research also demonstrated that Archaic populations were well established in the upland areas and that the pattern of settlement involved using small, short term camps for hunting and gathering and larger base camps that were used by residential groups for longer periods of time. Excavation of a site located in the Santa Cruz flood plain in the early 1980s revealed deeply buried archaeological deposits that also date to the Middle and Late Archaic time period and demonstrated the existence of sites of this age in the deeper layers of soil along the river's margins.

The 1990s have seen additional survey and excavation projects in the subarea, most notably the investigation of 6400 acres in the Canoa Land Grant, in Green Valley. This project, conducted in 1995, identified 122 historic and prehistoric sites, indicating that the terraces along this portion of the Santa Cruz River have been utilized for a period of at least 2000 years. Excavations at the Continental site, the remains of a large Hohokam village just north of the town of Continental, revealed further evidence that certain parts of the flood plain were intensively utilized. Land use intensity can be measured by determining the number of sites found in an area that has been well surveyed. In the central portion of the subarea adjacent to the Santa Cruz River site density averages 9 sites per mile whereas in other areas more removed from the river site density averages around 2 sites per mile. The Canoa Land grant survey and the on going excavation at the Continental Site indicate that this portion of the subarea was a highly attractive location for human settlement because of its access to arable land, water for farming and domestic use, as well as its proximity to the mountains, upland areas, and the flood plain for hunting and gathering wild plants, animals, and other

resources.

In sum, 80 years of archaeological survey and excavation within the subarea reveals that the Upper Santa Cruz River Valley was repeatedly used by human populations over many thousands of years, first by highly mobile hunter gatherers and later by large village based agriculturalists, and that certain places on the landscape have been favored over others. This research has contributed to knowledge on the age of archaeological sites, how people settled on the land, what they ate and how they acquired their food, the manner in which people related to one another, the kinds of communities they lived in, and how people interacted with others in the rest of the valley and beyond.

Survey data

Archaeological survey is the first step in characterizing the nature, age and distribution of archaeological sites within an area like the Upper Santa Cruz Valley and there are two different kinds of survey that archaeologists typically perform: Linear surveys and block surveys. Linear survey involves inspecting a right-of-way for construction of a road, sewer line, telephone cable or other linear feature. These surveys tend to be done in compliance with legal mandates requiring environmental studies during project planning. Block survey involves examining non-linear properties ranging in size from a few acres to 1000s of acres. These are typically done either in compliance with legal mandates, or through academic or preservation related research projects. The Map entitled **"Archaeological Survey and Site Locations"** shows the areas within the subarea that have been archaeologically surveyed and the sites that have been recorded.

The map demonstrates that a number of large block surveys and some linear projects have been conducted with the subarea, notably on the east side of the Sierrita Mountains, east of the San Xavier District boundary, within the Coronado National Forest on the west side of the Santa Rita Mountains and within the Santa Rita Experimental Range and Wildlife Area. This latter survey is an example of a systematic sample survey consisting of linear corridors that were examined separated by spaces that were not examined. Not shown are the 46 sites that were recorded during this survey. Presented below is a breakdown of survey data currently available at the Arizona State Museum presented by acreage and survey type including the percentage of the subarea that has been investigated.

Table IV.5. 2.
Upper Santa Cruz Valley Subarea - Survey Acreage by Survey Type

Survey	Number	Acres Surveyed	Percent of Subarea
Linear	53	5513	1.2
Block	120	68,355	15.2
Total	**173**	**73,868**	**16.4**

While the total acreage figures indicate that more of this subarea has been investigated than elsewhere within Eastern Pima County, such as the Altar Valley at 5.3 percent and the Avra Valley at 8.0 percent, these figures still indicate that approximately 83% of the area has not been formally investigated. This means that research conclusions about the past within the subarea are always under going revision as new areas are explored and more data are made available.

Site Data - Chronology

Table 3 presents information on the number of prehistoric sites in the subarea by time period as reported by the Arizona State Museum.

Table IV.5.3.
Upper Santa Cruz Valley Subarea - Prehistoric Archaeological Site Data by Time Period

TIME PERIODS	**PaleoIndian** 12,000 B.C. - 8,000 B.C	**Archaic** 8,000 B.C.- A.D. 200	**Ceramic** A.D. 200- A.D. 1540	**Unknown**	**Total**
Site Counts	**0**	**21**	**172**	**189**	**382**

While no sites dating to the PaleoIndian Period have yet been reported in the subarea, four sites dating to this time period are known in the San Pedro River Valley to the east and several diagnostic spear points have been found on the Tohono O'odham reservation to the west. The term "PaleoIndian" describes the earliest period of human occupation in the Americas. This was a time following the end of the last ice age when the environment was cooler and wetter than it is today. Many species of now extinct animals including mammoth, horse, camel, bear, bison, and lions lived during this period. Numerous archaeological sites found in the west indicate that hunting these large animals was an important part of the subsistence of PaleoIndian people, and as such, archaeologists refer to them as "big game hunters." While very little is known about these people, it is believed that they lived in small groups or bands by hunting and gathering wild foods as they became seasonably available throughout the year. Archaeological evidence suggest that they were highly mobile covering thousands of square miles in a year as they moved across the landscape. Early in the succeeding Archaic Period, the environment became warmer, the large game animals disappeared, and modern plant and animal species were established.

The Archaic Period is represented in the subarea with 21 sites, one of which dates to the time period between 1500 B.C. and A.D. 200; the rest cannot be more accurately dated based on survey data. New information collected from the Canoa Ranch survey project, however, has identified seven sites that date to between 5000 B.C. and A.D. 100. The Archaic Period represent a time span of almost 8000 years during which human beings adjusted their way of living in response to new environmental conditions. In order to survive, people became generalists in their subsistence practices, hunting and gathering a wide variety of plants and animals and becoming more efficient in how they processed their food as indicated by the presence of grinding stones found on sites of this period. Again, people appeared to have lived in small groups by hunting a gathering wild plants and animals over large areas through a seasonal round. Sites from the early and middle parts of the Archaic are rare in southern Arizona suggesting low population levels in response to the unfavorable environmental conditions believed to exist at that time; however, toward the end of the period several significant changes occurred laying the foundation for subsequent cultural development. First, the environment stabilized by 4500 years ago approaching modern conditions by that time. Second, population levels appear to have increased and some evidence suggests that people roamed within more restricted territories as a result. Third, by approximately 3500 years ago, people began to experiment with growing their own food as a supplement to their diet. This change also co-occurred with more permanent settlement along well watered reaches of the major drainages in the region.

A total of 172 sites dating to the Ceramic Period are known within the subarea indicating intensive use of the Avra Valley during this time in prehistory. Fourteen sites date to the Early Ceramic times (A.D. 200 - A.D. 1000), 47 to the Middle Ceramic Period (A.D. 1000-A.D. 1300) but only one is known dating to the end of the Hohokam Sequence (A.D. 1300-A.D. 1500); the rest cannot be more accurately dated with survey

data. The Ceramic Period covers the time between the adoption of ceramic technology in the third and fourth centuries after Christ to the end of the prehistoric sequence around A.D 1540. It was during the early part of the period, between approximately A.D. 200 to A.D. 700, that Archaic Period populations completed the transition from mobile hunting and gathering to settled, village based, agricultural existence in southern Arizona and elsewhere. The principal pottery bearing people in the region during prehistory were the Hohokam, who emerged as a distinct culture in the eighth century and dominated central and southern Arizona until around A.D. 1450. The Hohokam flourished along the river valleys of southern Arizona, including the Avra Valley, but were also well adapted to the desert lands to the west. They lived in settled, permanent villages, grew their own food using irrigation and dry farming techniques, developed a rich ceremonial life, and traded extensively with their neighbors throughout the region. A period of environmental instability during the A.D. 1300s is believed have weakened the agricultural economy to the point where the Hohokam were no longer able to produce food in sufficient quantifies and with enough consistency to support large populations and the culture collapsed around A.D 1450.

Following the collapse of the Hohokam, the region is believed to have been occupied in very low numbers by an O'odham (upper Piman speaking) people whose settlement and subsistence practices reflect a return to an earlier, simpler way of living. Life continued to involve the cultivation of crops supplemented by hunting a gathering, but the level of technical sophistication and social and religious cohesion characteristic of the Hohokam is missing in these later populations. These people are believed to be the descendants of the Hohokam, but are recognized as separate culture groups. Archaeologists know very little about the period that represents the end of the Hohokam and the beginning of the Spanish Colonial presence in southern Arizona. It appears to have been a time of flux when the vacuum left by the disappearance of the Hohokam was filled by groups that the Spanish recognized as the Sobaipuri and the Tohono O'odham in the 17th and 18th centuries

While a few sites dating to this time period are known in the Tucson Basin to the north, the Upper Santa Cruz subarea has not yet revealed evidence of occupation during the time after the Hohokam collapse and before the arrival of the Spanish.

Table IV.5.4. Upper Santa Cruz Valley Subarea Historic Archaeological Site Data by Affiliation

Euro-American	Mexican-American	Native American	Unknown	Total
9	**6**	**3**	**11**	**29**

Table IV.5. 4 presents archaeological data on the Historic Period, spanning the years between A.D. 1540 and 1950. The history of the Santa Cruz Valley is rich and complex.

One of the first Europeans to enter the desert southwest was Francisco Vasquez de Coronado who with a large entourage of some 300 Spaniards and 1300 Indians is believed to have passed up the San Pedro River Valley in A.D. 1540 on a journey that ultimately brought him to the Rio Grande River in the vicinity of Albuquerque, New Mexico. But it wasn't until the 1690s that attempts were made by the Spanish to settle in southern Arizona. During these forays, Spanish soldiers and clergy encountered people who spoke the O'odahm (Piman) language living in numerous villages in the area. In 1691, Eusebio Kino, a Jesuit priest, began a series of trips into the Pimera Alta, to meet with the native population. This resulted in the construction of the mission church at the village of San Xavier del Bac starting in 1700 south of Tucson and the founding of a large church at Guevavi in the Upper Santa Cruz Valley, north of modern day Nogales.

The introduction of Christianity changed the native ways of life profoundly. Livestock, wheat, and other

domesticated plants and animals were added to the economy. Diseases introduced by the Europeans wiped out entire Indian villages and native settlements of Sonora and Arizona were reorganized with a new focus on mission communities. Presidios, or forts, established by the Spanish at strategic places, originally for protection from the Apaches, were also occasionally used to keep the usually friendly Pimans in check. This was of particular concern to the Spanish int he years between 1734 and 1760 when Piman populations were agitating against Colonial rule culminating in the Pima Revolt of 1751. Following these event, Spanish security concerns focused on the Apaches, who threatened Spanish outposts all along the northern frontier. The need for defense prompted the Spanish to establish a presidio at Tubac in 1752, which was later removed to the location of Tucson in 1775. In the same year, Juan Batista de Anza set off from Tubac, passed up the Santa Cruz River Valley turning west along the Gila River and journeyed to the Pacific Coast culminating in the founding of San Francisco.

In the later years of the Spanish Colonial period, ranching, mining, and agriculture were the principal economic activities in the Santa Cruz Valley and elsewhere. This was a time of relative peace until the Mexican War of Independence ended the colonial period in 1821. The missionization and military protection programs of the Spanish colonial government encouraged an influx of Spanish colonists early in the 18th century that eventually brought and end to the dispersed pattern of Indian Villages along the length of the Santa Cruz River. The Santa Cruz Valley became dominated by the inhabitants of Spanish and Mexican decent who survived mainly by farming, ranching, and trade. Apaches began raiding extensively n southern Arizona after 1830 and were a major threat to the Mexican Settlements. By the time of the Gadsden purchase by the united States in 1853, Spanish and later Mexican settlements were well established, and ranching and mining had replaced much of the traditional agricultural subsistence base. One of the larger holdings in the Upper Santa Cruz Valley, the San Ignaciao del la Canoa Land Grant, was established by brothers Tomas and Ignacio Ortiz just prior to Mexican independence in 1820. The grant, covered some 17,000 acres on both side of the Santa Cruz River from north of Tubac to Sahuarita, was operated as a cattle ranch throughout the Mexican period despite repeated Apache attacks

The Mexican war of 1846 and subsequent transfer of the Gadsden purchase to U.S. ownership in 1854 were the primary historical events leading to the end of Spanish and Mexican domination of the Santa Cruz Valley. Arizona officially became at territory in 1863, during the American Civil War. Tucson was briefly occupied by the Confederacy in 1862, only to be chased out by Union Troops a short time later. National politics, and the presence of proven mineral wealth, convinced President Abraham Lincoln to recognize Arizona as a territory separate from that of New Mexico. After the war, ranching and mining dominated the territorial economy and brought in Anglo-Americans in search of gold, silver , copper and other minerals. However, lumbering and farming also contributed as economic opportunities expanded. Continued confrontation with the Apaches prompted the establishment of a permanent US military presence throughout southern Arizona, and a number of posts, camps, and forts sprung from Tubac to Holbrook. The war with the Apaches ended in 1886 with the surrender of Geronimo ushering a period of peace and prosperity. With the coming of the railroad in 1880 Tucson became connected to the rest of the nation, bringing greater population growth and a more commercially oriented economy.

Statehood came to Arizona in 1912 after many fruitless years of trying to convince the Congress of the Territory's worthiness. Statehood also resulted in the establishment of the state trust lands that still to this day cover vast territory throughout southern Arizona. The establishment of the US Forrest Service (1905) prior to statehood and the Bureau of Land Management afterwards (1946) had a tremendous impact on rural life in the region including the Upper Santa Cruz Valley adding forest and range management requirements to lands that traditionally had none. The effects of the first and second World Wars cannot be overstated in that each of these national convulsions brought an influx of people and technology to southern Arizona

making Tucson the main population center in the region. Copper mining became a major economic force in the area region including the east flanks of the Sierrita Mountains, but farming and ranching continued to be important in the Santa Cruz Valley and elsewhere. It was during the 1960s, that the population of Tucson began to grow explosively reaching its present size of approximately 800,000. As a result of this demographic trend, urbanization has begun to creep down the Upper Santa Cruz as new communities have become established in what was open range along the valley floor. Despite these changes, the Upper Santa Cruz subarea today remains largely rural and dependant upon ranching and farming just as has for hundreds of years.

A total of 29 Historic Period sites have been identified in the subarea by the Arizona State Museum, 9 of which are Euro-American, Six are Mexican American in ethnic origin, three are O'odham and the cultural identity of eleven sites is unknown. Most date to the 19th and early 20th centuries. Low sample size, the greater visibility of some sites and not others, and a lack of research interest in the archaeology of the historic time period distorts the true picture of historic period land use in the subarea. Given the long history of the valley, it is certain that archaeological remains associated with the trends discussed above exist within the subarea and will be recorded as more areas are explored.

Site Data - Function

The site data from both the historic and prehistoric eras can also be examined from a functional perspective to highlight land use trends within the subarea. The following is a summary of archaeological site data for the subarea that is presented by gross time period and site function. These data are made available by the Arizona State Museum, University of Arizona. Please note: the data presented in Table IV.5.5 includes archaeological sites found on Indian lands. The data used to prepare Table IV.5.6 and the map figures showing site distributions have removed the sites found on Indian lands from analysis, therefore, the site counts differ.

Table IV.5.5
Upper Santa Cruz Valley Subarea - Archaeological Site Data Time Period by Site Function

PERIOD	Prehistoric	Historic	Both	Unknown	Total
FUNCTION					
Agriculture	4	2	1	0	**7**
Art	4	3	0	0	**7**
Disposal	4	3	0	1	**8**
Government	2	2	0	0	**4**
Habitation	12	7	2	3	**24**
Resource Processing	83	1	1	11	**96**
Resource Procurement	0	3	0	1	**4**
Religion	1	0	0	0	**1**
Transportation	0	1	1	0	**2**
Unknown	272	7	5	35	**319**
Total	**382**	**29**	**10**	**51**	**472**

The site counts presented in Table 5 show that prehistoric sites out number the historic by more than 13 to one and that in ten instance, occupations from both major time periods are present on the same site. The prehistoric site counts are dominated by Resource Processing (food and non food resources) and Habitation (residential) as the most common of the identifiable functions. Agriculture (i.e. fields, water control features), Art (rock art) and Disposal (trash) appear in equal, but small numbers. Two prehistoric sites are functionally identified as governmental in nature, meaning they contain features that are believed to be communal, such as public architecture . One site is believed to represent Religion or ritual functions, such a shrine or other place or worship. That Resource Procurement (food and non food resources) activities, such as evidence of hunting or stone quarrying, is completely lacking, is probably a function of research bias towards recording larger, more visible sites. As is the case in the other subareas in Pima County, the largest number of prehistoric sites cannot be functionally identified based on survey data.

The historic sites emphasize residential needs, with Habitation being the primary functional category represented. Its interesting to note that three sites with Art as the site function are present. These are almost certainly Native American rock art sites that date to the historic period, possibly Tohono O'odham in origin. Disposal and Resource Procurement functions are present in the subarea with three sites each, followed by two sites identified as having agricultural uses and two with governmental functions. Lastly, Resources Processing, such as a kiln or ore processing feature, and Transportation, meaning a road or trail, are present with one site each.

Ten site have both prehistoric and historic occupations on them that are functionally identified as Habitation (2), Agriculture (1), Resource Processing (1), and Transportation (1) being the dominant function at these sites where site use can be determined. There are also 51 sites where function can be determined but their general age cannot, with Resources Processing, Habitation, Disposal and Resource Procurement being the primary site functions at these sites in descending numbers. This kind of situation is often revealing of Native American site occupation more than sites occupied by Euro-Americans, because similar kinds of behaviors were practiced by Native Americans in both the prehistoric and historic time periods that only simple tools and left little physical evidence; for example, collecting and processing cactus fruit.

Of all sites from both the prehistoric and historic time period, the data presented in Table 5 indicates that site use within the subarea is dominated by Resource Processing at 96 sites. Residential needs are represented by Habitation sites and is the second highest site function by count (24), followed in order by Disposal (8), Agriculture and Art (7), Government and Resource procurement (4) Transportation (2) and lastly Religion (1). Not surprisingly, the vast majority of those sites that could be functionally identified relate to processing food and non food resources, and housing.

To sum the information on archaeological sites, the Upper Santa Cruz Valley subarea has witnessed intensive archaeological survey and site excavation, but still only a fraction of the whole of the subarea has been investigated. Because of this, site distribution is still more a reflection of where investigation has occurred than past land use patterning. Nonetheless, the following statements can be made based on the archaeological record: 1) It is evident that human beings have occupied the Upper Santa Cruz Valley subarea for many thousands of years, with a peak occupation during the period between A.D. 200 and A.D. 1300; 2) certain parts of the landscape have been more heavily utilized than others especially along the margins of the Santa Cruz River where surface water has been available; and, 3) the predominant use of the landscape relates to processing both food and non food resources and meeting residential needs.

B. Historical Resources

"Historical resources are sites, districts, structures, objects, or other evidences of human activities that

represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Historical resources are largely constructed or engineered elements of the built environment including buildings used for residential purposes, such as houses, but also commercial stores, industrial facilities, civic centers, and places of worship. Roads, bridges, irrigation canals, mining works, and railroad tracks are also historical resources. Information on these places is recovered through drawings and design plans, photographs, maps, surveys, and personal recollections.

The Upper Santa Cruz Valley subarea has a number of places of historic importance including occupied historic communities, abandoned settlements or ghost towns, places that have been recognized for their historic value and registered on the National Register of Historic Places, and a historic trail. These are represented on the attached map entitled, **"Upper Santa Cruz Subarea Historic Resources."**

Historic Communities: Historic Communities are those settlements that are in existence today that were established 50 years or more ago as indicated by a founding date or the date the first post office opened. The following descriptions are derived from "Arizona's Names" by Byrd Howell Granger, The Falconer Publishing Company, 1983)

- Continental. The town of Continental originated as a rail stop named after the Continental Rubber Company, which bought part of the old Canoa Land Grant. The plant Guayule, from which rubber is derived, was grown for many years; however, in 1949 the company sold its land to be used for farming. In recent years, the economic focus in the town has shifted from agriculture to residential and today it is within the Green Valley development corridor. The first post office was established in 1916.

- Sahuarita was originally part of the Sahuarita Ranch, which was established by James Kilroy Brown in 1879. The ranch headquarters was used by Pedro Aguirre as a stage stop between Tucson, Arivaca and Quijota. The community was named after the ranch and opened its first post office in 1882. Brown's sale of the ranch in 1886 lead to a decline that lasted until 1911 when a second post office was opened in town. Originally named after the abundant saguaro cactus in the area, Sahuarita is today a growing community.

Ghost Towns: Many communities became established only to be abandoned. These places were typically mining towns, or in some cases, milling towns, that thrived until economic forces eliminated the driving force of their existence. Established during the later part of the last century and early 20th century, these places remain time capsules that reflect by-gone eras. Several ghost towns are known in the subarea. The following descriptions are derived from "Ghost Towns of Arizona" by James E. and Barbara H. Sherman, University of Oklahoma Press, 1969.

- Helvetia. This was a mining community, and like so many in the region, suffered the ups and downs of the marker for copper ore. Mines were probably in use after the civil war but it wasn't until the early 1880s that several large mining claims were developed including the Old Dick, Heavyweight, and Tallyhoo mines. In 1890s the Helvetia Copper Company formed and it was in response to the mining under this company that the community of Helvetia developed. Copper mining continued until 1911 when low copper prices lead to a shut down, although sporadic mining continued through the years of the First World War. The post office opened in 1899 and was closed by 1921.

- Olive. Named in honor of Olive Stephenson Brown, wife of James Kilroy Brown (see Sahuarita above), this mining community owed its existence to silver not copper and served a number of mines in the area including the Olive, San Xavier, Wedge, Michigan Maid, and the Richmond mines. Olive Camp, as it was known, was active during the 1880s. It was a unique mining settlement in that ore was not milled on site and there was no smelter or machinery. Instead raw ore was shipped elsewhere for processing. Olive Brown lived in the camp with her husband and was known to treat the men to a free chicken dinner every Sunday, an act of kindness that was eagerly anticipated by the miners. The mine was sold in the late 1880s and was abandoned shortly there after. The post office opened in 1887 and closed in 1892.

- Twin Buttes. This copper mining town developed around 1903 when the Twin Buttes Mining and Smelting Company was formed and operated the Senator, Morgan, Copper glance, Copper Queen, and Copper King mines. Ore was shipped by rail to the smelters at Sasco until 1914. The settlement itself burgeoned with the success of the mining operation and a bunkhouse, assay office, store, boarding house, and school were built to serve a population of some 300 people. The opening of a post office and a rail link connecting Twin Buttes with Sahuarita both occurred in 1906. Despite good fortune in the early years, the inevitable ups and downs of life dependant upon copper prices lead to the eventual abandonment of the town and by 1930 the post office was discontinued.

National Register Properties: The National Register of Historic Places were created as a part of the National Historic Preservation Act of 1966. It is the nation's premier honor roll for places deemed of national, regional, or local importance. The criteria for listing include a) association with a person who has contributed to history; b) association with an event important to history; c) associated with the work of a master artist or craftsman or typical of a style or type of workmanship; d) yielding or having the potential to yield information important to history or prehistory. Listing in no way effects the rights of private property owners to do what they wish with their property. Federal agencies; however, are required to consider the effects of their actions on listed properties. The following description is derived from the National Register nomination form available at the State Historic Preservation Office in Phoenix, Arizona.

- Air Force Facility Missile Site. This is the site of a Titan II missile silo that contained a nuclear tipped missile on 24 hours alert from 1963 to 1982. Known officially at Titan Missile Site 571-7, this formerly top secret facility is the sole remaining Titan Intercontinental Ballistic Missile complex left in the country. In 1988 in was opened as a museum containing both above ground and below ground components of the launch operations including, the operations center, multiple blast shields, crew quarters, and the silo itself, a concrete lined hole 55 feet wide and 154 feet deep that housed a single missile capable of delivering between 10 and 20 megatons to a target 6000 nautical miles away. The property was listed to the National Register in 1992 for its military, architectural and engineering significance as a symbol of the Cold War.

Historic Landscapes:
This is a special subcategory of historic resources as defined by the National Park Service a rural historic landscape is "...that portion of the exterior natural environment that has been modified, influenced, or given special cultural meaning by people who shaped the landscape to serve human needs. A rural historic landscape is a geographical area that historically has been used by people or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways and natural features. Historic landscapes may reflect the beliefs, attitudes, traditions, and values of these people." (National Register Bulletin 30, U.S. Department of the Interior)

This is a new concept in cultural resources preservation; however, its use recognizes that there are places on the landscape that have been altered, both intentionally and unintentionally, by human behavior in ways that make the landscape and the historic resources that are associated with it, a single, coherent entity of historic value. A historic ranch and its associated ranch lands may be the best example of a rural historic landscape where ranching activities over time have resulted in modifications to the natural environment that are recognizable as such.

The Canoa Land Grant, established in 1820, may possess the qualities needed for designation as a rural historic landscape because of its historic use for ranching dating from the end of the Spanish Colonial period up to the 20th century.

Trails: In many places historic and even prehistoric trails crossing the landscape often become the basis for historic roads and modern highways and the Upper Santa Cruz subarea is no exception.

- Anza Trail. This is the route taken by Juan Batista de Anza in the expedition of 1775-1776 when he lead a group of some 250 colonists and 1200 head of livestock from Sonora to found a presidio and mission for Spain at San Francisco Bay. The trail extends from Nogales, Arizona to San Francisco, California, a distance of 1200 miles. There are approximately 60 miles of trail in Pima County along the west bank of the Sant Cruz River, with six campsites at Canoa, Llano Grande (south of Sahuarita), San Xavier del Bac, Tucquison (north of downtown Tucson). Llano del Azotado (at the north end of the Tucson Mountains), and Oitipars (near the Pinal County Line). The Anza Trail has been nominated as a National Historic Trail by the National Park Service. Today, Interstate 19 follows the original route up the Santa Cruz Valley (See Juan Bautista de Anza National Historic Trail Arizona-California. Draft Comprehensive Management and Use Plan and Environmental Impact Statement, National Park Service, San Francisco, CA, September 1994).

To sum the discussion of historic resources, the subarea contains a variety of places that are symbolic of different historic forces that have affected southern Arizona and the nation as a whole ranging from 18th Spanish Colonial expeditions into the unknown, to Mexican era Land Grants, to 19th century copper mining boom towns, and finally to the modern age of global missile defense.

C. Traditional Cultural Places

"A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Pima County has been occupied by indigenous peoples for thousands of years and the modern descendants of these prehistoric cultures still live in the region today. All of Pima County is claimed as ancestral lands by the Ak-Chin Indian Community, the Gila River Indian Community, and the Tohono O'odham Nation. The Piman speaking groups (including the Salt River Pima Maricopa Indian Community) claim direct ancestral affiliation with the prehistoric Hohokam Indians who inhabited much of southern and central Arizona. Other Indian groups also claim ancestral ties to the Pima County area including the Zuni of central western New Mexico and the Hopi of northeastern Arizona based on oral histories and myth that identify southern Arizona as a place of origin for these tribes. The Apaches also lived in the region for hundreds of years and therefore they too can claim an ancestral connection to the land and the places of traditional value

to them that it may contain. Other groups with potential claims to places of traditional cultural value include the Hispanic and Anglo communities.

Places of traditional cultural value, as defined, are special to the community and must often remain secret to non-members; this is particularly true among Native Americans. These might be places where in the past natural resources were collected for ceremony or where natural features on the landscape are still recognized as having significance. Other places with traditional cultural value of particular importance to Native Americans are rock art sites and all archaeological sites containing human graves. Four sites within the subarea are identified as prehistoric rock art localities and in addition, 12 prehistoric sites were used for habitation, which often contain human graves. It is reasonable to assume, that Native Americans would identify these places as having traditional cultural value. More than likely, there are many places with these kinds of values that exist in the Upper Santa Cruz Valley subarea.

III. THREAT ASSESSMENT: The next map, entitled **"Archaeological Sites and Land Ownership"** shows the distribution of sites in relation to land status. Most of the 396 sites reported in the subarea are on state lands followed by private property, federal lands (BLM and National Forest Lands), and Pima County land in that order. Legal protections against unauthorized disturbances are afforded archaeological sites and other cultural and historical resources on state and federal lands, but only one law, the Arizona State Burial Protection Act, applies on private land. Cultural resources on county lands are also covered by legal protections defined under county law and policy. Data are presented in Table 6 below showing the number of archaeological sites by land status and degree of legal protection for cultural resources

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Table IV.5.6. Upper Santa Cruz Valley Subarea
Archaeological Sites by Landownership and Legal Protection

Jurisdiction	**No. of Archaeological Sites**	**Protection Status/Level**
BLM	15	Protected/high
National Forest Lands	11	Protected/high
State Lands	189	Protected/moderate
Private Lands	181	Unprotected/low
Total	**396**	

A total of 26 of the 396 sites or only 6.5% have high protection status because of their location on federal lands. One hundred and eighty-nine sites are moderately protected from public and private actions. The remaining 181 sites or approximately 45.7% are on private lands and thus have low protection status. Since state lands can be sold for development, and private lands are subject only to local zoning, 370 of the 396 or 93.4% of the total number of known archaeological sites are potentially threatened by future development in the subarea. Furthermore, since the majority of the land base in the subarea has never been archaeologically surveyed (83.6%), hundreds even thousands of sites may exist in the subarea that could be affected.

One way to estimate this number is to divide the number of square miles surveyed in the subarea by the number of reported archaeological sites to get an average of the number of archaeological sites per square mile. The Arizona State Museum reports a total of 73,868 acres (115.4 square miles) have been surveyed

(see Table 2) and 472 sites, including those on Indian lands, have been recorded for a little over 4 sites per square mile. The subarea is approximately 702 square miles, thus as many as 2,808 sites may be within the subarea. State lands represent 47.3% of the subarea and private lands represent 34.8%. U sing an average of 4 sites per square mile and multiplying the state and private land percentage into 2802, indicates that as many as 1,328 sites may be located on state lands and another 977 sites may be on private land. In all, over 2300 archaeological sites could be vulnerable to future developmental pressure by this calculation.

Archaeological sites are not evenly distributed across the landscape; people do not settle on or utilize the land in a uniform manner and therefore some areas will be more heavily used than others. As such, site densities will be lower than the average of approximately 4 sites per square mile in some places and higher in others. Since private lands concentrate along valley bottom adjacent to the Santa Cruz River, among other places, and since proximity to water is a reasonable predictor of where human being have tended to settle in the past, private lands may actually hold more of the archaeological sites in the subarea, with state lands holding fewer sites than predicted. Low survey coverage and bias in survey recording contributes to the problems of this analysis making it no more than an educated guess. Even so, the results suggests the scale of the potential loss in the subarea and the conversely the size of the conservation problem.

The loss of cultural and historical resources and the threat of further loss in the Upper Santa Cruz subarea can be summarized as follows..

Resource Loss:

There are three principal sources of cultural resource loss in the subarea: Mining, farming and urbanization as depicted on the map entitled, **GAP Vegetation with Archaeology Site Locations**. Intensive copper and silver mining on the east side of the Sierrita Mountains has over many years has disturbed approximately 29,000 acres and the cultural resources that they contain. Similarly, agricultural uses of the bottom lands and adjacent terraces of the Santa Cruz River has resulted in additional loss of resources, particularly archaeological sites. There are currently more than 7300 acres of land in agricultural use along the Santa Cruz, stretching from the southern end of Green Valley north to Pima Mine Road, most of which has been modified for development of pecan orchards. Historically, as much as 13,000 acres were in non ranching agricultural use in this same area. The last and most recent phenomenon to affect cultural resources is associated with the process of rapid urbanization that is occurring on both sides of I-19 within Green Valley but also including the communities of Continental and Sahuarita. Data available through Pima County indicates that approximately 15,860 acres in this area are "urbanized" and that this land too is located adjacent to the Santa Cruz River.

Archaeological Survey data along the western flanks of the Sierrita Mountains indicate that two to four sites can be expected per square mile, whereas as many as nine sites will be located in certain locations on the valley bottom adjacent to the Santa Cruz River. It should be noted that surface water was not always available between the area of modern day Continental and San Xavier and so site density would be expected to be lower in this area, perhaps as few as 2 sites per square mile. With this caveat in mind, given the density estimates and the acreage totals of disturbed lands it is possible to make an educated guess about how many archaeological sites have been affected by the combined disturbances of mining, farming and urbanization. At 2-4 sites per square acre, mining has probably affected between 90 and 180 sites. If a range of 2-9 sites per square mile is used for the Santa Cruz River area, for an average of 5.5 sites per square mile, then farming on the Santa Cruz River, has probably affected another 110 sites, and the land use associated with urbanization has impacted another 135. In short, the combined effect of these forces are likely to have damaged or destroyed between 335 and 425 archaeological sites within the subarea.

It is important to note that other kinds of cultural resources, including historic buildings and structures, engineered features, roads, railroads, and trails, have also been impacted over the years by the combined forces of mining, farming, ranching, and urbanization. That it is easier to quantify these effects for archaeological sites does not mean that important historical resources have not been similarly affected by both man made and natural forces. It is certain that the vestiges of the history of life on the Western frontier have also been lost.

Resource Threat:
The greatest threat to cultural resources of all kinds is continued urbanization from both platted subdivisions and unplatted or "wildcat" development of individual lots. The area of principal development pressure is along the central axis of the valley paralleling I-19 and the Santa Cruz River from Green Valley to South Tucson. There are, however, other places in the subarea, such as the Corona de Tucson area to the east and north of the Santa Rita Mountains, that are also experiencing rapid growth and which can be expected to continue to develop in the future.

Since private land can be split into five lots or less and developed without platting under current state law, and state trust land is vulnerable to sale for residential development, cultural and historical resources will continue to be threatened on state and private lands, especially adjacent to area that are already experiencing growth. In unincorporated Pima County, development of unplatted land as individual parcels or in "lot split subdivisions" is not subject to the same environmental regulations, including cultural resources requirements, as formally platted subdivisions. Under these circumstances, cultural resources may be destroyed without first being recorded and no opportunities exist for in place preservation through avoidance. Even in cases where development is subject to full review by the county, cultural resources may be destroyed provided they are first investigated. Thus both platted and unplatted residential growth threatens cultural resources, particularly archaeological sites, but not exclusively. Green Valley is not incorporated and is therefore subject to county development requirements. However, Sahuarita is an example of a community that has incorporated but has not adopted cultural resources protection mandates. Development in this area occurs without cultural resources investigations and thus resources are lost without even been noted.

In reviewing the map entitled, **Archaeological Sites and Land Ownership,** it is worth noting that private land tends to concentrate along the Santa Cruz River in areas both demonstrated to contain high concentrations of archaeological sites and predicted to be archaeologically sensitive. State lands in close proximity to the River are similarly rich and can be expected to be "hot spots" for archaeological sites where ever surface water was available in the past. See for instance the high concentration of archaeological sites on state lands to the east of the San Xavier District. These are the areas that are most threatened by urban expansion and for which cultural resources have the fewest legal protections.

Sensitivity Zone:
Because survey coverage within the subarea is limited (16.4%), the distribution of cultural resources is unknown, thereby making risk assessment and conservation recommendations difficult. In an effort to predict areas with high sensitivity for cultural and historical resources, proximity to water is used as an objective predictor; this assumes that in the desert places closer to water will tend to have been used more heavily by past human populations than places more removed from water sources. The relationship between land use and proximity to water has been alluded to elsewhere in this report and so the following analysis is an attempt to use this relationship as a tool to predict site location within the subarea.

The map entitled **Cultural Resources High Sensitivity Areas** identifies zones within the subarea that are predicted to be highly sensitive for cultural resources. The models encompasses the Santa Cruz River, as

well as spring sites in both the Sierrita Mountains and the Santa Rita Mountains, and areas of shallow ground water along Sopori Creek. Different buffers widths are used for the sensitivity model. The River is buffered by two miles on either side for a total of four miles in width. The springs receive a one mile buffer around them as does the area of shallow ground water. The distribution of known archaeological sites is also provided in this figure and demonstrates that many, but not all known sites are captured within the sensitivity zones as defined. The buffers used are arbitrary and the statistical efficacy of the model is untested, even so this projection provides and idea of where common sense would predict sites to be located.
The buffered areas capture the distribution of known sites along the Santa Cruz River, adjacent to springs in the Santa Rita Mountains, and along Sopori Creek. The model also includes the Historic communities of Continental and Sahauriata, and the ghost town of Helvetia. It does not include all sites or historic resources thereby demonstrating the limit of its utility to predict past land usage. Obviously, proximity to surface water is only one factor that conditioned human behavior in the past. Nonetheless, the model does appear to work with sufficient capacity as a good guess where cultural resources, particularly those associated with habitation, can be expected to be found. Adding tributary drainages along with data on historically exploited mineral resources would contribute to the utility of the model.

IV. SUMMARY: The cultural resources of the Upper Santa Cruz subarea are the product of thousands of years of human settlement from the earliest prehistoric times to the modern day. In that sense, they represent a collective history of this portion of the Valley that can inform and educate future generations about the past. But these resources are non renewable: there are only so many archaeological sites, historic buildings or places with traditional cultural value, and once they are gone there are no replacements. It is for this reason that Pima County has included cultural resources in its planning for the Sonoran Desert Conservation Plan.

This report provides information on known cultural resources within the subarea describing their nature and distribution and attempts to predict where other cultural resources may be found. Clearly, much more is known about the archaeological record than either historic resources or traditional cultural places. This is because more formal study has been directed to the archaeological record, whereas research on historic resources is limited, and ethnographic information on traditional cultural properties is almost completely lacking. It is also apparent that the subarea has received different levels of research attention in different locations over the years. While archaeological survey data indicate that approximately 16.4% of the subarea has been intensively investigated, the focus of this research has been scattered here and there, with little or no data on to connect these areas; thus the picture of land use patterning is fragmented. Despite the low survey coverage, those areas that have been studied suggests that up to 10,000 years of human history is represented in the subarea, and that the peak use of the valley occurred during late prehistory when the subarea was occupied by the Hohokam Indians. Historic uses of the valley for mining, ranching and agriculture contribute to its importance as a place with high scientific, educational and recreational potential, an assessment that is further supported by site density estimates indicating that as many as 2800 archaeological sites may be within the subarea.

The historic communities of Continental and Sahuarita are products of agriculture and ranching respectively, both of which contributed to the rich history of the subarea and which continue to be practiced today. The ghost towns of Olive and Twin Buttes on the west and Helvetia on the east are examples of 19th and early 20th century mining communities that historically were a part of the western mining phenomenon that has contributed so much to the building of the nation.

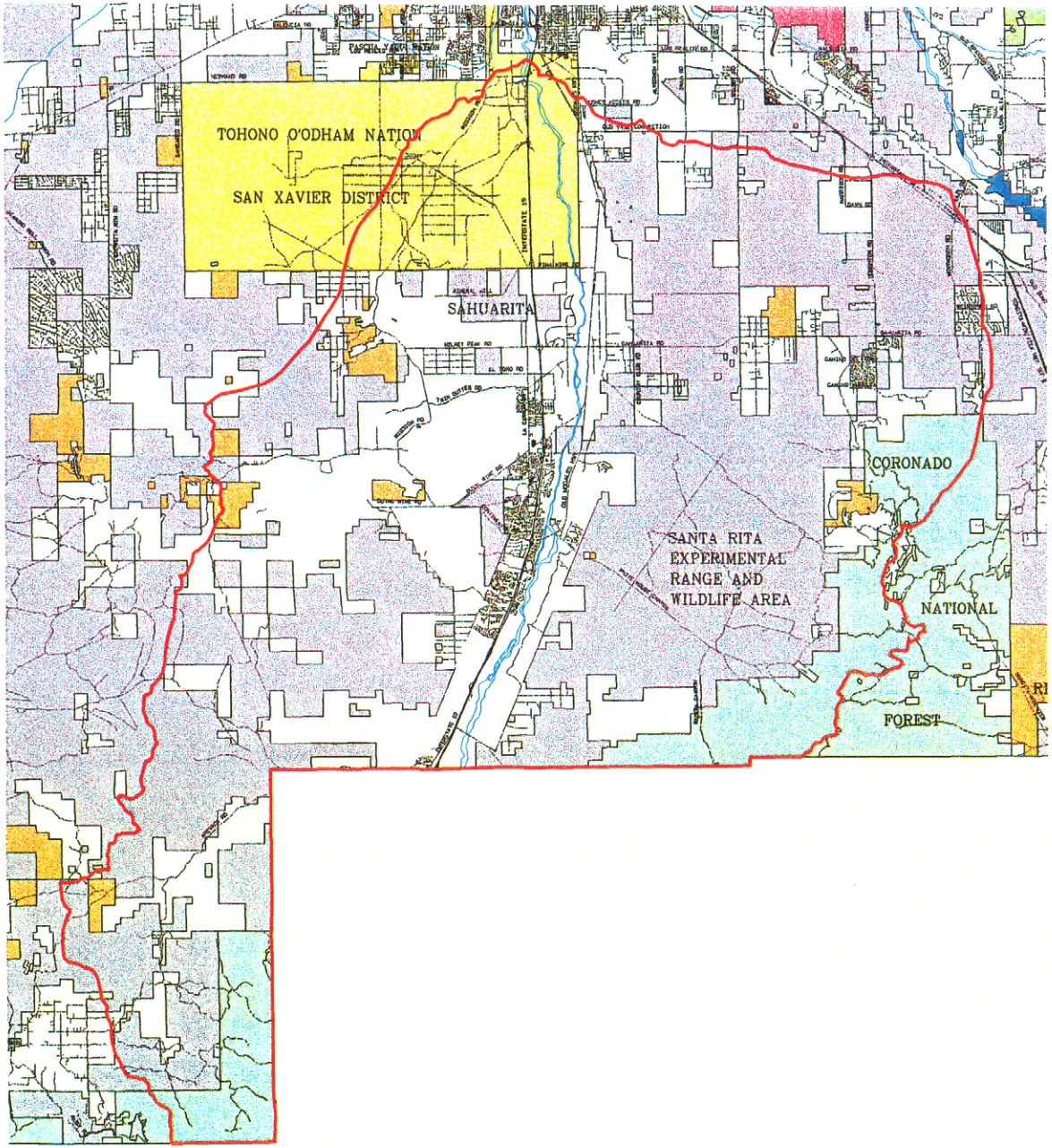
The subarea has a single places that is listed on the National Register of Historic Places for its importance to the historic era known as the "Cold War," a period that historically has just come to a close, but that

influenced many facets of modern American life.

Lastly, Native American claims identify the subarea as part of their traditional use areas and the possibility that places with traditional cultural value exist in the subarea is high, especially those associated with the archaeological record. In short, the subarea, while still mostly unrecorded, has rich record of cultural and historical resources with a high potential for many more resources than are currently known. Since the majority of the Subarea is composed of private lands and state trust lands that are potentially convertible into private lands for development, there is a further need to identify cultural and historical resources, evaluate their significance, and where warranted protect them for future generations.

Modern Communities Transportation And Ownership

SDCP PLANNING UNIT 3



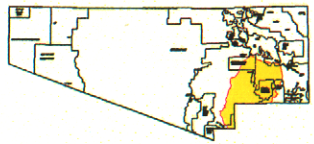
- Planning Unit Boundary
- Major Washes
- Roads
- BLM
- County Park
- Indian Lands
- Military Reservations
- National Forest Lands
- National Parks and Monuments
- National Wildlife Refuge
- Private Lands
- State Lands
- State Park

LAND OWNERSHIP

BLM	7,724	AC
COUNTY PARK	0	AC
MILITARY RESERVATIONS	0	AC
INDIAN LANDS	31,612	AC
NATIONAL FOREST LANDS	41,034	AC
NATIONAL PARKS AND MONUMENTS	0	AC
STATE LANDS	212,745	AC
STATE PARKS	0	AC
PRIVATE LANDS	156,454	AC
TOTAL	449,569	AC

ESTIMATED 2000 POPULATION: 31,030

Pima County Index Map



Index Map Scale 1:1,500,000

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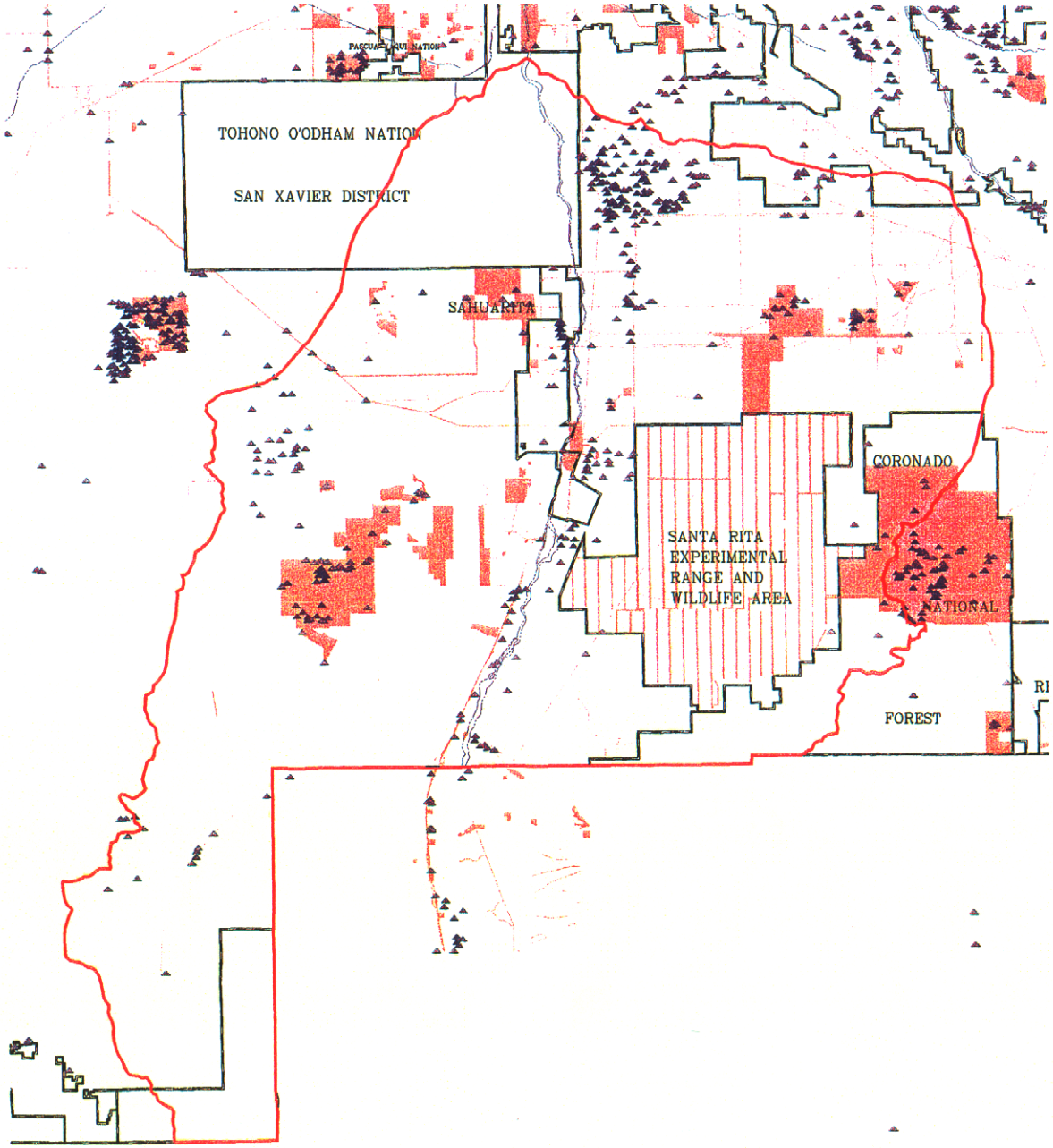
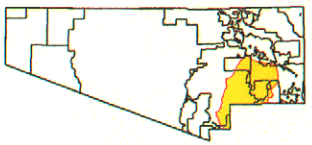
Archaeological Survey and Site Locations



SDCP PLANNING UNIT 3

- Major Washes
- Linear Archaeology Surveys
- Polygonal Archaeology Surveys
- Archaeology Sites

Pima County Index Map



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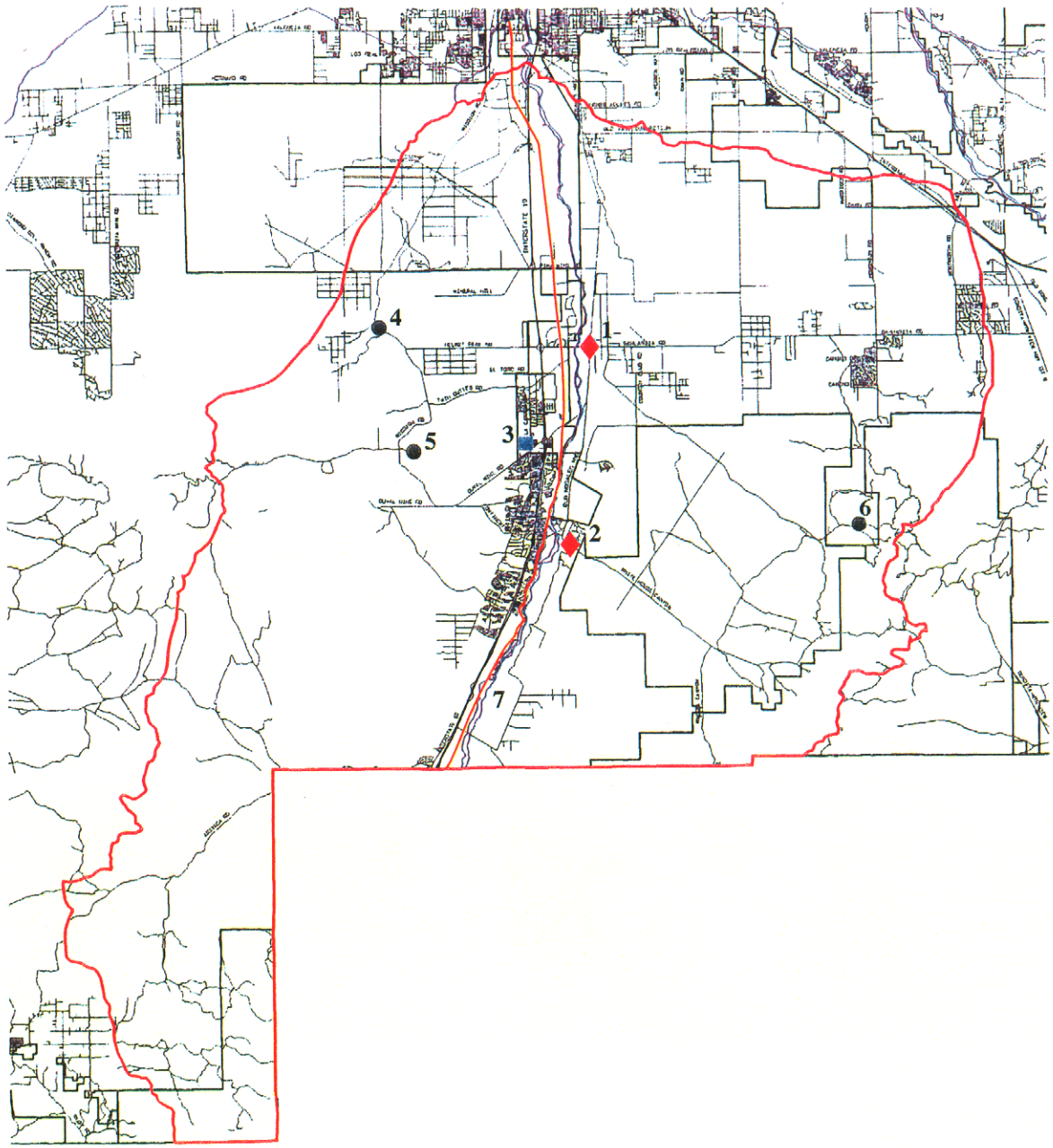
UPPER SANTA CRUZ HISTORIC RESOURCES

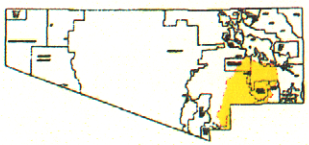


SDCP PLANNING UNIT 3

- Historic Community
- National Register Historic Places
- Ghost Town
- Trail

1. Sahuarita
2. Continental
3. Air Force Missile Site
4. Olive
5. Twin Buttes
6. Helvitia
7. Anza Trail

Pima County Index Map



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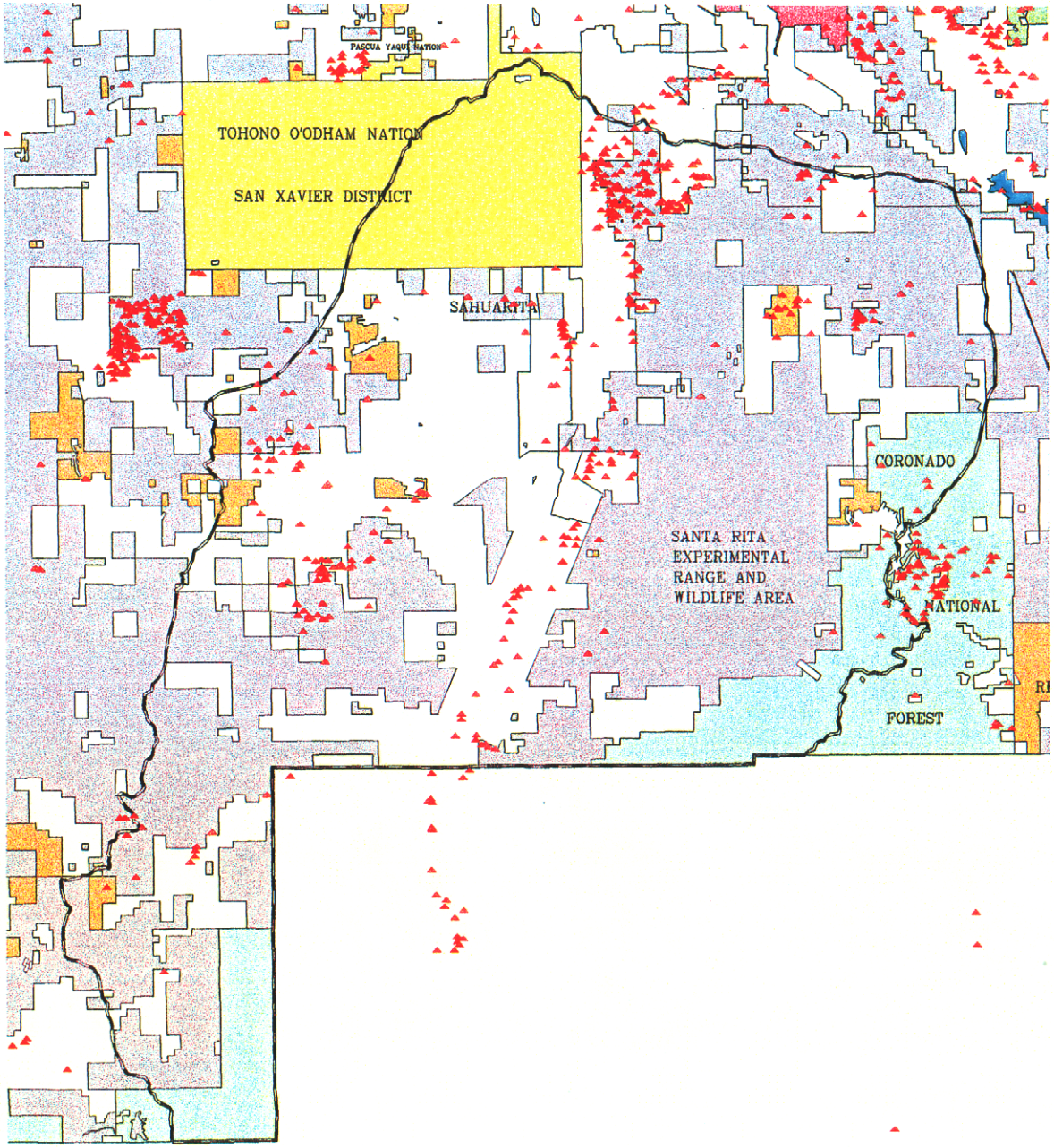


Archaeological Sites and Land Ownership

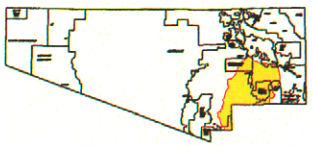
SDCP PLANNING UNIT 3

- Watershed Planning Boundary
- Archaeology Sites
- BLM
- County Park
- Indian Lands
- Military Reservations
- National Forest Lands
- National Parks and Monuments
- National Wildlife Refuge
- Private Lands
- State Lands
- State Park

ARCHAEOLOGY SITES BY LAND MANAGEMENT

JURISDICTION	# OF SITES
BLM	15
COUNTY PARK	0
GOLDWATER GUNNERY RANGE	0
INDIAN LANDS	0
MILITARY RESERVATIONS	0
NATIONAL FOREST LANDS	11
NATIONAL PARKS AND MONUMENTS	0
NATIONAL WILDLIFE REFUGE	0
PRIVATE LANDS	181
STATE LANDS	189
STATE PARKS	0
COUNTY OWNED LAND	0
TOTAL	396

Pima County Index Map



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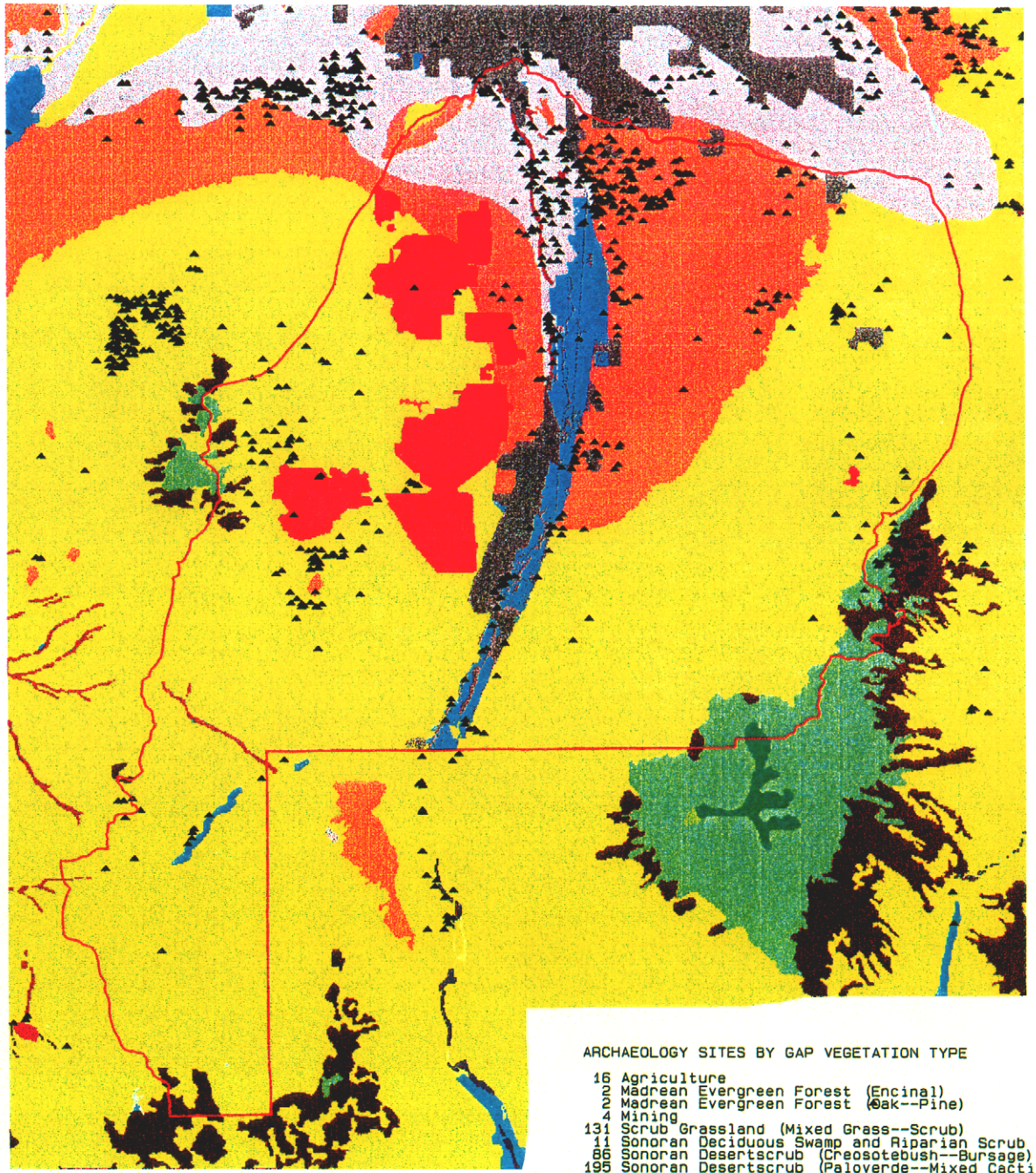
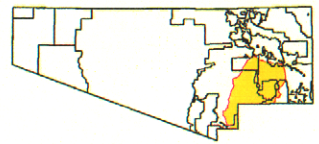
GAP Vegetation with Archaeology Site Locations



SDCP PLANNING UNIT 3

- Archaeology Sites
- Watershed Planning Unit
- Agriculture
- Urban
- Mining
- Chihuahuan Desertscrub (Creosotebush--Tarbush)
- Chihuahuan Desertscrub (Mixed Scrub)
- Chihuahuan Desertscrub (Whitethorn)
- Madrean Evergreen Forest (Encinal)
- Madrean Evergreen Forest (Oak--Pine)
- Madrean Montane Conifer Forest (Douglas-Fir--Mixed Conifer)
- Madrean Montane Conifer Forest (Pine)
- Mogollon Chaparral Scrubland (Manzanita)
- Mogollon Chaparral Scrubland (Mixed Evergreen Sclerophyll)
- Mogollon Deciduous Swampforest (Cottonwood--Willow)
- Mogollon Deciduous Swampforest (Mixed Broadleaf)
- Playa
- Scrub Grassland (Mixed Grass--Scrub)
- Scrub Grassland (Sacaton--Scrub)
- Sonoran Deciduous Swamp and Riparian Scrub (Mixed Scrub)
- Sonoran Desertscrub (Creosotebush--Bursage)
- Sonoran Desertscrub (Paloverde--Mixed Cacti)
- Sonoran Desertscrub (Saltbush)
- Sonoran Interior Marshland (Cattail)
- Sonoran Riparian and Oasis Forest (Cottonwood--Willow)
- Unclassified/Mixed
- Water

Pima County Index Map



Index Map Scale 1:1,680,000

ARCHAEOLOGY SITES BY GAP VEGETATION TYPE

16	Agriculture
2	Madrean Evergreen Forest (Encinal)
2	Madrean Evergreen Forest (Oak--Pine)
4	Mining
131	Scrub Grassland (Mixed Grass--Scrub)
11	Sonoran Deciduous Swamp and Riparian Scrub (Mixed
86	Sonoran Desertscrub (Creosotebush--Bursage)
195	Sonoran Desertscrub (Paloverde--Mixed Cacti)
33	Urban
1	Water

TOTAL OF 481 SITES

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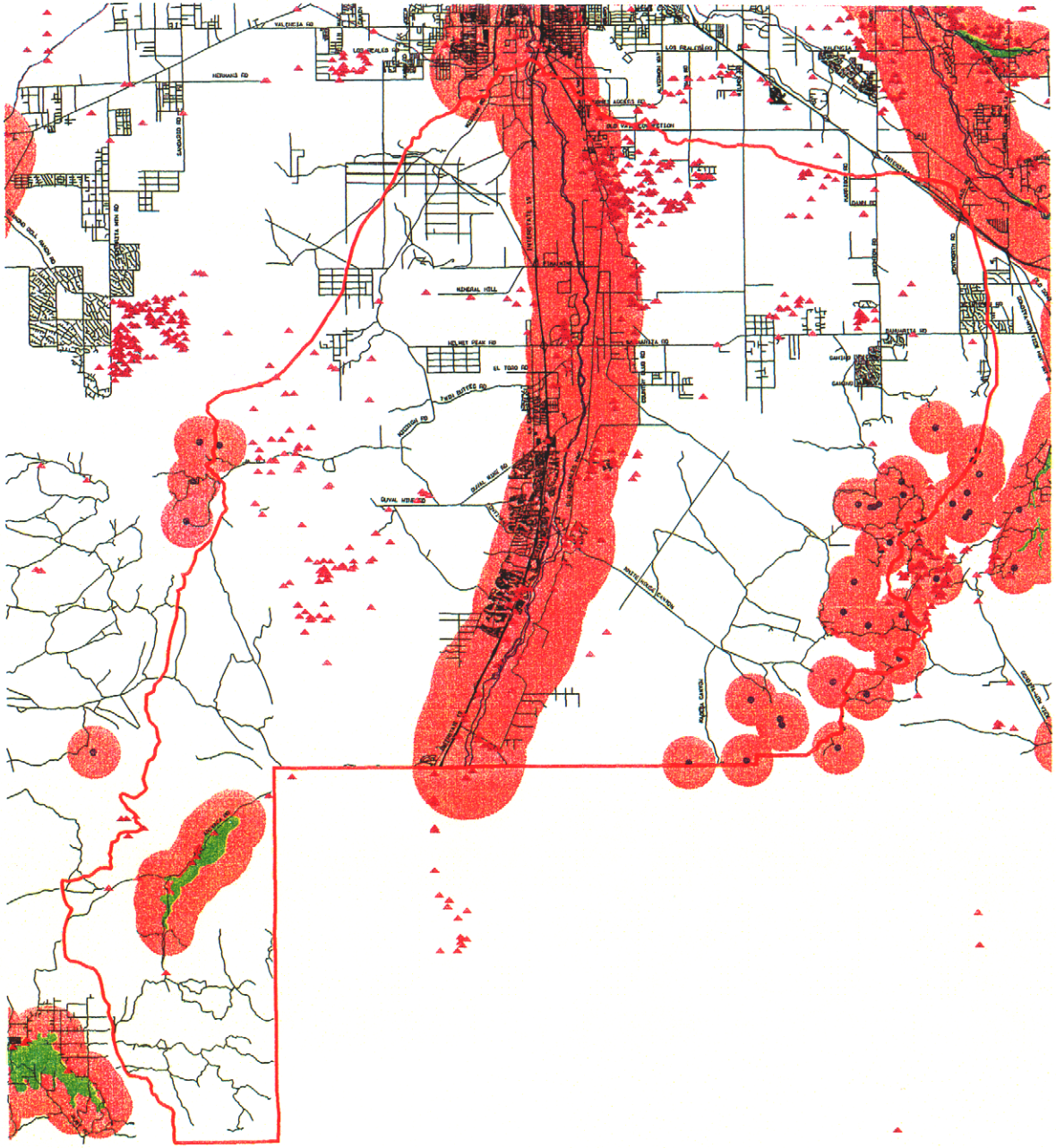


Cultural Resources
High Sensitivity Areas

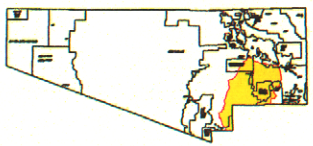
SDCP PLANNING UNIT 3

- Shallow Ground Water
- 2 Mile Buffer - Major Washes
  1 Mile Buffer - Springs
  1 Mile Buffer - Shallow Ground Water
- Streets And Roads
- Major Washes
- Subarea Boundary
- Springs
- Archaeology Sites

STATISTICS FOR UNIT 3

ACRES OF BUFFERED WASH, SPRING, AND SHALLOW FROUND WATER: 112,168 AC.

Pima County Index Map



Index Map Scale 1:1,500,000

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6. Western Pima County

I. SUBAREA: The subarea defines western Pima County extending from the west side of the Tohono O'odham Nation to Pima County's border with Yuma County. The northern border is defined by Maricopa County and the southern boundary runs along the international border. Historically, this is part of the vast western Arizona desert known as the Papagueria that in the southwest corner of the state stretches from the western edge of the Tucson Basin to the Colorado River. This is an extremely arid landscape characterized by low mountain ranges and dry washes that trend in a northwesterly direction. Total rainfall ranges from 3 to 15 inches a year depending on location; overall, the desert become harsher and drier from east to west. The land base is dominated by federal lands, followed by Indian, private, and state land, in descending order as indicated on the map entitled, **Modern Communities, Transportation, and Ownership**. This area encompasses approximately 1,691 square miles.

There are three principle communities west of the reservation: Ajo, Why and Lukeville. These communities are in close proximity to the only private lands in the subarea and are surrounded by lands administered by the National Park Service (Organ Pipe National Monument), the U.S. Fish and Wildlife Service (Cabeza Prieta National Wildlife Refuge, the Bureau of Land Management and the U. S Air Force (the Goldwater Gunnery Range) and the Tohono O'odham reservation as indicated in Table 1 below.

Table IV.6.1
Western Pima County Subarea - Land Ownership by Acres and Percent

Ownership	Acres	Percentage
Bureau of Land Management	174,846	16.1
Indian Lands	104,805	9.7
National Parks/Monuments	327,107	30.2
National Wildlife Refuge	400,487	37.0
State Lands	2,672	0.2
Private Land	13,485	1.2
Goldwater Gunnery Range	58,796	5.4
Other	83	<1
Total	**1,082,282**	**100**

Traditionally, the economy has been dominated by mining and ranching. However, Ajo in particular has become a favored location for over winter visitors and there is a growing residential and commercial sector that is associated with this growth.

II. CULTURAL RESOURCES: This section presents information and analysis of current data on archaeological sites, historic resources and traditional cultural places within the subarea.

A. Archaeological sites

"Archaeological sites are any material remains of past human life or activities which are preserved in their

original setting that are important to understanding prehistory or history. These sites or districts may include occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Archaeologists learn about the past by collecting and analyzing information in two ways: through survey and by excavation. Survey involves inspecting the ground surface in a particular area and recording concentrations of artifacts and features (hearths, roasting pits, pit houses, etc.) as archaeological sites. A site represents the physical remains of past human behavior in a single location dating to one or more periods of use through time. Surveys are often done systematically by groups of archaeologist who walk the land in regularly spaced lines looking for artifacts. Some surveys, however, are judgmental in that archaeologists only look where sites are expected to be found and not elsewhere. In all cases, survey offers an extensive perspective on past land use.

The second kind of information on archaeological sites is gained through excavation. This is the systematic recording, recovery, and analysis of artifacts and features from within a site's limits. Critical information is gained by understanding the spatial relationship of all artifacts and features within a three dimensional context. This enables interpretation about how the site was used, by whom, when, whether the site was used more than once and what happened after it was abandoned. Often, archaeological sites are not fully excavated but are only partially sampled. This saves what is left of the site for future investigations. Archaeological excavation provides highly detained information about the use of one limited spatial area during one or more use episodes. Archaeologist use survey and excavation data together to interpret the past; however, as new information becomes available and as new ideas about the past are developed, this interpretation changes over time.

Previous Research

Previous research in the Western Papagueria can be described within three main periods of time: exploration, modern research, and cultural resources management.

Exploration A.D. 1540 - 1920. The area was explored by Euro-Americans following the Spanish Colonial entrada into what is today southwestern Arizona. Francisco Vasquez de Coronado sent one of his lieutenants, Melchior Diaz, to explore the vast desert westward to the Colorado River in 1540 marking the first time this region was described historically. Later, in 1698 Father Eusebio Kino passed through what is today Organ Pipe National Monument visiting the Indian villages in the area. Kino would make a total of four trips from San Marzelo del Sonoidag to the Colorado River near Yuma and in the process established an important east/west trail known as the "Camino del Diablo."

After Kino's death in 1711, efforts were made to continue the conversion of the native population to Catholicism until the Pima Revolt of 1751. The first prospects for copper and silver ore in the vicinity of Ajo were made around mid century. In 1774, Captain Juan Bautista de Anza used the trail as a means of linking the Santa Cruz River Valley with San Gabriel, California. The dairies of De Anza and Father Juan Diaz and Father Francisco Garces, all written in the later part of the 18th century, noted native settlements and important details of native life that would form the historic basis upon which subsequent archaeological and ethno-historic research would be conducted.

Early Anglo explorer-soldiers passed through the region as well, both before and after the Gadsden Purchase

of 1853, and ruins were reported across the region. In 1894 M. J. McGee of the Bureau of American Ethnology passed through the region as did noted geographer Ellsworth Huntington in 1919-1912. Huntington participated in the Carnegie Institute study of the arid Southwest and saw evidence of extensive prehistoric occupation within the Papagueria. He was followed in 1916-1917 by Kirk Bryan a geologist with the U.S. Geological Survey who recorded details of the environment, history and the people that inhabited the western desert.

Modern Research 1920-1960. Academic and institutional research began in earnest in the 1920s. In 1929 Frank Midvale worked in the area for the Gila Pueblo, a private research foundation. His work defined the western and southern extent of red-on-buff decorated pottery helping to define the spatial and temporal limits of the prehistoric Hohokam culture. Malcom Rogers began exploring the desert of eastern California and western Arizona beginning in 1918. Hired in 1928 by the San Diego Museum of Man, Rogers spent the next 20 years scouring the desert lands. In the process, he defined another of the region's main prehistoric populations, the Patayan, ancestors of the Yuman speakers of the Lower Colorado River.

During the 1930s, Bryan Cummings, head of the Anthropology Department at the University of Arizona, visited and recorded archaeological sites in the Papagueria and in 1938, Emil Haury also of the U of A., initiated the "Papagueria Project" to explore the western extent of the Hohokam people. It was during this research that he defined the stratigraphic relationship between the Hohokam and their Archaic Period predecessors at Ventana Cave. He also coined the terms "river" Hohokam and the "desert" Hohokam to describe two different adaptations by essentially the same people. Paul Enzell of the National park Service and later the Arizona State Museum worked in the region between 1947 and 1952 and discovered a break in the distribution of prehistoric pottery types in the vicinity of the Growler Mountains, west of Ajo, defining the boundaries between the Patayan people and their contemporaries, the Hohokam.

This work was followed in the 1950s by research conducted by Julian Hayden in the Sierra Pinacate region of northern Mexico, where lacking any other means of dating, he used "desert varnish" or the patina that builds up on the exterior of rocks in the dessert over time as relative dating technique. Lastly, Bernard Fontana conducted archaeological research within the Cabeza Prieta Game Range (now National Wildlife Refuge) on a project funded by the Papago (Tohono O'odham) Indians to determine the extent of the tribe's presence in the area.

Cultural Resources Management 1960-2000. Environmental laws passed in the 1960s and enforced beginning in the early 1970s changed the nature of archaeological and ethnographic investigations in the subarea by requiring that federal agencies conduct research in advance of actions that may affect cultural resources that are eligible for listing on the National Register of Historic Places. The resulting effect on the subarea and federal lands in the surrounding region dramatically increased the number and scale of survey projects in particular. The Air Force has been especially active in conducting archaeological surveys on land that they administer beginning in the 1970s and continuing to present day.

The Barry M. Goldwater Bombing Range is an area of approximately 4163 square miles that includes portions of Maricopa, Yuma and Pima County. The Cabeza Prieta Wildlife Refuge is also used for flyover as a part of training missions. The range has seen 100s of archaeological surveys over the years ranging in size from half an acre to over 15,000 acres. Hundreds of archaeological sites have been recorded spanning the Archaic, Ceramic, and Historic Periods ranging from ancient campsites to mining prospects. A sophisticated computer data base has also been developed to help manage information on 10,000 years of human occupation in the Papagueria. Ironically, of all the sites that have been recorded during survey, only three projects have involved excavation to any degree. As a consequence, data on the archaeological record

is almost completely two-dimensional.
The National Park Service has also conducted survey work within Organ Pipe National Monument in order to meet their obligation to manage the cultural resources under their administrative control. A judgmental survey was conducted within the Monument between 1989 and 1991 to provide a sample of what is within the Monument's boundaries. This involved inspecting places in close proximity to water where archaeological sites were expected, as well as, areas a mile or more away from water where fewer sites were predicted to be found. The survey resulted in the recording of 178 archaeological sites within 7,675 acres. This too produced sites spanning many thousands of years of time including temporary camps for procuring food and making tools, small habitations, and prehistoric trails, as well as historic ranching sites and mining features. Additional surveys since then have contributed to the survey coverage such that approximately 7800 acres of land have been inventoried for cultural resources representing about 2% of the Monument's land area.

The BLM reports that less than one percent of the land under their control has been surveyed, mostly in response to permit applications to mine gravel. Approximately three dozen archaeological sites from all time periods are known within the 175,000 acres that the agency manages. Survey within the Cabeza Prieta National Wildlife Refuge is represented by fewer than a dozen projects conducted between 1965 and 1994. Only a few sites have been recorded during these inventories, which collectively cover only a tiny faction of the area. Cultural resources on private lands have been similarly limited to a few instances where Pima County development requirements have mandated investigation as part of rezoning land or as a part of grading approval in advance of construction.

Exploration, academic research, and modern day cultural resource management have resulted in a limited understanding of the human occupation of the subarea spanning the last 10,000 years. The extreme conditions of the land and its vastness have not attracted as many researchers as other more pleasant places to work. Those areas that have been explored have largely been the subject of research because of the military's need for environmental clearance and not because of the needs of academic research projects. As a consequence, the picture of the past is distorted by how we have come to learn about it. Despite this limitation, it can be said that the subarea has been occupied by human beings over the past 10,000 years or more and that uplands settings in the mountains appear to have been favored over other locations.

Survey data

Archaeological survey is the first step in characterizing the nature, age and distribution of archaeological sites within an area like the Western Pima County subarea and there are two different kinds of survey that archaeologists typically perform: Linear surveys and block surveys. Linear survey involves inspecting a right-of-way for construction of a road, sewer line, telephone cable or other linear feature. These surveys tend to be done in compliance with legal mandates requiring environmental studies during project planning. Block survey involves examining non-linear properties ranging in size from a few acres to 1000s of acres. These are typically done either in compliance with legal mandates, or through academic or preservation related research projects like those discussed above.

Survey data for the subarea is not currently available through the Arizona State Museum data base. This is because the different federal agencies within the subarea have historically maintained their own records and have not provide them to the Museum or any other central repository. Second, the information that the Museum does have in the form of reports and paper maps has not been entered into their computer data base. It is fair to say, however, that based on what is known about cultural resources research in the subarea, only a very small percentage of the total area has ever been formally investigated, perhaps as little one or two percent.

Site Data - Chronology

Table 2 presents information on the number of prehistoric sites in the subarea by time period as reported by the Arizona State Museum. Much of this data comes from research within Organ Pipe National Monument.

Table IV.6.2. Western Pima County Subarea - Prehistoric Archaeological Site Data by Time Period					
TIME PERIODS	**PaleoIndian** 12,000 B.C. - 8,000 B.C	**Archaic** 8,000 B.C.- A.D. 200	**Ceramic** A.D. 200- A.D. 1540	**Unknown**	**Total**
Site Counts	0	22	160	155	**337**

While no sites dating to the PaleoIndian Period have yet been reported in the subarea, Ventana Cave on the Tohono O'odham Nation contains evidence of occupation dating to this time period. The term "PaleoIndian" describes the earliest period of human occupation in the Americas. This was a time following the end of the last ice age when the environment was cooler and wetter than it is today. Many species of now extinct animals including mammoth, horse, camel, bear, bison, and lions lived during this period. Numerous archaeological sites found in the west indicate that hunting these large animals was an important part of the subsistence of PaleoIndian people, and as such, archaeologists refer to them as "big game hunters." While very little is known about these people, it is believed that they lived in small groups or bands by hunting and gathering wild foods as they became seasonably available throughout the year. Archaeological evidence suggest that they were highly mobile covering thousands of square miles in a year as they moved across the landscape. Early in the succeeding Archaic Period, the environment became warmer, the large game animals disappeared, and modern plant and animal species were established.

The Archaic Period is represented in the subarea with 22, which cannot be more accurately dated based on survey data. The Archaic Period represent a time span of almost 8000 years during which human beings adjusted their way of living in response to new environmental conditions. In order to survive, people became generalists in their subsistence practices, hunting and gathering a wide variety of plants and animals and becoming more efficient in how they processed their food as indicated by the presence of grinding stones found on sites of this period. Again, people appeared to have lived in small groups by hunting a gathering wild plants and animals over large areas through a seasonal round. Sites from the early and middle parts of the Archaic are rare in southern Arizona suggesting low population levels in response to the unfavorable environmental conditions believed to exist at that time; however, toward the end of the period several significant changes occurred in southeastern Arizona laying the foundation for subsequent cultural development. First, the environment stabilized by 4500 years ago approaching modern conditions by that time. Second, population levels appear to have increased and some evidence suggests that people roamed within more restricted territories as a result. Third, by approximately 3500 years ago, people began to experiment with growing their own food as a supplement to their diet. This change also co-occurred with more permanent settlement along well watered reaches of the major drainages in the region. In the western desert, however, there is no evidence to indicate that people there participated in the origins of agriculture and instead continued to hunt and gather their food as always.

A total of 160 sites dating to the Ceramic Period are known within the subarea suggesting population increase in the subarea during this time in prehistory. The Ceramic Period covers the time between the adoption of ceramic technology in the third and fourth centuries after Christ to the end of the prehistoric sequence around

AD. 1540. It was during the early part of the period, between approximately A.D. 200 to A.D. 700, that Archaic Period populations completed the transition from mobile hunting and gathering to settled, village based, agricultural existence in southern Arizona and elsewhere. There are three ceramic bearing prehistoric cultures that lived in and utilized the western Pima County subarea: the Patayan, the Trincheras, and the Hohokam, all of whom were contemporaries. The Hohokam emerged as a distinct culture in the eighth century and dominated central and southern Arizona until around A.D. 1450. They flourished along the river valleys of southeastern Arizona, but were also well adapted to the desert lands to the west. They lived in settled, permanent villages, grew their own food using irrigation and dry farming techniques, developed a rich ceremonial life, and traded extensively with their neighbors throughout the region. These are the "river Hohokam" as defined by Emil Haury. To the west, however, archaeological evidence indicates that Hohokam populations in the Papagueria practiced flood water farming supplemented by hunting and gathering wild foods. Haury called these people the "desert" Hohokam who appear to have had ties to Hohokam population centers in the Gila Bend area as well as in the Tucson Basin. One of the main differences between the two Hohokam groups is the lack of public architecture (ball courts, platform mounds) on sites occupied by the desert Hohokam. A period of environmental instability during the A.D. 1300s is believed have weakened the agricultural economies of the Hohokam to the point where they were no longer able to produce food in sufficient quantifies and with enough consistency to support large populations and the culture collapsed around AD. 1450. The Hohokam are believed to be the ancestors of the Pima speakers including the Tohono O'odham

The Patayan lived to the west of the Hohokam occupying much of the western Arizona Desert from Ajo and Gila Bend to the Colorado River northward to the Grand Canyon between A.D. 600- AD. 1850. Very little is known about this group. What is known suggest that the Patayan practiced a diverse economy traveling through riverine, lowland and uplands areas, growing corn and other crops where circumstances permitted, and otherwise gathering wild foods according to seasonal availability. The Colorado River provided access to fish, waterfowl and soil and water to grow crops, whereas the uplands provided game, pinon nuts and agave. They lived in small dispersed settlements; however, larger communities were established along the Colorado River. Their distinctive pottery is found on western Hohokam sites suggesting considerable contact and interaction between the two cultures. It is believed that the Patayan were the ancestors of the Yuman speakers who historically occupied the Lower Colorado and Gila Rivers, as well as, the Upper Colorado River area.

The Tincheras culture was primarily Mexican in origin and has been identified on sites in the Altar Valley of Sonora and areas to the south. Sites of this culture have been dated from approximately A.D. 600 to A.D. 1690. The Trincheras people also practiced agriculture, lived in distinctive hill side communities, produced an easily recognized purple on red decorated pottery that is found on sites throughout the region indicating trade and exchange with the Hohokam and the Patayan.

Following the collapse of the Hohokam in A.D. 1450, the region is believed to have been occupied in very low numbers by an O'odham (upper Piman speaking) people whose settlement and subsistence practices reflect a return to an earlier, simpler way of living. Life continued to involve the cultivation of crops supplemented by hunting a gathering, but the level of technical sophistication and social and religious cohesion characteristic of the Hohokam is missing in these later populations. These people are believed to be the descendants of the Hohokam, but are recognized as separate culture groups. Archaeologists know very little about the period that represents the end of the Hohokam and the beginning of the Spanish Colonial presence in southern Arizona. It appears to have been a time of flux when the vacuum left by the disappearance of the Hohokam was filled by groups that by the 17th and 18th centuries the Spanish recognized as Quechan and Cocopa and other Yuman speakers of the Lower Colorado and Gila Rivers, the Hia C-ed

O'odham (Sand People), the Tohono O'odham (desert People) who occupied the arid Papagueria, and the Sobaipuri of the Santa Cruz and San Pedro River Valleys to the east

Several sites dating between the time following the Hohokam collapse and the beginning of Spanish settlement are known in the Tucson Basin and the San Pedro River and several more have been reported in the Ajo Range and along the Santa Rosa Wash within the subarea. Organ Pipe National Monument reports a small number of O'odham sites dating to this time period and a few more sites of unknown ethnic identity are known from the State of Sonora in Mexico. The one characterization that is true of all of these areas is just how little physical evidence there is for this time period. Most of what is known comes from the accounts written by Spanish explorers who entered into the region in the 16th 17th and 18th centuries.

Table IV.6.3.
Western Pima County Subarea - Historic Archaeological Site Data by Affiliation

Euro-American	Mexican	Tohono O'odham	Hia-Ced O'odham	Unknown	Total
26	**3**	**30**	**1**	**1**	**61**

Table IV.6.3 presents archaeological data on the Historic Period, spanning the years between A.D. 1540 and 1950. The historic period covers that time during which Euro-Americans entered into the southwest region and established permanent settlements beginning with Santa Fe in 1610 and later in Tucson in 1692. As mentioned above, little is known of the Native American Population until Father Eusebio Kino established his mission in the Santa Cruz and began to explore the region. Historically, the Tohono O'odham lived in small, dispersed settlements or *rancherias* consisting of circular, dome houses made of mesquite saplings, course grasses, ocotillo stalks and saguaro ribs covered with dirt. They were agriculturalists who followed a dual settlement pattern where during the summer the settled in the lower bajadas of the river valleys to plant and in the winter moved to the upper bajadas near springs to hunt. They also used cactus camps to harvest saguaro fruit in the summer. This is the pattern of life that Kino and others described when visiting with the O'odham, a pattern that continued into the late 19th century.

Three major forces influenced Euro-American use of the region: travel, mining and ranching. As mentioned, the Camino del Diablo was established as an important east west trail early in the history of Spanish occupation in the region. A second north south route was also used during the 18th and 19th centuries that started in Sonora and followed the Quijotoa Valley to settlements along the Gila River. While copper and silver deposits in Ajo were well known to the Spanish by the mid 18th century, Anglo-American efforts to make the Ajo mines produce didn't begin until 1854 and focused initially on the limited silver deposits. After that time, copper ore was mined at Ajo but had to hauled by wagon to the Colorado River, a venture that quickly proved prohibitively expensive. It wasn't until 1916 that a rail link was established between Ajo and Gila Bend that the mines in Ajo were able to produce copper in large, commercially viable quantities. Copper mining boomed throughout Arizona during the First World War, but later suffered terribly during the depression years of the 1930s. The Second World War revived the local economy, which once again slumped in the 1950s with a downturn in world copper prices; this boom and bust cycle continues to effect the fortunes of the community of Ajo.

Ranching too followed the Gadsden purchase with ranches being established in the mid to late 19th century. Of necessity, ranching tended to concentrate around sources of dependable water. One of the most successful ranchers in the subarea was Thomas Childs, Sr, who following the Civil War, established a large ranching

operation out near Ajo that eventually extended from Ajo to Gila Bend and west to the Mohawk Mountains. By the early 20th century, other ranchers had moved into the subarea. To the south, Robert Louis Gray and his three sons, established a large ranching operation involving 15 properties within the area that is today Organ Pipe National Monument. The Gray Ranch was in operation from the 1920s to the 1970s. Homesteading also occurred, but the lack of water together with the severity of the climate made this a risky venture despite changes to the Homestead Act of 1862 that expanded the acreage homestead claims.

Before the end of the Second World War, the department of defense began to develop military bases and training facilities in southern Arizona, which were greatly expanded as the United States entered in the "cold War" from 1945 to 1989. The Barry Goldwater Bombing Range, established in 1986 as a part of Luke Air Force Base, is a direct result of the geo-political forces that have shaped the modern world.

Sixty-one Historic Period sites have been identified in the Western Pima County subarea as presented by the Arizona State Museum. Most of these data were collected within the Organ Pipe National Monument. Twenty-six are Euro-American, three are Mexican American in ethnic origin, 30 have been identified as Tohono O'odham, one is believed to be Hia C-ed O'odham and one is unknown. As mentioned, extremely low survey coverage, the greater visibility of some sites and not others, and a lack of research interest in the archaeology of the historic time period distorts the true picture of historic period land use in the subarea. It is notable, and to be expected, that the largest number of sites identified as O'odham in any subarea in Pima County should be in this subarea, which is a part of the traditional use lands of the Tohono O'odham people.

Despite the scarcity of data, it is apparent that the Western Pima County subarea has much more to offer in the study of long term human adaptation to desert environments. It is also apparent that jurisdictional responsibilities have in the past lead to a failure to share information in a way that could facilitate comprehensive analysis of all that is known of the region. While past academic research has pointed in a number of interesting directions, the dictates of cultural resources management have taken over, and as such, little research is being done that is not directed by either management needs or development.

Site Data - Function

The site data from both the historic and prehistoric eras can also be examined from a functional perspective to highlight land use trends within the subarea. The following is a summary of archaeological site data for the subarea that is presented by gross time period and site function. These data are made available by the Arizona State Museum, University of Arizona.

Table IV.6.4. Western Pima County Subarea Archaeological Site Data by Time Period by Site Function					
PERIOD	**Prehistoric**	**Historic**	**Both**	**Unknown**	**Total**
FUNCTION					
Agriculture	2	2	0	0	**4**
Art	6	0	0	1	**7**
Defense	0	0	0	2	**2**
Disposal	1	1	0	0	**2**
Government	0	0	0	0	**0**
Habitation	24	9	0	0	**33**
Resource Processing	33	1	0	2	**36**
Resource Procurement	17	10	0	3	**30**
Religion	2	7	0	0	**9**
Storage	1	0	0	0	**1**
Transportation	9	3	0	1	**13**
Unknown	242	28	0	36	**306**
Total	**337**	**61**	**0**	**45**	**443**

The site counts presented in Table IV.6.4 show that prehistoric sites out number the historic by more than five to one; none of the reported sites had occupations from both major time periods are present on the same site. The prehistoric site counts are dominated by Resource Processing (food and non food resources) and Habitation (residential) as the most common of the identifiable site functions. Resource Procurement, such as a hunting blind or a rock quarry are third in frequency. Transportation, which includes trails and roads, is usually a site function that is associated with historic period occupations; however, in this case, the region is known to be cris-crossed with trail systems that were developed and used in prehistoric times. Nine such trails are recorded . Six sites functionally categorized as Art (rock art) are present; sites with a religious or ritual function are represented by two sites as are sites associated with agriculture. Storage uses and trash disposal are represented with one site each. As is the case in the other subareas in Pima County, the largest number of prehistoric sites cannot be functionally identified based on survey data.

The historic sites emphasize resource procurement (11) and residential (10) uses in almost equal numbers. Its interesting to note that seven sites are identified as having religious functions, which proportionably is very high, much higher than prehistoric sites with the same function. Sites of this nature include shrines as well as graves. Transportation functions (roads and trails) are represented with three sites. Site counts for Agricultural uses (2), trash disposal (1) and Resource Processing (1) are last. Since half the Historic Period

sites are O'odham in ethnic origin, the functional breakdown presented above reflects a high degree of use by Native Americans, thus it is notable that so few sites are functionally identified as Resource Processing. It may be that some of the 36 sites that temporally and functionally unknown include sites associated with Historic Period Resource Processing.

Of all sites from both the prehistoric and historic time period, the data presented in Table 4 indicates that site use within the subarea is dominated by Resource Processing at 36 sites. Residential needs are represented by Habitation sites and is the second highest site function by count (33), followed by Resource Procurement with the third highest frequency of sites (30). The site counts for Transportation (13) and Religion (9) have very high proportional representation in comparison with other subareas and perhaps reflect a different reality to life in the desert. The counts for sites with functions associated with Art (7), Agriculture (4), Defense (2), Disposal (2) , and Storage (1) finish out the site data.

To sum the information on archaeological sites, the Western Pima County subarea suffers from a lack of archaeological attention and only a fraction of the area has witnessed intensive archaeological survey and even less site excavation. Because of this temporal and spatial patterning can only be guessed at. Nonetheless, the following statements can be made based on the archaeological record: 1) It is evident that human beings have occupied the subarea for many thousands of years, with a peak occupation occurring during the period between approximately A.D. 800 and A.D. 1450; 2) Three district cultural groups lived side by side and interacted with each other during this time period; 3) certain parts of the landscape have been more heavily utilized than others particularly the uplands of the regional mountain chains where water and certain plant communities co-occur; 4) the predominant use of the landscape relates to procuring and processing food and non food resources and meeting residential needs.

B. Historical Resources

"Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Historical resources are largely constructed or engineered elements of the built environment including buildings used for residential purposes, such as houses, but also commercial stores, industrial facilities, civic centers, and places of worship. Roads, bridges, irrigation canals, mining works, and railroad tracks are also historical resources. Information on these places is recovered through drawings and design plans, photographs, maps, surveys, and personal recollections.

The Western Pima County subarea has a number of places of historic importance including occupied historic communities, abandoned settlements or ghost towns, places that have been recognized for their historic value and registered on the National Register of Historic Places, and a historic trail. These are represented on the attached map entitled, **"Western Pima County Historic Resources."**

Historic Communities: Historic communities are those settlements that were established 50 or more years ago as indicated by either a founding date or the date the post office was first opened. Unless otherwise indicated, the following descriptions are derived from"Arizona's Names" by Byrd Howell Granger, The Falconer Publishing Company, 1983.

- Ajo: Ajo is a copper mining town that formed around one of the oldest mines in the state having been

worked continuously since 1855. The name Ajo means "garlic" in Spanish, which was bestowed on the settlement in 1854 for the garlic like plants that grow in the area. Historically, the mines were worked off and on during the later half of the 19th century, starting first with silver ore and then switching to copper. During these years, the mining was limited by the high cost of transporting ore by wagon to the Colorado River. Ore reduction became feasible in the early 1900s and the New Cornelia Copper Company was formed to take advantage of this technology. After a rail link was established between Gila Bend and Ajo in 1916, copper production boomed. Busts followed during the Great Depression years with another boom-bust cycle starting with the Second World War and the years that followed. The mines at Ajo have been silent since 1984; however, winter tourism has gained increasing popularity bringing with it economic benefits to the community.

Ajo is also notable as an example of a planned community built by the Calumet and Arizona Mining Company. In 1914, John C. Greenway, General Manager of the mine, hired several architects to design and build a town for the company's employees. The plan, inspired by the"City Beautiful" movement of the early 20th century, incorporated landscaping, public facilities and high quality housing to create a pleasing aesthetic for the miners and their families. The company believed in the progressive notion that happy workers are productive workers and this is reflected in the care and attention that was put into this massive project. The town site was dedicated in 1917 and built out through a series of phases over the next 30 years. The historic core of Ajo is currently being nominated to the National Register of Historic Places (See "Ajo: A Model Company Town, Architectural and Historic Context of a Planner Community in Arizona," prepared by Janet H. Stittmatter, Inc., 2000.)

- Childs: Thomas Childs arrived in the Ajo Valley in 1884 and by 1890 he and his son Tom Childs, jr. had gone into ranching. By the early years of the 20th century the Childs family owned a ranch that stretched from Ajo to Gila Bend and west to the Mohawk Mountains, making it one of the largest ranching enterprises in the region. The community is named after these enterprising ranchers.

Ghost Towns: Many communities became established and thrived only to be abandoned. These places were typically mining towns, or in some cases, milling towns, that thrived until economic forces eliminated the driving force of their existence. Established during the later part of the last century and early 20th century, these places remain time capsules that reflect by-gone eras. Known ghost towns in the subarea are listed below. The following descriptions are derived from "Ghost Towns of Arizona" by James E. and Barbara H. Sherman, University of Oklahoma Press, 1969.

- Clarkstown: Opposition to the company owned town in Ajo lead Mr. Sam Clark to stake out a new town site near the copper mine reduction works. However, the company would not sell water to the new community and so the residents deepened a test shaft to access water. By 1917 Clarkstown (or Clarkston) had 1000 residents. Residents wanted to name the community Woodrow, but this was rejected by the Post Office Department, and so for a time the community was known as Rowood (Woodrow spelled backwards). In 1931, the town was virtually destroyed by fire and the residents moved to Ajo.

- Gunsight: In November of 1878, the Gunsight Mine was located by prospectors and named because it was near a mountain that looked like a gunsight. It proved to be rich in silver ore. Miners attracted to the new operation formed the Gunsight camp. By 1892 the mine was producing under the Silver Gert Mining Company. Forty men were employed and eight buildings were constructed. The post office opened in 1892 and was closed four years later in 1896.

National Register Properties: The National Register of Historic Places were created as a part of the National

Historic Preservation Act of 1966. It is the nation's premier honor roll for places deemed of national, regional, or local importance. The criteria for listing include a) association with a person who has contributed to history; b) association with an event important to history; c) associated with the work of a master artist or craftsman or typical of a style or type of workmanship; d) yielding or having the potential to yield information important to history or prehistory. Listing in no way effects the rights of private property owners to do what they wish with their property. Federal agencies; however, are required to consider the effects of their actions on listed properties. The following descriptions are derived from individual National Register nomination forms available at the State Historic Preservation Office in Phoenix, Arizona

- Bates Well Ranch. This is the ranch owned by Henry Gray, son of cattleman Robert Louis Gray. The ranch house is the primary building at Bates Well and is representative of the Early Transitional, Sonoran to Anglo, style of architecture dating to the 1930s and 1940s. Other buildings are included including a hay barn/bunkhouse, a tack house, an blacksmith shop and two corrals. Henry was one of three sons of cattleman Robert Louis Gray, who ranched within what is today Organ Pipe National Monument. The property was listed on the National Register in 1994 (not shown on the Historic Resources Map).

- Bull Pasture. This grassy basin located in the upland of the Ajo Mountains is the site of a natural water hole or tank. Known as the " Tinajas de los Torres," it is significant for its prehistoric archaeological deposits representing thousands of years of visitation by desert dwelling Indians in the region. It was also used by ranchers to water their cattle in the early 1900s and by the U.S. military during the Mexican border crisis of 1915-1917. Today, the site is within the Organ Pipe National Monument. It was listed on the National Register in 1978 for its association with historic and prehistoric settlement in the area.

- Dos Lomitas Ranch. This is the name given to the main ranch owned by Robert Louis Gray, Sr., and is a good example of 1920s vernacular architecture associated with in the Sonoran Tradition. Gray was an important figure in cattle ranching in the southern part of the subarea. The property is within Organ Pipe National Monument and was listed in 1994 (not shown on the Historic Resources map).

- El Camino del Diablo. This historic trail follows a series of tinajas or water holes along a route stretching from northern Mexico to California. It was first traveled by father Eusebio Kino between the years 1699 and 1702 and was subsequently used by a variety of people including Juan Bautista de Anza, Captain of the Tucson Presidio, who in 1774 traveled along the route in his quest to find a land route to California. Later, the route was used in the 1840s and 1850s by miners on their way to the gold fields of California. While treacherous, it provided an "Apache free" corridor to the west; as safer and shorter routes were opened, the trail was abandoned. Today, portions of the trail are located within the Cabeza Prieta Wildlife Refuge and follows the International Boundary between Mexico and the U.S. It was listed on the National Register in 1976 for its historical associations.

- Gachado Well and Line Camp. Located close to the U.S. Mexican border, the Gachado Well and Line Camp is a representative feature of the development of the ranching industry in southwestern Arizona early in the 20th century. The well, named for the Spanish word to "stoop"(agachado), was dug between 1917 and 1919 by Lonald Blankenship, an early rancher in the area; it is possibly the location of a natural spring based on claims made by the Tohono O'odham Indians. In 1919 the property was sold to Robert Louis Gray, who ranched the area during the 1930s. Gray built an adobe house and a corral at the site. In later years, the house served as a line camp where cowboys stayed while attending cattle. The Gray ranch lasted from the 1920s to 1976. Today the well and line camp are within the limits of the Organ Pipe National Monument. The site was listed on the National Register in 1977 for its significance to

regional history

- Growler Mine. Also located within Organ Pipe National Monument is the Growler Mine. This mine represents one of the earliest and most extensively worked copper mines south of Ajo, Arizona. It was named in the 1880s and by the 1890s a small community had developed nearby called Growler Camp. High grade copper ore was extracted in large quantities beginning in the early 20th century. Production peaked in 1916 and was closed by 1928. The mine and related buildings and facilities was listed on the National Register for its association with the history of mining in the region in 1978 (not shown on the Historic Resources Map)..

- Milton Mine. This mine is a surface mine located just north of the Mexican border in the Puerto Blanco Mountains. The property consists of an open trench dug into the natural rock to expose gold and copper ore. The cut is about 30 feet deep and 300 feet long and is representative of a simple form of mining used in the early years of the 20th century. It was used off an on between 1917 and the 1960s. Today, the mine is located within the limits of Organ Pipe National Monument. It was listed on the National Register of Historic places in 1977 for its association with historic mining practices of the early 20th century.

- Victoria Mine. This mine is one of the oldest known examples of mining activity in the country immediately adjacent to the U.S. Mexican border in southwestern Arizona and symbolizes one of the first American enterprises to penetrate this part of the Sonoran Desert. Known for its rich silver deposits, the mine was discovered around 1880 and worked off and on by various owners until 1941. The site contains ruins of the mining operation including the remains of a store, a cistern, head frame timbers, and a large shaft hole. Today the mine with within Organ Pipe National Monument. It was listed on the National Register of Historic Places in that 1977 for its association with historic mining.

Trails: In many places historic and prehistoric trails crossing the landscape often become the basis for historic roads and modern highways. The subarea has one well known historic trail.

- El Camino del Diablo. As noted above, this historic trail was used by early Spanish missionaries and explorers, and later by Mexican and American miners seeking their fortune in the gold fields of California in the Middle 19th century. Known for its hardship, it is described as one of the most terrible trails in the southwest. (See "Arizona Place Names" Will C. Barnes, The University of Arizona Press, 1988)

To sum the discussion of historic resources, the subarea contains a variety of places that are symbolic of different historic forces that have affected southern Arizona and the nation as a whole ranging from 18th Spanish Colonial expeditions into the unknown, to 19th and 20 century ranching and mining enterprises.

C. Traditional Cultural Places

"A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices" (Preserving Cultural and Historic Resources, Pima County, May 1991).

Pima County has been occupied by indigenous peoples for thousands of years and the modern descendants

of these prehistoric cultures still live in the region today. All of Pima County is claimed as ancestral lands by the Ak-Chin Indian Community, the Gila River Indian Community, and the Tohono O'odham Nation. The Piman speaking groups (including the Salt River Pima Maricopa Indian Community) claim direct ancestral affiliation with the prehistoric Hohokam Indians who inhabited much of southern and central Arizona. Other Indian groups also claim ancestral ties to the Pima County area including the Zuni of central western New Mexico and the Hopi of northeastern Arizona based on oral histories and myth that identify southern Arizona as a place of origin for these tribes. The Apaches also lived in the region for hundreds of years and therefore they too can claim an ancestral connection to the land and the places of traditional value to them that it may contain. Other groups with potential claims to places of traditional cultural value include the Hispanic and Anglo communities.

Places of traditional cultural value, as defined, are special to the community and must often remain secret to non-members; this is particularly true among Native Americans. These might be places where in the past natural resources were collected for ceremony or where natural features on the landscape are still recognized as having significance. Two such places are known in the Subarea.

- I'toi Mo'o (Montezuma's Head) is a natural feature in the Ajo Mountains that is associated with the creator figure, I'toi Mo'o, sacred to the Tohono O'odham people.

- Quitobaquito Springs near the international border is the site of a natural Tinaja or water hole that is also sacred to the Tohono O'odham people.

Other places with traditional cultural value of particular importance to Native Americans are rock art sites and all archaeological sites containing human graves. Six sites within the subarea are identified as prehistoric rock art localities and in addition, 24 prehistoric sites were used for habitation, which often contain human graves. It is reasonable to assume, that Native Americans would identify these places as having traditional cultural value. More than likely, there are many places with these kinds of values that exist in the Western Pima County subarea.

III. THREAT ASSESSMENT: Lack of archaeological site and survey data prevents a detailed analysis of where these kinds of cultural resources are located with regard to land jurisdiction. However, with 98.4% of the land under federal control and subject to federal and tribal preservation law, it is highly likely that the majority of cultural resources within the subarea area are legally protected. Private lands, concentrated mostly in the vicinity of Ajo, make up just 1.4 percent of the subarea, and state lands even less at 0.2%. That is not to say that cultural and historical resources have not been lost, and are not now threatened with loss, but that these are comparatively low.

Resource Loss:

There are three principal sources of cultural resource loss in the subarea: Military related development, mining, and urbanization. military use of the Barry M. Goldwater Bombing range in the north west portion of the subarea is likely to have resulted in some loss, although mitigation of effects is legally required for any cultural resource found to be eligible for listing on the National Register of Historic Places. As a matter of both policy and practice, the Air Force avoids affecting cultural resources when ever possible and plans around places containing them so the losses to cultural resources are minimized. Mining in the Ajo area in particular is known to have impacted archaeological and historical resources as the mine works have expanded over the years impacting older areas and the resources they contain. However, since the mines have been inactive since 1984, little activity has occurred that has resulted in loss. Development of private land has almost certainly resulted in the loss of cultural resources; however, this is subject to Pima County

development controls affecting rezoning and grading. The extent of these activities has been minimal in recent years. In short, while cultural resource losses have occurred in the past, the extent of this loss can be characterized as minimal.

Resource Threat:
One source of potential threat to cultural resources in the subarea at the moment is private residential and commercial development. Again, it is fair to say that the extent of this threat in the subarea is low given the degree of private development that is ongoing in the subarea. Should the mine start up operations, however, the associated increase in private development would pose an elevated threat to cultural resources in the area of Ajo and Childs. State land holdings are too small and too inaccessible to factor in an analysis of the potential conversion to private lands. Ranching on BLM lands only poses a threat to cultural resources if projects involve earth moving, such as building new cattle tanks, are proposed for the public lands; however, the BLM would require a survey, and if needed, some form of data recovery. The Cabeza Prieta National Wildlife Refuge, although used as fly over space by the Air Force, sees little by way of threatening activity towards cultural resource, Lastly, the mission of the Organ Pipe National Monument is to protect its cultural resources. In general, the threat to cultural resources within the subarea can also be characterized as being minimal.

Sensitivity Zone:
While the resource threat is believed to be low, it would still be useful to know where cultural resources area located. So little of the subarea has been investigated, however, and the data that is available is so fragmented, that it is not possible to visually present site distribution in any meaningful manner. Site proximity to water is not even possible because the necessary analysis on stream ranking is not available. As such, the only reasonable way to predict where cultural resources may be located is to use vegetation maps showing the distribution of environmental zones that in the past have been attractive to human beings. The map entitled **GAP Vegetation and Archaeological Sites** shows the distribution of major vegetative zones within the subarea. There are basically two such zones: the Arizona Upland Subdivision of Sonoran Desertscrub characterized by Paloverde and mixed cactus, and the Lower Colorado River Valley Subdivision of the Sonora Desertscrub dominated by creosote and bursage. Recent research conducted for the Air Force by SWCA, Inc., in the Barry Goldwater Bombing range to the north of the subarea suggest that archaeological sites tend to be found in higher frequencies in upland settings that receive higher rainfall in association with the Palo Verde-cactus vegetative zone. This is because this vegetative zone is more productive of foods that are edible to human beings. If this correlation is applied to the subarea, then archaeological sites will tend to be found in the areas colored orange and less so in those areas colored light purple. Exceptions will include any place where water can be reliably found, such as along major washes and water holes, as well as along trails that cris-cross the valley bottoms.

IV. SUMMARY: The cultural resources of the Western Pima County subarea are the product of thousands of years of human settlement from the earliest prehistoric times to the modern day. This report provides information on known cultural resources within the subarea describing their nature and attempts to predict where other cultural resources may be found. Clearly, more is known about the archaeological record than either historic resources or traditional cultural places. This is because more formal study has been directed to the archaeological record, whereas research on historic resources is limited, and ethnographic information on traditional cultural properties is almost completely lacking. It is also apparent that the subarea has received limited research attention over the years. While archaeological survey data are lacking it is evident that very little of the subarea has been formally surveyed and only a few sites have ever been excavated. To compound this problem, what data there are is fragmented between federal agencies with their own filing systems preventing comprehensive analysis. Despite these problems, this short review of the data suggests

that up to 10,000 years of human history is represented in the subarea, and that the peak use of the subarea occurred during late prehistory when the region was occupied by people from three different culture groups. Historic uses of the subarea by Native Americans (O'odham) is evident as is use by Euro-Americans from Spanish Colonial times to the modern day.

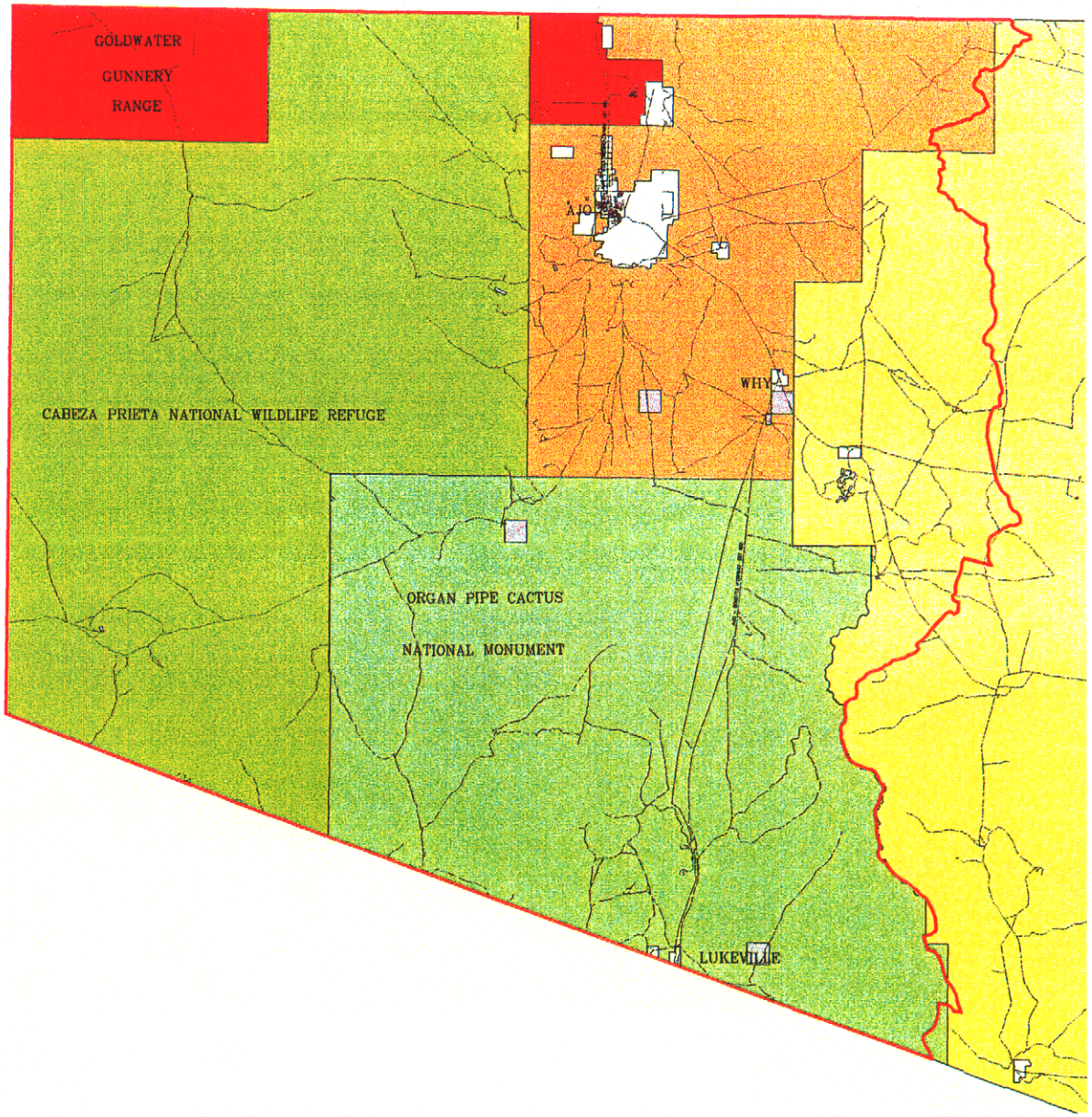
The historic communities of Ajo and Childs are products of mining and ranching respectively, both of which significantly contributed to the history of the subarea. The ghost towns of Clarkstown and Gunsight are further examples of 19th and early 20th century mining communities that historically were a part of the western mining phenomenon that has contributed so much to the building of the nation.

The subarea has eight places that are listed on the National Register of Historic Places, celebrating prehistoric settlement, Spanish Colonial exploration, 19th and 20th century mining and ranching. Lastly, Native American claims identify the subarea as part of their traditional home lands and two places with traditional cultural value to the Tohono O'odham are known to exist in the subarea.

In short, while still virtually unrecorded, the subarea has evidence of important cultural and historical resources with a high potential for many more such resources than are currently known. Since the majority of the Subarea is composed of federal lands and since the agencies that manage these lands are mandated by law to protect cultural resources, the potential threat of loss to cultural and historical resource overall is low in comparison to other subareas in Pima County. While mining and development of private land have the potential to impact the record of the past, that record is still largely intact within the western Pima County subarea.

Modern Communities Transportation And Ownership

SDCP PLANNING UNIT 8



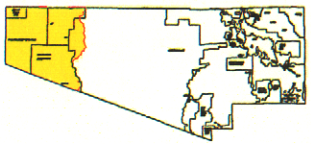
- Planning Unit Boundary
- Major Washes
- Roads
- BLM
- County Park
- Indian Lands
- Military Reservations
- National Forest Lands
- National Parks and Monuments
- National Wildlife Refuge
- Private Lands
- State Lands
- State Park
- Goldwater Gunnery Range

LAND OWNERSHIP

BLM	174,846	AC
COUNTY PARK	0	AC
MILITARY RESERVATIONS	0	AC
INDIAN LANDS	104,805	AC
NATIONAL FOREST LANDS	0	AC
NATIONAL PARKS AND MONUMENTS	327,107	AC
NATIONAL WILDLIFE REFUGE	400,487	AC
STATE LANDS	2,672	AC
STATE PARKS	0	AC
PRIVATE LANDS	13,485	AC
GOLDWATER GUNNERY RANGE	58,796	AC
TOTAL	1,082,198	AC

ESTIMATED 2000 POPULATION: 4,540

Pima County Index Map



Index Map Scale 1:1,500,000

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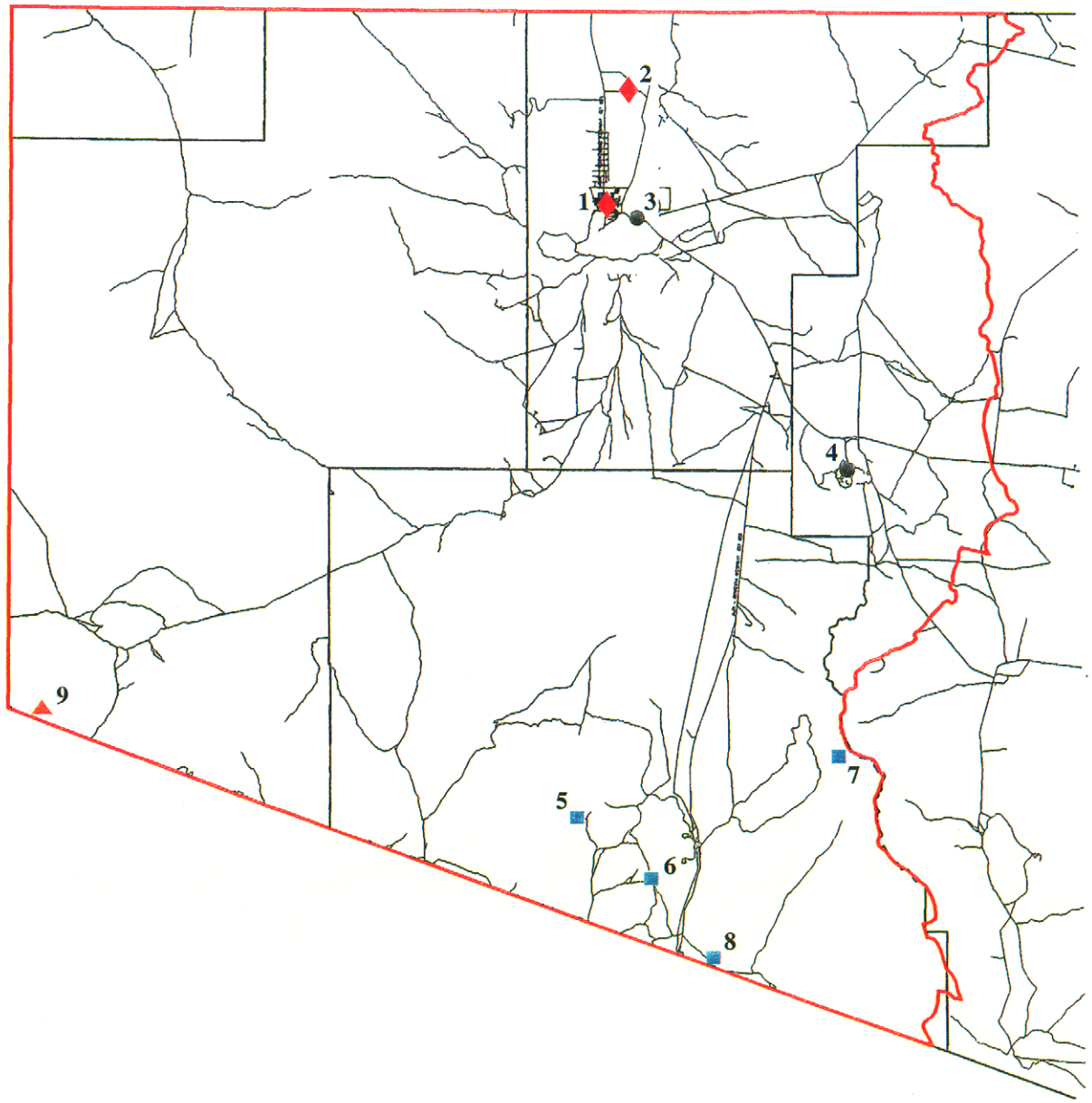
WESTERN PIMA COUNTY HISTORIC RESOURCES

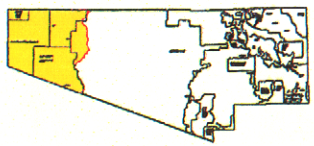


SDCP PLANNING UNIT 8

- Historic Community
- National Register Historic Places
- Ghost Town
- Trail

1. Ajo
2. Childs
3. Clarkstown
4. Gunsight
5. Milton Mine
6. Victoria Mine
7. Bull Pasture
8. Gachado Well and Line Camp
9. El Camino del Diablo

Pima County Index Map



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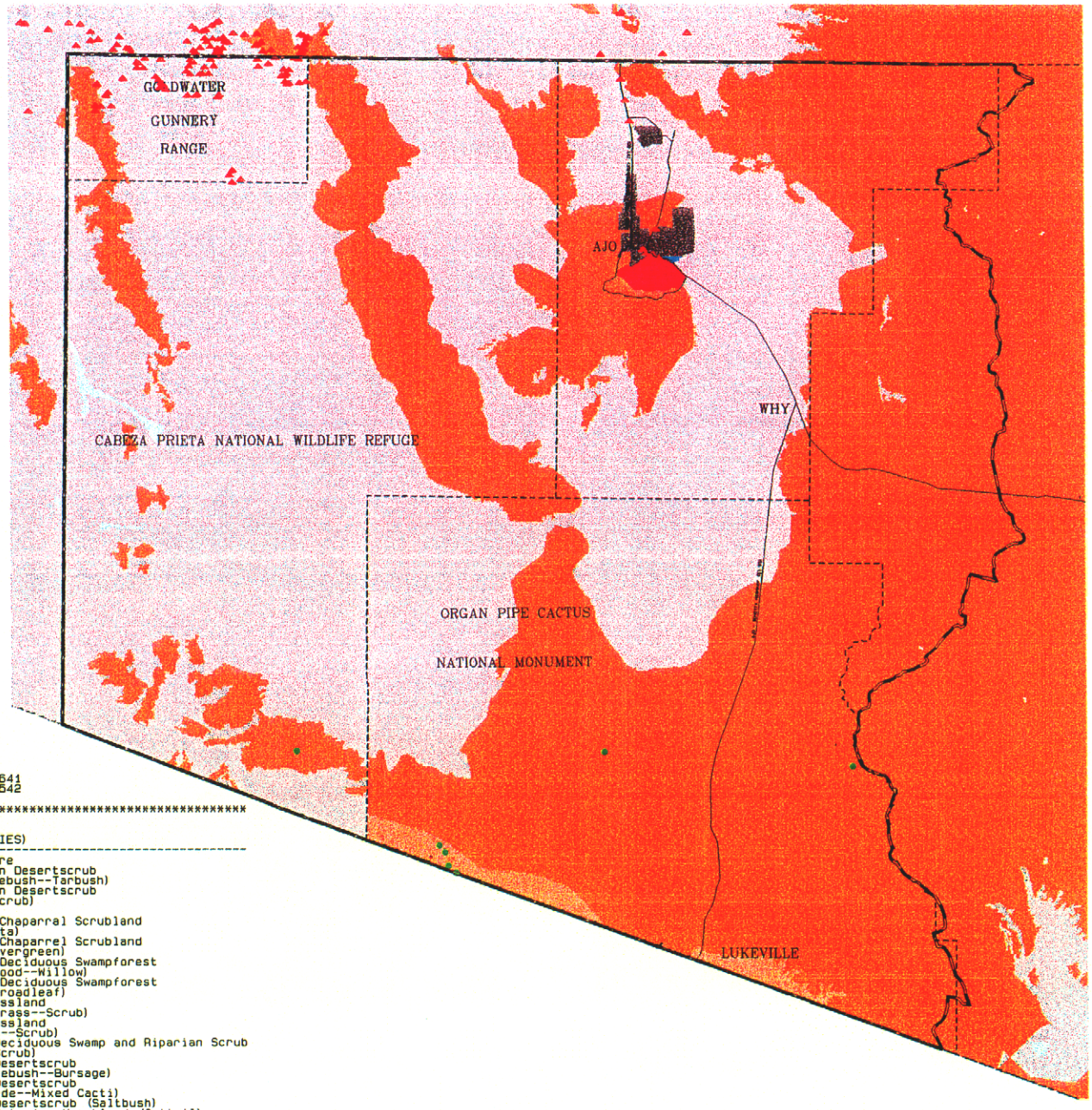
Pima County Graphic Design MOH 5/17/00

GAP Vegetation and Archaeological Sites

SDCP PLANNING UNIT 8



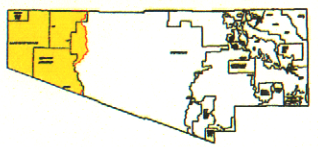
- Archaeological Sites
- Springs
- Watershed Planning Unit Boundary
- Administrative Boundaries
- Washes
- Agriculture
- Urban
- Mining
- Chihuahuan Desertscrub (Creosotebush--Tarbush)
- Chihuahuan Desertscrub (Mixed Scrub)
- Chihuahuan Desertscrub (Whitethorn)
- Madrean Evergreen Forest (Encinal)
- Madrean Evergreen Forest (Oak--Pine)
- Madrean Montane Conifer Forest (Douglas-Fir--Mixed Conifer)
- Madrean Montane Conifer Forest (Pine)
- Mogollon Chaparral Scrubland (Manzanita)
- Mogollon Chaparral Scrubland (Mixed Evergreen Sclerophyll)
- Mogollon Deciduous Swampforest (Cottonwood--Willow)
- Mogollon Deciduous Swampforest (Mixed Broadleaf)
- Playa
- Scrub Grassland (Mixed Grass--Scrub)
- Scrub Grassland (Sacaton--Scrub)
- Sonoran Deciduous Swamp and Riparian Scrub (Mixed Scrub)
- Sonoran Desertscrub (Creosotebush--Bunsage)
- Sonoran Desertscrub (Paloverde--Mixed Cacti)
- Sonoran Desertscrub (Saltbush)
- Sonoran Interior Marshland (Cattail)
- Sonoran Riparian and Oasis Forest (Cottonwood--Willow)
- Water

Minimum Elevation 641
Maximum Elevation 4,542

****
VEGETATION ACREAGE

ACRES	BIOME (SERIES)
127	Agriculture
0	Chihuahuan Desertscrub (Creosotebush--Tarbush)
0	Chihuahuan Desertscrub (Mixed Scrub)
2,390	Mining
0	Mogollon Chaparral Scrubland (Manzanita)
0	Mogollon Chaparral Scrubland (Mixed Evergreen)
0	Mogollon Deciduous Swampforest (Cottonwood--Willow)
0	Mogollon Deciduous Swampforest (Mixed Broadleaf)
0	Scrub Grassland (Mixed Grass--Scrub)
0	Scrub Grassland (Sacaton--Scrub)
0	Sonoran Deciduous Swamp and Riparian Scrub (Mixed Scrub)
542,271	Sonoran Desertscrub (Creosotebush--Bursage)
517,818	Sonoran Desertscrub (Paloverde--Mixed Cacti)
11,084	Sonoran Desertscrub (Saltbush)
2	Sonoran Interior Marshland (Cattail)
6	Sonoran Riparian and Oasis Forest (Cottonwood--Willow)
5,539	Urban
2,020	Water
937	Unclassified

Pima County Index Map



Index Map Scale 1:1,500,000

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/pygmyowl2/senoro/cultural/somjoinad/plans/covers/arch_gap8.eml 5/16/00

7. Tortolita Fan Subarea

I. SUBAREA: The subarea defines the watersheds formed by the Tortolita Mountains on the north, the Catalina mountains on the east and the Tucson Mountains to the south and west and drains the Santa Cruz River and its tributary the Canada del Oro, the subarea's primary watercourses. The northern boundary of the planning unit is marked by the Pima County/Pinal County line and its eastern limit follows the Pusch Ridge in the Catalina Mountains. The western boundary follows the top of the Tucson Mountain and runs west of the Santa Cruz River as indicated on the map entitled, **"Modern Communities, Transportation, and Ownership."** This area encompasses approximately 318 square miles.

The Tortolita Fan subarea contains approximately 203,546 acres, within which land status is broken down as presented in the table below. Unlike most of eastern Pima County where state trust land makes up the majority of the land base, private lands rank first, followed by state trust lands, then federal parks, state parks and county parks in descending order as indicated in the table below.

Table IV.7.1. Tortolita Fan Subarea - Land Ownership by Acres and Percent		
Ownership	**Acres**	**Percentage**
Bureau of Land Management	1,182	.6
County Park	3,124	1.5
Military Reservations	40	<.1
National Forest Lands	37,798	18.5
National Parks/Monuments	8,501	4.2
State Lands	44,706	22.0
State Parks	5,471	2.6
Private Lands	102,681	50.4
Other	41	<1
Total	**203,546**	**100**

The year 2000 population estimate for the Totolita Fan subarea is 65, 238 making it second only to the Middle Santa Cruz subarea in population size. This area includes the town of Oro Valley and the communities of Casas Adobe and Tortolita on the east side of the Santa Cruz River, as well as Marana and Rillito, two historic communities located west of the River. Catalina, located to the north of Oro Valley against the County line is a smaller unincorporated community that began in the 1950s. In all, the subarea encompasses the burgeoning Norwest Tucson Metropolitan area, which is characterized by rapid private development and public infrastructure construction. Additional population is distributed within the subarea on private land holdings. Historically, the subarea has depended upon a mixture of farming and ranching. Both economic activities continue today. Approximately 13,800 acres are currently under cultivation along the Santa Cruz flood plain. Ranchers continue to use a combination of state land leases and private holdings principally in the northern portion of the subarea adjacent to the Tortolita Mountains. These more traditional

economic activities have been augmented by booming residential development and a growing service sector.

II. CULTURAL RESOURCES: This section presents information and analysis of current data on archaeological sites, historic resources and traditional cultural places within the subarea.

A. Archaeological sites

"Archaeological sites are any material remains of past human life or activities which are preserved in their original setting that are important to understanding prehistory or history. These sites or districts may include occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Archaeologists learn about the past by collecting and analyzing information in two ways: through survey and by excavation. Survey involves inspecting the ground surface in a particular area and recording concentrations of artifacts and features (hearths, roasting pits, pit houses, etc.) as archaeological sites. A site represents the physical remains of past human behavior in a single location dating to one or more periods of use through time. Surveys are often done systematically by groups of archaeologist who walk the land in regularly spaced lines looking for artifacts. Some surveys, however, are judgmental in that archaeologists only look where sites are expected to be found and not elsewhere. In all cases, survey offers an extensive perspective on past land use.

The second kind of information on archaeological sites is gained through excavation. This is the systematic recording, recovery, and analysis of artifacts and features from within a site's limits. Critical information is gained by understanding the spatial relationship of all artifacts and features within a three dimensional context. This enables interpretation about how the site was used, by whom, when, whether the site was used more than once and what happened after it was abandoned. Often, archaeological sites are not fully excavated but are only partially sampled. This saves what is left of the site for future investigations. Archaeological excavation provides highly detained information about the use of one limited spatial area during one or more use episodes. Archaeologist use survey information in conjunction with site excavation information to build regional time lines over broad areas such as a river valley.

Previous Research

Historically, archaeological research within the Tortolita subarea has been limited up until the 1960s. Early pioneers such as Jesse Walter Fewkes (1908) and Ellsworth Huntington (1910) documented several large sites along the west side of the Santa Cruz River including the Los Morteros and Huntington ruins. Los Morteros, was subsequently visited by Frank Midvale of the Gila Pueblo Foundation in 1929 and formally recorded by the Arizona State Museum in 1962. This large Hohokam village site located at the northern end of the Tucson Mountains contains a "ball court," numerous trash mounds, and hundreds of pit house features within an area roughly a mile and a half long and a quarter mile wide. The site was occupied continuously for 450 years from A.D. 850 to A.D. 1300. Testing and excavation was conducted on Los Morteros in the mid to late in 1980s in advance of the construction of the Continental Ranch subdivision. The nearby sites of Redtail and Lonetree predate the occupation of Los Morteros. These sites were also investigated in the mid 1980s and revealed critical information on the time prior to the emergence of the Hohokam culture in the Tucson Basin.

Also beginning in the 1980s, the Arizona State Museum launched its Northern Tucson Basis Survey, an ambitious, large-scale multi year survey conducted for the expressed purpose of recording the archaeology of prehistoric land use patterns in advance of intensive development pressure. Between the years of 1980 and 1983 over 100 square miles were intensively surveyed from the Canada del Oro to the Tortolita Mountains and west along both sides of the Santa Cruz River. Included in this initial phase of work was a large area east of the Picacho Mountains. Subsequent sample survey was conducted in the northern Avra Valley and in a large area stretching north from the Tortolilta Mountains, east of the Picachos and west of Black Mountain. A five year testing and excavation program at the Marana Mound village, one of the most important sites discovered during survey, was initiated in 1989. Hundreds of archaeological sites were recorded as a result of this project ranging in time from the Archaic Period through the Hohokam sequence covering many thousands of years of human history. The large scale nature of the survey enabled a more comprehensive view of ancient land use patterning than is typical of archaeological research and resulted in the identification of distinct elevational zones that were used by the Hohokam people and demonstrated the intentional cultivation of agave as a food source in prehistory. Almost all subsequent research in the Tortolita Fan Subarea has been, and continues to be, influenced by the Northern Tucson Basin Survey.

In the Canada del Oro area, most research has focused on the areas being impacted by development in the fast growing Northwest portion of Tucson. Numerous surveys have been conducted by the Arizona State Museum along the Wash from its confluence with the Santa Cruz north to Sutherland Wash. Beginning in the late 1970s, Pima Community College also conducted multiple surveys and follow up site excavations in the eastern Tortolita foothills. In 1984, the BLM surveyed a 480 acre parcel in Honey Bee Canyon and this was followed in 1987 by a large scale survey and mapping project within Catalina State Park. The Institute for American Research (now Desert Archaeology, Inc.) investigated approximately 1700 acres and recorded more than three dozen sites including the Romero Ruin, a large Hohokam village site that was continuously occupied between A.D. 550 and A.D. 1450. This site was also the location of a ranching homestead owned by Francisco Romero who built his house within the walls of a late prehistoric residential compound sometime before 1850 when the region was under constant Apache attack. For many years, locals mistook the compound and its ruins as the site of the fabled Spanish Mission of Ciru said to have contained a fortune in buried Spanish gold.

To the west in Oro Valley, the Rancho Vistoso subdivision has been the focus of large scale intensive survey and excavation beginning in the mid 1980. Approximately 7700 acres were surveyed between highway 89 and the Tortolita Mountains and 54 archaeological sites were recorded in the process, all but three of which dated to the Hohokam period. The sites of Honey Bee Village and Sleeping Snake Village were, both large "ball court" Hohokam village sites, were recorded during this project. This portion of the subarea appears to have been occupied between approximately A.D. 850 and AD. 1300, although several sites were also found dating to the period following the collapse of the Hohokam culture in A.D. 1450. The Rancho Vistoso project enabled development of a regional model of prehistoric interaction between the Tucson Basin and the Phoenix Basin Hohokam populations.

Development projects along the east side of the Santa Cruz River in the vicinity of Cortaro Farms Road and I-10 have also produced additional information on prehistoric occupation within the river's flood plain. The most notable of these sites is the Dairy site, a large prehistoric village first recorded during the Northern Tucson Basic Survey. Portions of the site were excavated in 1994 and again in 1995 in advance of subdivision construction uncovering dozens of features dating from late in the Archaic Period to the terminal phases of the Hohokam sequence. Recent excavation in the vicinity of the Dairy site has found evidence of ancient irrigation canals that are approximately 2600 years old. This information adds to a body of data that has accumulated in recent years from archaeology done in advance of road work along I-10 that clearly

demonstrates pre-ceramic populations were settling in villages along the Santa Cruz flood plain and practicing irrigation agriculture a thousand years before the Hohokam. These findings are revolutionizing not only theories about the origins of the Hohokam Indians but also the origins of agriculture in the desert Southwest.

The latest example of research directed towards the secrets of this early agricultural period is the excavation project conducted in 1999 at the Ina Road waste water treatment facility sponsored by Pima County government. Expansion of the facility prompted archaeological testing in accordance with Pima County's cultural resources policies. Archaeologists had reason to believe that Archaic Period deposits might be found having been discovered in a similar flood plain setting at the Santa Cruz Bend site some miles to south. Testing revealed multiple layers of cultural occupation down to a level of 14 feet below the surface dating from the Late Archaic time period (1500 B.C. - A.D. 200). The subsequent excavation project required clearing 25,000 cubic meters of dirt from the top of the earliest cultural layer exposing an area the size of a football field 14 feet in depth. This revealed a portion of an ancient village site complete with a dozen pit houses and over 1000 other kinds of features including irrigation canals dating to between 2400 and 2800 years ago. The field work on this huge effort finished late last year and analysis is underway.

Survey data

There are two kinds of surveys that archaeologists perform: Linear and block. Linear survey involves inspecting a right-of-way for construction of a road, sewer line, telephone cable or other linear feature. These surveys tend to be done in compliance with legal mandates requiring environmental studies during project planning. Block survey involves examining non-linear properties ranging in size from a few acres to 1000s of acres. These are typically done either in compliance with legal mandates, or through academic or preservation related research projects. The Map entitled **Archaeology Survey Locations** shows the areas within the subarea that have been archaeologically surveyed. The map demonstrates that survey has focused primarily on the private and state lands in the west half of the subarea; this area was part of the Northern Tucson Basin Survey project. Presented below is a breakdown of survey data by acreage and survey type including the percentage of the subarea that has been investigated.

Table IV.7.2. Tortolita Fan Subarea - Survey Acreage by Survey Type

SurveyType	Number	Acres Surveyed	Percent of Subarea
Linear	68	2178	1.1
Block	390	69,269	34.0
Total	**458**	**71,447**	**35.1**

The total acreage figures indicate that more than 35 percent of the area has been formally investigated, making the Tortolita Fan subarea the most heavily surveyed of all the subareas in Pima County. Even so, approximately 65 percent has not been investigated. This means that research conclusions about the past within the subarea can be arrived at with a relatively high degree of confidence based. Nonetheless, the majority of the subarea has not been investigated.

Site Data - Chronology

Table IV.7.3 presents information on the number of prehistoric sites in the subarea by time period as reported by the Arizona State Museum. These data represent the latest information on site counts per time period.

The following description of the archaeology of the subarea provided by Dr. Paul Fish of the Arizona State Museum.

Table IV.7.3. Tortolita Fan Subarea - Prehistoric Archaeological Site Data by Time Period					
TIME PERIODS	**PaleoIndian** 12,000 B.C. - 8,000 B.C	**Archaic** 8,000 B.C.- A.D. 200	**Ceramic** A.D. 200- A.D. 1540	**Unknown**	**Total**
Site Counts	0	17	706	42	**765**

Although no sites dating to Paleoindian times (ca. 10,000 to 8,000 B.C.) have been discovered, one located nearby in the Tucson Mountains suggests that the former grassland environments of the Tortolita slopes were used in these very early times by hunters of extinct horse, mammoth, and camel. Evidence of later hunters and gatherers of the Archaic Period is likewise rare on the basin slopes. Spear point styles typical of the time between 7,000 and 4,000 years ago have been found occasionally as isolated artifacts on the surface of the Tortolita Fan. As no campsites have been identified, Archaic use of this area appears to have been limited to hunting and gathering forays from base camps outside the planning unit.

By early agricultural times (2000 B.C. to A.D. 700), more permanent settlements and intensive land use are indicated within two Tortolita Fan zones that provided sustained water for domestic and agricultural purposes. One of these zones skirts the edge of the Tortolita Mountains where shallow bedrock insures high water tables. A second zone is along the Santa Cruz River, particularly near the end of the Tucson Mountains where surface flow in the river was available for canal irrigation during much of the year. Farmers in settlement paralleling the river used an additional technique to supply water to crops. They diverted storm flood waters from drainages crossing the basin slopes onto fields just above the Santa Cruz flood plain. During the many centuries of the early agricultural period, Tucson Basin farmers came to occupy locations favored by later intensive cultivators and to practice the full variety of methods for raising corn, beans, and squash. It is not yet clear how much these early farmers relied on crops in addition to game and wild plant foods and whether they lived in villages year-round or moved seasonally.

In the Hohokam Preclassic era between A.D. 700 and 1150, two loose clusters of settlements can be recognized in the Tortolita Fan subunit. One cluster centers on the Santa Cruz flood plain and lower basin slopes near the end of the Tucson Basin. A second upland cluster is located along the base of the Tortolitas between Guild, Derrio, and Cottonwood washes. A ball court, consisting of a level playing field enclosed by earthen banks, was constructed at one large site in each cluster. Ball courts are thought to be communal structures and facilities for competitive sports. When families from distant homes came together to attend ball court events, they also had opportunities to trade food, raw materials and craft items, meet potential mates, and observe ceremonies.

The two Preclassic settlement clusters, each with a larger site containing a ball court as a public construction, are called "communities" by Hohokam archaeologists. Both the multi-site community on the upper Tortolita slopes and the community along the river had substantial settlements of varying size in locations suitable for more than one kind of farming technique. Artifact collections from the settlements of both communities also include a similar mix of domestic implements such as grinding stones for food processing, imported materials such as shell for jewelry and obsidian for chipped stone tools, and objects used in ritual. Dense accumulations of broken and discarded artifacts suggest long term residence in both community zones.

A change in settlement layout and location, together with population growth, takes place in the Classic period after A.D. 1150 on the Tortolita Fan, as it does throughout southern Arizona. The two earlier Preclassic settlement clusters or communities combined into a single larger Classic community covering 56 square miles. Platform mounds rather than ball courts are the typical kind of public facilities in central sites of this later period, and a mound was constructed at newly settled large site just up slope from the Santa Cruz flood plain near the present town of Marana. To supply water to this new Marana community center, a canal had to be completed over six miles from its intake on the river. Six zones with different combinations of residential sites and farming techniques can be defined within the Classic community stretching across all basin environments from the Tortolita to the Tucson Mountains. In addition to moisture dependent crops such as corn, residents of some zones also planted the desert succulent agave or century plant on large areas of drier slopes.

The community center, the Marana Mound site, covers over 350 acres and had an estimated population between 400 and 700 people. Families lived in adobe rooms enclosed by compound walls of the same material. Four elevated rooms were built on top of the adobe and earthen platform mound, and other specialized rooms were also enclosed within the massive adobe wall which surrounded it. The mound precinct was the scene of public events and rituals performed for the entire community and probably served as the residence of community leaders.

By A.D. 1350, community residents had abandoned the entire Tortolita Fan area, a part of the northern Tucson Basin continuously inhabited by farmers for at least 2000 years. The people probably joined other Hohokam communities to the north and south that continued beyond this time. Archaeological evidence has not yet revealed an overriding cause for this widespread departure such as prolonged drought or devastating warfare; however, there is a general recognition that by A.D.1450 the Hohokam culture system had collapsed.

Following the collapse of the Hohokam, the region is believed to have been occupied in very low numbers by an O'odham (upper Piman speaking) people whose settlement and subsistence practices reflect a return to an earlier, simpler way of living. Life continued to involve the cultivation of crops supplemented by hunting a gathering, but the level of technical sophistication and social and religious cohesion characteristic of the Hohokam is missing in these later populations. These people are believed to be the descendants of the Hohokam, but are recognized as separate culture groups. Archaeologists know very little about the period that represents the end of the Hohokam and the beginning of the Spanish Colonial presence in southern Arizona. It appears to have been a time of flux when the vacuum left by the disappearance of the Hohokam was filled by groups that the Spanish recognized as the Sobaipuri and the Tohono O'odham in the 17th and 18th centuries.

When Father Kino first visited the area in 1697, he encountered a small O'odham farming village of 20 houses i former Marana community territory near the north end of the Tucson Mountains. This settlement, which he El Valle de Correa, has not been conclusively located, although a few pieces of pottery dating to this time have been found. Several sites dating to this time period are known in the Tucson area to the south, the San Pedro River region to the east, and on lands within the Tohono O'odham reservation to the west.

Table IV.7.4. Tortolita Fan Subarea
Historic Archaeological Site Data by Affiliation

Euro-American	Mexican-American	Tohono O'odham	Unknown	Total
35	**12**	**8**	**11**	**66**

Table IV.7.4 presents archaeological data on the Historic Period, spanning the years between A.D. 1540 and 1950. The history of the Tortolita Fan Subarea can be viewed in terms of the settlement of the Tucson Basin.

Kino's trips into the Pimera Alta at the end of the 18th century ushered in an era of exploration and colonization in the Santa Cruz Valley that included the Tortolita Fan subarea. In 1700 construction was started on the mission church at the village of San Xavier del Bac located to the south of Tucson. Uprising by the Piman Indians in 1751 followed a long period of native discontent and destabilized the region. In 1752 the presidio at Tubac was constructed to provide protection to Spanish colonists; however it was the Apaches who became the common enemy to both Spanish and Piman populations. The frequency and ferocity of Apache attacks was such that by the 1760s the Sobaipuri Indians abandoned the San Pedro Valley en masse in favor of the Middle Santa Cruz where greater protection was afforded by joining the Tohono O'odham. Seeing the need for a greater military presence in the area, the Spanish moved the presidio at Tubac to "Tjukshon" in 1775 thereby creating the security needed to foster colonization. In the same year, Captain Juan Bautista de Anza journeyed down the Santa Cruz passing through the subarea along the west side of the river on his way to the Pacific Coast where he founded a Spanish colony in San Francisco Bay.

In the later years of the Spanish Colonial period, ranching, mining, and agriculture were the principal economic activities in the Santa Cruz Valley and elsewhere. This was a time of relative peace until the Mexican War of Independence ended the colonial period in 1821. The missionization and military protection programs of the Spanish colonial government encouraged an influx of Spanish colonists early in the 18th century that eventually brought and end to the dispersed pattern of Indian Villages along the length of the Santa Cruz River. The Santa Cruz Valley became dominated by the inhabitants of Spanish and Mexican decent who survived mainly by farming, ranching, and trade. Apaches began raiding extensively n southern Arizona after 1830 and were a major threat to the Mexican Settlements. By the time of the Gadsden purchase by the united States in 1853, Spanish and later Mexican settlements were well established, and ranching and mining had replaced much of the traditional agricultural subsistence base.

During these early years little settlement occurred within the Tortolita Fan subarea. The difficulties of the environment and the dangers of Apache attack discouraged permanent occupation and as a result most of the Euro-American population was clustered within the main settlement in Tucson. Piman Indians are said to have continued to use the Catalina Mountains for harvesting agave and the route to Camp Grant, first established in the San Pedro Valley in 1859 , followed the Canada del Oro where it passes out of the Tucson Basin between the Catalina and Tortolita Mountains.

Settlement within the subarea did eventually occur. On the east side of the subarea, Francisco Romero settled in the foothills of the Catalina Mountain around 1844 building a ranch at a place then called "Pueblo Viejo" after the remains of a large Hohokam village site. Romero acquired ranch land in the Canada del Oro Valley and successfully ranched in the area until his death in 1910. Today the ruins of the Romero home are located within Catalina State Park on top of the old prehistoric village site that bears his name. Another cattleman who ranched along the foothills of the Catalina Mountains was William Henry Sutherland who acquired the Canada del Oro ranch sometime after 1893. Sutherland Wash, the main tributary to the Canada del Oro, is named after the Sutherland family. A third prominent name associated with ranching in the subarea originates with Mr. George Pusch, a young German immigrant who in 1874 started the Steam Pump Ranch with his partner John Zellweger. Its location along the Camp Grant-Tucson Road and Pusch's hospitality made the ranch a popular stopping place for stagecoach passengers for many years. Pusch died in 1921 but the old ranch house is still standing. Pusch Ridge in the Catalina Mountains is named after this man.

Along the Santa Cruz River itself, the Butterfield Overland Mail Company route passed through the subarea during its operations between 1858 and 1861. This was one of the first long distance mail carriers to be

established linking the southwestern territories with the rest of the United States. Contracted by the federal government, the company offered mail service between Saint Louis, Missouri and San Francisco, California along a route that included stations spaced every 20 miles on average. The stations were to provide food , grain, water, ammunition, and equipment for mending coaches and shoeing mules and horses. One such station, was the Pointer Mountain stage stop believed to have been the home of Francisco Ruelas, the remains of which are located at north end of the Continental Ranch Subdivision on the west side of the Santa Cruz River. The outbreak of the civil war lead to the abandonment of the Butterfield line; however, the roads it followed continued to be used for many decades. Surveyors for the Southern Pacific Railroad used the old stage route to shoot in the location of the rail line that when completed in 1880 linked Tucson to the world.

On the west side of the subarea, ranching and homesteading characterized settlement during the later half of the 19th and early part of the 20th centuries. Apache attacks continued to be a major impediment to Euro-American settlement until the surrender of Geronimo in 1886. Nonetheless, a few hardy souls did venture beyond the limits of the main settlements. Around 1878, Juan and Maria Bojorquz built a home on the west side of the Santa Cruz River along what is today Silverbell Road just south of the intersection of Cortaro Farms Road. This small family run operation was believed to have as many as 200 head of cattle and 50 horses. It was sold in 1898 to two men, Leandro Ruiz and Feliberto Aguirre and shortly thereafter was purchased by a Mr. Felipe Aguilar who continued to ranch in the area for some years. The remains of the old ranch have recently been excavated in advance of residential development in the area.

The coming of the railroad in 1880 coupled with the cessation of hostilities with the Indians resulted in an increase in ranching and homesteading in the subarea during the 1890s. Five successful homestead claims were made during this time period each based on a 160 acre allotment. All were within a mile of the Santa Cruz River and may have engaged in either irrigation or direct flood water farming. Early attempts at the turn of the century to build water pumps for agricultural uses demonstrated the utility of using ground water for irrigation, culminating in the Post Project, an ambitions plan developed by Edwin R. Post to build water wells and irrigation canals from the confluence of the Rillito Wash and the Santa Cruz River to what is now the town of Marana. The demand for cotton during the First World War prompted investors like Post to utilize the Santa Cruz Valley for cotton production and efforts were made to entice farmers from across the country to move to the Tucson area for this purpose. Despite a drop in cotton prices in the 1920s, this project laid the ground work for subsequent expansion of agricultural lands within the Santa Cruz flood plain much of which was used to grow Pima Cotton. The town of Marana, first known as Postvale, became established as an agricultural settlement with its first post office opening in 1924. Pima Farms and later Cortaro Farms are two of the best known large agricultural enterprises that flourished in the Marana area during the 1920s and 1930s.

Since the end of the Second World War, the traditional forces of farming and ranching have continued within the subarea; however, dramatic population expansion in the Tucson area lead to increased demand for land for residential purposes. The present rate of residential growth is an outcome of these forces that began in the subarea in the 1960s and 1970s.

A total of 66 Historic Period sites have been identified in the subarea by the Arizona State Museum, 35 of which are Euro-American, 13 are Mexican in ethnic origin, there are eight sites attributed to the Tohono O'odham and the cultural identity of eleven sites is unknown. Low sample size, the greater visibility of some sites and not others, and a lack of research interest in the archaeology of the historic time period distorts the true picture of historic period land use in the subarea. Given the long history of the Tucson area, it is certain that archaeological remains associated with the trends discussed above exist within the subarea and will be recorded as more areas are explored.

Site Data - Function

The site data from both the historic and prehistoric eras can also be examined from a functional perspective to highlight land use trends within the subarea. The following is a summary of archaeological site data for the subarea that is presented by gross time period and site function. These data are made available by the Arizona State Museum, University of Arizona.

Table IV.7.5. Tortolita Fan Subarea - Archaeological Site Data by Time Period and Site Function

PERIOD	Prehistoric	Historic	Both	Unknown	Total
FUNCTION					
Agriculture	22	4	1	1	**28**
Art	46	3	0	0	**49**
Defense	0	1	1	1	**3**
Disposal	2	3	0	1	**6**
Government	0	2	0	0	**2**
Habitation	92	24	3	5	**124**
Resource Processing	54	0	0	1	**55**
Resource Procurement	14	7	0	2	**23**
Religion	7	2	1	0	**10**
Storage	1	0	0	0	**1**
Transportation	0	2	0	0	**1**
Unknown	481	18	52	70	**621**
Total	**765**	**66**	**58**	**81**	**970**

The site counts presented in Table IV.7.5 show that prehistoric sites out number the historic by more than 11 to one and that in 58 instances, occupations from both major time periods are present on the same site. The prehistoric site counts are dominated by Habitation (residential) and Resource Processing (food and non food resources) as the most common of the identifiable functions. Art, meaning rock art, is third with 46 sites, followed by Agriculture (i.e. fields, water control features), with 22 sites. Fourteen sites are typed as having been used for Resource Procurement (food and non food resources) and seven sites, such as shrines, have religious functions. Disposal (trash) and Storage appear in only trace numbers. It is interesting to note the high number of rock art sites representing 16.2 % of the total number of sites with identifiable functions. This is figure is proportionally second only to the count for rock art sites in the Avra Valley to the west. As is the case in the other subareas in Pima County, the largest number of prehistoric sites cannot be functionally identified based on survey data.

The historic sites emphasize residential needs over all other, with Habitation being the primary functional category represented with 24 sites. Sites classifiable with Resource Procurement functions are second in order with 7 sites, followed by Agriculture (i.e. windmill) with 4 sites, and Art and Disposal at 3 sites each. Minor counts of sites with function identified as Government (civic functions), Religion (church or cemetery), Transportation (roads), and Defense (fortification) follow. Note the complete lack of sites in the Resource Processing category during the Historic Period, which is second in number in the prehistoric site column. It may be that this reflects the economic differences between the Native American and Euro-American populations that settled in this area.

Six of the Fifty-eight sites with both prehistoric and historic occupations on them can be functionally identified as having uses associated with Habitation (3), Agriculture (1), Religion (1), and Defense (1). There are also 81 sites where function can be determined but age cannot, with Habitation (15) and Resource Procurement (2) being the number one and two site types, and Agriculture, Defense and Government following with one site each.

Of all sites from both the prehistoric and historic time period, the data presented in Table 5 indicates that site use within the subarea is dominated by Habitation uses at 124 sites. Resources Processing needs are the second highest site function by count (55), followed in order by Art (49), Agriculture (22), Resource Procurement (23) and Religion (10). Smaller number of sites identified as having disposal functions (6), Defense (3), Government (2), Storage (1) and Transportation (1) follow last. Not surprisingly, the vast majority of those sites that could be functionally identified relate to housing and processing food and non food resources. Again, it is interesting see how well represented art is the listing of functional site types. Most of these sites are prehistoric in origin, meaning petoglyphs, which modern native Americans view as sacred. If the seven sites with religious functions are added to the art totals, then places with sacred or religious uses become all but equal to resource processing in terms of their representation in Figure 5. Despite the biases inherent in the data base, this high count may still reflect the importance of sacred places in aboriginal life in the past.

To sum the information on archaeological sites, the Tortolita Fan subarea has witnessed intensive archaeological survey and site excavation that makes it the best known of all subareas in Pima County. Still only a about a third of the subarea has been investigated. Because of this, site distribution is still more a reflection of where investigation has occurred than past land use patterning. Nonetheless, the following statements can be made based on the archaeological record: 1) It is evident that human beings have occupied the Upper Santa Cruz Valley subarea for many thousands of years, and that like the other subareas in Pima County, experienced a peak occupation during the period between A.D. 200 and A.D. 1300; 2) certain parts of the landscape have been more heavily utilized than others especially along the margins of the Santa Cruz River and Canada del Oro Wash where surface water has been available; and, 3) the predominant use of the landscape relates to housing and processing both food and non food resources, patterns that can be expected of all people living in the subarea.

B. Historical Resources

"Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Historical resources are largely constructed or engineered elements of the built environment including

buildings used for residential purposes, such as houses, but also commercial stores, industrial facilities, civic centers, and places of worship. Roads, bridges, irrigation canals, mining works, and railroad tracks are also historical resources. Information on these places is recovered through drawings and design plans, photographs, maps, surveys, and personal recollections.

The Tortolita Fan subarea has several places of historic importance including occupied historic communities, places that have been recognized for their historic value and registered on the National Register of Historic Places, and two historic trails. These are represented on the attached map entitled, **Tortolita Fan Subarea Historic Resources.**

Historic Communities: Historic communities are those settlements that were established 50 or more years ago as indicated by either a founding date or the date the post office was first opened. The following descriptions are derived from"Arizona's Names" by Byrd Howell Granger, The Falconer Publishing Company, 1983.

- Catalina. Located on the west side of the mountains of the same name, the community of Catalina started out in 1949 when Mr. A.B. Garner opened a mercantile store and began subdividing lots. The community began to grow in the 1950s and continues to expand through unregulated development of individual lots.

- Marana. Established in 1890 as a railroad station, the name of this community means "jungle or tangle" in Spanish, probably a reference to the dense Mesquit/cat claw forest that formerly covered the flood plain of the nearby Santa Cruz River. In 1920, the community began to grow following the construction a water pumping plant used to irrigate nearby agricultural fields. Growing cotton, particularly Pima Cotton became a mainstay of the local economy and continues as an important agricultural activity to this day. The first post office opened in 1924.

- Rillito. This small community also was established as a rail stop on the Southern Pacific Railroad, 17 miles west of Tucson near the Santa Cruz River. The first post office opened in 1905. For a time the community was known as Langhorne after the first postmistress but changed to Rillito in 1916.

National Register Properties:
The National Register of Historic Places was created as a part of the National Historic Preservation Act of 1966. It is the nation's premier honor roll for places deemed of national, regional, or local historic importance. The criteria for listing include: a) association with a person who has contributed to history; b) association with an event important to history; c) associated with the work of a master artist or craftsman or typical of a style or type of workmanship; d) yielding or having the potential to yield information important to history or prehistory. Listing in no way effects the rights of private property owners to do what they wish with their property. Federal agencies; however, are required to consider the effects of their actions on listed properties. The following descriptions are based on the individual National Register nomination forms available at the State Historic Preservation Office in Phoenix, Arizona.

- Sutherland Wash Archaeological District. This 2,578 acre district is located adjacent to Sutherland Wash in the foothills of the Santa Catalina Mountains 14 miles north of Tucson, Arizona. Thirty-eight archaeological sites, spanning approximately 2000 years of time are included and represent the remains of an entire prehistoric community occupied by Hohokam Indians between approximately A.D. 550 and A.D. 1450. The settlement centered on a main village known as Romero Ruin that was surrounded by 13 smaller hamlets, 16 activity areas, six temporary houses and several very large agricultural fields.

The Romero Ruin also contains the remains of the 19th century ranch house owned by Francisco Romero who built his home within the ancient walls of the old Hohokam village site. The district was listed to the National Register of historic Places in 1988 for its importance to the study of prehistory and history of the northern Tucson Basin. The District is fully contained within Catalina State Park and Romero Ruin is open to the public.

- Sutherland Wash Rock Art District. This National Register District encompasses 12 prehistoric rock art sites within a 35 acre area located on U.S. Forest Service land on the west slopes of the Santa Catalina Mountains. The 1500 plus petroglyphs is one of the largest concentration of rock art ever recorded in the Tucson Basin and includes examples of both Hohokam "Gila Petroglyph" style, dating to between A.D. 600 and A.D. 1450, and earlier Western Archaic Period elements. The district was listed to the National Register in 1993 for its association with prehistoric Native American petroglyphs.

Historic Trails: In many places historic and prehistoric trails crossing the landscape often become the basis for historic roads and modern highways and the Tortolita Fan subarea is no exception.

- Anza Trail. This is the route taken by Juan Bautista de Anza in the expedition of 1775-1776 when he lead a group of some 250 colonists and 1200 head of livestock from Sonora to found a presidio and mission for Spain at San Francisco Bay. The trail extends from Nogales, Arizona to San Francisco, California, a distance of 1200 miles. There are approximately 60 miles of trail in Pima County along the west bank of the Sant Cruz River, with six campsites at Canoa, Llano Grande (south of Sahuarita), San Xavier del Bac, Tucquison (north of downtown Tucson). Llano del Azotado (at the north end of the Tucson Mountains), and Oitipars (near the Pinal County Line). The Anza Trail has been nominated as a National Historic Trail by the National Park Service. Today, Interstate 19 and portions of Interstate 10 follow the original route down the Santa Cruz Valley. In the Subarea, the Anza Trail followed the west side of the Santa Cruz River (Juan Bautista de Anza National Historic Trail, Draft Comprehensive Management and Use Plan and Environmental Impact Statement, National Park Service, 1994)

- Butterfield Stage Line. The Butterfield Overland Company was one of the first continental mail carriers. It opened in 1858 connecting St. Louis, Missouri and San Francisco, California; however, by 1861 it had ceased operations. In Arizona, the company used parts of existing trails to forge a route some 437 miles in length. In 1869, Wells Fargo operated over the old Butterfield stage lines and in the 1870s, the Southern Pacific railroad surveyed along the approximate route. In the Tortolita Fan Subarea, the trail is believed to have followed the west side of the Santa Cruz River in close proximity to the Anza trail crossing the Santa Cruz River north of the Point of the Mountains and south through Tucson along Main Street; however, the exact route has yet to be determined (Ahnert, Westernlore Press, 1973).

Historic Landscapes:
This is a special subcategory of historic resources as defined by the National Park Service. A rural historic landscape is "...that portion of the exterior natural environment that has been modified, influenced, or given special cultural meaning by people who shaped the landscape to serve human needs. A rural historic landscape is a geographical area that historically has been used by people or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways and natural features. Historic landscapes may reflect the beliefs, attitudes, traditions, and values of these people." (National Register Bulletin 30, U.S. Department of the Interior)

This is a new concept in cultural resources preservation; however, its use recognizes that there are places on

the landscape that have been altered, both intentionally and unintentionally, by human behavior in ways that make the landscape and the historic resources that are associated with it, a single, coherent entity of historic value. A historic ranch and its associated ranch lands may be the best example of a rural historic landscape where ranching activities over time have resulted in modifications to the natural environment that are recognizable as such. Other examples might include the intact remains of a prehistoric community and the surrounding lands that supported it.

- The Marana Mound Complex. Discovered during the Northern Tucson Basin Survey, this assemblage of temporally and spatially related archaeological sites located between the Santa Cruz River and the uplands of the Tortolita Mountains represents an intact prehistoric community in its original ecological setting. The main village site, occupied between A.D. 1150 and A.D. 1300, represents the pinnacle of organizational complexity and is the culmination of almost 2000 years of settlement history. It was supported by numerous secondary habitations and related sites used for food production and resource processing. Research has demonstrated that the Hohokam Indians utilized different elevational zones to maximize exploitation of the land for food production. The Marana Mound complex represents an example of a rural historic landscape of prehistoric origin.

To sum the discussion of historic resources, the subarea contains a variety of places that are symbolic of different historic forces that have affected southern Arizona and the nation as a whole from prehistoric settlements in foothills of the Catalina and Mountains, to 18th and 19th century travel routes, to historic communities that grew up along the Southern Pacific Railroad and on the fertile plain of the Santa Cruz River where cotton farming became an important economic force in 20th century Arizona.

C. Traditional Cultural Places

"A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices" (Preserving Cultural and Historic Resources, Pima County, May 1991).

Pima County has been occupied by indigenous peoples for thousands of years and the modern descendants of these prehistoric cultures still live in the region today. All of Pima County is claimed as ancestral lands by the Ak-Chin Indian Community, the Gila River Indian Community, and the Tohono O'odham Nation. The Piman speaking groups (including the Salt River Pima Maricopa Indian Community) claim direct ancestral affiliation with the prehistoric Hohokam Indians who inhabited much of southern and central Arizona. Other Indian groups also claim ancestral ties to the Pima County area including the Zuni of central western New Mexico and the Hopi of northeastern Arizona based on oral histories and myth that identify southern Arizona as a place of origin for these tribes. The Apaches also lived in the region for hundreds of years and therefore they too can claim an ancestral connection to the land and the places of traditional value to them that it may contain. Other groups with potential claims to places of traditional cultural value include the Hispanic and Anglo communities.

Places of traditional cultural value, as defined, are special to the community and must often remain secret to non-members; this is particularly true among Native Americans. These might be places where in the past natural resources were collected for ceremony or where natural features on the landscape are still recognized as having significance. Other places with traditional cultural value of particular importance to Native Americans are rock art sites and all archaeological sites containing human graves. Forty-six sites within the

subarea are identified as prehistoric rock art localities, and in addition, ninety-two prehistoric sites were used for habitation, which often contain human graves. It is reasonable to assume, that Native Americans would identify these places as having traditional cultural value. More than likely, there are many places with these kinds of values that exist in the Tortolita Fan subarea.

III. THREAT ASSESSMENT: The next map, entitled **"Archaeological Sites and Land Ownership"** shows the distribution of sites in relation to land status. The data presented in this figure represent information that the Arizona State Museum had in their data files as of last year. The site counts are considerably less that those presented in previous tables, which represented fully updated information on the subarea. For the purposes of the present analysis, the older data will be used until the necessary update to Pima County's data files can be made.

It is apparent that most of the 361 sites plotted are located on private lands in Oro Valley and along the Santa Cruz River. Legal protections against unauthorized disturbances are afforded archaeological sites and other cultural and historical resources on state and federal lands, but only one law, the Arizona State Burial Protection Act, applies to private land. Cultural resources on county lands are also covered by legal protections defined under county law and policy. Data are presented in Table 6 below showing the number of archaeological sites by land status and degree of legal protection for cultural resources.

Table IV.7.6. Tortolita Fan Subarea - Archaeological Sites by Landownership and Legal Protection

Jurisdiction	**No. of Archaeological Sites**	**Protection Status/Level**
BLM	1	Protected/high
National Forest Lands	10	Protected/high
National Parks/Monuments	25	Protected/high
State Lands (Trust)	43	Protected/moderate
State Park Lands	113	Protected/moderate
Private Lands	169	Unprotected/low
Total	**361**	

A total of 36 of the 361 sites have high protection status, reflecting the low percentage of federal lands in the subarea (23.3%). One hundred and fifty-six sites are moderately protected from public and private actions, 113 of which are within Catalina State Park. The remaining 169 sites or 46.8% have low protection status since they are located on private property. Since state trust lands can be sold for development, and private lands are subject only to local zoning, 212 of the 361 known archaeological sites may be affected by future development in the subarea. While the new site data cannot be added into this analysis, it is known that most of the sites that have been recorded in the subarea follow the same trend in this analysis in that they are located on private and state trust lands with very few exceptions.

Since the majority of the land base in the subarea has never been archaeologically surveyed, potentially hundreds, even thousands of sites that exist but have never been recorded could be affected. One way to estimate this number is to divide the number of square miles surveyed in the subarea (111.6) by the number of reported archaeological sites (970 - using the new data presented in Table 5) to get an estimate of 8.69 archaeological components per square mile. With a total of 317.9 square miles in the subarea, this produces a total estimate of 2,763 sites for the subarea, the majority of which will be on state trust and private lands, which combined make up 72.4% of the subarea. Thus, as many as 2000 archaeological sites, including the 970 already recorded, may be vulnerable to future development pressures by this calculation.

Archaeological sites are not evenly distributed across the landscape; people do not settle on or utilize the land in a uniform manner and therefore some areas will be more heavily used than others. As such, site densities will be lower than the average of approximately eight to nine sites per square mile in some places and higher in others. Since private lands concentrate along valley bottom adjacent to the Santa Cruz River and along the Canada del Oro, and since proximity to water is a reasonable predictor of where human beings have tended to settle in the past, private lands may actually hold more of the archaeological sites in the subarea, with state lands holding fewer sites than predicted. Uneven survey coverage and bias in recording contributes to the problems of this analysis making it no more than an educated guess. Even so, the results suggests the scale of the potential loss in the subarea and the conversely the size of the conservation problem.

The loss of cultural and historical resources and the threat of further loss in the Tortolita Fan subarea can be summarized as follows.

Resource Loss:
There are two principal sources of cultural resource loss in the subarea: farming and urbanization as depicted on the map entitled, **GAP Vegetation with Archaeology Site Locations**. Residential and infrastructure development along the Canada del Oro and west of the Catalina Mountains has disturbed approximately 19,500 acres in platted subdivisions alone. Unplatted development within the subarea is about equal to this number. In all, the area that is currently undergoing "urbanization" can be defined as those lands that have been developed, are being developed, and are private non-ranching lands adjacent to these developed areas. Using this definition, more than 68,000 acres in the Tortolita Fan subarea are urbanizing. Agriculture uses of the flood plain along the Santa Cruz River has resulted in additional loss of resources, particularly archaeological sites. There are currently more than 13,800 acres of land in agricultural use along both sides of the Santa Cruz River, most of which has been modified for use in cotton farming. Historically, a larger area was under cultivation. Thus a total area of approximately 81,800 acres or 127.8 square miles has been impacted or is being impacted now. Another 11,100 acres of state trust lands adjacent to I-10 north of Avra Valley Road has recently been re-classified for sale to private holders for commercial and residential development. These lands will be impacted in the near future.

Given the density estimates and the acreage totals of disturbed lands it is possible to make an educated guess about how many archaeological sites have been affected by the combined disturbances of farming and urbanization. At approximately 8 sites per square acre, platted subdivisions along the Canada del Oro has probably affected around 250 sites. The whole of the urbanizing region (including platted subdivisions) is likely to have affected as many as 850 archaeological sites. Agricultural development has potentially impacted another 170 sites, and those state lands that will be developed along the Santa Cruz River will affect another 140. Between farming and the far more destructive process of urbanization, as many as 1020 sites have been damaged or destroyed in the subarea.

It is important to note that other kinds of cultural resources, including historic buildings and structures, engineered features, roads, railroads, and trails, have also been impacted over the years by the combined forces of farming, ranching, and urbanization. That it is easier to quantify these effects for archaeological sites does not mean that important historical resources have not been similarly affected by both man made and natural forces. It is certain that the vestiges of the history of life on the Western frontier have also been lost.

Resource Threat:
The greatest threat to cultural resources of all kinds is continued urbanization from both platted subdivisions and unplatted or "wildcat" development of individual lots. The area of principal development pressure is

currently in the southern and eastern portions of the subarea within the jurisdictions of Marana and Oro Valley respectively. However, the communities of Casas Adobe and Tortolita within unincorporated Pima County are also experiencing growth pressures as people move out ahead of the front of urban expansion in the fast growing Northwest region of Tucson. All of these places will continue to develop in the future and the only question is how fast and by how much.

Since private land can be split into five lots or less and developed without platting under current state law, and state trust land is vulnerable to sale for residential and commercial development, cultural and historical resources will continue to be threatened on state and private lands, especially adjacent to area that are already experiencing growth. In unincorporated Pima County, development of unplatted land as individual parcels or in "lot split subdivisions" is not subject to the same environmental regulations, including cultural resources requirements, as formally platted subdivisions. Under these circumstances, cultural resources may be destroyed without first being recorded and no opportunities exist for in-place preservation through avoidance. Even in cases where development is subject to full review by the county, cultural resources may be destroyed provided they are first investigated. Thus, both platted and unplatted residential growth threatens cultural resources, particularly archaeological sites, but not exclusively.

Oro Valley has developed basic but limited regulations that require cultural resources investigations prior to development, and Marana imposes cultural resources stipulations on a case by case basis as part of the development review process. Together these regulations and requirements create a patch work of legal protections that are not coordinated in any way limiting the legal effectiveness of cultural resources protection across jurisdictions. It is important to note that without the information collected by the Arizona State Museum through the Northern Tucson Basin Survey, very little would be known about the cultural resources in this area, particularly archaeological sites, and it is only because of that work that it is possible now to discuss past impacts and the possibilities for future resource conservation.

Sensitivity Zone:
Archaeological survey coverage within the subarea is higher at 35.1% than any other subarea in Pima County. Even so, the distribution of cultural resources is not completely understood. In an effort to predict areas with high sensitivity for cultural and historical resources, proximity to water is used as an objective predictor; this assumes that in the desert places closer to water will tend to have been used more heavily by past human populations than places more removed from water sources.

The map entitled **Cultural Resources High Sensitivity Areas** identifies zones within the subarea that are predicted to be highly sensitive for cultural resources. The model encompasses the Santa Cruz River, the Canada del Oro, and a series of springs in the Catalina Mountains. Different buffers widths are used for the sensitivity model. The River and the Wash are buffered by two miles on either side for a total of four miles in width. The springs receive a one mile buffer around them as does the area of shallow ground water shown in green. The distribution of known archaeological sites is also provided in this figure and demonstrates that many, but not all known sites are captured within the sensitivity zones as defined. The buffers used are arbitrary and the statistical efficacy of the model is untested, even so this projection provides and idea of where common sense would predict sites to be located.

The buffered areas capture the distribution of known sites along the Santa Cruz River and the Canada del Oro, both the focus of human habitation in the subarea for millennia. Lack of survey data within the Coronado National Forest in the vicinity of the upland springs prevents assessing if the presence of springs in this area drew human settlement, although information from other subareas within eastern Pima County would suggest this. The model also includes the historic communities of Marana, Rillito and Catalina and

suggests that historic period settlements are conditioned to some extent by the same realities of life in the desert that affected prehistoric settlement patterning. It does not include all sites such as those at the base of the Tortolita Mountains. Obviously, proximity to surface water is only one factor that conditioned human behavior in the past. Nonetheless, the model does appear to work with sufficient capacity as a good guess where cultural resources, particularly those associated with habitation, can be expected to be found.

IV. SUMMARY: The cultural resources of the Tortolita Fan Subarea are the product of thousands of years of human settlement from the earliest prehistoric times to the modern day. In that sense, they represent a collective history of this portion of eastern Pima County and can inform and educate future generations about the past. But cultural resources are non renewable: there are only so many archaeological sites, historic buildings or places with traditional cultural value, and once they are gone there are no replacements. It is for this reason that Pima County has included cultural resources in its planning for the Sonoran Desert Conservation Plan.

This report provides information on known cultural resources within the subarea describing their nature and distribution and attempts to predict where other cultural resources may be found. Clearly, much more is known about the archaeological record than either historic resources or traditional cultural places. This is because more formal study has been directed to the archaeological record, whereas research on historic resources is limited, and ethnographic information on traditional cultural properties is almost completely lacking.

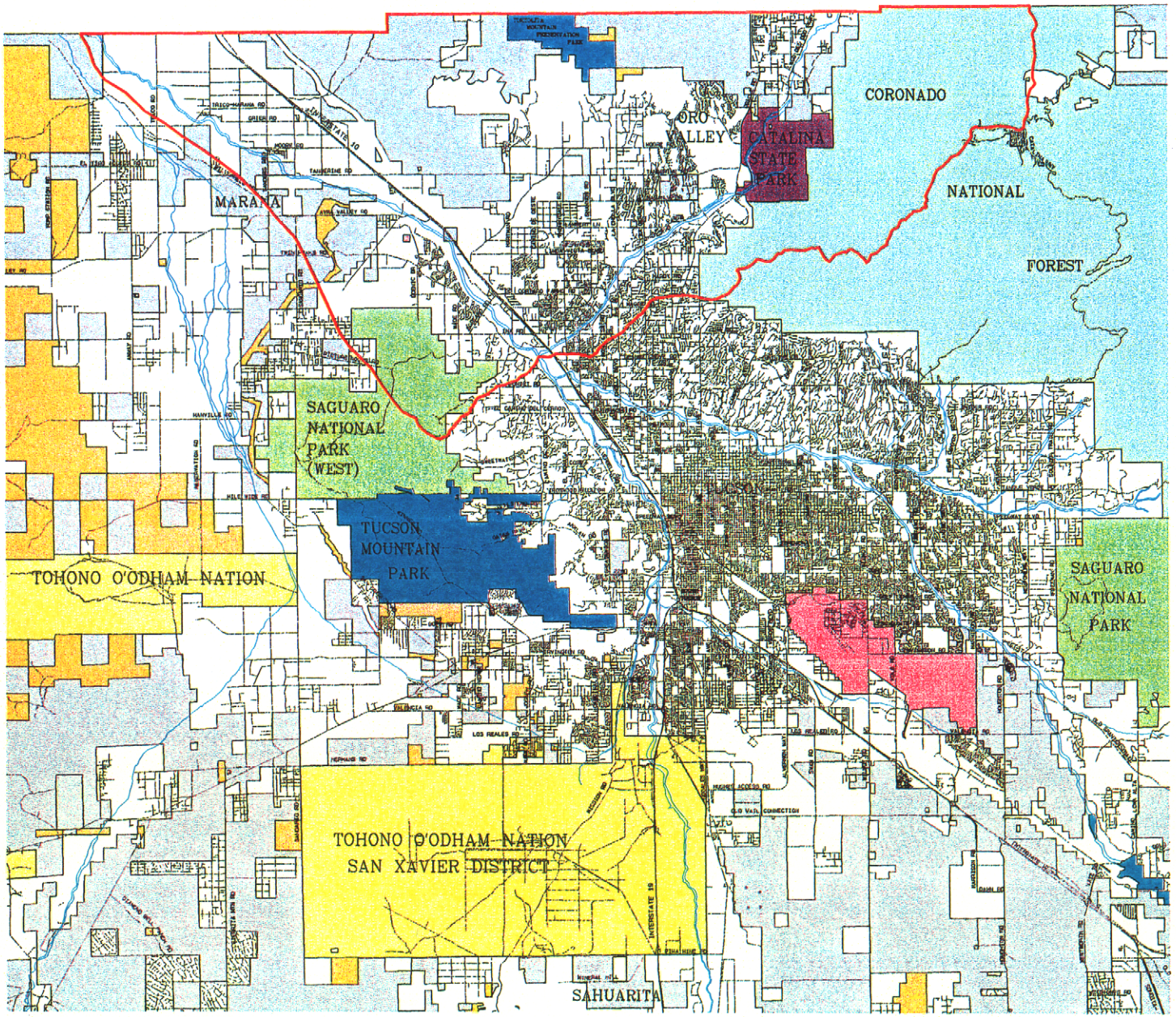
Unlike the other subareas that have been studied as part of the Sonoran Desert Conservation Plan, the Tortolita Fan subarea has received a very high level of archaeological research attention over the years. Archaeological survey data indicate that approximately 35.1% of the subarea has been intensively investigated and because of this a fuller picture of past land use is possible. It is apparent that thousands of years of human history is represented in the subarea but that the peak use of the valley occurred during late prehistory when the subarea was occupied by the Hohokam Indians. These people clearly thrived in the desert along the Santa Cruz River and the Canada del Oro Wash and learned to harness the subtleties of their environment to make a living.

The passage of the Spanish along the Anza Trail in the 18th century represents an era of exploration and conquest that forever changed the history of the land. Later, the Butterfield stage line would retrace portions of the former trail as mail was carried from Saint Louis to San Francisco. The historic communities of Marana and Rillito are products of early late 19th and early 20th century agriculture and transportation technology that linked the Tucson area to markets across the county and around the world. Catalina is only the latest example of a settlement that became established at a fork in the road or a well placed store as people seek a better life beyond the edge of the bigger settlements. The subarea has two places that are listed on the National Register of Historic Places for their importance in understanding the prehistory of the northern Tucson Basin. Lastly, Native American claims identify the subarea as part of their traditional use areas and the possibility that places with traditional cultural value exist in the subarea is high, especially those associated with the archaeological record. In short, the subarea has a demonstrably rich record of cultural and historical resources with high scientific, educational, and recreational values particularly so because of the extraordinary record of Hohokam archaeology.

Since the majority of the Subarea is composed of private lands and state trust lands that are potentially convertible into private lands for development, there is a further need to identify cultural and historical resources, evaluate their significance, and where warranted protect them for future generations. This is all the more justified in this subarea because of the rapid pace of resource loss due to residential development.

Modern Communities Transportation And Ownership

SDCP PLANNING UNIT 5



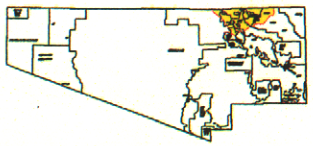
- Planning Unit Boundary
- Major Washes
- Roads
- BLM
- COUNTY PARK
- GOLDWATER GUNNERY RANGE
- INDIAN LANDS
- MILITARY RESERVATIONS
- NATIONAL FOREST LANDS
- NATIONAL PARKS AND MONUMENTS
- NATIONAL WILDLIFE REFUGE
- PRIVATE LANDS
- STATE LANDS
- STATE PARK

LAND OWNERSHIP

BLM	1,183 AC
COUNTY PARK	3,124 AC
MILITARY RESERVATIONS	40 AC
NATIONAL FOREST LANDS	37,799 AC
NATIONAL PARKS AND MONUMENTS	8,501 AC
STATE LANDS	44,706 AC
STATE PARKS	5,471 AC
PRIVATE LANDS	102,681 AC
TOTAL	203,505 AC

ESTIMATED 2000 POPULATION: 65,238

Pima County Index Map



Scale 1:80,000

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/pygmyowl2/sonora/cultural/sasjoinod/plans/sanio/cities5.eml

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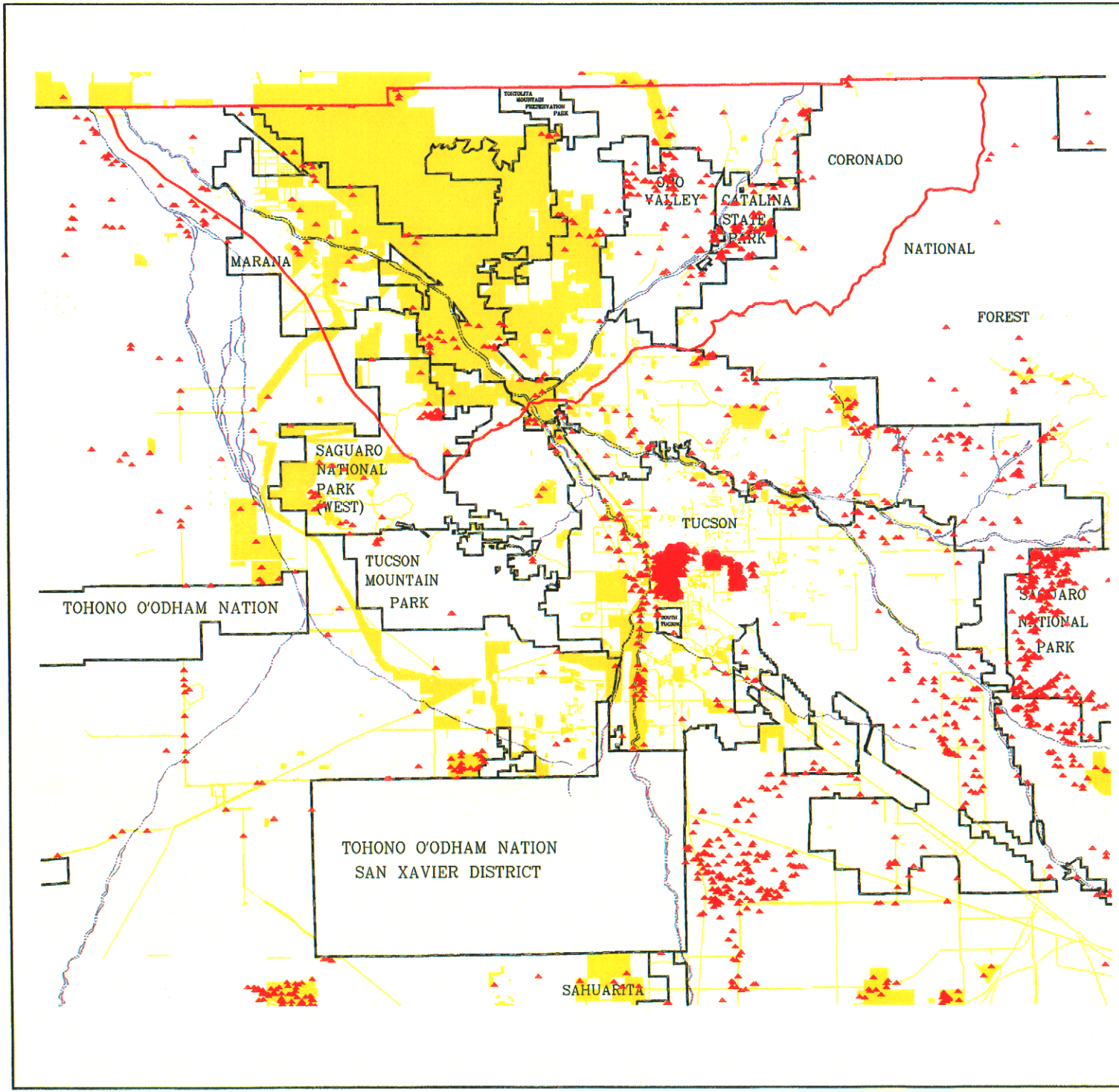
Archaeology Survey Locations

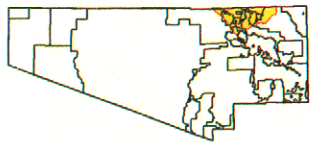


SDCP PLANNING UNIT 5

- Archaeology Sites
- Major Washes
- Linear Archaeology Surveys
- Polygonal Archaeology Surveys

STATISTICS FOR ARCHAEOLOGY SURVEYS
****
AREA FOR POLYGONAL SURVEYS: 69,270 AC
LENGTH FOR LINEAR SURVEYS : 632,579 FT
119.81 MI

Pima County Index Map



Index Map Scale 1:1,500,000

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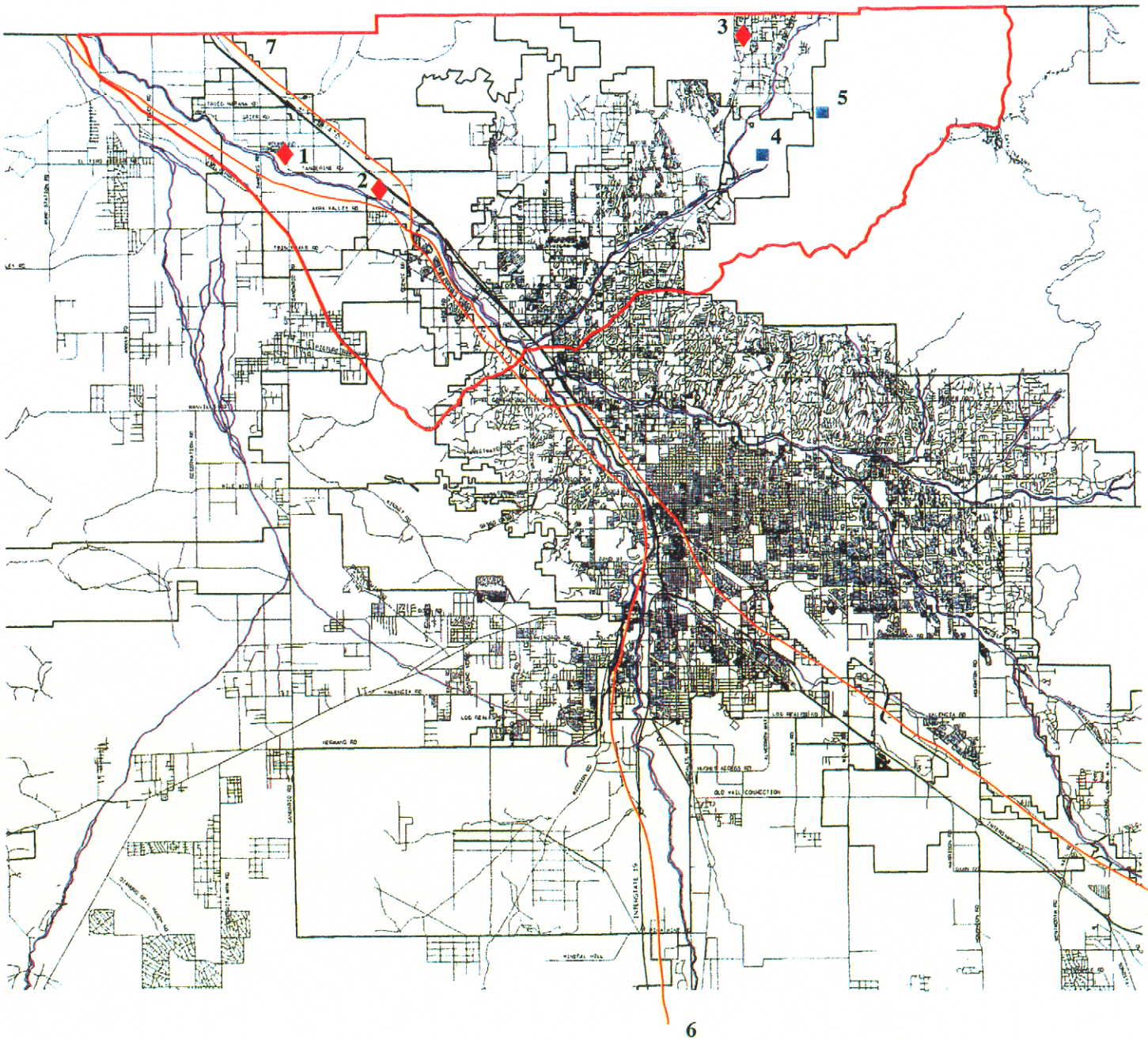
/pygmyowl2/sonora/cultural/combined/plan5/mslo/surv_site5.aml 8/23/00



TORTOLITA FAN SUBAREA HISTORIC RESOURCES

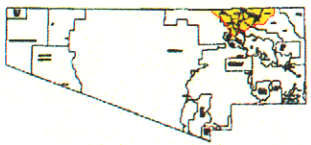
SDCP PLANNING UNIT 5

- Historic Community
- National Register Historic Places
- Trail

1. Marana
2. Rillito
3. Catalina
4. Sutherlan Wash Archaelogical District
5. Sutherland Wash Rock Art District
6. Anza Trail
7. Butterfield Stage Line

Pima County, Graphic Design. MOH 5-24-00

Pima County Index Map



Index Map Scale 1:1,440,000

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/projects2/surveys/cultural/esmissmod/plots/anla/base5.eps

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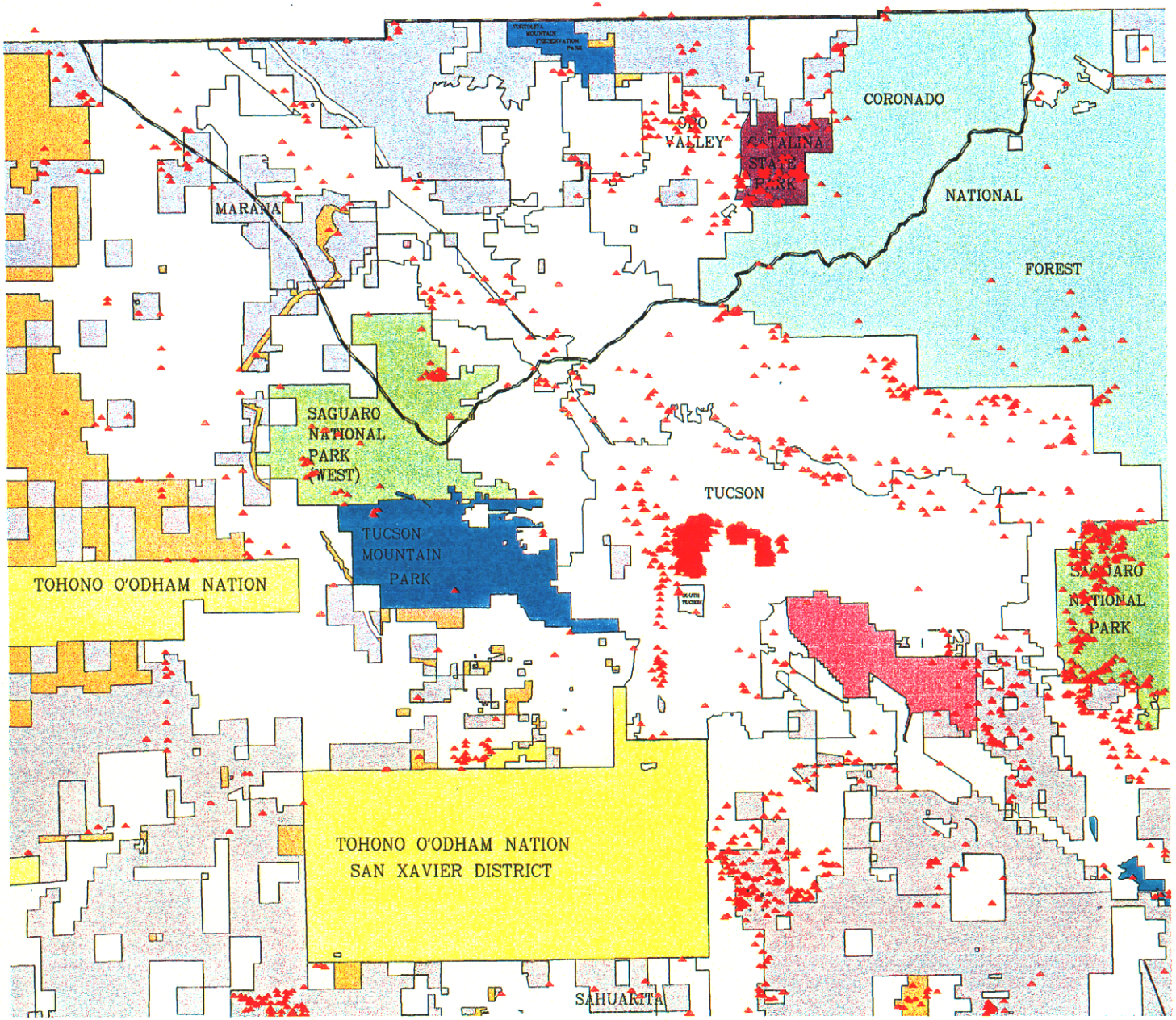
Archaeological Sites and Land Ownership

SDCP PLANNING UNIT 5

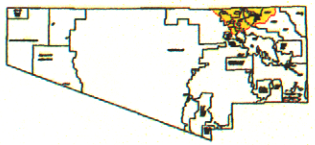


- Watershed Planning Boundary
- Archaeology Sites
- BLM
- COUNTY PARKS
- INDIAN LANDS
- GOLDWATER GUNNERY RANGE
- MILITARY RESERVATIONS
- NATIONAL FOREST LANDS
- NATIONAL PARKS AND MONUMENTS
- NATIONAL WILDLIFE REFUGE
- PRIVATE LANDS
- STATE LANDS
- STATE PARKS

STATISTICS FOR ARCHAEOLOGY SITES

JURISDICTION	# OF SITES
BLM	1
COUNTY PARK	0
GOLDWATER GUNNERY RANGE	0
MILITARY RESERVATIONS	0
NATIONAL FOREST LANDS	10
NATIONAL PARKS AND MONUMENTS	25
NATIONAL WILDLIFE REFUGE	0
PRIVATE LANDS	169
STATE LANDS	43
STATE PARKS	113
TOTAL	361

Pima County Index Map



Index Map Scale 1:1,500,000

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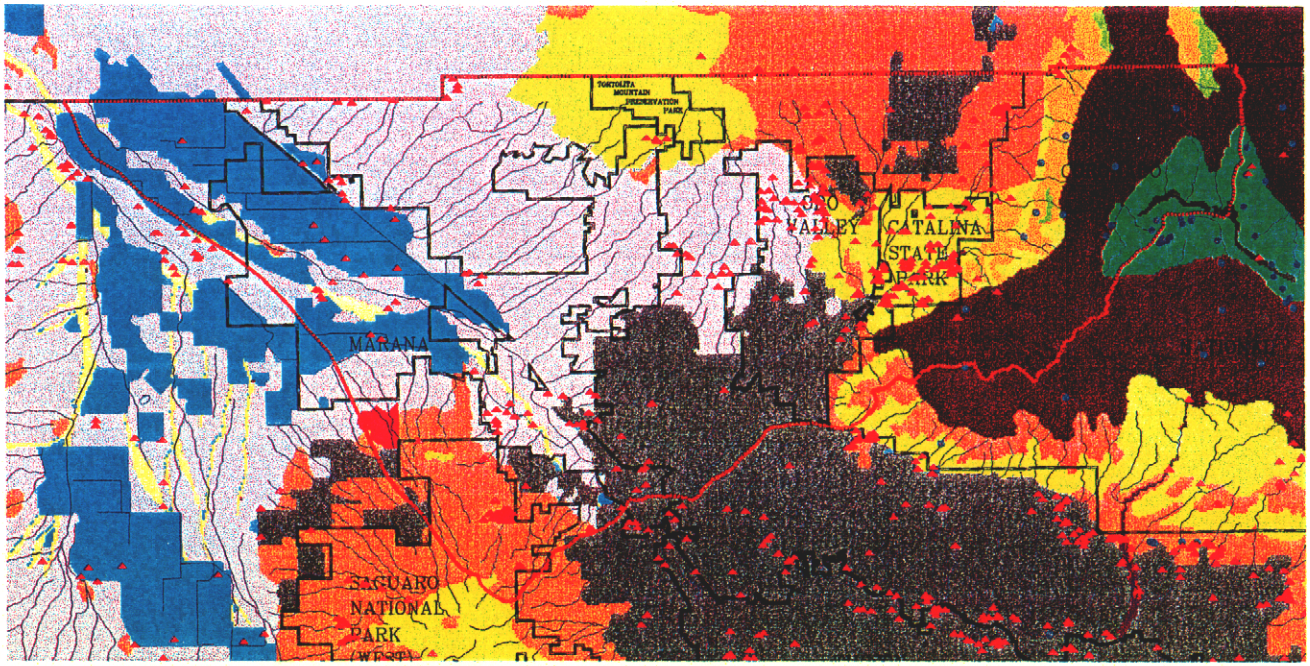
/pygmyowl2/sonora/cultural/sasjoined/plan5/smla/park5.aml 3/17/00

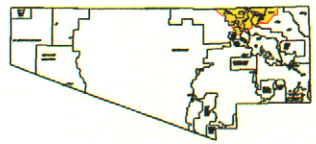
GAP Vegetation

SDCP PLANNING UNIT 5



- Watershed Planning Unit Boundary
- Administrative Boundaries
- Washes
- Springs
- Archaeological Sites
- Agriculture
- Urban
- Mining
- Chihuahuan Desertscrub (Creosotebush--Tarbush)
- Chihuahuan Desertscrub (Mixed Scrub)
- Chihuahuan Desertscrub (Whitethorn)
- Madrean Evergreen Forest (Encinal)
- Madrean Evergreen Forest (Oak--Pine)
- Madrean Montane Conifer Forest (Douglas-Fir--Mixed Conifer)
- Madrean Montane Conifer Forest (Pine)
- Mogollon Chaparral Scrubland (Manzanita)
- Mogollon Chaparral Scrubland (Mixed Evergreen Sclerophyll)
- Mogollon Deciduous Swampforest (Cottonwood--Willow)
- Mogollon Deciduous Swampforest (Mixed Broadleaf)
- Playa
- Scrub Grassland (Mixed Grass--Scrub)
- Scrub Grassland (Sacaton--Scrub)
- Sonoran Deciduous Swamp and Riparian Scrub (Mixed Scrub)
- Sonoran Desertscrub (Creosotebush--Bursage)
- Sonoran Desertscrub (Paloverde--Mixed Cacti)
- Sonoran Desertscrub (Saltbush)
- Sonoran Interior Marshland (Cattail)
- Sonoran Riparian and Oasis Forest (Cottonwood--Willow)
- Water

Pima County Index Map



Index Map Scale 1:1,500,000

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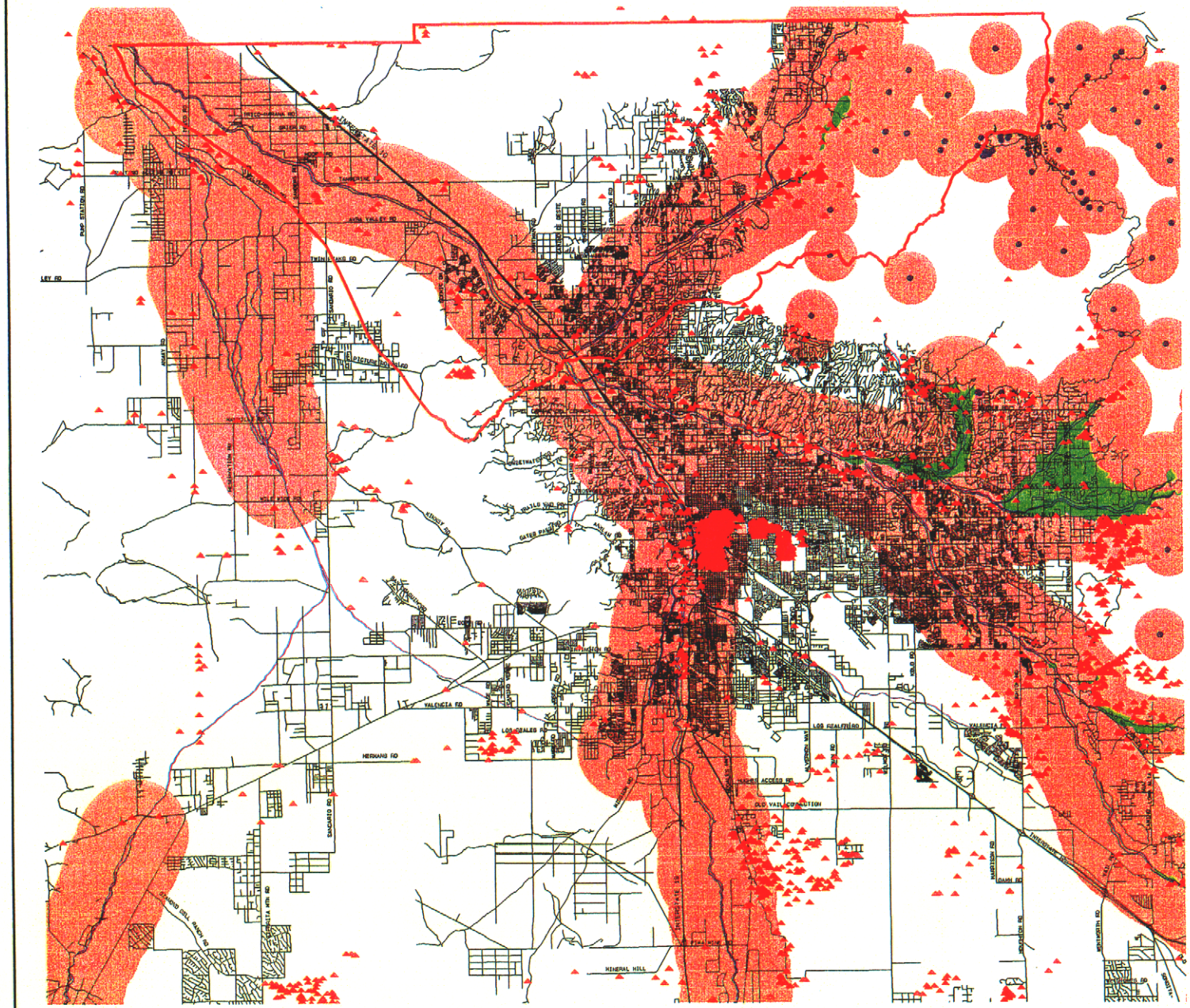
Cultural Resources
High Sensitivity Areas

SDCP PLANNING UNIT 5

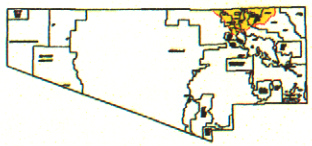


- Shallow Ground Water
- 2 Mile Buffer - Major Washes
  1 Mile Buffer - Springs
  1 Mile Buffer - Shallow Ground Water
- Streets And Roads
- Major Washes
- Subarea Boundary
- Springs
- Archaeological Sites

STATISTICS FOR UNIT 5

ACRES OF BUFFERED WASH, SPRING, AND SHALLOW FROUND WATER: 107,070 AC.

Pima County Index Map



Index Map Scale 1:1,500,000

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/pygeyow12/sonora/cultural/sonjoined/plan5/cels/wash5.eml

5/24/00

8. Middle Santa Cruz Subarea

I. SUBAREA: The subarea defines the watersheds formed by the Santa Catalina Mountains on the north, the Rincon mountains on the east, and the Tucson Mountains to the west. The southern boundary follows a line running south of Interstate 10 and north of the San Xavier District. This area drains the Santa Cruz River and its tributary, the Rillito River, which in turn is fed by the Tanque Verde Creek, Agua Caliente Wash and Pantano Wash as indicated on the map entitled, **"Modern Communities, Transportation, and Ownership."** The subarea encompasses approximately 565 square miles and contains southern Arizona's primary urban settlement, the City of Tucson and its outlying metropolitan areas.

The Middle Santa Cruz subarea contains approximately 361, 852 acres, within which land status is broken down as presented in the table below. Unlike most of eastern Pima County where state trust land makes up the majority of the land base, in this subarea, private lands rank first. Federal lands in Catalina, Rincon and the Tucson Mountains come second, state trust lands are third, followed by the military reservation at the Davis-Monthan Air Base, Pima County Park lands in Tucson Mountain Park, and lastly Tribal lands belonging to the Tohono O'odham San Xavier District as indicated in the table below.

Table IV.8.1.
Middle Santa Cruz Subarea - Land Ownership by Acres and Percent

Ownership	**Acres**	**Percentage**
Bureau of Land Management	125	<1
County Park	6,915	1.9
Tribal Land	3,834	1.0
Military Reservations	10,740	3.0
National Forest Lands	96,642	26.7
National Parks/Monuments	29, 331	8.1
State Lands	19,610	5.4
Private Lands	194,655	53.8
Total	**361,852**	**100**

The year 2000 population estimate for the Middle Santa Cruz subarea is 697,947 making it the most densely populated subarea in Pima County and second only to Phoenix in the state of Arizona. The subarea includes the City of Tucson and the community of Summerhaven at the top of the Catalina Mountains. Tucson is a heavily urbanized area that is rapidly growing and future growth projections put the combined population of Tucson and adjoining Pima County at over one million by the year 2010. Historically, the subarea included farming and ranching, but those activities have been completely replaced by commercial, residential, and transportation related development.

II. CULTURAL RESOURCES: This section presents information and analysis of current data on archaeological sites, historic resources and traditional cultural places within the subarea.

A. Archaeological sites

"Archaeological sites are any material remains of past human life or activities which are preserved in their original setting that are important to understanding prehistory or history. These sites or districts may include occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Archaeologists learn about the past by collecting and analyzing information in two ways: through survey and by excavation. Survey involves inspecting the ground surface in a particular area and recording concentrations of artifacts and features (hearths, roasting pits, pit houses, etc.) as archaeological sites. A site represents the physical remains of past human behavior in a single location dating to one or more periods of use through time. Surveys are often done systematically by groups of archaeologist who walk the land in regularly spaced lines looking for artifacts. Some surveys, however, are judgmental in that archaeologists only look where sites are expected to be found and not elsewhere. In all cases, survey offers an extensive perspective on past land use.

The second kind of information on archaeological sites is gained through excavation. This is the systematic recording, recovery, and analysis of artifacts and features from within a site's limits. Critical information is gained by understanding the spatial relationship of all artifacts and features within a three dimensional context. This enables interpretation about how the site was used, by whom, when, whether the site was used more than once and what happened after it was abandoned. Often, archaeological sites are not fully excavated but are only partially sampled. This saves what is left of the site for future investigations. Archaeological excavation provides highly detained information about the use of one limited spatial area during one or more use episodes. Archaeologist use survey information in conjunction with site excavation information to build regional time lines over broad areas such as a river valley.

Previous Research

A complete summary of the archaeological history of the subarea is not possible in this space; however, some highlights of that history are presented below.

As is the case elsewhere within Pima County, archaeological research began in the early part of the 20th century when archaeology as an intellectual discipline was in its infancy. In 1910, Ellsworth Huntington recorded two Hohokam village sites in the foothills of the Catalina Mountains. The Gibbons Spring Site and nearby Sabino Canyon ruin demonstrated the presence of prehistoric settlements in the upper bajadas in close proximity to natural springs and both sites were subject to excavation in later years. Byron Cummings, head of the anthropology department at the University of Arizona sent his students into the Rincon Valley, one of whom, Emil Haury excavated at Tanque Verde Ruin in 1927. In 1936, Isabel Kelly excavated the Hodges ruin, one of the largest Hohokam sites in the Tucson Basin. Located at the confluence of the Satna Cruz and Rillito Rivers, this site was occupied repeatedly over time and Kelly's well controlled excavation stood as one of the only sources of information on the Pre-Classic period in the Hohokam archaeological sequence for many years. In 1940, Julian Hayden excavated at the University Indian Ruin, a large Hohokam village located near the confluence of the Tanque Verde Creek and the Pantano Wash. The work at this site was directed at the Classic Period (A.D. 1150 - A.D. 1450) that followed the main occupation of the Hodges Ruin. Hayden's research contributed to the development of a regional chronology and an aerial synthesis, which were the primary objectives of archaeological research up until the middle 1960s. During these years,

the discipline of archaeology underwent a theoretical transformation and new environmental laws were passed that mandated archaeological investigations in advance of federally funded construction. These changes shifted the focus of research from chronology to questions relating to cultural evolution and greatly expanded the pace and extent of archaeological study throughout the region.

One of the first studies to reflect this new orientation was the excavation project conducted at Punta del Agua near San Xavier in 1965-1966. This research effort attempted to recover information on changes in social organization of the Hohokam Indians over time. Shortly thereafter major changes in downtown Tucson were initiated through the Tucson Urban Renewal Project. This large scale federally funded improvement project started in 1967 and ultimately resulted in the construction of the new civic plaza and related facilities in the heart of the historic core of Tucson. Over the years, whole city blocks associated with the early history of Tucson were razed; however, this also provided an opportunity to look at historic archaeological deposits in Tucson. While limited testing of historic deposits was conducted in the vicinity of the remains of the Convento and the Presidio in the 1940s and 1950s, archaeological research aimed specifically at historic sites was rare. The TUR project expanded the scope of study documenting the continuum of occupation in Tucson from prehistoric time to the modern era. Recently, additional historic archaeological research in the historic core area has been sponsored by the City of Tucson as part of its Tucson Origins project.

Most of the survey and excavation projects that have been conducted in the Tucson area have occurred since the 1970s and 1980s. One of the larger surveys in the subarea was conducted by the Arizona State Museum as part of the Santa Cruz River Park study in 1975-1976. This survey covered both sides of the Santa Cruz river from its confluence with the Rillito to north of the San Xavier District boundary and recorded valuable archaeological information on sites in heavily developed areas. A National Register nomination form was filled out for the 13 mile long project area that includes 33 major archaeological sites, most of which are large Hohokam villages, such as the Valencia Site and the West Branch Site. Excavation at the West Branch site in 1984 refined regional dates for the Pre-Classic time period and documented the organization of household subsistence practices in prehistory. The other large archaeological survey in the subarea focused on the National Park lands within the Saguaro National Monument West Unit in the Rincon Mountains. Survey work started in the mid 1960s and continued up until the 1990s resulting in the recording of hundreds of archaeological sites in the mountain foothills. Tumamoc Hill and the adjacent bajadas were also surveyed in the 1970s by the Arizona Archaeological and Historical Society. This large volcanic prominence on the west side of the Santa Cruz River is the location of a prehistoric trincerhas site that is characterized by numerous rock walls or terraces along with hundreds of other kinds of rock features used for dry farming in prehistory. Evidence suggests that the hill and the surrounding area was utilized for thousands of years. Survey on the Flying V Ranch at Ventana Canyon in the mid 1980s, discovered further evidence of Archaic and Hohokam populations settling in the foothills of the Catalina Mountains.

While the Hohokam use of the subarea was well established years ago, the antiquity of human settlement in the Tucson area became clearer after the excavation of the Milagro site located on one of the older terraces along the Tanque Verde Wash. This site, excavated in 1984, represents one of the oldest known agricultural settlements in the southwest. The significance of the sites relates to its containing evidence for sedentary agricultural existence dating to 800 B.C. placing the origins of agriculture in the region centuries earlier than previously thought. This corroborated other hints from the Cienega Creek area suggesting that the Hohokam Indians did not bring agriculture to the Tucson Basin, but rather, earlier Archaic populations were practicing this form of subsistence long before the Hohokam culture emerged.

Excavations conducted in the mid to late 1990s along the I-10 corridor have further supported this view by revealing a series of ancient villages located adjacent to the Santa Cruz flood plain from approximately

Speedway Boulevard to Ruthrauf Road in Tucson. Archaeological testing during the planning stages of frontage road construction along I-10 has detected most of these sites. Last year, another site was found further to the north during testing in advance of construction at Pima County's wastewater treatment facility at Ina Road. The results of testing and follow up excavation at the Santa Cruz Bend site, Square Hearth, Stone Pipe, Canal, Los Pozos and Las Capas sites have documented use of the Santa Cruz flood plain from the end of the Middle Archaic Period to the early centuries after Christ, a time span of approximately 4000 years. These sites contain evidence of corn agriculture, canal irrigation, and sedentary village life, traits previously thought to have entered the Tucson area much later in prehistory. With this new knowledge older theories on the transition from hunting and gathering to settled agricultural life in the Southwest will have to be revised and these new findings will also contribute to the long debate on the origin of the Hohokam people.

Survey data

There are two kinds of surveys that archaeologists perform: Linear and block. Linear survey involves inspecting a right-of-way for construction of a road, sewer line, telephone cable or other linear feature. These surveys tend to be done in compliance with legal mandates requiring environmental studies during project planning. Block survey involves examining non-linear properties ranging in size from a few acres to 1000s of acres. These are typically done either in compliance with legal mandates, or through academic or preservation related research projects. The Map entitled **Archaeology Survey Locations** shows the areas within the subarea that have been archaeologically surveyed and the sites that have been recorded. It is evident that survey has been conducted primarily on private lands in the north and west half of the subarea. Moreover, survey coverage has been achieved primarily through a great many small parcel and road right-of-way surveys that, with some notable exceptions, have focused along the Santa Cruz River, the Rillito River, and in the Catalina foothills. This reflects the effect of laws requiring survey and excavation in advance of state highway projects and Pima County's cultural resources requirements for rezoning and grading for development. The City of Tucson's historic preservation ordinance also requires archaeological investigations in some circumstances and these projects are also reflected. Presented below is a breakdown of survey data by acreage and survey type including the percentage of the subarea that has been investigated.

Table IV.8.2. Middle Santa Cruz Subarea - Survey Acreage by Survey Type

Survey Type	Number	Acres Surveyed	Percent of Subarea
Linear	757	7521	2.0
Block	749	16,623	4.6
Total	**1506**	**24,144**	**6.6**

The survey total indicates that despite numerous surveys conducted within the subarea, only a small portion of the landscape has been intensively investigated, and that conversely the vast majority of the land within the subarea, over 93 percent, has not. Despite this shortcoming, a large number of cultural resources, representing thousands of years of human occupation, are reported within the Middle Santa Cruz Valley subarea. The most abundant cultural resource within the Middle Santa Cruz Valley subarea is not archaeological but architectural in nature. The dense clusters of red triangles seen in the downtown Tucson area on the archaeology survey map are actually historic buildings that were assigned identifiers in the Arizona State Museum archaeological data base. This represent a total of 3988 historic buildings and includes hundreds of residences and related structures located within Tucson's 16 Historic Districts (see

National Register Properties below). This is the only subarea in Pima County where historic resources have received anything equal to the research attention that archaeological sites have.

Site Data - Chronology

Table IV.8.3 presents information on the number of prehistoric sites in the subarea by time period as reported by the Arizona State Museum. These data represent the latest information on site counts per time period.

Table IV.8.3. Middle Santa Cruz Subarea -Prehistoric Archaeological Site Data by Time Period					
TIME PERIODS	**PaleoIndian** 12,000 B.C. - 8,000 B.C	**Archaic** 8,000 B.C.- A.D. 200	**Ceramic** A.D. 200- A.D. 1540	**Unknown**	**Total**
Site Counts	0	34	305	84	**454***

*Includes 31 sites that have both Archaic and Ceramic Period occupations

While no sites dating to the PaleoIndian Period have yet been reported in the subarea, a few sites have been found to the east along the San Pedro River Valley. Several diagnostic spear points have also been found in the Tucson Mountains, within Saguaro National Monument East, and near Oracle Junction to the north, which at least demonstrate the presence of PaleoIndian People in the vicinity. The term "PaleoIndian" describes the earliest period of human occupation in the Americas. This was a time following the end of the last ice age when the environment was cooler and wetter than it is today. Many species of now extinct animals including mammoth, horse, camel, bear, bison, and lions lived during this period. Numerous archaeological sites found in the west indicate that hunting these large animals was an important part of the subsistence of PaleoIndian people, and as such, archaeologists refer to them as "big game hunters." While very little is known about these people, it is believed that they lived in small groups or bands by hunting and gathering wild foods as they became seasonably available throughout the year. Archaeological evidence suggest that they were highly mobile covering thousands of square miles in a year as they moved across the landscape. Early in the succeeding Archaic Period, the environment became warmer, the large game animals disappeared, and modern plant and animal species were established.

The Archaic Period is minimally represented in the subarea with 34, none of which can be more accurately dated. The Archaic Period represent a time span of almost 8000 years during which human beings adjusted their way of living in response to new environmental conditions. In order to survive, people became generalists in their subsistence practices, hunting and gathering a wide variety of plants and animals and becoming more efficient in how they processed their food as indicated by the presence of grinding stones found on sites of this period. Again, people appeared to have lived in small groups by hunting a gathering wild plants and animals over large areas through a seasonal round. Sites from the early and middle parts of the Archaic are rare in southern Arizona suggesting low population levels in response to the unfavorable environmental conditions believed to exist at that time; however, toward the end of the period several significant changes occurred laying the foundation for subsequent cultural development. First, the environment stabilized by 4500 years ago approaching modern conditions by that time. Second, population levels appear to have increased and some evidence suggests that people roamed within more restricted territories as a result. Third, by approximately 3500 years ago, people began to experiment with growing their own food as a supplement to their diet. This change also co-occurred with more permanent settlement along well watered reaches of the major drainages in the region. Research conducted within the last five years along the Santa Cruz River flood plain has confirmed the presence of settled village sites occupied by late Archaic people who practiced agriculture, utilized canal irrigation, and were experimenting with ceramic technology as early as 3000 years ago. These developments push back the origins of settled agricultural

existence in prehistory at least 1000 years from the previously established dates for the region.

A total of 305 sites dating to the Ceramic Period are known within the subarea indicating intensive use of the Middle Santa Cruz Valley during this time in prehistory. The Ceramic Period covers the time between the adoption of ceramic technology in the third and fourth centuries after Christ to the end of the prehistoric sequence around A.D. 1540. It was during the early part of the period, between approximately A.D. 200 to A.D. 700, that Archaic Period populations completed the transition from mobile hunting and gathering to settled, village based, agricultural existence in southern Arizona and elsewhere. The principal pottery bearing people in the region during prehistory were the Hohokam, who emerged as a distinct culture in the eighth century and dominated central and southern Arizona until around A.D. 1450. The Hohokam flourished along the river valleys of southern Arizona, including the Santa Cruz Valley, but were also well adapted to the desert lands to the west. They lived in settled, permanent villages, grew their own food using irrigation and dry farming techniques, developed a rich ceremonial life, and traded extensively with their neighbors throughout the region. A period of environmental instability during the A.D. 1300s is believed by some to have weakened the agricultural economy to the point where the Hohokam were no longer able to produce food in sufficient quantifies and with enough consistency to support large populations. Other theories suggest that warfare or disease may have destabilized the social system leading to decline. Whatever the cause, the Hohokam culture collapsed around A.D. 1450.

Following the collapse of the Hohokam, the region is believed to have been occupied in very low numbers by an O'odham (upper Piman speaking) people whose settlement and subsistence practices reflect a return to an earlier, simpler way of living. Life continued to involve the cultivation of crops supplemented by hunting a gathering, but the level of technical sophistication and social and religious cohesion characteristic of the Hohokam is missing in these later populations. These people are believed to be the descendants of the Hohokam, but are recognized as separate culture groups. Archaeologists know very little about the period that represents the end of the Hohokam and the beginning of the Spanish Colonial presence in southern Arizona. It appears to have been a time of flux when the vacuum left by the disappearance of the Hohokam was filled by groups that the Spanish recognized as the Sobaipuri and the Tohono O'odham in the 17th and 18th centuries. When the first Europeans arrived in the Tucson area, they found seasonally occupied settlements, called rancherias, at the base of Sentinel Peak and at San Xavier a few miles to the south. Other settlements were present along the San Pedro and Gila Rivers and west of Tucson on what is now the Tohono O'odham reservation.

Table IV.8.4.
Middle Santa Cruz Subarea - Historic Archaeological Site Data by Affiliation

Euro-American	Mexican - American	Tohono O'odham	Spanish	Unknown	Total
53	**18**	**12**	**2**	**8**	**93**

Table IV.8.4 presents archaeological data on the Historic Period, spanning the years between A.D. 1540 and 1950. The history of the Middle Santa Cruz Subarea can be viewed in terms of the settlement of the Santa Cruz River Valley.

In 1691, Father Eusebio Kino, a Jesuit priest, began a series of trips into the Pimeria Alta to meet with the native population. This resulted in the construction of the mission church at the village of San Xavier del Bac starting in 1700 south of Tucson and the founding of a large church at Guevavi in the Upper Santa Cruz

Valley, north of modern day Nogales. The introduction of Christianity changed the native ways of life profoundly. Livestock, wheat, and other domesticated plants and animals were added to the economy. Diseases introduced by the Europeans wiped out entire Indian villages and the native settlements of Sonora and Arizona were reorganized with a new focus on mission communities. Presidios, or forts, established by the Spanish at strategic places, originally for protection from the Apaches, were also occasionally used to keep the usually friendly Pimans in check. This was of particular concern to the Spanish in the years between 1734 and 1760 when Piman populations were agitating against Colonial rule culminating in the Pima Revolt of 1751.

Following these events, Spanish security concerns focused on the Apaches, who threatened Spanish outposts all along the northern frontier. The need for defense prompted the Spanish to establish a presidio at Tubac in 1752, which was later removed to the location of Tucson in 1775. On August 20th of that year, Don Hugo O'Connor founded the Presidio of San Agustín del Tuquisón on the east side of the Santa Cruz River in the approximate location of what is today El Presidio Park Plaza. Only a few months later in October, 1775, Captain Juan Bautista de Anza set off from Tubac in October, passed down the Santa Cruz River Valley through the settlement at Tucson turning west along the Gila River and journeyed on to the Pacific Coast culminating in the founding of San Francisco.

During these early years, the existence of Tucson as a viable settlement hung in the balance. Despite the presence of Spanish military personnel, the Apaches pretty much helped themselves to the livestock and colonists lost their lives in the hinter lands. The most serious event in Tucson's young history came in 1782 in the form of a full scale Apache assault in which 600 warriors attacked the Presidio very nearly ending Spain's colonial experiment in the Pimeria Alta. The pace of construction on the wall surrounding the settlement picked up shortly thereafter. Despite the hostility of the locals, Tucson survived and in 1800 the church constructed the mission of San Augistin, referred thereafter as the Convento, on the west side of the Santa Cruz River in the shadow of Sentinel Peak. By 1804, a total of 1015 souls called Tucson home.

In the later years of the Spanish Colonial period, ranching, mining, and agriculture were the principal economic activities in the Santa Cruz Valley and elsewhere. This was a time of relative peace until the Mexican War of Independence ended the colonial period in 1821. The missionization and military protection programs of the Spanish colonial government encouraged an influx of Spanish colonists early in the 18th century that eventually brought and end to the dispersed pattern of Indian Villages along the length of the Santa Cruz River. The Santa Cruz Valley became dominated by the inhabitants of Spanish and Mexican decent who survived mainly by farming, ranching, and trade. Apaches began raiding extensively in southern Arizona after 1830 and were a major threat to the Mexican Settlements. The Mexican war of 1846 and subsequent transfer of the Gadsden purchase to U.S. ownership in 1854 were the primary historical events leading to the end of Spanish and Mexican domination of the Santa Cruz Valley.

By the time of the Gadsden purchase, Spanish and later Mexican settlements were well established, and ranching and mining had replaced much of the traditional agricultural subsistence base. In Tucson, not much had changed since the turn of the 19th century, however. Population within the settlement declined to a low of about 460 people in the 1830s that picked up somewhat with the influx of miners who passed though the settlement in the late 1840s on their way to the gold fields of California. What the Americans saw in 1856 when U.S. troops took control of the presidio from the Mexican Army was a small village of about one thousand people living inside and close to the fort. The residents grew crops in the bottom lands nearby, raised cattle and sheep, and watched for attack from the Apache Indians.

Shortly thereafter things began to change. The Butterfield Overland Mail Company route passed through

the subarea during its short operations between 1858 and 1861. This was one of the first long distance mail carriers to be established linking the southwestern territories with the rest of the United States. Contracted by the federal government, the company offered mail service between Saint Louis, Missouri and San Francisco, California along a route that included stations spaced every 20 miles on average. The stations were to provide food, grain, water, ammunition, and equipment for mending coaches and shoeing mules and horses. One of these stations was located in Tucson itself near what is now Pearl and Pennington Streets. The outbreak of the civil war lead to the abandonment of the Butterfield line. During the war, Tucson was briefly occupied by the Confederacy in 1862, only to be reclaimed by Union Troops a short time later. Skirmishes between Union and confederate forces near Pichacho Pass were some of the western most engagements of the civil war.

Arizona officially became a territory in 1863. National politics, and the presence of proven mineral wealth, convinced President Abraham Lincoln to recognize Arizona as a territory separate from that of New Mexico and Prescott was selected as the first territorial capital. Tucson should have been chosen being the most important settlement in the territory, but at the time it was believed that Tucson had too many southern sympathizers. After the war, ranching and mining dominated the territorial economy and brought in Anglo-Americans in search of gold, silver, copper and other minerals. However, lumbering and farming also contributed as economic opportunities expanded.

Continued confrontation with the Apaches prompted the establishment of a permanent US military presence throughout southern Arizona, and a number of posts, camps, and forts sprung from Tubac to Holbrook including Fort Lowell, established 10 miles north and west of Tucson in 1873. The war with the Apaches ended in 1886 with the surrender of Geronimo ushering a period of peace and prosperity. With the coming of the railroad in 1880, Tucson became connected to the rest of the nation, bringing greater population growth and a more commercially oriented economy. Meanwhile, Tucson began to see the results of progress. Amenities came in rapid succession with Telegraph lines being installed in 1873, followed by a telephone system in 1881, and then gas, electricity, and city water in 1882. One of the least appreciated events at the time, but perhaps one of the most important for the future of Tucson, occurred in 1885 when the Territorial legislature in Prescot awarded Tucson the authority to build the University of Arizona. This came about through some late night horse trading whereby it was decided that Prescott would remain the territorial capital, Yuma would get the prison, Phoenix would get the mental hospital, and Tucson would get the U, which unfortunately did not have an appropriation that went with it. The citizens of Tucson were outraged and the man responsible for this disaster was forced to hire a body guard. In any event, ground breaking the university was held on October 27, 1887 and the University officially opened on October 1, 1891.

Statehood came to Arizona in 1912 after many fruitless years of trying to convince the Congress of the Territory's worthiness. Statehood also resulted in the establishment of the state trust lands that still to this day cover vast territory throughout southern Arizona, including Pima County. The establishment of the US Forrest Service (1905) prior to statehood and the Bureau of Land Management afterwards (1946) had a tremendous impact on rural life in the region including the Santa Cruz Valley adding forest and range management requirements to lands that traditionally had none. Tucson by the time of statehood had grown beyond the confines of the historic downtown core, which for many years was characterized by a north south axis along the Santa Cruz River and growth shifted east. Twenty-three thousand people lived in Tucson at the time, which would remain the largest city in the state until the 1920s when Phoenix surpassed it thereafter.

The effects of the first and second World Wars cannot be overstated in that each of these national convulsions brought an influx of people and technology to southern Arizona making Tucson the main

population center in the region. Copper mining became a major economic force in the area including the east flanks of the Sierrita Mountains, but farming and ranching continued to be important in the Santa Cruz Valley and elsewhere. The Davis-Monthan airfield opened in 1927 adding air travel to train transport, and automobile travel, still in its infancy. As a center of health care, Tucson attracted thousands of people from all over the country to its sunny and arid climate beginning in the 1890s and continuing well into the 1920s. Tourism too began to draw people into the area and the hospitality industry responded. It was during this time, for instance, that the El Conquistador Hotel (1925) and the Arizona Inn (1931) were built and dude ranches became popular as source of rural relaxation. The Depression brought hard times to Tucson, still a small town by national standards. The boom that came with World War II, however, changed the city's fortunes and thousands of serviceman were stationed at the air base. Following the war, many of these same servicemen settled in Tucson to raise families and rapid population growth ensued. In 1940, there were approximately 35,000 people within the city limits. By 1960, this number jumped to a little more than 212,000 people a six fold increase in twenty years. By 1980 330,000 people lived in Tucson and today the population rate is almost 483,000 with almost another 400,000 living in Pima County.
As a result of this demographic trend, urbanization has filled the Middle Santa Cruz subarea in all areas with the exception of federal lands (Saguaro National Monument, Coronado National Forest), County lands (Tucson Mountain Park), and some state lands in the southeastern corner of the subarea near Pantano Wash. Regionally, growth has begun to expand out from Tucson up the Upper Santa Cruz Valley and into the adjoining basins as new communities have become established in what was once open range along the valley floors. Today, Tucson's tremendous success threatens the record of its past as never before.

A total of 93 Historic Period sites have been identified in the subarea by the Arizona State Museum, 53 of which are Euro-American, 18 are Mexican in ethnic origin. There are twelve sites attributed to the Tohono O'odham, two have been identified as Spanish and the cultural identity of eight sites is unknown. Low sample size, the greater visibility of some sites and not others, and a lack of research interest in the archaeology of the historic time period distorts the true picture of historic period land use in the subarea. Given the long history of the Tucson area, it is certain that archaeological remains associated with the trends discussed above exist within the subarea with varying degrees of integrity.

Site Data - Function

The site data from both the historic and prehistoric eras can also be examined from a functional perspective to highlight land use trends within the subarea. The following is a summary of archaeological site data for the subarea that is presented by gross time period and site function. These data are made available by the Arizona State Museum, University of Arizona.

Table IV.8.5. Middle Santa Cruz Subarea Archaeological Site Data by Time Period and Site Function					
PERIOD	**Prehistoric**	**Historic**	**Both**	**Unknown**	**Total**
FUNCTION					
Agriculture	10	5	2	5	**22**
Art	8	0	1	0	**9**
Defense	0	0	0	0	**0**
Disposal	3	15	4	2	**24**
Government	0	22	3	3	**28**
Habitation	53	29	15	5	**102**
Resource Processing	81	2	4	15	**102**
Resource Procurement	4	0	1	0	**5**
Religion	8	2	1	2	**13**
Storage	2	1	0	1	**4**
Transportation	0	1	2	1	**4**
Unknown	285	16	27	96	**424**
Total	**454**	**93**	**60**	**130**	**737**

The site counts presented in Table IV.8.5 show that prehistoric sites out number the historic by less than five to one and that in 60 instances, occupations from both major time periods are present on the same site. The prehistoric site counts are dominated by Resource Processing (food and non food resources) and Habitation (residential) uses, which is typical of the functional data from other subareas. Food, shelter and non-food resources are critical for life everywhere. Agriculture (i.e. fields, water control features) is next with 10 sites followed by Art, meaning rock art, and Religion, both of which are represented by eight sites each. Resource Procurement (food and non food resources), Disposal (trash) and Storage appear in small numbers and may reflect more of a bias in recording than in actual presence in the archaeological record. As is the case in the other subareas in Pima County, the largest number of prehistoric sites cannot be functionally identified based on survey data.

The historic sites emphasize residential needs over all others, with Habitation being the primary functional category represented with 29 sites. What follows next are sites classified with a governmental or civic function with 22 sites. This is the highest number of sites with this particular use identified anywhere in Pima County and is consistent with the role of Tucson as a center of power during the historic period. Sites classifiable as Disposal, or trash dumps, are next with 15, followed by five sites identified as being agricultural in nature. Resource Processing and Religion are represented with two sites each, and sites with

Storage and Transportation functions are barely represented with one site each. The low number of sites associated with resource processing stands in contrast to the high number of such sites that are prehistoric in age. This may be a function of the differences in economic organization between the historic and prehistoric occupations. Resource processing during prehistoric times almost always involves features used for cooking food, whereas during the historic era, sites used for resource processing are often associated with mining or other industrial activities. Again, sample bias in the collection of data from the historic period distorts the evidence, but nonetheless, part of the explanation may lie in the very different ways in which prehistoric and historic people made their living. This is the same pattern observed in the data from the Tortolita Fan Subarea.

Fifteen of the sixty sites with both prehistoric and historic occupations on them can be functionally identified as having uses associated with Habitation, followed in order by Disposal and Resource Processing with four sites each. Agriculture and Transportation are present with two sites each, and Art, Resource Procurement, and Religion are last with one site each. There are also 130 sites where function can be determined but age cannot, with Resource Processing (15), Habitation (5), Agriculture (5) and Government (3) being the first, second, and third site types listed by order of rank. Minor site counts exist for Disposal, Religion, Storage and Transportation. It is likely that many of the Resource Processing and Habitation sites are Native American, possibly O'odham, but lack diagnostic artifacts to confirm their identity. Euro-American sites are usually pretty straightforward because of the distinctive characteristics of the material culture including glass, metal, pottery, etc.

Of all sites from both the prehistoric and historic time period, the data presented in Table 5 indicates that site use within the subarea is equally split between Habitation and Resource Processing of food and non-food items with 104 sites each, the latter being dominated by prehistoric sites with these functional uses. Government functions are second in overall count at 28, being dominated by historic period sites and this is followed in third by sites identified as having disposal as the primary function represented by 24 sites; these too are largely historic in origin. Agricultural is fourth in rank with 22 sites, Religion is fifth with 13, most of which are prehistoric in origin, and Art is sixth. This use category is also dominated by sites in the prehistoric column. Resource procurement is minimally represented with five sites and Storage and Transportation are tied for last in order with four site each.

Not surprisingly, the vast majority of those sites that could be functionally identified relate to housing and processing food and non food resources. Again, it is interesting to see the contrast between the historic and prehistoric representation of Government as a site function, being present only in the historic era, whereas the situation is reversed for sites classified as Resource Processing. As noted, these patterns are surely affected by the bias inherent in the data, but can nonetheless be argued to reflect differences in how prehistoric and historic populations have used the subarea over time.

To sum the information on archaeological sites, the Middle Santa Cruz subarea has witnessed a combination of archaeological survey and site excavation that has informed upon the past and is breaking new ground, so to speak. Still only a very small fraction of the subarea has been ever investigated. Because of this, site distribution is largely a reflection of where investigation has occurred than past land use patterning. Even so, it is possible to make a few summary statements based on the archaeological record:

1) It is evident that human beings have occupied the Middle Santa Cruz Valley subarea for many thousands of years and recent study of the Santa Cruz River flood plain suggests that the origins of sedentary village life, agriculture, and irrigation technology occurred far earlier than previously reported.

2) The subarea has experienced two peaks in occupation, the first occurring in prehistory during the period between A.D. 200 and A.D. 1300, and the second occurring after 1775.

3) Certain parts of the landscape have been more heavily utilized than others especially along the margins of the Santa Cruz River, the Rillito River and its tributaries where surface water has been available.

4) The predominant use of the landscape relates to housing and processing both food and non food resources for the two major time periods; however, significant differences in social and economic organization between the prehistoric and historic populations that can be inferred from the data.

B. Historical Resources

"Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years" (Preserving Cultural and Historic Resources, Pima County, May 1999).

Historical resources are largely constructed or engineered elements of the built environment including buildings used for residential purposes, such as houses, but also commercial stores, industrial facilities, civic centers, and places of worship. Roads, bridges, irrigation canals, mining works, and railroad tracks are also historical resources. Information on these places is recovered through drawings and design plans, photographs, maps, surveys, and personal recollections.

The Middle Santa Cruz subarea has a large number of places of historic importance including the City of Tucson, itself a historic community; places that have been recognized for their historic value and registered on the National Register of Historic Places; and, two historic trails.

Historic Communities: Historic Communities are those settlements that were established 50 or more years ago as indicated by either a founding date or the date the post office first opened. The following description is derived from "Tucson" by C. L. Sonnichsen, University of Oklahoma Press, 1982

- Tucson: The name of the modern city of Tucson is derived from the Piman word "Stjukson" meaning "at the foot of the black hill or mountain," which was given to the Indian settlement at the base of Sentinel Peak (A Mountain). Father Eusebio Kino first visited the subarea in 1691 and in 1700 built the first of several mission churches at the village of Bac located several miles south and west of the present downtown. In 1775 Don Hugo O'Connor, acting under the authority of the King of Spain founded the Presidio of San Agustín del Tuquisón, a fortified village, in roughly the same location as the present day El Presidio Park Plaza. This settlement became the nucleus of European colonial occupation on the northern frontier that has survived to the present day from Spanish Colonial times, through the Mexican and U.S. Territorial eras, through statehood and finally the post World War II population boom, which laid the foundation for the modern metropolis that characterizes the city today.

National Register Properties: The National Register of Historic Places was created as a part of the National Historic Preservation Act of 1966. It is the nation's premier honor roll for places deemed of national, regional, or local historic importance. The criteria for listing include: a) association with a person who has contributed to history; b) association with an event important to history; c) associated with the work of a master artist or craftsman or typical of a style or type of workmanship; d) yielding or having the potential to yield information important to history or prehistory. Listing in no way effects the rights of private

property owners to do what they wish with their property. Federal agencies; however, are required to consider the effects of their actions on listed properties. There are one hundred National Register Properties in the Middle Santa Cruz subarea, including 16 Historic Districts as shown on the map entitled, **"National Register Historic Districts."** In all, 3988 historic buildings and structures have been recorded in the Tucson area, almost all of which are included within these districts. The districts are listed below along with the period of significance for which each was nominated to the National Register.

Table IV.8.6. Middle Santa Cruz Subarea - National Register Districts

District	Address	Period
Armory Park	E. 12th St. to 19th St., Stone Ave. to 2nd Ave.	1880-early 1900s
Barrio Libre	Roughly bounded by 14th, 19th, Stone and Osborne Sts.	1863-1900
Colonia Solana	Roughly bounded by Broadway Blvd., S. Randolph Way, Camino Campestre, and S. Country Club	1920s-1930s
El Encanto Estates	Roughly bounded by Country Club Rd., Broadway Blvd., Fifth St., & Jones St.	1920s-1930s
El Montevideo	3700 and 3800 blocks of streets between Broadway and 5th St.	1930s-1950s
El Presidio	Roughly bounded by W. 6th, W. Alameda Sts., N. Stone and Granada Aves.	1850 -1912
Fort Lowell	N. Craycroft Blvd.	1873-1930
Menlo Park	Roughly bounded by Silverbell, Fresno St., Bonita Ave., and Cedar St.	1904-1941
Pie Allen	Roughly bounded by N. Euclid Ave., E. 6th St., N. Park Ave., and E. 10th St.	1910s-1930s
Sam Hughes	Roughly bounded by E. Speedway Blvd., N. Campbell Ave., E. 7th St. and N. Bentley Ave.	1910s-1930s
Iron Horse Expansion	Roughly bounded by Eighth St., Euclid Ave., Hughes and Tenth Sts., and N. Fourth and Hoff Aves.	1880-1935
John Spring Neighborhood	Roughly bounded by W. Speedway Blvd., N. Ninth Ave., W. Fifth St., N. Main Ave., W. Second St., and N. Tenth St.	1896-1940
Speedway-Drachman	Roughly bounded by Lee St., Park Ave., Speedway Blvd., 7th Ave., Drachman St., and 2nd Ave.	1900-1939
University of Arizona Campus	Roughly bounded by E. Second St., N. Cherry Ave., E. Fourth St., and Park Ave.	1890s-1950s
Tucson Warehouse	Roughly bounded by 5th St., 4th Ave., and Toole Ave.	1900-1948
West University	Roughly bounded by Speedway Blvd., 6th St., Park and Stone Aves.	1890s -1930s

Note: The City of Tucson has designated several local districts pursuant to its own preservation laws many of which are also on the National Register of Historic Places. For example, Barrio Historico, is a city designated district subject to city preservation requirements that is physically within the limits of the Barrio Libre National Register District. Other districts listed by the City through its own preservation ordinance that are also listed on the National Register include Armory Park, Fort Lowell, El Presidio and West University. The San Xavier Environs is a City listed district that is not on the National Register. For a complete listing of all National Register districts and individually listed properties see Appendix A.

Historic Trails: In many places, historic and prehistoric trails often become the basis for roads and modern highways and the Middle Santa Cruz subarea is no exception. The references used are cited elsewhere in this document.

- Anza Trail. This is the route taken by Juan Bautista de Anza in the expedition of 1775-1776 when he lead a group of some 250 colonists and 1200 head of livestock from Sonora to found a presidio and mission for Spain at San Francisco Bay. The trail extends from Nogales, Arizona to San Francisco, California, a distance of 1200 miles. There are approximately 60 miles of trail in Pima County along the west bank of the Sant Cruz River, with six campsites at Canoa, Llano Grande (south of Sahuarita), San Xavier del Bac, Tucquison (north of downtown Tucson). Llano del Azotado (at the north end of the Tucson Mountains), and Oitipars (near the Pinal County Line). The Anza Trail has been nominated as a National Historic Trail by the National Park Service. Today, Interstate 19 and portions of Interstate 10 follow the original route down the Santa Cruz Valley. In the Subarea, the Anza Trail followed the west side of the Santa Cruz River.

- Butterfield Stage Line. The Butterfield Overland Company was one of the first continental mail carriers. It opened in 1858 connecting St. Louis, Missouri and San Francisco, California; however, by 1861 it had ceased operations. In Arizona, the company used parts of existing trails to forge a route some 437 miles in length. In 1869, Wells Fargo operated over the old Butterfield stage lines and in the 1870s, the Southern Pacific railroad surveyed along the approximate route. In the Middle Santa Cruz Subarea, the trail is believed to have entered into Tucson from the east following a trail that later was closely paralleled by the Southern Pacific Railroad crossing what is today the Davis-Monthan Air Base and then up Main Street to a stage station near what is now Pearl and Pennington Streets. Leaving Tucson, the route headed north on the east side of the river, crossing west at Jaynes Station and following what is today Silverbell road passed two stops, Nine Mile Water Hole and Pointer Mountain, before crossing to the east again at the northern end of the Tucson Mountains.

To sum the discussion of historic resources, the subarea contains a variety of places that are symbolic of different historic forces that have affected southern Arizona and the nation as a whole from the founding of Tucson as a fortified village in the 18th century, to the Butterfield Overland Mail Route and the coming of the railroad, to the founding of the University of Arizona in 1885, to the establishment of Tucson as an important military base for both World Wars, and finally, the growth of Tucson as a regional urban center in recent years.

C. Traditional Cultural Places

"A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices" (Preserving Cultural and Historic Resources, Pima County, May

1991).

Pima County has been occupied by indigenous peoples for thousands of years and the modern descendants of these prehistoric cultures still live in the region today. All of Pima County is claimed as ancestral lands by the Ak-Chin Indian Community, the Gila River Indian Community, and the Tohono O'odham Nation. The Piman speaking groups (including the Salt River Pima Maricopa Indian Community) claim direct ancestral affiliation with the prehistoric Hohokam Indians who inhabited much of southern and central Arizona. Other Indian groups also claim ancestral ties to the Pima County area including the Zuni of central western New Mexico and the Hopi of northeastern Arizona based on oral histories and myth that identify southern Arizona as a place of origin for these tribes. The Apaches also lived in the region for hundreds of years and therefore they too can claim an ancestral connection to the land and the places of traditional value to them that it may contain. Other groups with potential claims to places of traditional cultural value include the Hispanic and Anglo communities.

Places of traditional cultural value, as defined, are special to the community and must often remain secret to non-members; this is particularly true among Native Americans. These might be places where in the past natural resources were collected for ceremony or where natural features on the landscape are still recognized as having significance. Other places with traditional cultural value of particular importance to Native Americans are rock art sites and all archaeological sites containing human graves. Eight sites within the subarea are identified as prehistoric rock art localities, and in addition, fifty-three prehistoric sites were used for habitation; these sites often contain human graves. It is reasonable to assume, that Native Americans would identify these places as having traditional cultural value. More than likely, there are many places with these kinds of values that exist in the Middle Santa Cruz subarea.

The only well known traditional cultural place in the subarea is not Native American but Mexican-American in origin. The following description is derived from the National Register form available at the State Historic Preservation Office in Phoenix, Arizona.

- El Tiradito. Otherwise known as the wishing shrine, this place is identified as the only shrine in the United State dedicated to the soul of a sinner in unconsecrated ground. Its name means "the castaway" and the many legends about its origin all involve a tragic love affair in the early 1870s. It is used as a place of petition where miracles can be granted. The site was placed on the National Register in 1971.

III. THREAT ASSESSMENT: The next map, entitled **"Archaeological Sites and Land Ownership"** shows the distribution of sites in relation to land status. The data presented in this figure represent current information provide by the Arizona State Museum. Again, the moss of sits shown in the downtown area are actually historic buildings. Aside from these, however, it is apparent that most of the 737 archaeological sites plotted are located on private lands along the Santa Cruz and Rillito Rivers and in the Catalina Mountain Foothills. A large number of sites are shown within the Saguaro National Monument Western District with a scattering of sites in the Coronado National Forest. Sites have also been recorded on state lands in the southeast corner of the subarea. The overall distribution shown on this map is a product of both where sites are located and where efforts have been made to find them.

Legal protections against unauthorized disturbances are afforded archaeological sites and other cultural and historical resources on state and federal lands, but only one law, the Arizona State Burial Protection Act, applies to private land. Cultural resources on county lands are also covered by legal protections defined under county law and policy. Data are presented in Table 7 below showing the number of archaeological sites by land status and degree of legal protection for cultural resources.

Table IV.8.7. Middle Santa Cruz Subarea Archaeological Sites by Landownership and Legal Protection		
Jurisdiction	**No. of Archaeological Sites**	**Protection Status/Level**
Military Reservations	8	Protected/high
National Forest Lands	69	Protected/high
National Parks/Monuments	205	Protected/high
State Lands (Trust)	69	Protected/moderate
Private Lands	386	Unprotected/low
Total	**737**	

A total of 282 of the 737 sites or 38% have high protection status, reflecting the relatively high percentage of federal lands in the subarea (37.8%). Sixty-nine sites are on state lands and thus are moderately protected from public and private actions. The remaining 386 sites, or 52.3%, have low protection status since they are located on private property. Since state trust lands can be sold for development, and private lands are subject only to local zoning, 455 or 61.7% of the 737 known archaeological sites may be (or have already been) affected by future development in the subarea.

The majority of the land base in the subarea has never been archaeologically surveyed and most of the subarea has been heavily developed through urban expansion meaning that hundreds, even thousands of sites may potentially exist. Site density estimates for the subarea calculated by dividing the total survey area (37.7 square miles) by the number of known sites (737) produces a figure of 19.5 sites per mile. This is by far the highest site density estimate of all the subareas in Pima County and is influenced by three factors: 1) Prehistorically, the Middle Santa Cruz was one of the most densely occupied areas in all of Pima County for centuries; 2) Tucson has been the primary population center for Euro-Americans and other ethnic groups for more than 200 years and archaeological sites from the historic period contribute a high proportion to the overall site count, and; 3) most of the areas surveyed have been in close proximity to a water source and this inflates the site counts distorting any density estimates for the area as a whole. The site density figures when applied to the whole of the subarea produces a figure of over 10,000 archaeological sites, which because of the bias in how the subarea has been surveyed is not useful. Nonetheless, given the intensify of occupation that is known to have occurred within the subarea during both the prehistoric and historic periods, it is reasonable to assume that many thousands of archaeological sites exist in the subarea. Moreover, 3988 historic buildings have been recorded making historic resources a significant part of the cultural resource base in the subarea.

Resource Loss:

There is only one sources of cultural resource loss in the subarea: urbanization. The map entitled, **GAP Vegetation** shows the extent of the urban area that has replaced the native vegetation. Also shown are the locations of the known archaeological sites, and the 3988 historic buildings located near the historic core of Tucson. Comparing this map against the map entitled, **Modern Communities Transportation and Ownership** demonstrates that virtually every piece of private property within the subarea has been developed to one degree or another, with some exceptions on the east and southeast edges. The only other places that

remain relatively intact within the urban area are City and County parks. Given the destructive effect of development on cultural resources, particularly archaeological sites, and given the extent of urbanization within the subarea, it is reasonable to assume that the integrity of much of the archaeological record has been compromised to varying degrees. This does not mean that there is no point in looking for archaeological sites within the urban area. Archaeological research in cities around the world have demonstrated that important cultural deposits survive to the modern era, particularly younger deposits; however, preservation is often a matter of luck more than anything else where important cultural deposits happen to be buried under streets or saved in vacant lots. Historic archaeology can be a powerful tool for learning about the history of urban areas, but because of the degree of disturbance must often be conducted in conjunction with historic maps; census, probate and tax records; historic photographs and the like, to make sense of what is found.

Historic Buildings too are affected by urbanization through the regular process of alteration, addition, and in some cases demolition. The El Conquistador Hotel, one of Tucson's finest in the 1920s and 1930s is a good example of how a community can lose a treasured historic resource to the wrecking ball. In other cases, the process is slow and occurs by many individual acts. The loss of the Presidio wall surrounding the 18th and early 19th century settlement of Tucson happened this way as people tore down a section of the wall here or borrowed some of the adobe bricks there. The largest single event resulting in the lose of the historic fabric of the city occurred as a result of improvements to the downtown area sponsored by the federal government through the urban renewal program. Development of El Presidio Park Plaza destroyed whole neighborhoods. Thus, over the years, many historic resources within the subarea have been lost as a result of the cumulative effect of many individual actions as well as government construction and redevelopment programs.

Resource Threat:
The greatest threat to cultural resources of all kinds is continued urbanization at the outer edges of the urban form, as well as within the city on vacant land. Approximately 40% of the city area is vacant and as population continues to grow, these lands will become more attractive for development especially so if through the Sonoran Desert Conservation Plan, growth is slowed and redirected in the county. Archaeological sites will continue to be threatened by development within the urban core from both public works projects and private development. Since it can be assumed that much of the archaeological record has already been affected, saving what has survived becomes even more imperative. While the City of Tucson has a preservation ordinance in place, its application to situations where archaeological sites may be damaged by development is limited. Historic resources will also continue to be threatened. While there are 16 National Register Districts and many more individually listed properties, these places are only the ones that have received attention and many more are deserving of that attention. The truth is that placing a property on the National Register does not prevent its destruction, it only excludes the owner from tax benefits that come from maintaining the historic character of the property. More stringent protections are afforded through local preservation law, but in reality more places are lost than are ever saved. Thus, continued urbanization within the subarea, both at the edges of the current urban form and within the urbanized area will continue to pose a threat to cultural resources in the future.

Sensitivity Zone:
Archaeological survey coverage within the subarea is very low at 6.1% and as a result the distribution of archaeological sites in particular, is not clearly understood. In an effort to predict areas with high sensitivity for cultural and historical resources, proximity to water is used as an objective predictor; this assumes that in the desert places closer to water will tend to have been used more heavily by past human populations than places more removed from water sources.

The map entitled **Cultural Resources High Sensitivity Areas** identifies zones within the subarea that are predicted to be highly sensitive for cultural resources. The model encompasses the Santa Cruz River corridor, the Rillito River, the Tanque Verde Creek and Pantano Wash, as well a series of springs in the Catalina Mountains and Rincon Mountains. Different buffers widths are used for the sensitivity model. The Rivers are buffered by two miles on either side for a total of four miles in width. The springs receive a one mile buffer around them as does the area of shallow ground water shown in green. The distribution of known archaeological sites is also provided in this figure and demonstrates that many, but not all known sites are captured within the sensitivity zones. The buffers used are arbitrary and the statistical efficacy of the model is untested, even so this projection provides and idea of where common sense would predict sites to be located.

The buffered areas capture the distribution of known sites along the major drainages as predicted. It also picks up a lot of the sites along the foothills of the Rincon Mountains and the Catalina Mountains near springs and in proximity to shallow ground water. The historic core of Tucson is included because of its proximity to the Santa Cruz. Obviously, proximity to surface water is not the only factor that conditioned human behavior in the past. Nonetheless, the model does appear to work with sufficient capacity as a good guess where cultural resources, particularly those associated with habitation, can be expected to be found. It is also remarkably consistent with where the expert opinion of local archaeologists predict that the remains of past land use should be found.

The model has the advantage of also allowing for an estimate of how much of the archaeological record may have been impacted by the scale of development that has occurred within the city limits over the years. As mentioned, a site density estimate of approximately 19 sites per square mile is derived from survey data; however the data largely reflect investigations in proximity to areas with water. The sensitivity model just presented captures 190,379 acres from drainages, springs and shallow ground water totaling 297.4 square miles. At 19 sites per mile, this area could potentially contain as many 5651 archaeological sites. Site estimate along the Santa Cruz River south of Green Valley and along the Cienega Creek average around 9 or 10 sites. With the added effect of the historic archaeological record the number of sites in the Tucson area can be expected to be greater, but may not be as high as 19 sites per square mile in all areas close to water. Thus, if a range of site density between 10 and 19 sites per square mile is used, a range of potential sites within the subarea can be estimated. Taking this approach something on the order of between 3000 and 5600 archaeological sites from all time periods is derived. This assumes that virtually no sites will be found in those areas outside of the buffered zones. While no area will be completely devoid of archaeological sites, low numbers are generally found within the subarea when located at distance from water. Therefore, while a number ranging from 3000 to 5600 sites is higher than the site estimates for other subareas examined in Pima County, given the importance of the middle Santa Cruz area as a focus of human habitation, this figure seems reasonable. Given the extent of development, however, it can also be assumed that many of these sites have been damaged or destroyed.

IV. SUMMARY: The cultural resources of the Middle Santa Cruz Subarea are the product of thousands of years of human settlement from the earliest prehistoric times to the modern day. In that sense, they represent a collective history of this portion of eastern Pima County and can inform and educate future generations about the past. But cultural resources are non renewable: there are only so many archaeological sites, historic buildings or places with traditional cultural value, and once they are gone there are no replacements. It is for this reason that Pima County has included cultural resources in its planning for the Sonoran Desert Conservation Plan.

This report provides information on known cultural resources within the subarea describing their nature and

distribution and attempts to predict where other cultural resources may be found. In this case, more may be actually known about historic resources that about the archaeological record reflecting a very high degree of effort on the part of the citizens of Tucson to recognize and protect their historic neighborhoods and landmarks.

Like many of the subareas that have been studied as part of the Sonoran Desert Conservation Plan, the Middle Santa Cruz subarea has received a relatively low level of archaeological research attention over the years. Despite a few notable exceptions, most research attention in the past was directed away from the city into the unspoiled hinterland where sites were still visible and accessible. That has changed as the dictates of modern cultural resources management require examination of areas that would not have been investigated in the past, including much of the city area and those portions of the county that are currently undergoing rapid development. From the body of research as a whole, however, it is evident that people have lived in the subarea for thousands of years. However, unlike other subareas there were two periods of peak population: one during late prehistory between A.D. 700 and A.D. 1450 when the subarea was occupied by the Hohokam Indians, and the second beginning in the 18th century with the founding of Tucson by the Spanish. Both the indigenous peoples and the European newcomers clearly thrived in the desert along the Santa Cruz River and learned to overcome the harshness of the environment to make a living and the vestiges of their settlements still exit within the subarea.

The construction of the mission of Saint Augustine, the building of the Presidio on the east side of the Santa Cruz River, and the passage of the Spanish along the Anza Trail in the 18th century all represents an era of exploration and conquest that forever changed the history of the land. Later, the Butterfield stage line would retrace portions of the former trail through the subarea as mail was carried from Saint Louis to San Francisco. The coming of the railroad in 1880 linked Tucson to the world and allowed it to prosper in a harsh land. New neighborhoods were added to the old as Tucson pushed east from the banks of the river beginning in the late 19th century. Many of these residences are now included within the 16 Historic Districts and 84 individual properties that are listed on the National Register of Historic Places for Tucson. The site of El Tiradito represents a traditional cultural place that is special to the city's large Mexican-American community. Lastly, Native American claims identify the subarea as part of their traditional use areas and the possibility that places with traditional cultural value exist in the subarea is high, especially those associated with the surrounding mountains.

In short, the subarea has a rich record of cultural and historical resources with high scientific, educational, and recreational values. Yet the Middle Santa Cruz subarea, containing the City of Tucson and portions of its metropolitan suburbs, is undergoing accelerated change driven by population growth and the resulting development pressures. These changes threaten what is left of the cultural resources in the urban area. Ironically, these are the very resources that can tell us about the historical forces that created the city that is now consuming them. Clearly, there is a need to identify cultural and historical resources, evaluate their significance, and where warranted protect the record of the past for the future.

APPENDIX A: MIDDLE SANTA CRUZ SUBAREA NATIONAL REGISTER INFORMATION.

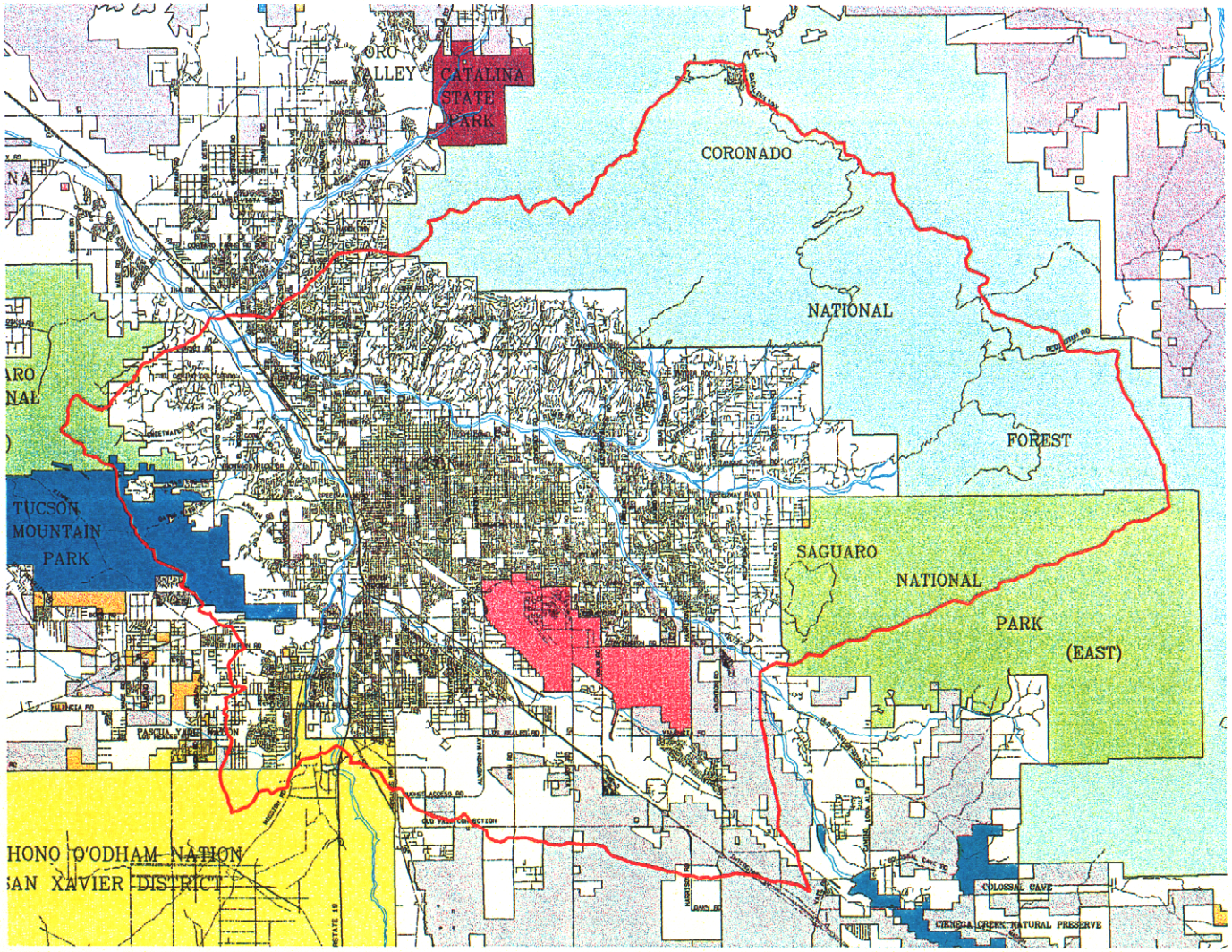
The following list provides the names and addresses for 76 individual properties and Districts listed on the National Register of Historic Properties within the Middle Santa Cruz subarea. The year of the listing is also provided in parentheses.

- Arizona Inn. 2200 E. Elm St. (1988)
- Armory Park Historic Residential District. E. 12th St. to 19th St., Stone Ave. to 2nd Ave. (1976)
- Armory Park Historic Residential District (Boundary Increase). Roughly, 19th, 20th, and 21st Sts. From Stone Ave. to Jacobs Ave.(1996)
- Barrio Libre. Roughly bounded by 14th, 19th, Stone and Osborne Sts. (1978)
- Blixt--Avitia House. 830 W. Alameda St. (1992)
- Boudreaux--Robison House. 101 N. Bella Vista Dr. (1992)
- Bray-Valenzuela House. 203 N. Grande Ave. (1992)
- Cannon, Dr. William Austin, House. 1189 E. Speedway (1982).
- Cavalry Corrals. N. Craycroft Blvd.(1978)
- Colonia Solana Residential Historic District. Roughly bounded by Broadway Blvd., S. Randolph Way, Camino Campestre, and S. Country Club (1989)
- Copper Bell Bed and Breakfast. 25 N. Westmoreland Ave. (1992)
- Cordova House. 173--177 N. Meyer Ave. (1972)
- Coronado Hotel. 410 E. 9th St. (1982)
- Desert Laboratory. W of Tucson off W. Anklam Rd. on Tumamoc Hill (1966)
- Fort Lowell Park. N. Craycroft Blvd. (1978)
- El Conquistador Water Tower. Broadway and Randolph Way (1980)
- El Encanto Apartments. 2820 E. Sixth St. (1994)
- El Encanto Estates Residential Historic District. Roughly bounded by Country Club Rd., Broadway Blvd., Fifth St., & Jones St.(1988)
- El Montevideo Historic District. 3700 and 3800 blocks of streets between Broadway and 5th St.(1994)
- El Presidio Historic District. Roughly bounded by W. 6th, W. Alameda Sts., N. Stone and Granada Aves.(1976)
- El Tiradito. 221 S. Main St. (1971)
- Fort Lowell Park. N. Craycroft Blvd. (1978)
- Fourth Avenue Underpass. Fourth Ave. (1988)
- Hughes, Sam, Neighborhood Historic District. Roughly bounded by E. Speedway Blvd., N. Campbell Ave., E. 7th St. and N. Bentley Ave.(1994)
- Iron Horse Expansion Historic District. Roughly bounded by Eighth St., Euclid Ave., Hughes and Tenth Sts., and N. Fourth and Hoff Aves. (1986)
- Julian--Drew Building. 182 E. Broadway (1996)
- Lemmon Rock Lookout House. Coronado National Forest (1988)
- Lowell Ranger Station. Off Sabino Canyon Rd. NE of Tucson, Coronado NF (1993)
- Manning Cabin. 10 mi. E of Tucson in Saguaro National Monument (1975)
- Manning, Levi H., House. 9 Paseo Redondo (1979)
- Matus, Antonio, House and Property. 856 W. Calle Santa Ana (1991)
- Men's Gymnasium, University of Arizona. E. Fourth St., University of Arizona campus (1990)
- Officer's Quarters. N. Craycroft Blvd. (1978)
- Old Adobe Patio. 40 W. Broadway (1971)
- Old Library Building. University of Arizona campus (1979)
- Old Main, University of Arizona. University of Arizona campus (1972)

- Pie Allen Historic District. Roughly bounded by N. Euclid Ave., E. 6th St., N. Park Ave., and E. 10th St. (1996)
- Pima County Courthouse. 115 N. Church St. (1978)
- Post Trader's Store and Riallito House. 5425 E. Fort Lowell Rd. (1978)
- Post Trader's Storehouse. 5354 E. Fort Lowell Rd. (1978)
- Quartermaster Storehouse. 5479 E. Fort Lowell Rd. (1978)
- Quartermaster's Corrals. N. Craycroft Rd. (1978)
- Rillito Racetrack--Chute. 4502 N. First Ave. (1986)
- Ronstadt House. 607 N. 6th Ave. (1979)
- Ronstadt--Sims Adobe Warehouse. 11 N. 13th Ave. (1989)
- Sabedra--Huerta House. 1036--1038 N. 13th Ave. (1988)
- San Pedro Chapel. 5230 E. Ft. Lowell Rd. (1993)
- San Xavier del Bac. 9 mi. S. of Tucson via Mission Rd. (1966)
- Santa Cruz Catholic Church. 1220 S. Sixth Ave. (1994)
- Schwalen--Gomez House. 217 N. Melwood Ave. (1992)
- Site No. HD 13-11. E. Fort Lowell Rd. (1978)
- Site No. HD 13-13. E. Fort Lowell Rd. (1978)
- Site No. HD 13-4. N. Craycroft Blvd. (1978)
- Site No. HD 4-8A. E. Fort Lowell Rd.(1978)
- Site No. HD 5-26. 5495 E. Fort Lowell Rd.(1978)
- Site No. HD 7-0A. 5429 E. Fort Lowell Rd. (1978)
- Site No. HD 7-13. 5531 E. Fort Lowell Rd. (1978)
- Site No. HD 9-28. 5668 E. Fort Lowell Rd. (1978)
- Site Nos. HD 12-4/12-8. E. Fort Lowell Rd. (1978)
- Site Nos. Hd 5-28/5-25. 3031 N. Craycroft Blvd. (1978)
- Site Nos. HD 9-11/9-2. 5651 E. Fort Lowell Rd. (1978)
- Sixth Avenue Underpass. Sixth Ave. (1988)
- Smith, Professor George E.P., House. 1195 E. Speedway. (1982)
- Sosa--Carrillo--Fremont House. 145--153 S. Main St. (1971)
- Southern Pacific Railroad Locomotive No. 1673. Himmel Park (1992)
- Speedway--Drachman Historic District. Roughly bounded by Lee St., Park Ave., Speedway Blvd., 7th Ave., Drachman St., and 2nd Ave. (1989)
- Spring, John, Neighborhood Historic District. Roughly bounded by W. Speedway Blvd., N. Ninth Ave., W. Fifth St., N. Main Ave., W. Second St., and N. Tenth St. (1989)
- Stone Avenue Underpass. Stone Ave. (1988)
- U.S. Post Office and Courthouse. 55 E. Broadway (1983)
- University Heights Elementary School. 1201 N. Park Ave. (1983)
- University of Arizona Campus Historic District. Roughly bounded by E. Second St., N. Cherry Ave., E. Fourth St., and Park Ave. (1986)
- USDA Tucson Plant Materials Center. 3241 N. Romero Rd. (1997)
- Valencia Site (BB:13:15;BB:13:74). Address Restricted (1984)
- Velasco House. 471--475--477 S. Stone Ave. and 522 S. Russell St. (1974)
- Warner, Solomon, House and Mill. 350 S. Grand Ave. (1976)
- West University Historic District. Roughly bounded by Speedway Blvd., 6th St., Park and Stone Aves. (1980)

Modern Communities Transportation And Ownership

SDCP PLANNING UNIT 4



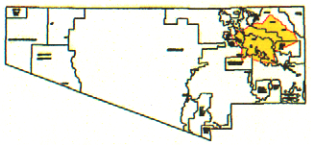
- Planning Unit Boundary
- Major Washes
- Roads
- BLM
- COUNTY PARK
- GOLDWATER GUNNERY RANGE
- INDIAN LANDS
- MILITARY RESERVATIONS
- NATIONAL FOREST LANDS
- NATIONAL PARKS AND MONUMENTS
- NATIONAL WILDLIFE REFUGE
- PRIVATE LANDS
- STATE LANDS
- STATE PARK

LAND OWNERSHIP

BLM	125 AC
COUNTY PARK	6,915 AC
TRIBAL NATIONS	3,834 AC
MILITARY RESERVATIONS	10,740 AC
NATIONAL FOREST LANDS	96,642 AC
NATIONAL PARKS AND MONUMENTS	29,331 AC
STATE LANDS	19,610 AC
STATE PARKS	0 AC
PRIVATE LANDS	194,655 AC
TOTAL	361,852 AC

ESTIMATED 2000 POPULATION: 697,947

Pima County Index Map



Index Map Scale 1:1,500,000

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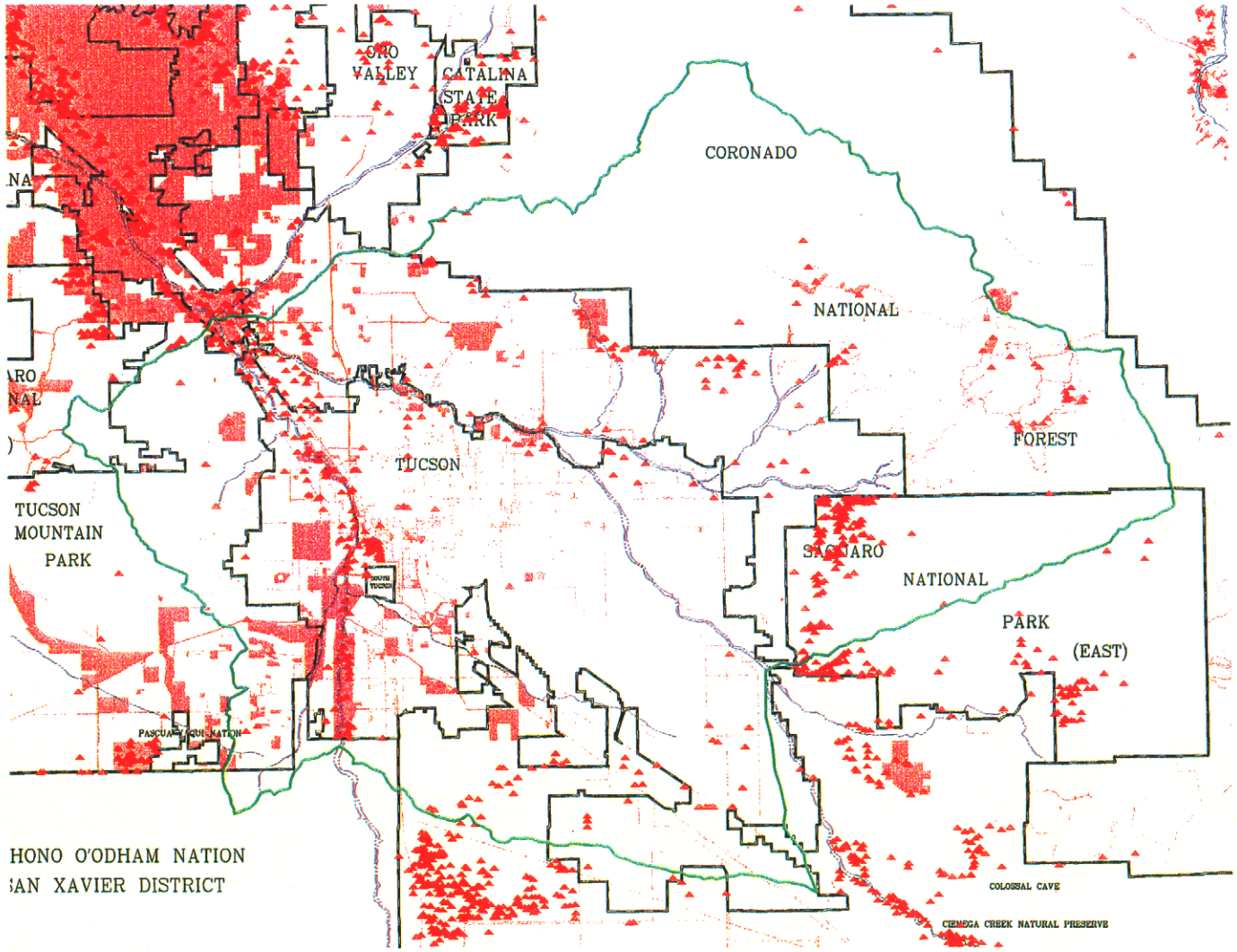
Scale 1: 80,000

PIMA COUNTY DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES

Pima County Technical Services
201 North Stone Avenue - 8th Floor
Tucson, Arizona 85701-1207
(520) 740-6670 - FAX (520) 798-3429
http://www.dot.co.pima.az.us

/pygmyowl2/genore/cultural/samplemod/plan4/cmlo/cities4.aml 5/25/00

Archaeology Survey Locations

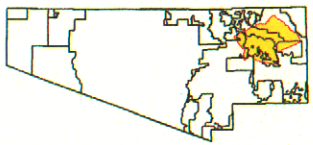


SDCP PLANNING UNIT 4

- Archaeology Sites
- Major Washes
- Watershed Planning Unit
- Linear Archaeology Surveys
- Polygonal Archaeology Surveys

STATISTICS FOR ARCHAEOLOGY SURVEYS
****
AREA FOR POLYGONAL SURVEYS: 16,624 AC
LENGTH FOR LINEAR SURVEYS : 2,184,373 FT
413.71 MI

Pima County Index Map



Index Map Scale 1:1,500,000

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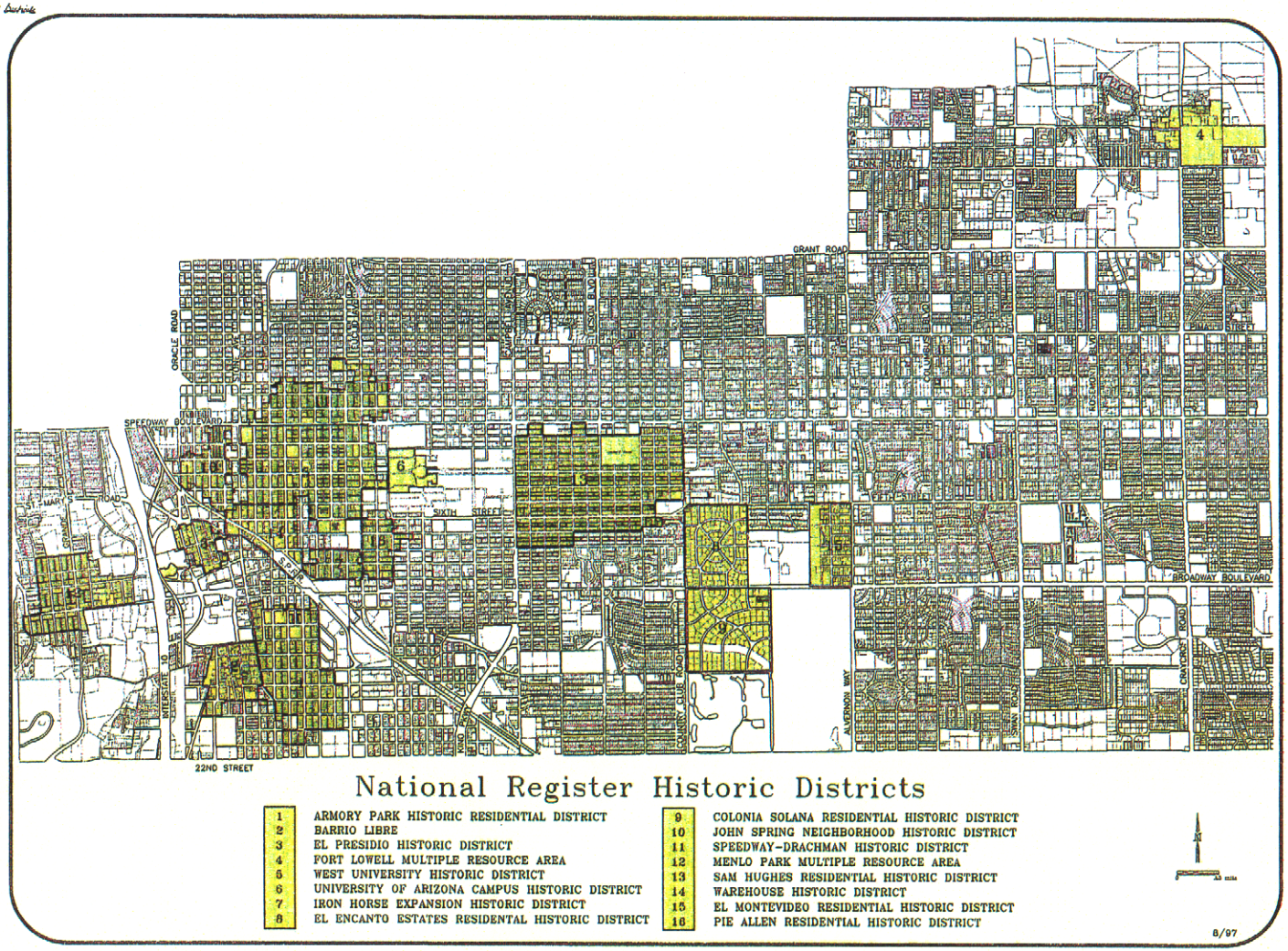


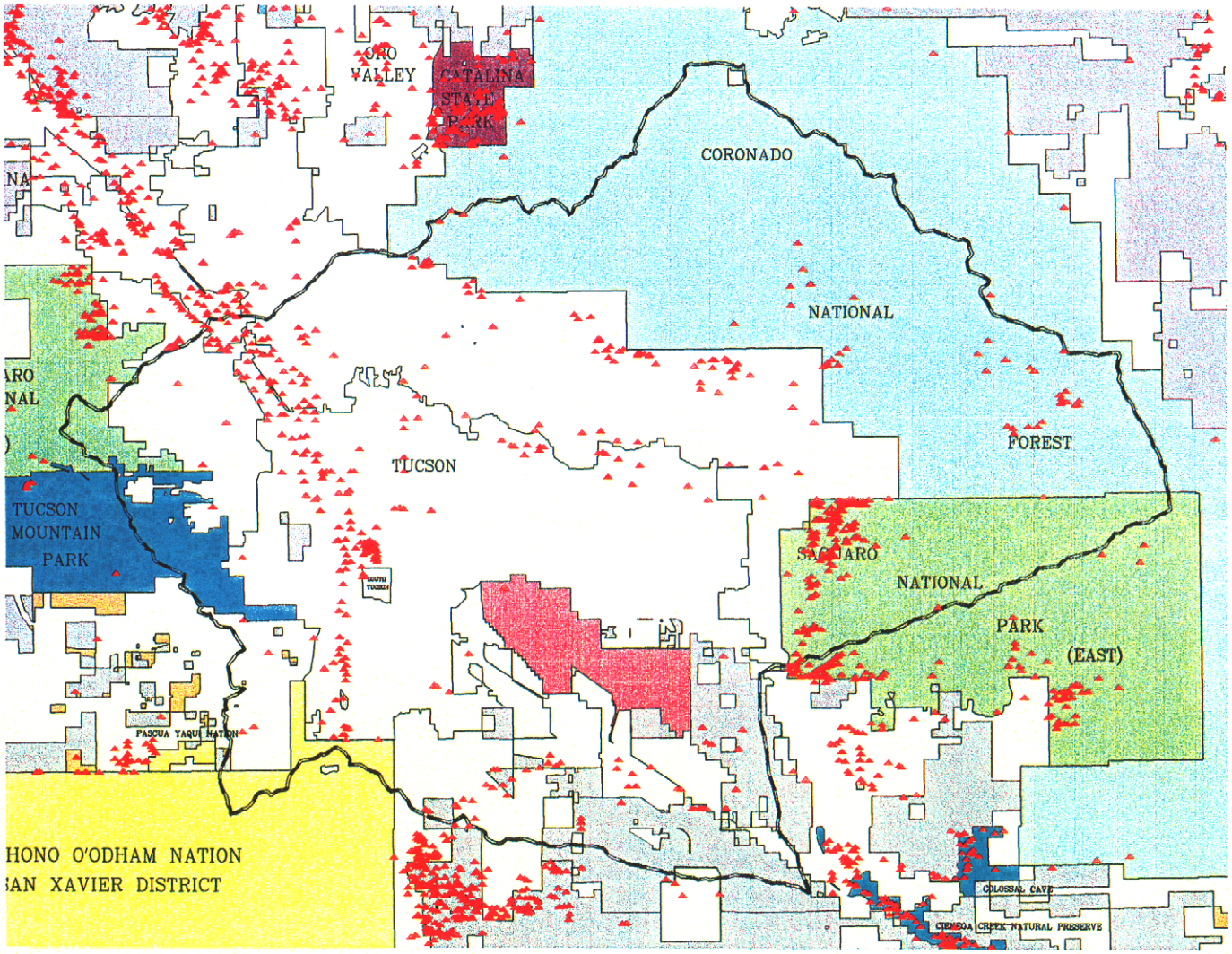
National Register Historic Districts

1	ARMORY PARK HISTORIC RESIDENTIAL DISTRICT
2	BARRIO LIBRE
3	EL PRESIDIO HISTORIC DISTRICT
4	FORT LOWELL MULTIPLE RESOURCE AREA
5	WEST UNIVERSITY HISTORIC DISTRICT
6	UNIVERSITY OF ARIZONA CAMPUS HISTORIC DISTRICT
7	IRON HORSE EXPANSION HISTORIC DISTRICT
8	EL ENCANTO ESTATES RESIDENTAL HISTORIC DISTRICT
9	COLONIA SOLANA RESIDENTIAL HISTORIC DISTRICT
10	JOHN SPRING NEIGHBORHOOD HISTORIC DISTRICT
11	SPEEDWAY-DRACHMAN HISTORIC DISTRICT
12	MENLO PARK MULTIPLE RESOURCE AREA
13	SAM HUGHES RESIDENTIAL HISTORIC DISTRICT
14	WAREHOUSE HISTORIC DISTRICT
15	EL MONTEVIDEO RESIDENTIAL HISTORIC DISTRICT
16	PIE ALLEN RESIDENTIAL HISTORIC DISTRICT

8/97

Archaeological Sites and Land Ownership

SDCP PLANNING UNIT 4

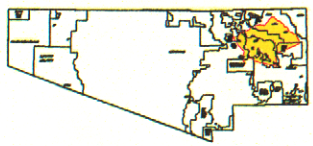


- Watershed Planning Boundary
- Archaeology Sites
- BLM
- COUNTY PARKS
- INDIAN LANDS
- GOLDWATER GUNNERY RANGE
- MILITARY RESERVATIONS
- NATIONAL FOREST LANDS
- NATIONAL PARKS AND MONUMENTS
- NATIONAL WILDLIFE REFUGE
- PRIVATE LANDS
- STATE LANDS
- STATE PARKS

STATISTICS FOR ARCHAEOLOGY SITES

JURISDICTION	# OF SITES
BLM	0
COUNTY PARK	0
GOLDWATER GUNNERY RANGE	0
MILITARY RESERVATIONS	8
NATIONAL FOREST LANDS	69
NATIONAL PARKS AND MONUMENTS	205
NATIONAL WILDLIFE REFUGE	0
PRIVATE LANDS	4,348
STATE LANDS	69
STATE PARKS	0
TOTAL	4,699

Pima County Index Map



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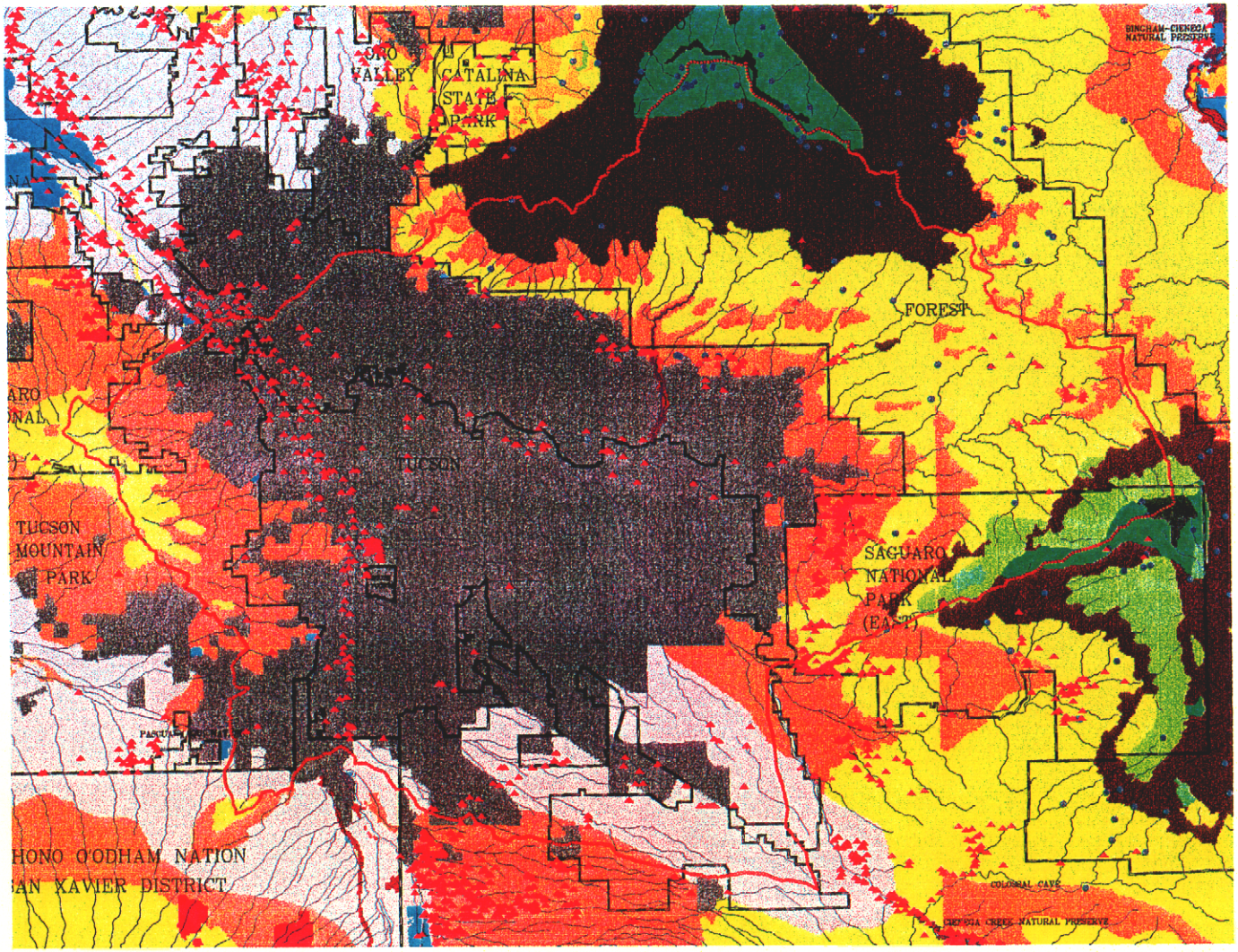
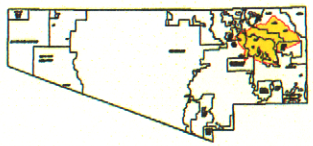
GAP Vegetation

SDCP PLANNING UNIT 4



- Watershed Planning Unit Boundary
- Administrative Boundaries
- Washes
- Springs
- Archaeological Sites
- Agriculture
- Urban
- Mining
- Chihuahuan Desertscrub (Creosotebush–Tarbush)
- Chihuahuan Desertscrub (Mixed Scrub)
- Chihuahuan Desertscrub (Whitethorn)
- Madrean Evergreen Forest (Encinal)
- Madrean Evergreen Forest (Oak–Pine)
- Madrean Montane Conifer Forest (Douglas-Fir–Mixed Conifer)
- Madrean Montane Conifer Forest (Pine)
- Mogollon Chaparral Scrubland (Manzanita)
- Mogollon Chaparral Scrubland (Mixed Evergreen Sclerophyll)
- Mogollon Deciduous Swampforest (Cottonwood–Willow)
- Mogollon Deciduous Swampforest (Mixed Broadleaf)
- Playa
- Scrub Grassland (Mixed Grass–Scrub)
- Scrub Grassland (Sacaton–Scrub)
- Sonoran Deciduous Swamp and Riparian Scrub (Mixed Scrub)
- Sonoran Desertscrub (Creosotebush–Bursage)
- Sonoran Desertscrub (Paloverde–Mixed Cacti)
- Sonoran Desertscrub (Saltbush)
- Sonoran Interior Marshland (Cattail)
- Sonoran Riparian and Oasis Forest (Cottonwood–Willow)
- Water

Pima County Index Map



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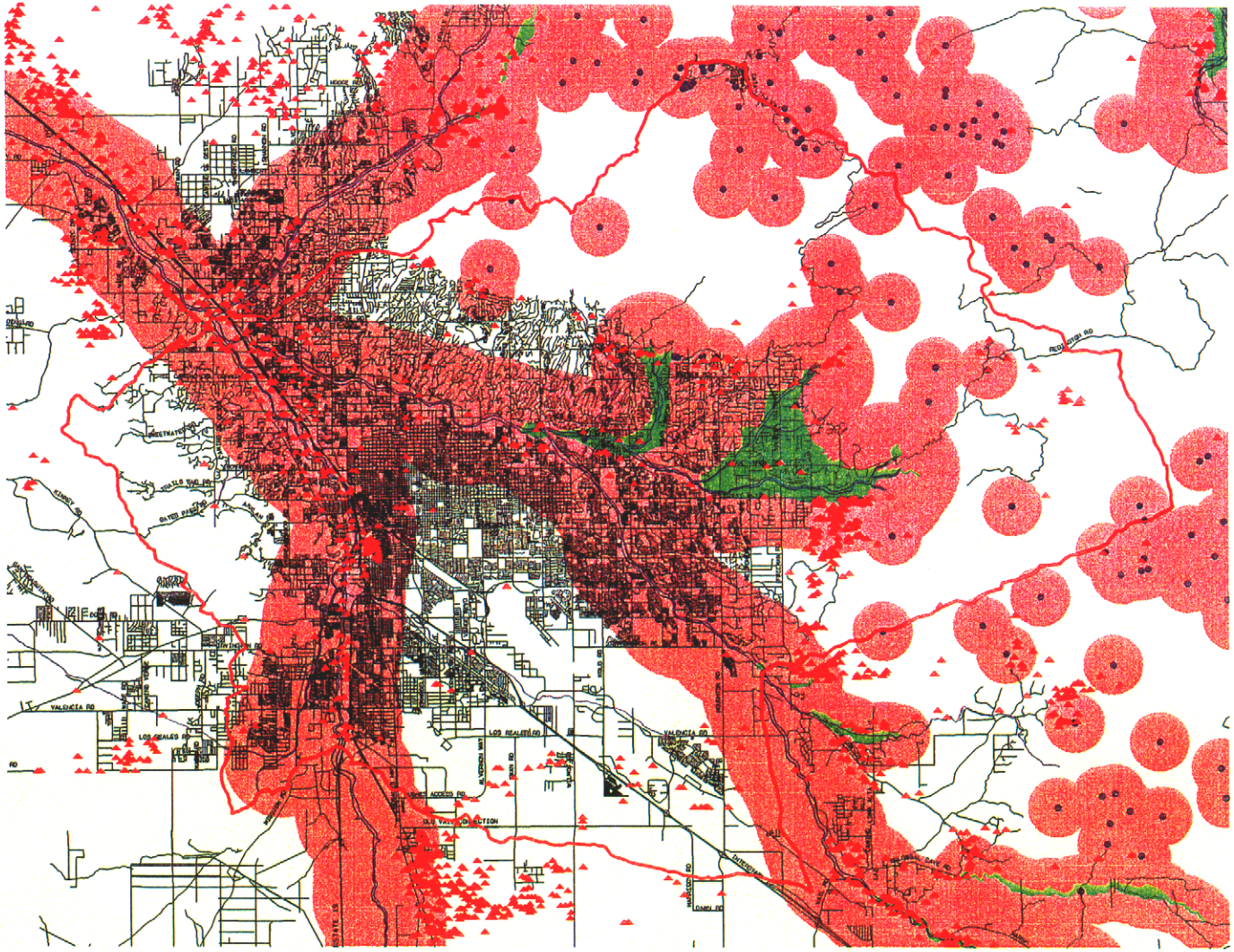
/pygayow12/sonora/cultural/sonjoined/plan4/covers/gap_veg4.eml 07/19/00

Cultural Resources
High Sensitivity Areas



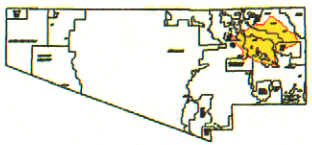
SDCP PLANNING UNIT 4

- Shallow Ground Water
- 2 Mile Buffer - Major Washes
  1 Mile Buffer - Springs
  1 Mile Buffer - Shallow Ground Water
- Streets And Roads
- Major Washes
- Subarea Boundary
- Springs
- Archaeological Sites

STATISTICS FOR UNIT 4

ACRES OF BUFFERED WASH, SPRING, AND SHALLOW FROUND WATER: 190,379 AC.

Pima County Index Map



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V. Findings

This section presents the information collected in each subarea into a single synthetic analysis for each resource type. To begin with, data are presented on archaeological sites, historic resources and traditional cultural places as they are currently known. At the end of the section, two measures are used to predict the location of areas likely to contain cultural resources. Finally, each subarea is ranked for cultural resources abundance. Summary tables for each resource type are presented with the accompanying figures.

For the sake of brevity, in many instances the subarea names are abbreviated in the data tables. The abbreviations are as follows: San Pedro =SP; Cienega-Rincon=CR; Upper Santa Cruz=USC; Middle Santa Cruz=MSC; Tortolita Fan-TF; Altar Valley=ALV; Avra Valley=AV; Western Pima County=WPC.

1. Archaeological sites
   A. Survey and site data

Presented below is a table that compares data on archaeological surveys and sites for each subarea within Pima County. Each category of information is ranked allowing for comparative analysis between subareas as follows: 1=highest and 8=lowest. Note: Where otherwise indicated, all analysis is of data from eastern Pima County due in large part to the lack of data from the Western Pima County subarea. NA is used to indicate where data are not available or could not be estimated.

Table V.1.1. Comparison of Archaeological Survey and Site Data by Subarea

SUBAREA	No. of Surveys	Rank	Acres/ Sq. miles surveyed	Rank	% of Subarea Surveyed	Rank	# of Sites Found	Rank	# of Sites/ Mile	Rank
San Pedro Valley	40	7	5,936/ 9.3	7	3.3	7	153	8	16.66	2
Cienega-Rincon	96	5	65,538/ 102.4	3	20.5	2	554	3	5.4	5
U. Santa Cruz	173	3	73,868/ 115.4	1	16.4	3	472	5	4.1	7
M. Santa Cruz	1506	1	24,144/ 37.7	5	6.6	5	737	2	19.5	1
Tortolita Fan	458	2	71,447/ 111.6	2	35.1	1	970	1	8.69	3
Altar Valley	141	4	37,871/ 59.2	4	5.3	6	514	4	8.68	4
Avra Valley	52	6	17,900/ 27.9	6	8.0	4	141	7	5.0	6
W. Pima County	NA		NA		NA		443	6	NA	
Subarea Totals for eastern Pima County	2466		463.5		12.1%		3,541		7.6	

The first three columns report the number of archaeological surveys conducted in Pima County, the acreage covered and the percentage of the subarea that has been investigated. There are two kinds of surveys that archaeologists typically perform. The first is called linear survey and is often conducted in compliance with environmental laws prior to construction of a road, powerline, sewerline, or other linear feature. Linear surveys can be hundreds of feet to hundreds of miles in length and provide a view of a single slice of the archaeological record across the land. The second kind of survey is called block survey in which non-linear parcels of land are investigated. These kinds of surveys range in size from less than an acre to 1000s of acres and on the larger scale provide a more complete view of land use patterning than linear survey. For this reason, block surveys are favored as a means of researching how people used the land in the past; however, they are also conducted in compliance with environmental laws for large scale development actions such as the issuance of a mining lease, a public land exchange, or a private subdivision development. The data presented here combines the results of both kinds of survey into one total, although they are broken down in each subarea report in Section IV.

As can be seen in Table V.1.1, more surveys have been performed in the Middle Santa Cruz subarea than anywhere else, but this subarea ranks only 5th for total acres surveyed representing 6.6 percent of the subarea. This is the product of a large number of small scale investigations, many of which have been conducted as a result of rezoning and grading requirements mandated by the Pima County Code since 1985. At the low end of the scale, the San Pedro subarea is last in all three categories reflecting how little archaeological investigation has been performed in this part of Pima County. The Tortolita Fan Subarea is 2nd in the number and acres of survey but ranked 1st in the percentage of the subarea that has been surveyed. These findings reflect a low number of large surveys that have been conducted over the years in compliance with legal mandates associated with development in Oro Valley, as well as, research conducted by the Arizona State Museum and Arizona State Parks. The Upper Santa Cruz and Cienega-Rincon subareas vie for second and third rankings as well, although the Upper Santa Cruz subarea has the highest survey acreage totals of any subarea. The Altar Valley and Avra Valley follow and no information is available for Western Pima County, although it is reasonable to guess that less than 2 percent of the subarea area has ever been formally investigated. These findings are presented visually in two figures, one for eastern Pima County entitled, **Archaeological Survey and Site Locations**, and the other for Western Pima County entitled, **Archaeological Site Locations in Western Pima County**. Note that the latter map shows no survey data and only some of the known sites are plotted.

Next, data on the number of sites found in each subarea is presented. These counts are tallies of all sites from all time periods representing approximately the last 12,000 years of human history. To provide a relative means of interpreting these results in relation to the area that has been surveyed, an estimate of site density per square mile is presented in the last column. Site density averages site counts across space and are useful in demonstrating that some subareas have been used more intensively in the past than others and therefor may contain more sites. However, there is a caveat to remember: site density estimates can be affected by survey coverage and representation. If survey coverage is limited to only one part of the landscape and other parts of the landscape are not represented in the survey data, then the site estimates can be biased. This is the case for both the Middle Santa Cruz and San Pedro subareas. At 19.5 and 16.6 sites per square mile respectively, these two subareas have the highest site densities by far of all the subareas in eastern Pima County.

In the case of the Middle Santa Cruz, it is reasonable to expect a high site density since the Tucson area is known to have been a regional center for the Hohokam Indians in prehistory, and has been the focus of historic settlement since the early Spanish Colonial Period. Only recently have archaeologists discovered how intensively the terraces of the San Pedro River were occupied in prehistory. In both cases, however,

survey coverage has been low, 6.6 and 3.3 percent respectively, and has been limited to certain parts of the landscape, primarily along the river margins and in the vicinity of areas that contain springs or seeps where past settlement would be expected to be more intensive. Without survey information from areas not expected to have been intensively used, the site density number becomes inflated. Low survey coverage and problems of representation therefor limit the confidence that archaeologists can have in using the data to generalize about past land use intensity for the subarea as a whole.

The Altar Valley and Avra Valley suffer from the same kinds of problems and so the same caveat applies. Site density for these areas must be viewed as preliminary and subject to revision as more information becomes available. On the other hand, the Tortolita Fan, Cienega-Rincon, and Upper Santa Cruz subareas have been far more intensively investigated, including areas that were both heavily used in the past and those areas that were used only marginally. With a greater confidence in the data, the site density figures can be viewed as a more accurate reflection of past land use intensity within and between the subareas.

Based on the data presented here, total counts for the number of surveys conducted, acres surveyed and sites found can be summed. A total of 463.5 square miles has been surveyed in eastern Pima County, representing approximately 12.1 percent of the land area, within which 3,541 archaeological sites have been recorded (3984 including the Western Pima County subarea). This produces a regional site density average of about 7.6 sites per square mile or one site for every 84 acres. As more survey is conducted and additional data are added to the records, this number too will be further refined.

B. Temporal data

The next table presents a breakdown of the data on archaeological sites by time period for each subarea. The temporal categories are defined by the Arizona State Museum.

Table V.1.2. Comparison of Archaeological Site Data by Time Period and Subarea

	PaleoIndian	Archaic	Ceramic	Historic	Both	Unknown	Totals
San Pedro Valley	0	2	77	14	4	56	153
Cienega-Rincon	0	142	281	72	0	59	554
U. Santa Cruz	0	21	172	18	10	251	472
M. Santa Cruz	0	34	305	85	60	253	737
Tortolita Fan	0	17	706	55	58	134	970
Avra Valley	0	6	94	18	2	21	141
Altar Valley	2	12	95	16	25	364	514
W. Pima County	0	22	160	60	0	201	443
Total	**2**	**256**	**1890**	**338**	**159**	**1339**	**3984**

The PaleoIndinan Period covers that time from approximately 12,000 B.C. to 8000 B.C. No sites dating to the beginning of this time period have been found in the Southwest, although a few very early sites, even predating this time range, have been reported from other parts of North and South America. Dates for sites from the earliest PaleoIndian time period in the southwest region range from approximately 11,600 to 10, 900 years ago . The PaleoIndian Period is believed to have been a time when small bands of highly mobile people hunted and gathered their food following a seasonal round that covered large territories. Since the artifacts of these people have been found in association with large now extinct animals, such as mammoths and species of bison, they are commonly referred to as "big game hunters," although their diet certainly included a variety of foods. PaleoIndian sites are very rare in the southwest; Only 55 sites of this time period are known for all of Arizona. Two PaleoIndian sites are reported in Pima County, both are found in the Altar Valley subarea.

The succeeding Archaic Period represents a vast stretch of time period between 8000 B.C. and A.D. 200 as defined by the Arizona State Museum. This is a time of change that involved adaptations effecting how people interacted with the environment in order to survive. Milling tools for grinding seeds and nuts appear during this time as do pits used for roasting and storage, all of which implies greater energy in processing and storing food. Settlement became more limited in extent over time and population is believed to have increased as evidenced by a greater number of sites having been reported from this time period than the preceding period. Toward the end of the Archaic Period, beginning around 3500 years ago, people began to grow their own food, dig irrigation canals, experiment with making pottery, and settle in large seasonally occupied villages along the banks of well watered rivers, such as the Santa Cruz River. A total of 256 Archaic sites have been found in eastern Pima County, most of which (142) were recorded along Cienega Creek and in the adjoining highlands to the east.

The Ceramic Period covers the time from approximately A.D. 200 to the end of the Prehistoric era defined by the first appearance of Europeans into the Southwest in A.D. 1540. During this time, Archaic populations made the full transition from a mobile society dependant upon hunting and gathering wild food, to a sedentary society dependant upon agriculture. From approximately A.D. 700 to A.D. 1450, the Hohokam Indians dominated central and southeastern Arizona, although evidence of contemporary groups, the Trincheras and the Patayan cultures has also been found in Pima County. This was a time of rapid population growth and increases in social complexity. As can be seen in Table V.1.2, 1890 archaeological sites have been recorded from the Ceramic Period presenting the single largest number of sites from any time period, before or since. This impressive site count can be viewed as the product of both substantial population increases in prehistoric populations that are believed to have occurred as well as a research bias in favor of studying and recording sites form this time period, particularly sites of the Hohokam culture.

With the collapse of the Hohokam culture around A.D. 1450, a time of tremendous change followed as populations declined in number, settlements shifted and new patterns of living emerged prior to and co-occurring with the appearance of the Spanish explorers. This is referred to as the Proto-Historic Period, which is not defined as a separate temporal category by the Arizona State Museum. Thus sites that are post Hohokam in date but predate the first permanent European settlement in 1692 are split between the prehistoric and historic periods. Proto-historic sites are known in the Middle and Upper Santa Cruz subareas, the San Pedro River, to the west on the Tohono O'odham reservation, and in the Western Pima County subarea; however, these sites are very rare.

The Historic Period ranges in time from A.D. 1540 to 1950. The 338 historic sites recorded in Pima County presented in Table V.1.2. represent 19th and 20 century Anglo occupations by in large, with the addition of a few sites identified as Tohono O'odham, Sobaipuri, Mexican, Spanish, Apache, Hia Ced O'odham, and

African American. Most of the sites created during historic times are the product of ranching, mining, and farming that has characterized much of life since the 18th century. Sites having evidence of both a prehistoric and historic occupation are also included here indicating that in 159 instances, the same piece of land was used by people from these two major eras in time.

The last column of data in Table V.1.2. is the number of sites that could not be identified as to time period. The majority of these are almost certainly prehistoric but because Native Americans living in historic times continued to use the land in ways similar to their ancestors, it is often not possible to make the distinction. Moreover, people of all time periods make and use things that are culturally and temporally ambiguous and any site lacking artifacts that are cultural and temporally diagnostic will be recorded as "unknown." The high number of these unknown sites is typical of archaeological data that are collected during survey, which is simply a two dimensional examination (the ground surface) of a three dimensional phenomenon (an archaeological site). All of these contribute to the difficulty in assigning a date to the 1339 unknown sites in Pima County.

In all, the Arizona State Museum has data on 3984 sites in Pima County. The greatest number of sites have been recorded in the Tortolita Fan subarea, where the highest percentage of survey has been conducted (35.1%) and the fewest number of sites is from the Avra Valley subarea, with the third lowest survey percentage (8.0%).

C. Functional data

The site data can also be described in functional terms as presented in Table V.1.3. The criteria used to categorize archaeological sites into functional property types or uses was developed by the Arizona State Museum and is presented below.

- Habitation (village, compound, trincheras, settlement, ranch, cabin, district, etc.)
- Agricultural (field house, fields, canal, garden, checkdam, rock pile, orchard, barn, fence, windmill, stock tank, etc.)
- Resource Procurement (mine, quarry, hunting blind, kill site, well, etc.)
- Resource Processing/Manufacturing (mortar/metate, kiln, ore process, roasting pit, etc.)
- Transportation (road, trail, railroad line/station, stage line/station, bridge, etc.)
- Storage (pit, cist, cache, granary, reservoir, tank, warehouse, etc.)
- Disposal (dump, landfill, midden, ore tailings, outhouse, trash scatter, etc.)
- Communication (cairn, telephone/telegraph line, tower, monument, etc.)
- Commerce (inn, hotel, store, trading post, industrial facility, woodyard, gas station, etc.)
- Defense (fortification, presidio, fort, stockade, battle site, missile silo, etc.)
- Art (graffitti, petroglyph, pictograph, intaglio, sculpture, etc.)
- Religion/Ritual (church, burial, cemetery, kiva, ballcourt, shrine, sweat lodge, wine house, plaza, etc.)
- Government/Community (public building, park, plaza, sports arena, structural mound, big house, etc.)
- Other/Unknown function (artifact scatter, lithic scatter, linear rock feature, rock ring, depression, wall, isolated finds, etc.)

Table V.I.3. Archaeological Site Function For All Time Periods by Subarea									
	SP	**CR**	**USC**	**MSC**	**TF**	**ALV**	**AV**	**WPC**	**TOT.**
Agriculture	36	20	7	22	28	6	4	4	**127**
Art	4	9	7	9	49	15	17	7	**117**
Communication	1	2	0	0	0	2	1	0	**6**
Defense	0	0	0	0	3	0	0	2	**5**
Disposal	0	10	8	24	6	0	2	2	**52**
Government	0	5	4	28	2	5	2	0	**46**
Habitation	32	37	24	102	124	56	16	33	**424**
Resource Processing	6	58	96	102	55	131	13	36	**497**
Resource Procurement	1	27	4	5	23	2	2	30	**94**
Religion	3	2	1	13	10	1	4	9	**43**
Storage	0	1	0	4	1	3	0	1	**10**
Transportation	4	3	2	4	1	4	0	13	**31**
Other/Unk.	66	199	319	424	621	286	80	306	**2301**
Total	**153**	**373**	**472**	**737**	**970**	**514**	**141**	**443**	**3753**

Again, the subarea totals by function are affected by the amount of survey coverage, the number of sites found, and the functional clarity of the survey evidence. It is also important to remember that the majority of the data presented here reflect prehistoric uses of the landscape. This analysis does not include updated site data for the Cienega-Rincon subarea, and instead uses an earlier data set provided by the Arizona State Museum with a lower site count. With these caveats and qualifiers in mind, some general observations can be made.

The number one and two site functions from all time periods relate primarily to: 1) food and 2) shelter. Resource processing and habitation sites make up almost 25% of the total sites and 63.4 % of all sites that have been functionally identified. This is not surprising in that these functions are basic to all human life everywhere. Agriculture is third in order, another food related site function that was critical to both historic and prehistoric times. What's interesting is the fourth highest number of sites by use: Art. This category includes a variety of usages, but since most of the data are prehistoric in age and relate to the Hohokam occupation of the land, Art largely refers to petroglyph and pictograph sites. The counts are supplemented by rock art produced in historic times by the Tohono O'odham and other native groups, so that in all, what is being reflected by these data is largely a Native American land use. Rock art, as it is known, consists of pecked, scratched and sometimes painted images that are viewed by modern Native American communities

as sacred; they are not graffiti or doodling, which is a popular misconception. These are images that are believed to have been used to petition the gods for good hunting and harvest, for protection, for fertility, and for a variety of other purpose, all of which mark places that connect the physical world with the spiritual world. As such, the presence of rock art as the fourth highest site type by count can be interpreted as a refection of the importance of religious behavior and its expression in the lives of these people. As further evidence of this, 33 of the 43 sites identified as having a distinctly religious character are Native American, half of which come from the Tortolita Fan and the Middle Santa Cruz Subareas.

Trash disposal is next in order, the highest site counts of which are historic in date coming from the Middle Santa Cruz subarea in association with the growth of Tucson. No surprises there. Then there is Government, a site function that is almost exclusively historic in date and related to the settlement of Tucson. Religion is seventh in rank, as discussed above, followed by Transportation, another category that is by in large historic in date, with Storage, Communication, and Defense finishing the order of sites by identifiable function. A more detailed analysis of historic and prehistoric sites by functional category is provided in the individual subarea reports in Section IV.

Comparing subareas produces some highlights. Art is represented in higher numbers in the Tortolita Fan and Avra Valley subareas than anywhere else and even though there are more sites by count in the Tortolita Fan, the proportion of sites recorded in the Avra valley is more than twice as high at 5% to 12% respectively. This reflects the presence of a large number of well known prehistoric rock art sites in the Avra Valley including Cocoraque Butte, the Samaniego Hills and Cerro Prieto. Again, government functions predominate in the Middle Santa Cruz over all other subareas making up more than 60% of the total number of sites with this function in all of Pima County. That 22 of the 28 are Anglo and Mexican fits nicely with the growth of Tucson as a regional center during historic times. Habitation and Resource Processing sites appear in ratios of one to one or greater in the Middle Santa Cruz to as high as one to four in the Upper Santa Cruz. Interestingly, the Tortolita Fan Subarea has a reverse proportion of Habitation to Resource Processing sites with the former outnumbering the latter by more than two to one. This subarea has received the highest level of survey of any subarea in Pima County making the data very reliable, especially with regard to prehistoric sites. Lacking any bias in how sites have been recorded, this finding suggests that prehistoric Resource Processing sites are harder to find or identify in the Tortolita Fan Subarea than elsewhere and that many more should exist than have been recorded. Resource Procurement sites, on the other hand, typically appear in low numbers in each subarea. These are sites that have been used to acquire something either animal, vegetable or mineral. Both the Western Pima County and the Cienega-Rincon subareas have relatively high numbers, which may relate to the effect of hunting and gathering commonly associated with an Archaic way of life. The Cienega-Rincon subarea has the highest number of Archaic sites and hunting camps are typical of sites from this time period. The Western Pima County subarea is in a region where hunting and gathering has always been an important part of living in a harsh land, even when agriculture was adopted by prehistoric populations during the Ceramic period. In contrast, Agriculture as a function shows up in higher numbers in the San Pedro, Tortolita Fan, Middle Santa Cruz and Cienega-Rincon subareas than the remaining subareas, each of which had large Hohokam populations based on site count. Lastly, while most transportation related sites are 19th and 20 century in date and Anglo or Mexican in origin, 9 of the 13 sites in the Western Pima County subarea area prehistoric. These sites are part of an extensive trail system throughout the western desert that was used for millennia by indigenous people.

2. Historic Resources

A. Historic Communities, Ghost Towns, National Register Properties, and Historic Trails.

Historic communities are those settlements that are 50 years old or older that have been occupied since their

establishment. Ghost towns by contrast are those settlements that are not currently occupied having been abandoned at some point in the past after establishment. National Register properties are those places that have met the criteria for listing on the National Register of Historic Places because of their importance to local, regional, and national history and prehistory. Legally, listing a place on the National Register makes it a historic property, even though such properties may contain prehistoric archaeological sites. For this reason, National Register properties and districts are included here. Historic trails are routes that have been used historically for exploration, conquest, migration, and other transportation related uses. Summary data on the number and type of historic resources examined for this analysis are presented in Table V.2.1 below. Note: Rankings for abundance by subarea: 1=most abundant, 8=least abundant; D=National Register Districts.

Table V.2. 1. Historic Resources Count by Type and Subarea

	SP	CR	USC	MSC	TF	ALV	AV	WPC	TOT.
Historic Communities	1	1	2	1	3	2	1	2	13
Ghost Towns	0	3	3	0	0	1	1	2	10
National Register Properties	0	4D 2	1	16D 84	2D	1D	2D 1	8	25D 96
Historic Trials	0	1	1	2	2	0	0	1	7
Total	1	11	7	103	7	4	5	13	151
Ranking by Abundance	**7**	**3**	**4**	**1**	**4**	**6**	**5**	**2**	

As can be seen, the Tortolita Fan has the most historic communities with three (Marana, Rillito and Catalina), but the Cienega-Rincon and Upper Santa Cruz subareas have the most ghost towns. More than any other subarea, the Middle Santa Cruz has the highest number of National Register properties including 16 historic districts and 84 individually listed properties. The districts and most of the individual properties are historic in date and architectural in character reflecting Tucson's heritage as the center of historic settlement in the region. That so many places are listed speaks of the effort of her citizens to recognize and protect the city's historic character. Several prehistoric sites are also listed in the Middle Santa Cruz, such as the Valencia Site, a Hohokam village on the east side of the Santa Cruz River. Western Pima County is second in this category with eight National Register sites. This reflects the efforts of the National Park Service in particular to register places of historic and prehistoric importance within Organ Pipe National Monument. The only historic trails that were reported in eastern Pima County are the Anza Trail used by Don Juan Bautista de Anza in 1775-1776 and the Butterfield Trail used between 1858-1861. Both pass through the Middle Santa Cruz and the Tortolita Fan subareas. The Butterfield Tail also passes through the Cienega-Rincon subarea. In Western Pima County, the Camino Del Diablo follows the U.S. Mexican border; it was used beginning in the 1690s and continuing through the 19th century. The distribution and identify of all historic resources is presented in two figures. The first is entitled, **Historic Resource in Western Pima County**, and the second is entitled, **Historic Resources in Eastern Pima County.** Note that the resources are color coded with National Register sites in blue, ghost towns in green and historic communities in red. Each is identified by a number key.

In all, there are 151 historic properties in Pima County including 25 districts containing 100s of archaeological sites countywide and thousands of historic buildings, most of which are in the City of Tucson. By virtue of its high number of National Register sites, the Middle Santa Cruz ranks first in abundance, with Western Pima County ranking second. Without these, the Middle Santa Cruz subarea would be second to last instead of number one. The Cienega-Rincon subarea follows in third and the Upper Santa Cruz and Tortolita Fan subareas tie for fourth. Fifth and sixth places go to Avra Valley and Altar Valley and the San Pedro subarea is last. These 151 historic resources are only a small sample of places that represent thousands of years of human occupation of the land that is now Pima County, Arizona.

B. Ranches and Mines

In an effort to gain yet more information about historic places in Pima County, maps of eastern Pima County dating to between 1893 and 1963 were consulted. The name and location of every place that could be identified from these maps was tabulated as part of an inventory produced by Statistical Research, Inc. under contract to Pima County, for the Sonoran Desert Conservation Plan. Their report is entitled, "Cultural Resource Sites Depicted on Early Maps of Pima County." From this body of work, the location of historic ranches and mines was plotted on a modern base map of Pima Count to show land use patterning for these two historically important land use activities. Table V.2.2 below summarizes the findings. Rankings are provided where 1=most abundant and 8=least abundant. The location of these two historic resources has also been plotted on the accompanying map entitled, **Historic Ranches and Mines in Eastern Pima County**. Note the tendency of the ranches to be located on dispersed holdings of private land, an effect of the Homestead Act of 1862 and its various amendments. Notice too that many of the mines are clustered within or near the mountains in places where they would be expected near ore bearing rock.

Table V.2. 2.
Counts of Historic Ranches and Mines in Eastern Pima County between 1893-1963 by Subarea

	SP	CR	USC	MSC	TF	ALV	AV	TOTAL
Ranches	10	38	31	17	20	44	5	163
Mines	4	9	8	10	6	31	15	83
Total	14	47	39	27	26	75	20	246
Abundance Rank	**7**	**2**	**3**	**4**	**5**	**1**	**6**	

There are a total of 246 places identified as either a ranch or a mine in this analysis. Historic map data for Western Pima County was not available, so this analysis is limited to just eastern Pima County. It is important to note that not every place that could have been used for ranching is represented in these numbers. The 1893 Roskruge map listed the names of individuals living in the county but only rarely identified these places by function. Later in time, a label or symbol was employed to indicate use but not to begin with. In order not to make unwarranted assumptions, only those places that could be identified by function based on the maps themselves were used here. As s result, there are probably more ranches than enumerated here, especially those dating to the 19th century. The data on mines undoubtably fails to include the hundreds if not thousands of mining features that dot the landscape as a test hole here or a small claim there. Instead, the mines counted here are the places that became known by virtue of some success and got recorded by the map makers. With these caveats in mind, it is possible to use this information as a means of characterizing

the potential of each subarea to contain historic resources associated with ranching and mining. Some of these places may still be in existence and perhaps continue to be used as originally intended or in a modified form. Others have probably been destroyed by modern land uses; however, it is reasonable to assume that many if not most of these places exist as archaeological sites dating to the 19th and 20th centuries. As such, they are potentially valuable sources of information on ranching and mining. If is for this reason they are included in this analysis.

It is evident from Table V.2.2 That the Altar Valley has the highest number of ranches followed by the Cienega-Rincon and Upper Santa Cruz subareas. These results suggest that historically the Altar Valley, the Cienega Creek, and the Upper Santa Cruz areas had better conditions for grazing than the other subareas including but not limited to access to water, good grass for grazing, and proximity to main routes of travel. Each had a major ranch operating in the valley at one time including the Buenos Ayres Ranch in the Altar Valley, the Empire Ranch along the Cieneag Creek and the Canoa Ranch west of the Santa Cruz River. Ranching is indicated to lesser a lesser extent in the remaining subareas, with the Avra Valley having the fewest ranches on map records.

For mines, the top three subareas by count are the Altar Valley in first once again, followed by the Avra Valley and the Middle Santa Cruz in second and third respectively, and the Cienega-Rincon subarea a close fourth. The Altar Valley had a number of highly productive mines or mining districts and boom towns such as Cerro Colorado developed in close proximity to them. Mines are also seen clustering near Arivaca and in the Gunsight Mountain area. Many of the mines in the Middle Santa Cruz were gravel mines located along the Santa Cruz and Rillito Rivers that were important sources of material for construction purposes. The Cienega Valley was also well known for its mining with Greaterville and the Total Wreck mine being the most famous in their days. While most subareas have more ranches than mines for a total ratio of almost two to one, the Avra Valley is the one case where the reverse is true. Here there are three times as many mines as ranches, which may reflect two historic conditions: the productivity of mining in the Silverbell and Tucson Mountains compared to the relatively low value of the grasses required for grazing in this area. A smaller number of mines are counted in the Upper Santa Cruz, Tortolita Fan and San Pedro Subareas in descending order.

By total count, the Altar Valley has the highest number of ranches and mines of any subarea. Second in order is the Cienega-Rincon subarea followed by the Upper Santa Cruz. Fourth and fifth place rankings go to the Middle Santa Cruz and the Tortolita Fan subareas respectively. Avra Valley is sixth and the San Pedro follows in last place.

3. Traditional Cultural Places

The term "traditional cultural place", or TCPs for short, is a relatively new concept that has been used in the field of historic preservation since 1990. The concept recognizes that there are places of great importance in the lives of all people that relate to their customs and beliefs, their history, and their social identify. Federal historic preservation law includes places with these qualities as part of any federal action that may adversely affect them, just like archaeological sites, historic buildings, and other kinds of cultural resources. Native Americans in particular have utilized this concept to identify places on the landscape that are of traditional cultural value, but other groups have used the concept to help protect similar kinds of places as well.

One of the problems with searching for TCPs, be it in advance of a construction project or as part of academic research, is that: A) often they can only be recognized, located and described by members of a

particular traditional community; and B) the members of these communities are very reluctant to talk about them to people outside the community. This is particularly true of Native Americans. Asking the question, "where are the TCPs" will often as not get no response even if the purpose of asking the question is to help identify these places so that they can be avoided. In some societies knowledge about these places is protected and divulging it to those unauthorized to have this information is viewed as dangerous for the community. Whether information on places of traditional cultural value is shared or not with outsiders often depends on the group, the kinds of properties of interest and whether their is a perceived advantage in revealing this information (of conversely no disadvantage to its release) Not surprisingly, very little is known about TCPs in Pima County. There are, however, a number of places that are identified as traditional cultural places as indicated in Table V.3.1 below.

Table V.3.1. Known Traditional Cultural Places

Name	Subarea	Ethnic affiliation
Baboquivari Peak	Altar Valley	Tohono O'odham
Cocoraque Butte	Avra Valley	Tohono O'odham, Hopi
El Tiradito.	Middle Santa Cruz	Mexican American
I'toi Mo'o (Montezuma's Head)	Western Pima County	Tohono O'odham
Quitobaquito Springs	Western Pima County	Hia Ced O'odham

This listing includes places that are of primary importance to O'odham people as well as the Mexican American Community in Tucson. Native Americans also identify certain classes of places that often have traditional cultural value, most notably archaeological sites that are prehistoric or historic Native American in origin. Habitation sites containing human graves and rock art sites are especially important. Many native Americans consider archaeological sites that relate to their ancestral use of the land to be physical indicators of their history as well as spiritual links to their people. This is true of the Tohono O'odham, who claim an ancestral connection to the ancient Hohokam. For these reasons, all known habitation and rock art sites consisting of both prehistoric sites and the few historic Native American (Tohono O'odham) sites that are known in Pima County are presented in Table V.3.2 below as places with expected traditional cultural value to Native Americans. A ranking for abundance is provided: 1=most abundant and 8=least abundant. The categories are drawn from the functional data presented earlier in Table V.1.3 and include sites with functions identified as Art, Habitation, and Religion.

Table V.3.2. Types of Archaeological Sites with Expected Traditional Cultural Value by Subarea

	SP	CR	USC	MSC	TF	ALV	AV	WPC	TOT.
Art	2	2	4	8	46	11	17	6	**96**
Habitation	22	16	12	58	92	46	9	24	**279**
Religion	3	2	1	8	9	1	2	7	**33**
Total	27	20	17	74	147	58	28	37	**408**
Abundance rank	**6**	**7**	**8**	**2**	**1**	**3**	**5**	**4**	

In this analysis, a total of 408 places with potential traditional cultural value are counted by subarea. Not surprisingly, the subareas with the highest number of prehistoric archaeological sites have the highest number of sites that are typically viewed as TCPs by modern Indian communities. This includes the Tortolita Fan and the Middle Santa Cruz as number one and two subareas ranked by count, followed by the Altar Valley, Western Pima County in third and fourth place. The last four subareas are the Avra Valley, the San Pedro, and Cienega-Rincon, in descending order, with and the Upper Santa Cruz subarea being last. It should be noted that the actual ranking of the Cienega-Rincon subarea is probably higher than presented here because the data used in the functional analysis do not reflect several hundred new sites that have recorded along Cienega Creek. Nonetheless, this analysis provides a means of identifying those subareas that are likely to have the highest number of archaeological sites viewed as particularly important by Native Americans.

4. Ranking Resource Abundance by Subarea

By totaling all the counts of archaeological sites, historic resources, and traditional cultural places, a measure of resource abundance for each subarea can be calculated. This reflects the influence of two factors: 1) richness in cultural and historical resources and 2) effort made over time to find and record these places. Table V.4.1 provides a summary and ranking of cultural resources abundance by subarea where 1=most abundant and 8= least abundant.

Table V.4.1. Cumulative Ranking of Resource Abundance by Subarea

	SP	CR	USC	MSC	TF	ALV	AV	WPC	
Archaeological Sites	153	554	472	737	970	514	141	443	3984
Historic Resources	1	11	7	103	7	4	5	13	151
Historic Ranches and Mines	14	47	39	27	26	75	20	NA	248
TCP/Known and Expected	27	20	17	74	147	59	29	39	412
Total	195	632	535	941	1150	652	195	495	4795
Rank	**7**	**4**	**5**	**2**	**1**	**3**	**8**	**6**	

By virtue of count alone, the Tortolita Fan has the highest number of cultural and historical resources. This is clearly influenced by the large number of archaeological sites in this area. Number two in rank is the Middle Santa Cruz, and its position is influence by both archaeological sites and National Register properties that make up the bulk of its historic resources. On the low end of the scale, The San Pedro and Avra Valley subareas have the fewest number of cultural and historical resources. The lack of map data on historic ranches and mines from Western Pima County reduces its ranking, although given the character of the environment, fewer ranches may be expected, although there are probably a high number of mines. Another caveat to take note of is that no attempt was made to count individual properties within the 25 National Register Districts in the county and this lowers the counts in those subareas that have districts. With 16 districts containing almost 4000 buildings, by this measure the Middle Santa Cruz would be number one in abundance by far over every other subarea. Higher numbers of archaeological sites would be present in

the Cienega-Rincon, Tortolita Fan, Altar Valley, and the Avra Valley, possibly affecting the ranking of abundance, but probably not by much.

It is important to note that some fraction of the archaeological sites counted here have been impacted or destroyed after they were recorded. This is especially true in the Middle Santa Cruz, The Tortolita Fan and Upper Santa Cruz subareas where private land development has affected the landscape and the cultural resources it contains. Abundance therefore is a measure of how much is known, but in some cases is not a reflection of how much is actually left to conserve. The number of sites lost through development or other actions is not known at present and can only be estimated (see Section VI.)

In summary, it is clear that Pima County has a wealth of cultural and historical resources representing every major time period from the earliest occupation of the land by human beings in prehistory to the modern era. It is also true that some areas have received a disproportionate amount of research attention over others and that the record of what is known is biased because of this. Finally, it is likely that much more remains to be found in Pima County than has ever been discovered.

5. Modeling

In the last section, information was presented describing the extent of known cultural resources. The next section reports on two efforts to predict where cultural resources in general and archaeological sites in particular may be found. This is necessary because so little of the county has been formally investigated (12.1%) that the total universe of cultural resources is unknown.

A. Proximity to Water.

The first model uses proximity to water as a measure of the potential for cultural resources. This is based on the assumption that in the desert, places closer to water will tend to have been used more heavily by past human populations than places more removed from water sources. Major drainages, springs, and places of shallow ground water that may have been marshes or cienegas at one time are included in this analysis. The drainages are buffered by two miles on either side for a total of four miles along their courses; the springs and shallow ground water are buffered to a lesser extent with a one mile buffer around their limits. These buffers were chosen somewhat arbitrarily. Site data in several areas with good survey average suggested that the terraces adjacent to the major drainages were favored for settlement in the past and so the buffer was designed to be large enough to capture these areas. The buffers for the springs and shallow ground water were also established in this manner but reduced in size under the assumption that these areas would not have been used as intensively as the drainages. The proximity to water model is graphically represented in the accompanying map entitled, **Cultural Resources in Proximity to Water**. Note the strong correlation between archaeological sites and the buffered areas but also the high number of historic sites, indicated in green, that are captured in the buffered areas as well.

Proximity to water is not the only variable that affected how the land was used in the past. Other factors, such as topography, elevation, slope, and soil type also influenced these decisions, but proximity to water is always one of the factors at work and is critical in the location of residential sites. In this sense, proximity to water may be used to predict the location of evidence that relates to habitation more than other kinds of land use behavior. It is also important to note that the model does not take into account geological factors that have historically influenced the availability of surface water nor are secondary drainages included in the model Despite these limitations, the model has a general utility as a predictive tool. Table V.5.1 below presents a breakdown of the number of acres included in the buffered zones within each subarea and its

percentage for comparative purposes. Rankings are provided with 1=highest proportion of subarea in proximity to water and 7=lowest proportion of subarea in proximity to water. Note: stream rank data were not available for the Western Pima County Subarea and so this subarea is not included.

Table V.5.1. Proximity to Water by Acreage and Subarea							
	SP	**CR**	**USC**	**MSC**	**TF**	**ALV**	**AV**
Subarea Acres	174,315	318,519	449,569	361,852	203,604	713,807	221,384
Drainages Acres	85,295	172,182	112,167	190,379	107,069	137,116	60,263
Rank by acres	**6**	**2**	**4**	**1**	**5**	**3**	**7**
Percent of Subarea	48.9	54.0	24.9	52.61	52.58	19.2	27.2
Rank by %	**4**	**1**	**6**	**2**	**3**	**7**	**5**

The analysis here indicates that by acreage, the top four subareas are the Middle Santa Cruz, Cienega-Rincon, Altar Valley, and Upper Santa Cruz. The first and fourth ranked subareas are dominated by the Santa Cruz River and its tributaries. The Middle Santa Cruz also has the advantage of springs in the mountains and a large area of shallow ground water in the vicinity of Tanque Verde Creek The Cienega Creek and Altar Wash dominate the second and third ranked subareas areas respectively. A large number of springs in the Cienega-Rincon subarea also contribute to its second place ranking and shallow ground water near Arivaca adds to the placement of the Altar Valley. The major drainages in each of these subareas played important roles in the prehistoric and historic settlement of eastern Pima County. It is not a coincidence that the Middle Santa Cruz, the Upper Santa Cruz and the Cienega Creek areas are known to have been intensively occupied in prehistory. That the Altar Valley is ranked third for proximity to water by acres suggests that much more evidence of human occupation should be found in this subarea than is currently reflected in the data based on a 5.3 percent survey coverage.

The fifth ranked subarea by proximity to water is the Tortolita Fan subarea, which is dominated by both the Santa Cruz and the Canado del Oro. This area too was heavily utilized in prehistory, although not as intensively during the historic period as other areas. At sixth in proximity, the San Pedro subarea is dominated by the river of the same name. The San Pedro River is a major regional drainage that flows into the Gila River to the north and was intensively utilized by prehistoric populations. That it does not rate higher in the overall proximity measure is likely a function of its short length through the northwest corner of Pima County. Last is the Avra Valley, which drains the Brawley and Los Robles Washes. Not included in this analysis is the Blanco Wash; it is classed as secondary drainage not a primary drainage, so the rank of this subarea is negatively affected.

By percentage of subarea, the rankings differ as a function of the size of each subarea. In this case, the rank of the top two subareas by acres switch places with the Cienega-Rincon subarea ranking first and the Middle Santa Cruz subarea second. Third is the Tortolita Fan and fourth is the San Pedro subarea. Proportionately, more of these subareas are within close proximity to water than the other subareas ranging from approximately 49% to 54 % of each subarea unit. Again, the major drainages of all four subareas are well known for their evidence of intensive prehistoric occupation and the Middle Santa Cruz for its importance as the center of historic settlement. The fifth through last rankings go to the Avra Valley, Upper Santa Cruz and Altar Valleys, each with large territories and fewer water sources than elsewhere. It may be that in these

subareas, evidence of human habitation can be expected to be more concentrated in space than in those areas with more numerous and more dispersed water sources such, as the Middle Santa Cruz and Cienega-Rincon watershed units.

B. Site Sensitivity

A second model was developed to measure the potential of each subarea to yield evidence of archaeological sites in particular. Outside of Tucson, archaeological sites are the single most abundant type of cultural resource in Pima County and they are the most commonly disturbed by development. Having some idea of where sites can be expected is therefor necessary for planning purposes. This second model is more subjective than the proximity to water model but it is also more sophisticated because other variables such as slope, elevation, topography and vegetation were considered in addition to proximity to water. The model was created by a team of archaeologists, each one of which is an expert in the archaeology of one of the subareas in Pima County. They were given large scale maps of each subarea showing current site and survey information. Using this information along with their own knowledge and experience they were asked to stratify their subareas into three zones of relative site frequency: high, medium and low. This was done based on the assumption that some parts of the landscape have been used more intensively than others through time, that other areas were used less intensively, and that some areas were hardly used at all regardless of cultural, temporal, or functional variation in land use. Each team member drew out their zones on a laminated base map showing sites, surveys, contour lines, drainages and springs and modern roads. After they finished, each team member presented their map to the others for review and comments. All the maps for eastern Pima County were created at the same time in the same room so that the team members had the benefit of group input at multiple points in the exercise. The map for Western Pima County was created by a separate team following the same procedures described above.

The team for eastern Pima County consisted of Dr. Paul Fish, Senior Curator in Archaeology at the Arizona State Museum and Chair of Cultural and Historical Resource Technical Advisory Team for the Sonoran Desert Conservation Plan (Tortolita Fan); Dr. William Doelle, President of the Center for Desert Archaeology and the archaeological advisor for the City of Tucson (Middle Santa Cruz); Alan Dart, President of the Old Pueblo Archaeological Center (Avra Valley); Dr. Jeff Clark, senior staff archaeologist at the Center for Desert Archaeology (San Pedro); Henry Wallace, also a senior member of the archaeology staff at the Center for Desert Archaeology (Altar Valley); Dr. Carla Van West, senior staff archaeologist at Statistical Research Inc.(Upper Santa Cruz); and, Michelle Stevens, Ph.D candidate at the University of Arizona (Cienega-Rincon). The team was assisted by John Madsen, Curator at the Arizona State Museum and Dr. Beth Grindell, Senior Researcher also at the Museum.

For the Western Pima County subarea, the team was made up of four individuals. Dr. Richard Alhstrom, a private archaeological consultant; Jerry Lyon, David Tucker, and Mary Charlette Thurtle, all senior staff archaeologists with SWCA, Inc. Each of these members was selected for the considerable experience on the ground and with the archaeological literature for the western Papagueria, including the Western Pima County subarea.

In all, over 180 years of cumulative experience in the archaeology of southern Arizona was brought to bear in this exercise to produce a graphic representation of current expert opinion on the relative frequency of archaeological sites on the landscape; this is interpreted in qualitative terms as a measure of site sensitivity. The results are presented in Table V.5.2 below and graphically in two maps entitled, **"Archaeological Sensitivity Zones for Eastern Pima County"** and **"Archaeological Sensitivity Zones for Western Pima County."** Note: The high sensitivity zone is represented in red, blue is the moderate zone, and white

represents the zone that is believed to have the lowest sensitivity. Urban areas are also indicated by black hatching.

Table V.5.2. Comparison of Site Sensitivity Zones by Acreage per Subarea

SUBAREA	High	%	Rank	Moderate	%	Rank	Low	%	Rank	Total
San Pedro Valley	20744	11.9	8	38031	21.8	4	115538	66.2	3	174,313
Cienega-Rincon	91719	28.7	4	70895	22.2	3	155919	48.9	5	318,533
U. Santa Cruz	84689	18.8	6	81573	18.1	6	283421	63.0	4	449,683
M. Santa Cruz	58433	16.1	7	54132	14.9	7	249285	68.8	1	361,850
Tortolita Fan	105902	52.0	2	38041	18.6	5	59601	29.2	6	203,544
Altar Valley	184454	25.8	5	50309	7.0	8	479042	67.1	2	713,805
Avra Valley	117153	52.9	1	58102	26.2	2	46147	20.8	8	221,402
W. Pima County	328272	30.3	3	457562	42.3	1	296446	27.4	7	1,082,281
Total	991,366			848,645			1,685,399			3,525,411

The subareas show considerable variation in archaeological sensitivity with the Avra Valley ranking as having highest percentage of land designated as high sensitivity. By acres, the Western Pima County subarea has the highest rank by far reflecting its larger size than the other subareas. Ranking the Avra Valley first in sensitivity differs from the findings of the proximity to water model reflecting the influence of other variables in the analysis and the intuitive nature of this modeling exercise. A good deal of the western third of the Avra Valley is identified as having high sensitivity. At the bottom of the rankings for high sensitivity is the San Pedro River Valley. This zone is limited to a tight band centered on the San Pedro River and the adjacent terraces. Notice how the high sensitivity zones correlate with the major drainages in each subarea, and in proximity to known springs in some instances, such as the Cienega-Rincon and Western Pima County subareas. In total, the high sensitivity zone represents about 28% of the total area in eastern Pima County.

The areas believed to have a more moderate sensitivity for archaeological sites are generally located adjacent to the high sensitivity zones indicating that site potential is expected to drop off as one moves away from the high sensitivity zones. The subarea with the highest percentage of the moderate sensitivity zone is Western

Pima County by both acres and percentage. This area covers a large swath of territory in the eastern half of the subarea that is characterized by Palo Verde-mixed cactus vegetation. Archaeological sites are known to correlate with this vegetative zone on lands administered by Luke Air Force Base to the north and as such the Palo Verde mixed cactus zone in the subarea was assumed to have a higher sensitivity than areas dominated by other vegetation. On the eastern side of the county, it is the Avra Valley subarea with the highest percent of land in the moderate sensitivity zone. This portion of the Avra Valley centers on the washes on the bottom of the valley floor, which may have been flood prone thus reducing its attractiveness for human populations. The subarea with the lowest percentage of the moderate zone is the Altar Valley, with only a few tributary drainages leading into the Altar Wash being so designated. In all, the moderate zone represents approximately 24% of the total area in Pima County.

The Low sensitivity zone is the largest in terms of overall percentage of land in the region at approximately 1.6 million acres or 47.8%. The subarea with the highest percentage of the low sensitivity zone is the Middle Santa Cruz although at 479,042 acres, the Altar Valley has almost twice the acreage. The subarea with the least percentage of acres in the low sensitivity zone is the Avra Valley, which also has the lowest acreage in this category.

It is important to remember that these data represent opinion that is influenced by both personal experience and by the amount of available information. The Altar Valley for instance has the second lowest survey percentage of all the subareas in eastern Pima County at 5.3 percent. Western Pima County is believed to have even less survey coverage. Part of what is being reflected here then is lack of knowledge, even on the part of the experts, that can only be over come by collecting additional information.

In an attempt to bring the findings of the proximity to water model and the site sensitivity model together to make single statement about relative potential for cultural resources on the subarea level, some additional calculations are needed. First, percent was used for the final ranking, not the total acreage figures. This means that what is being compared is the proportion of each subarea in the two models. Second, since the site sensitivity model has three zones and the proximity model has two (area within the buffer and area outside), the percentage of lands with high and medium sensitivity for archaeological sites was combined and then the sum was ranked. These are the two zones that have the greatest value for conservation planning. Third, The rankings of the two models were added together and then this total was ranked to provide an expression of site potential for each subarea that combines the findings of both models. Note: since there is no data for Western Pima County on proximity to water, it was excluded from the comparative analysis at this point. However, it is evident from the results of the site sensitivity model that Western Pima County has a high percentage of high and medium sensitivity lands totaling 72.6 % indicating this subarea has a high potential for archaeological sites by this measure alone.

The result of the comparative analysis of the eastern Pima County subareas is presented in Table V.5.3. Rankings are provided for the proportion of each subarea where 1=highest percent and 8=lowest percent. The same rank order from high to low are used in the cumulative rankings.

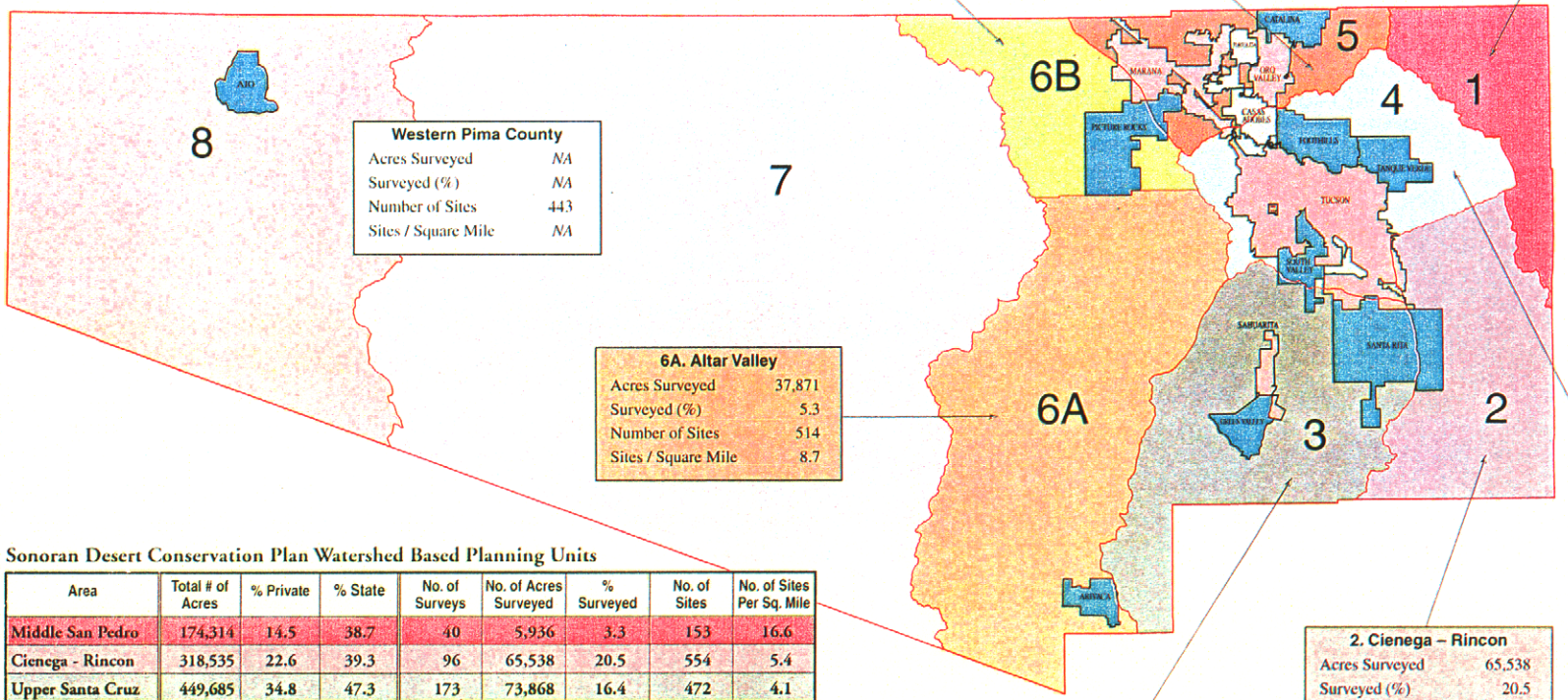
Table V.5.3. Rankings for Proximity to Water and Site Sensitivity by Percent per Subarea.							
	SP	CR	USC	MSC	TF	ALV	AV
%	48.9	54.0	24.9	52.61	52.58	19.2	27.2
Proximity to Water Ranking	**4**	**1**	**6**	**2**	**3**	**7**	**5**
%	33.7	50.9	36.9	31.0	70.6	32.8	79.1
Site Sensitivity Ranking	**5**	**3**	**4**	**7**	**2**	**6**	**1**
Rank Total	**9**	**4**	**10**	**9**	**5**	**13**	**6**
Cum. Rank	**4**	**1**	**5**	**4**	**2**	**6**	**3**

It is interesting to note the differences in the rankings produced by the two models. Five out of the seven subareas measured by both models differ in rank by one or two, meaning that there is substantial agreement more or less between what the objective proximity to water model predicts and what expert opinion believes is the case. There are two cases however where the differences are more extreme. The sensitivity model predicts that the Avra Valley has a greater proportion of archaeologically sensitive land than the proximity to water model predicts would be the case. In part, this may be the result of how drainages in the Avra Valley are ranked by the model. That the Blanco Wash, an important water source prehistorically, is not classified as a major drainage reduces the acreage in proximity to water for this subarea. The most extreme difference between the two models is in the Middle Santa Cruz subarea where the situation is reversed. In this case, expert opinion views the subarea as having a lower site potential than the proximity to water model predicts. This may have a lot to do with the fact that only 6.6 percent of the subarea has ever been surveyed and that survey has only really focused along the major drainages. Again, lack of data may be influencing expert opinion. Despite these differences, the two models can be joined because they are measuring part of the same phenomenon: the way people in the past have organized themselves on the landscape in relation to water.

Looking at the cumulative rankings, two subareas stand out as having high potential, Cienega-Rincon ranked first and the Tortolita Fan ranked second. The Avra Valley follows in third and there are two subareas tied for fourth place: the Middle Santa Cruz and the San Pedro Valley. The Upper Santa Cruz is fifth and last is the Altar Valley Subarea.

It is important to note that these rankings are based on the subarea level overall and do not reflect the potential of any one area within a given subarea to contain cultural resources. That the Altar Valley is ranked so low only means that both models identified proportionally smaller areas within the subarea that will have a higher probability of cultural resources than in other subareas. Given the size of this subarea, and the limited number and distribution of water sources measured in this analysis, evidence of past human activity is expected to be more concentrated in space. On the other hand, the Cienega-Rincon Subarea has a high ranking because both models suggest that it is highly sensitive given the number and diversity of water sources and other environmental variables favorable to human settlement. Evidence of past human land use should be more abundant and dispersed across the land.

ARCHAEOLOGICAL DATA AT THE WATERSHED LEVEL



6B. Avra Valley

Acres Surveyed	17,900
Surveyed (%)	8.0
Number of Sites	141
Sites / Square Mile	5.0

5. Tortolita Fan

Acres Surveyed	71,447
Surveyed (%)	35.1
Number of Sites	970
Sites / Square Mile	8.7

1. Middle San Pedro

Acres Surveyed	5,936
Surveyed (%)	3.3
Number of Sites	153
Sites / Square Mile	16.6

Western Pima County

Acres Surveyed	*NA*
Surveyed (%)	*NA*
Number of Sites	443
Sites / Square Mile	*NA*

6A. Altar Valley

Acres Surveyed	37,871
Surveyed (%)	5.3
Number of Sites	514
Sites / Square Mile	8.7

Pima County Archaeological Data Basemap Watershed Comparison

SDCP Planning Units (Watersheds)
Incorporated Areas
Unincorporated Urbanizing Areas
Pending Incorporated Areas

Incorporated Areas
1. Marana
2. Oro Valley
3. Sahuarita
4. South Tucson
5. Tucson
Unincorporated Urbanizing Areas
1. Ajo
2. Arivaca
3. Catalina
4. Foothills
5. Green Valley
6. Picture Rocks
7. Santa Rita
8. South Valley
9. Tanque Verde
Pending Incorporated Areas
1. Casas Adobes
2. Tortolita

Pima County Graphic Design 3041 7-17-03

4. Middle Santa Cruz

Acres Surveyed	24,144
Surveyed (%)	6.6
Number of Sites	737
Sites / Square Mile	19.5

2. Cienega – Rincon

Acres Surveyed	65,538
Surveyed (%)	20.5
Number of Sites	554
Sites / Square Mile	5.4

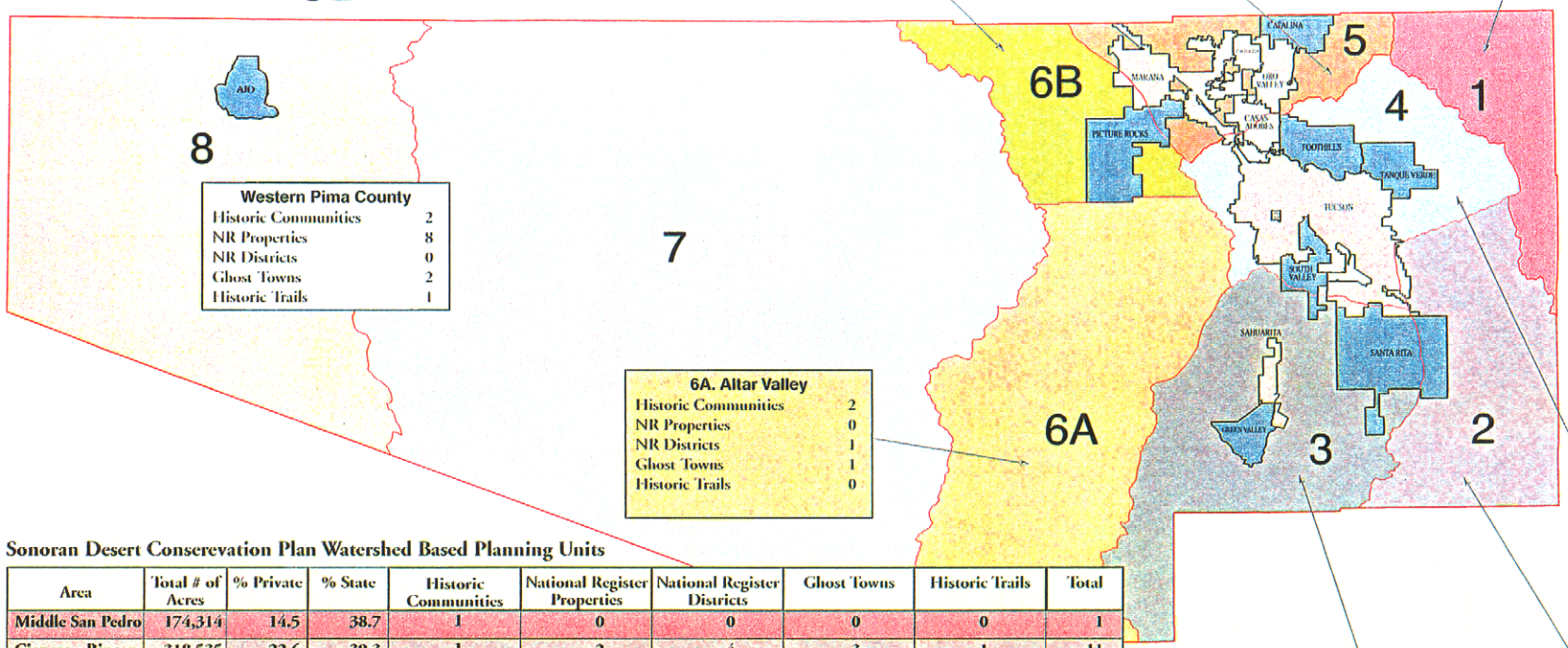
3. Upper Santa Cruz

Acres Surveyed	73,868
Surveyed (%)	16.4
Number of Sites	472
Sites / Square Mile	4.1

Sonoran Desert Conservation Plan Watershed Based Planning Units

Area	Total # of Acres	% Private	% State	No. of Surveys	No. of Acres Surveyed	% Surveyed	No. of Sites	No. of Sites Per Sq. Mile
Middle San Pedro	174,314	14.5	38.7	40	5,936	3.3	153	16.6
Cienega - Rincon	318,535	22.6	39.3	96	65,538	20.5	554	5.4
Upper Santa Cruz	449,685	34.8	47.3	173	73,868	16.4	472	4.1
Middle Santa Cruz	361,852	55.6	5.5	1506	24,144	6.6	737	19.5
Tortolita Fan	203,546	52.3	22.7	458	71,447	35.1	970	8.7
Altar Valley	713,807	20.0	45	141	37,871	5.3	514	8.7
Avra Valley	221,404	31.5	22	52	17,900	8.0	141	5.0
Tohono O'odham	2,354,911	0.7	1.3					
W. Pima Co.	1,082,282	1.2	.25	*NA*	*NA*	*NA*	443	*NA*
Pima Co. Totals	5,880,337						3,984	
E. Pima Co. Totals	2,443,144			2,466	296,704	12.1	3,541	7.6

HISTORIC RESOURCES AT THE WATERSHED LEVEL



6B. Avra Valley

Historic Communities	1
NR Properties	1
NR Districts	2
Ghost Towns	1
Historic Trails	0

5. Tortolita Fan

Historic Communities	3
NR Properties	0
NR Districts	2
Ghost Towns	0
Historic Trails	2

1. Middle San Pedro

Historic Communities	1
NR Properties	0
NR Districts	0
Ghost Towns	0
Historic Trails	0

Western Pima County

Historic Communities	2
NR Properties	8
NR Districts	0
Ghost Towns	2
Historic Trails	1

6A. Altar Valley

Historic Communities	2
NR Properties	0
NR Districts	1
Ghost Towns	1
Historic Trails	0

Pima County Historic Resources Watershed Comparison

SDCP Planning Units (Watersheds)
Incorporated Areas
Unincorporated Urbanizing Areas
Pending Incorporated Areas

Incorporated Areas
1. Marana
2. Oro Valley
3. Sahuarita
4. South Tucson
5. Tucson
Unincorporated Urbanizing Areas
1. Ajo
2. Arivaca
3. Catalina
4. Foothills
5. Green Valley
6. Picture Rocks
7. Santa Rita
8. South Valley
9. Tanque Verde
Pending Incorporated Areas
1. Casas Adobes
2. Tortolita

4. Middle Santa Cruz

Historic Communities	1
NR Properties	84
NR Districts	16
Ghost Towns	0
Historic Trails	2

2. Cienega – Rincon

Historic Communities	1
NR Properties	2
NR Districts	4
Ghost Towns	3
Historic Trails	1

3. Upper Santa Cruz

Historic Communities	2
NR Properties	1
NR Districts	0
Ghost Towns	3
Historic Trails	1

Sonoran Desert Conserevation Plan Watershed Based Planning Units

Area	Total # of Acres	% Private	% State	Historic Communities	National Register Properties	National Register Districts	Ghost Towns	Historic Trails	Total
Middle San Pedro	174,314	14.5	38.7	1	0	0	0	0	1
Cienega - Rincon	318,535	22.6	39.3	1	2	4	3	1	11
Upper Santa Cruz	449,685	34.8	47.3	2	1	0	3	1	7
Middle Santa Cruz	361,852	55.6	5.5	1	84	16	0	2	103
Tortolita Fan	203,546	52.3	22.7	3	0	2	0	2	7
Altar Valley	713,807	20.0	45	2	0	1	1	0	4
Avra Valley	221,404	31.5	22	1	1	2	1	0	5
Tohono Nation	2,354,911	0.7	1.3	-	-	-	-	-	-
Western Pima County	1,082,282	1.2	.25	2	8	0	2	1	13
Pima County Totals	5,880,337			13	96	25	10	7	151
Eastern Pima County Totals	2,443,144			11	88	25	8	6	138

TRADITIONAL CULTURAL PLACES AT THE WATERSHED LEVEL

6B. Avra Valley

*Known TCPs	1
Habitation Sites	9
Rock Art Sites	17
Religious Sites	2

5. Tortolita Fan

*Known TCPs	0
Habitation Sites	92
Rock Art Sites	46
Religious Sites	9

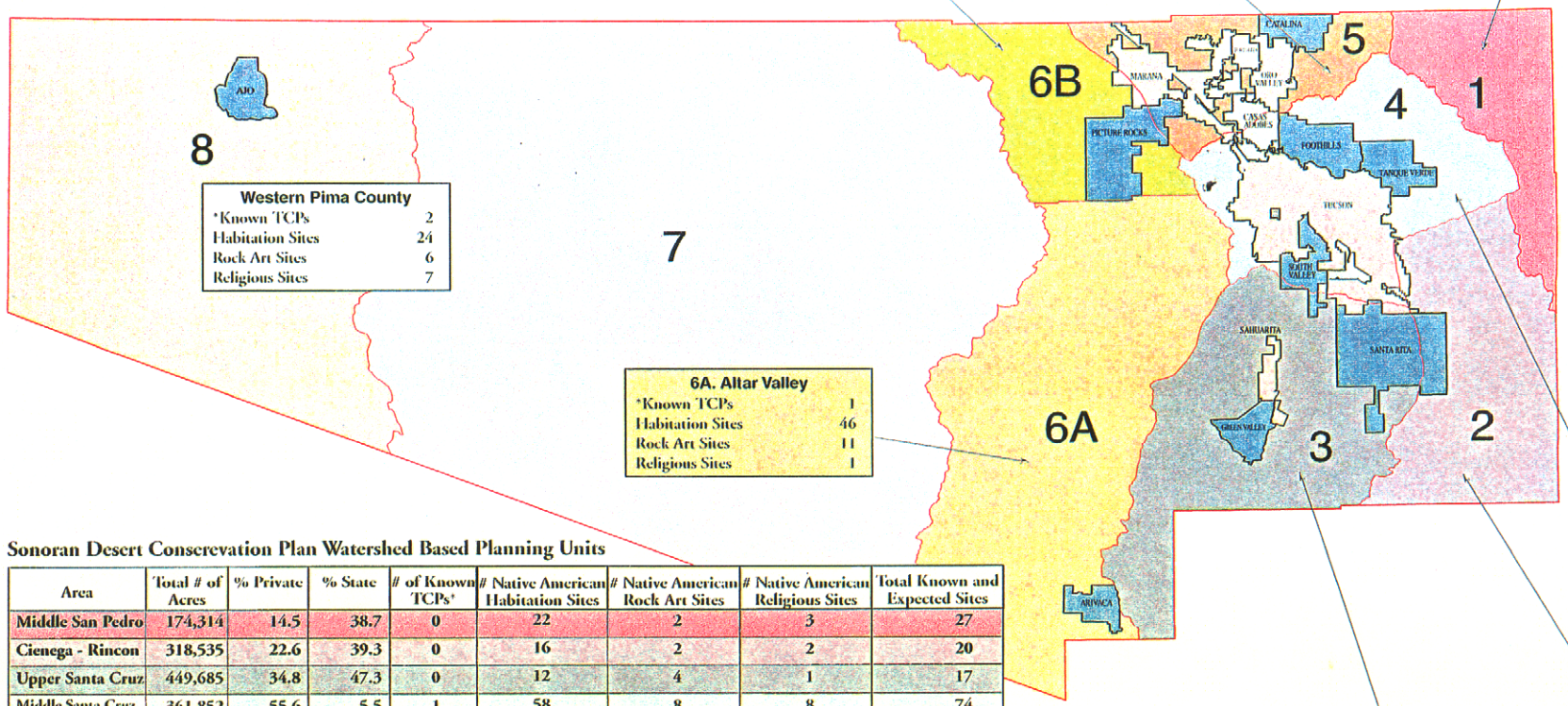
1. Middle San Pedro

*Known TCPs	0
Habitation Sites	22
Rock Art Sites	2
Religious Sites	3

Pima County Traditional Cultural Places Watershed Comparison

SDCP Planning Units (Watersheds)
Incorporated Areas
Unincorporated Urbanizing Areas
Pending Incorporated Areas

Incorporated Areas
1. Marana
2. Oro Valley
3. Sahuarita
4. South Tucson
5. Tucson
Unincorporated Urbanizing Areas
1. Ajo
2. Arivaca
3. Catalina
4. Foothills
5. Green Valley
6. Picture Rocks
7. Santa Rita
8. South Valley
9. Tanque Verde
Pending Incorporated Areas
1. Casas Adobes
2. Tortolita



Western Pima County

*Known TCPs	2
Habitation Sites	24
Rock Art Sites	6
Religious Sites	7

6A. Altar Valley

*Known TCPs	1
Habitation Sites	46
Rock Art Sites	11
Religious Sites	1

4. Middle Santa Cruz

*Known TCPs	1
Habitation Sites	58
Rock Art Sites	8
Religious Sites	8

2. Cienega – Rincon

*Known TCPs	0
Habitation Sites	16
Rock Art Sites	2
Religious Sites	2

3. Upper Santa Cruz

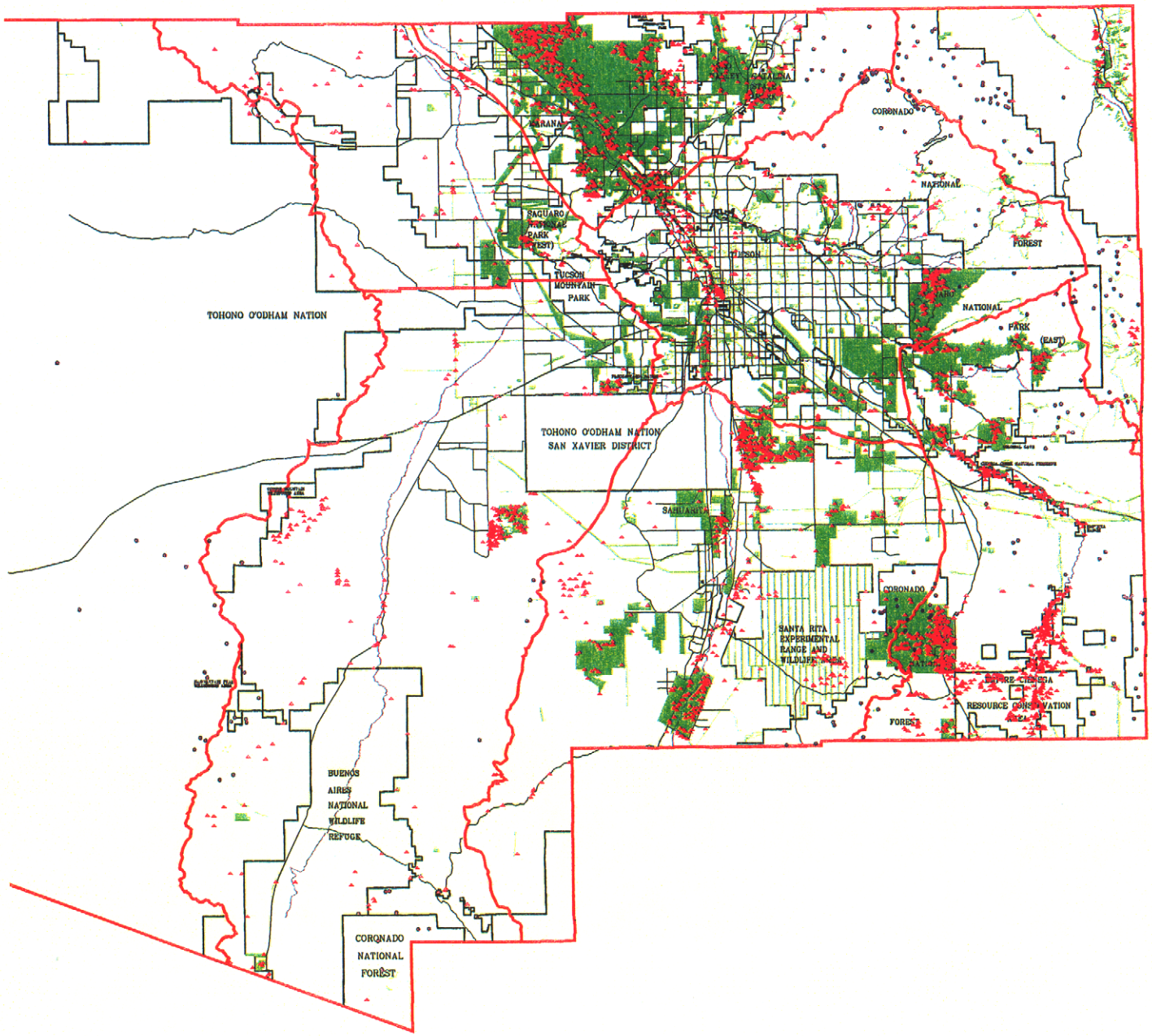
*Known TCPs	0
Habitation Sites	12
Rock Art Sites	4
Religious Sites	1

Sonoran Desert Conservation Plan Watershed Based Planning Units

Area	Total # of Acres	% Private	% State	# of Known TCPs*	# Native American Habitation Sites	# Native American Rock Art Sites	# Native American Religious Sites	Total Known and Expected Sites
Middle San Pedro	174,314	14.5	38.7	0	22	2	3	27
Cienega - Rincon	318,535	22.6	39.3	0	16	2	2	20
Upper Santa Cruz	449,685	34.8	47.3	0	12	4	1	17
Middle Santa Cruz	361,852	55.6	5.5	1	58	8	8	74
Tortolita Fan	203,546	52.3	22.7	0	92	46	9	147
Altar Valley	713,807	20.0	45	1	46	11	1	59
Avra Valley	221,404	31.5	22	1	9	17	2	29
Tohono Nation	2,354,911	0.7	1.3	-	-	-	-	-
Western Pima County	1,082,282	1.2	.25	2	24	6	7	39
Pima County Totals	5,880,337			5	279	96	33	412
Eastern Pima County Totals	2,443,144			3	255	90	26	373

*Known TCPs are distinguished from Native American Archaeological Habitation, Rock Art and Religious sites, which may have expected value as TCPs.

Archaeological Survey and Site Locations

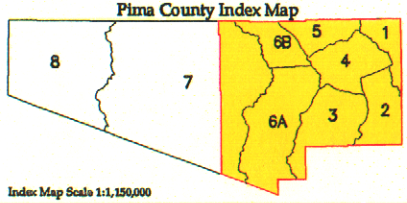


- Archaeological Sites
- Springs
- Archaeological Surveys
- Watershed Planning Boundaries
- Major Washes

Planning Units

1. San Pedro Valley
2. Cienega-Rincon Valley
3. Upper Santa Cruz Valley
4. Middle Santa Cruz Valley
5. Tortolita Fan
6a. Altar valley
6b. Avra Valley
7. Tohono O'odham
8. Western Pima County

Pima County Index Map



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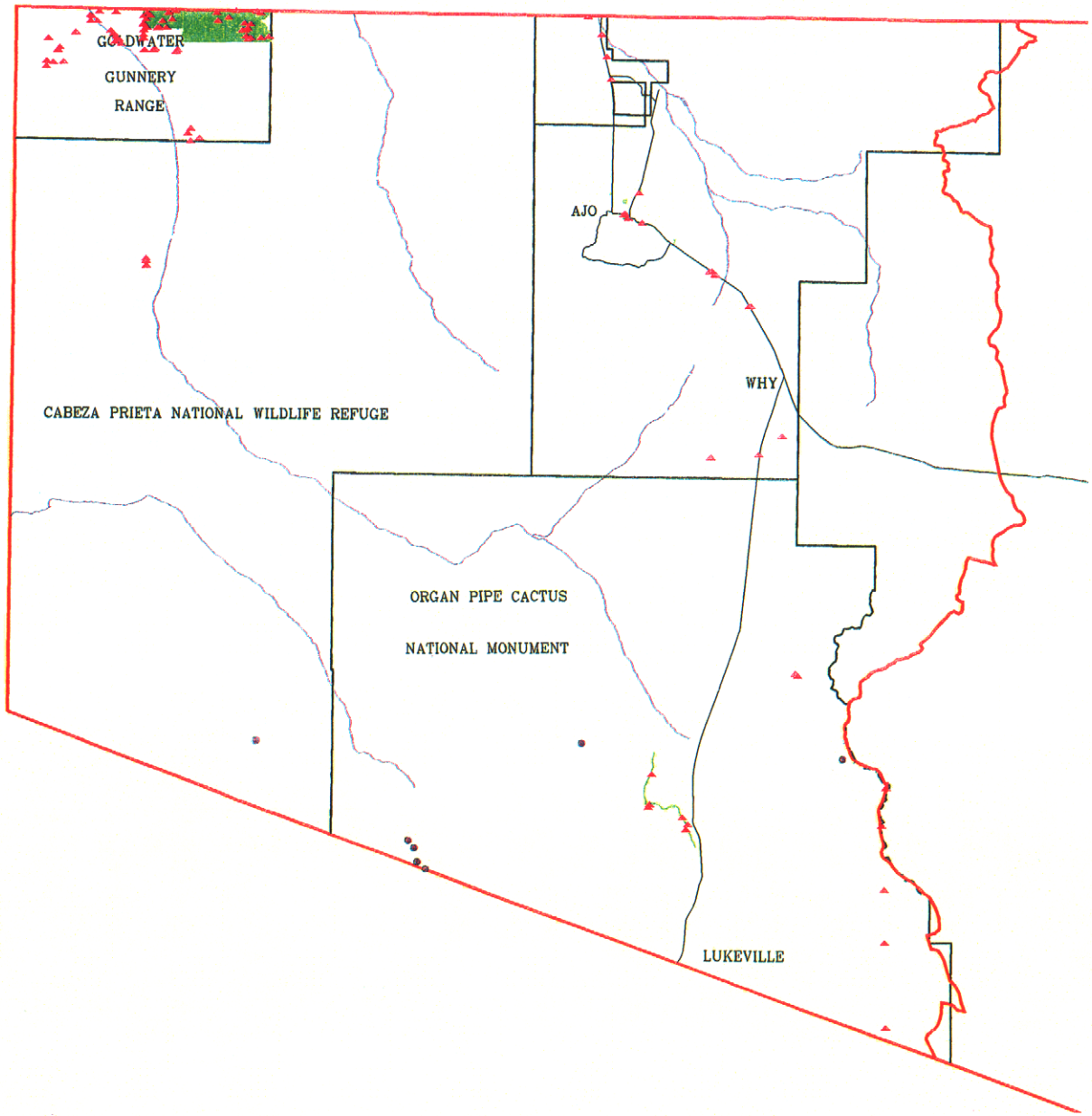
Archaeological Site Locations In Western Pima County

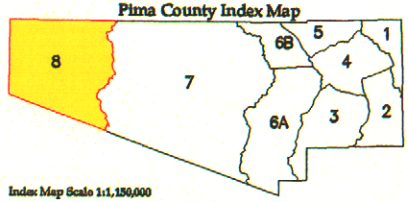


- Archaeological Sites
- Springs
- Archaeological Surveys
- Watershed Planning Boundaries
- Major Washes

Planning Units

1. San Pedro Valley
2. Cienega-Rincon Valley
3. Upper Santa Cruz Valley
4. Middle Santa Cruz Valley
5. Tortolita Fan
6a. Altar valley
6b. Avra Valley
7. Tohono O'odham
8. Western Pima County

Pima County Index Map



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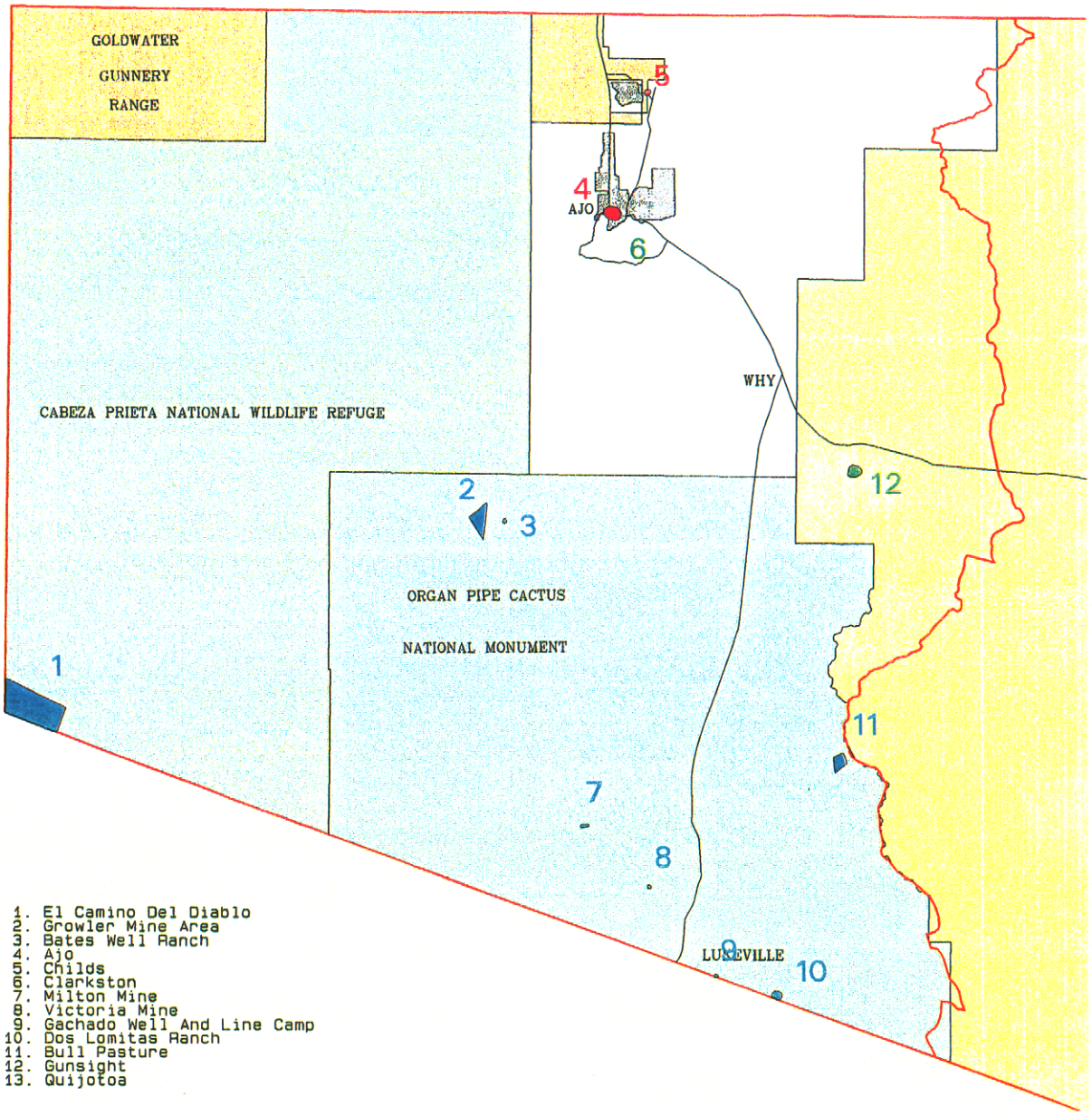
Historic Resources in Western Pima County



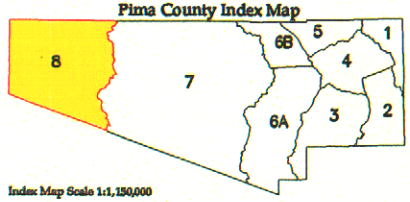
1. El Camino Del Diablo
2. Growler Mine Area
3. Bates Well Ranch
4. Ajo
5. Childs
6. Clarkston
7. Milton Mine
8. Victoria Mine
9. Gachado Well And Line Camp
10. Dos Lomitas Ranch
11. Bull Pasture
12. Gunsight
13. Quijotoa

- National Register Historic Place
- Ghost Town
- Historic Community
- National Parks/Monuments/Preserves
- Tribal Nations
- Incororated Cities
- Urban Area from GAP Vegetation
- Anza Trail Route
- Butterfield Overland Trail Route
- Major Roads
- Planning Unit Boundaries

Planning Units

1. San Pedro Valley
2. Cienega-Rincon Valley
3. Upper Santa Cruz Valley
4. Middle Santa Cruz Valley
5. Tortolita Fan
6a. Altar valley
6b. Avra Valley
7. Tohono O'odham
8. Western Pima County

Pima County Index Map



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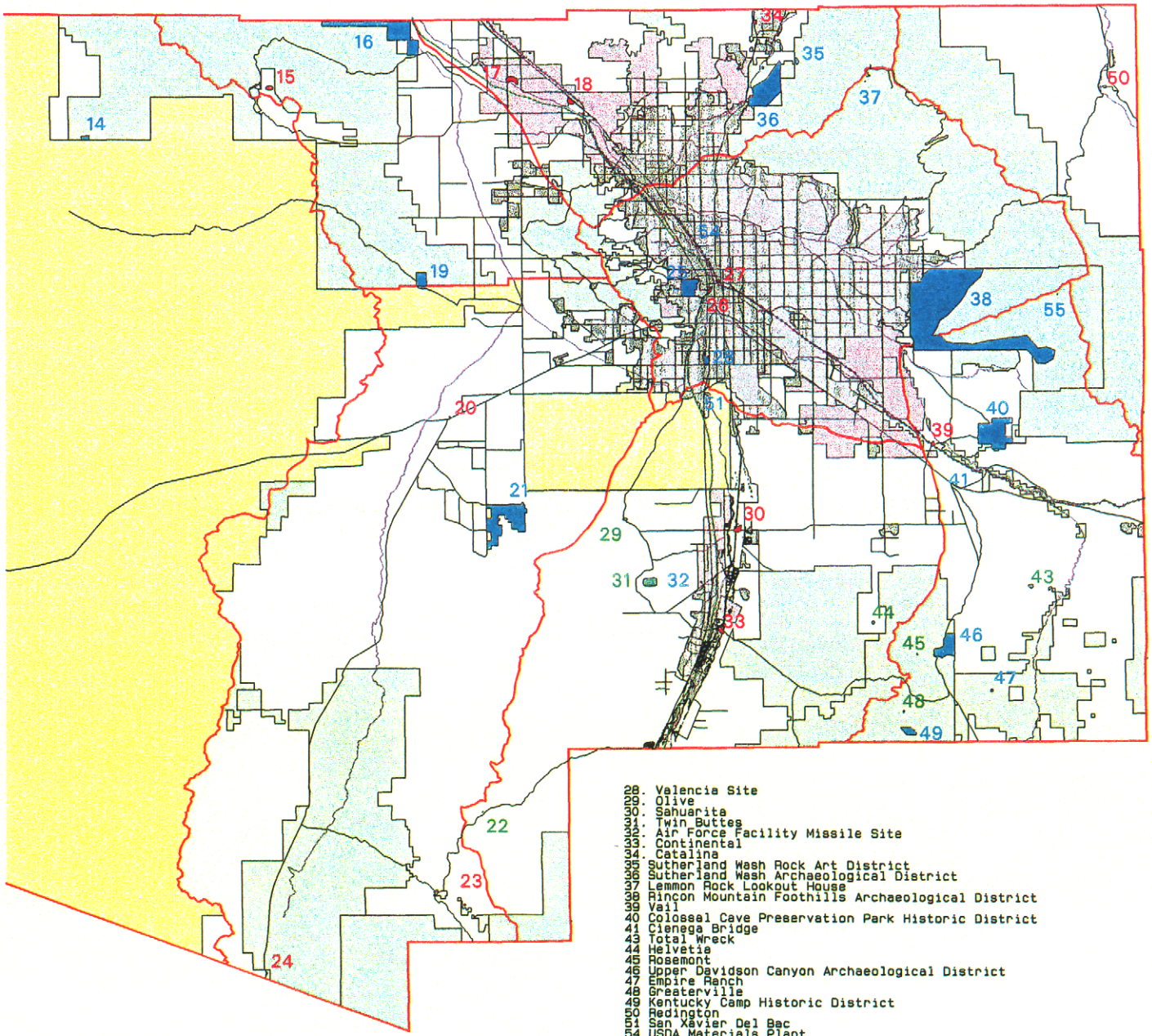
pygmyowl2/sonora/cultural/ecajoined/plan_all/eale/hist_ppc.eal Plotted: 6/28/00

14. Santa Ana Del Chiquiburitac Mission
15. Silverbell
16. Los Robles Archaeological District
17. Marana
18. Rillito
19. Cocoraque Butte Archaeological District
20. Robles Ranch
21. Gunsight Mountain Archaeological District
22. Cerro Colorado
23. Arivaca
24. Sasabe
25. Desert Laboratory of the Carnegie Institute
26. San Augustine Mission
27. Tucson Presidio



28. Valencia Site
29. Olive
30. Sahuarita
31. Twin Buttes
32. Air Force Facility Missile Site
33. Continental
34. Catalina
35 Sutherland Wash Rock Art District
36 Sutherland Wash Archaeological District
37 Lemmon Rock Lookout House
38 Rincon Mountain Foothills Archaeological District
39 Vail
40 Colossal Cave Preservation Park Historic District
41 Cienega Bridge
43 Total Wreck
44 Helvetia
45 Rosemont
46 Upper Davidson Canyon Archaeological District
47 Empire Ranch
48 Greaterville
49 Kentucky Camp Historic District
50 Redington
51 San Xavier Del Bac
54 USDA Materials Plant
55 Manning Cabin

Historic Resources in Eastern Pima County

- National Register Historic Place
- Ghost Town
- Historic Community

- National Parks/Monuments/Preserves
- Tribal Nations
- Incororated Cities
- Urban Area from GAP Vegetation
- Anza Trail Route
- Butterfield Overland Trail Route
- Major Roads
- Planning Unit Boundaries

Planning Units

1. San Pedro Valley
2. Cienega-Rincon Valley
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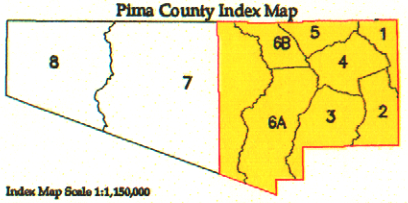
8. Western Pima County

Pima County Index Map



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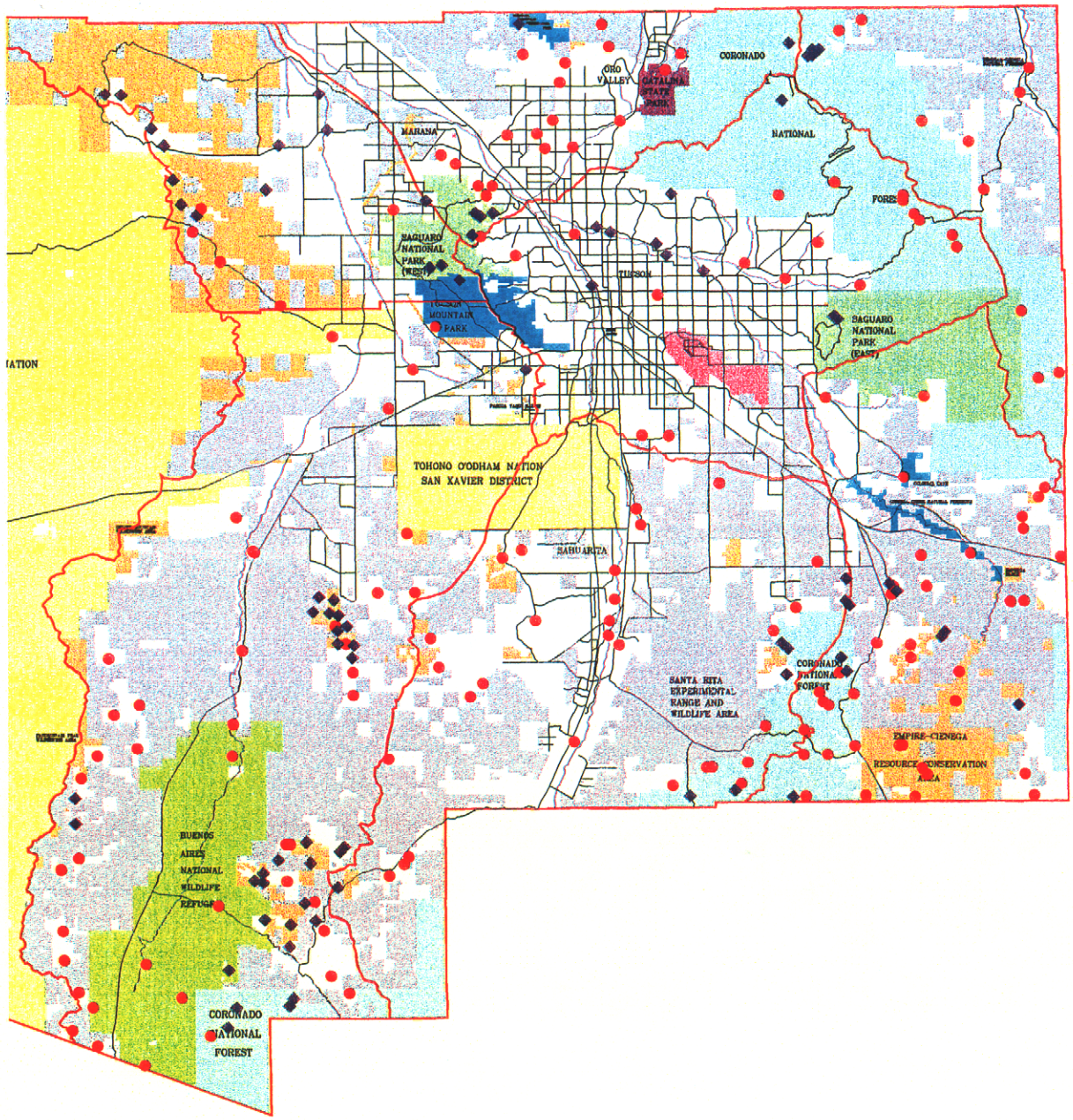
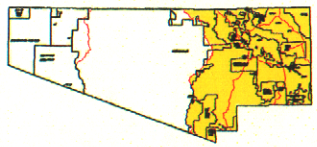
pyg#yow12/geners/cultural/mmajoined/plan_pll/amls/hist_ppc.aml Plotted: 6/29/00

Historic Ranches and Mines in Eastern Pima County



- Ranches
- Mines
- Private Lands
- State Lands
- Indian Lands
- BLM
- Military Reservations
- National Forest Lands
- National Parks and Monuments
- National Wildlife Refuge
- County Park
- State Park
- Major Roads
- Major Washes

Pima County Index Map



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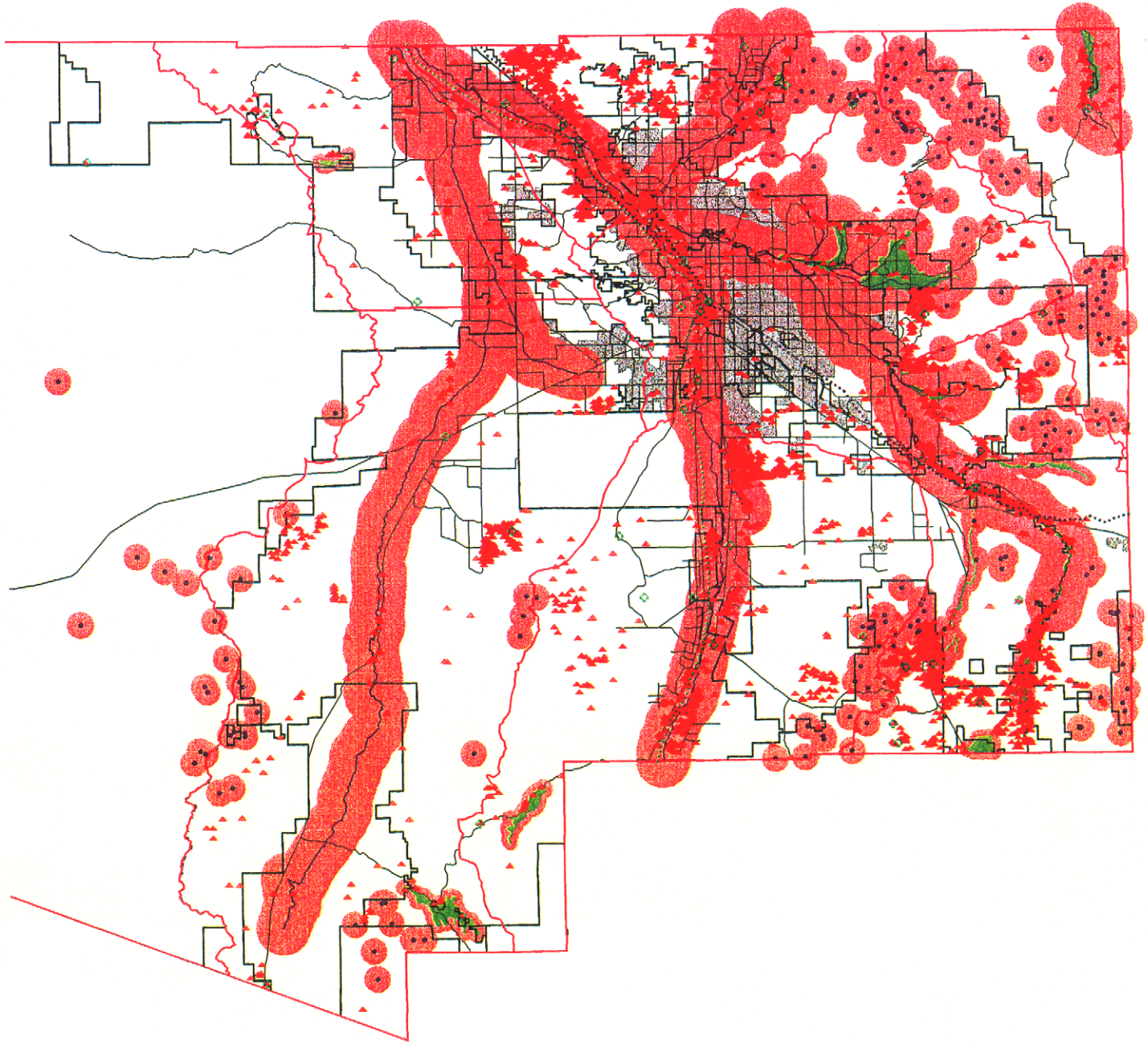


Cultural Resources In Proximity To Water

- Shallow Ground Water
- 2 Mile Buffer - Major Washes
  1 Mile Buffer - Springs
  1 Mile Buffer - Shallow Ground Water
- Streets And Roads
- Major Washes
- Subarea Boundary
- Springs
- Archaeological Sites
- Historic Sites

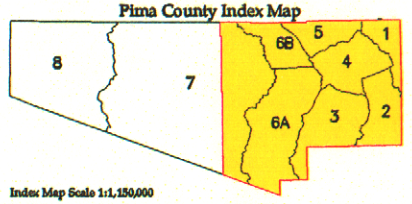
Planning Units

1. San Pedro Valley
2. Cienega-Rincon Valley
3. Upper Santa Cruz Valley
4. Middle Santa Cruz Valley
5. Tortolita Fan

6a. Altar valley
6b. Avra Valley

7. Tohono O'odham
8. Western Pima County

Pima County Index Map



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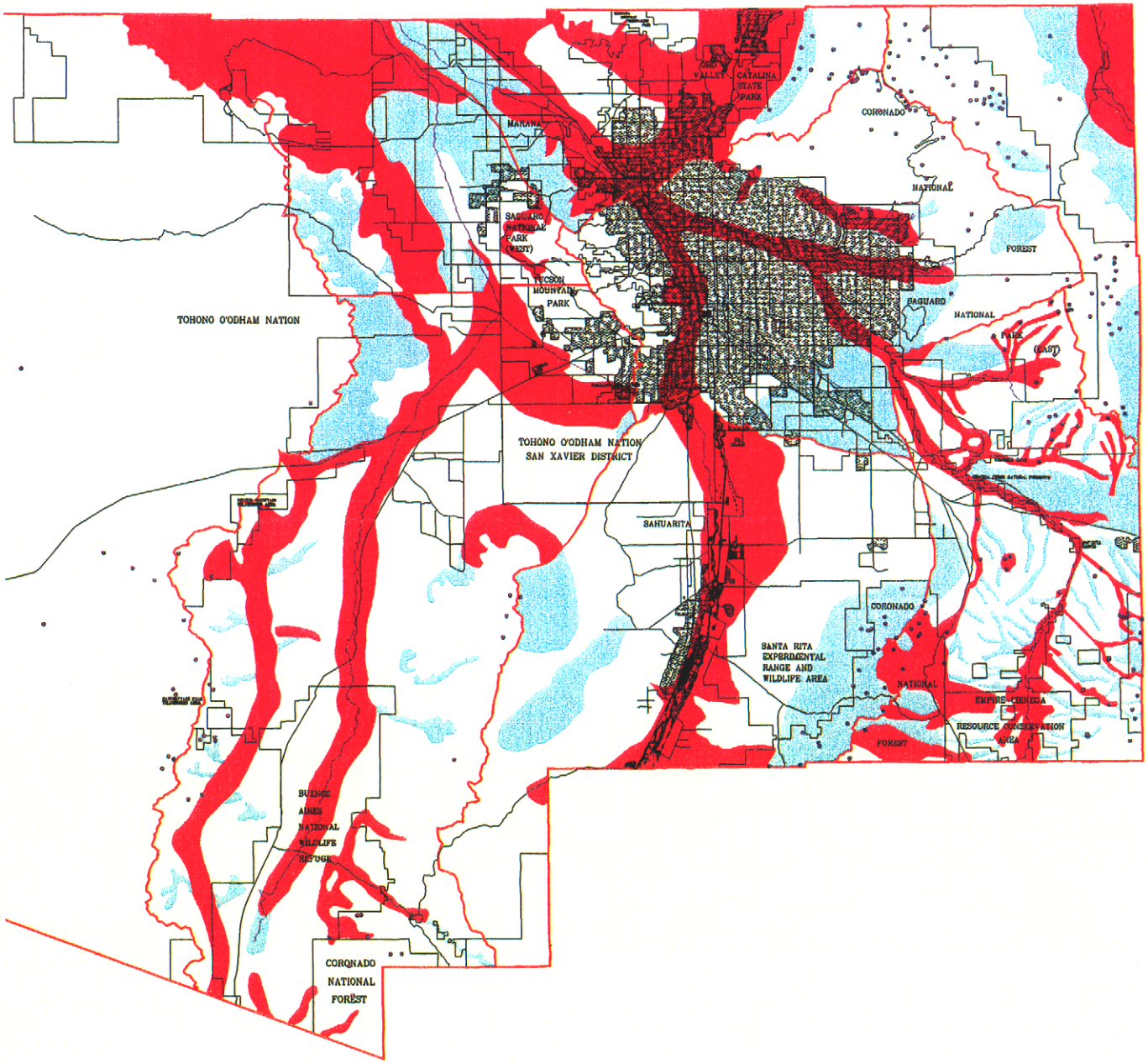
/pygmyowl2/sonora/cultural/esajoined/plan_pll/anlg/water_ppc.aml 6/28/00

Archaeological Sensitivity Zones for Eastern Pima County



- Low Sensitivity
- Moderate Sensitivity
- High Sensitivity
- Watershed Planning Boundaries
- Major Washes
- GAP Urban Boundary
- Springs

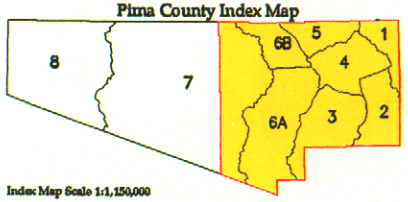
Planning Units

1. San Pedro Valley
2. Cienega-Rincon Valley
3. Upper Santa Cruz Valley
4. Middle Santa Cruz Valley
5. Tortolita Fan

6a. Altar valley
6b. Avra Valley

7. Tohono O'odham
8. Western Pima County

Pima County Index Map



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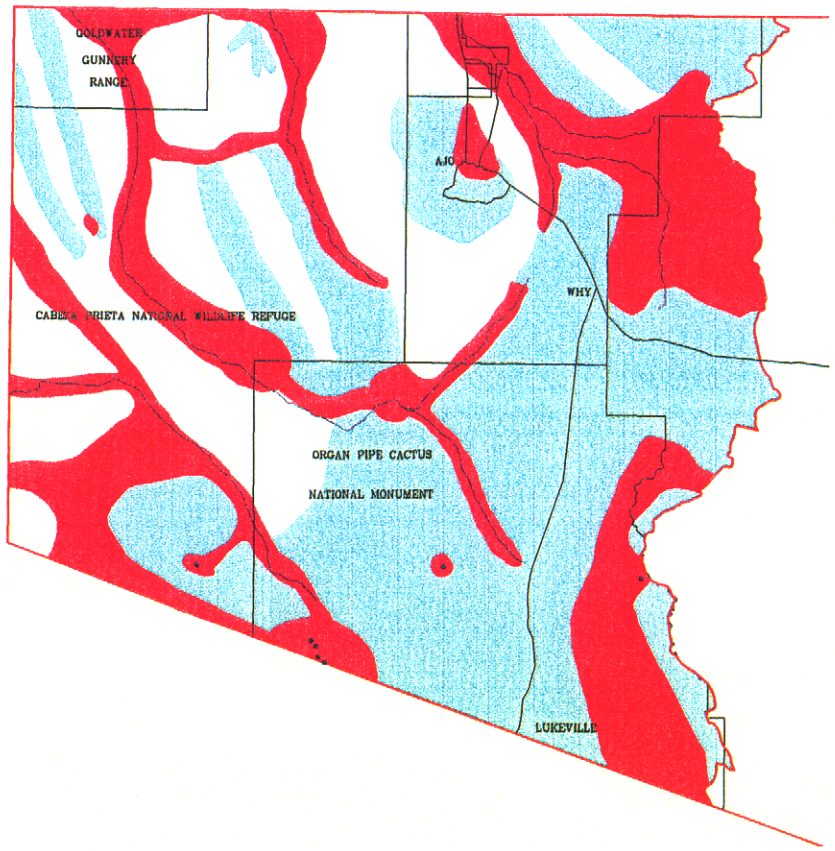
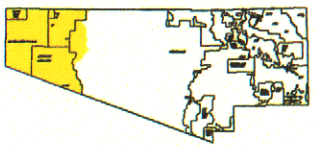
/pysayow12/sonora/cultural/sanjoinod/plan_pll/emlo/sona_ppc.aml Plotted: 6/20/00

Archaeological Sensitivity Zones for Western Pima County



- Low Sensitivity
- Moderate Sensitivity
- High Sensitivity
- Watershed Planning Boundaries
- Major Washes
- Springs

Pima County Index Map



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Plotted: 6/27/00

VI. Resource Integrity

Cultural resources of all kinds are fragile and finite, particularly archaeological sites. They can be easily disturbed and once destroyed they are not recoverable. Thus an important part of what makes a cultural resource valuable as a piece of culture and history is its physical integrity. For instance, archaeological sites are deposits of artifacts and features in three dimensional space that are a product of past behavior through time. Disrupt the contextual relationship between artifacts and features and the information potential of the site is lost; it no longer has integrity. Similarly, if a historic structure or building is remodeled by adding a second floor, replacing the roof, or removing the historic exterior and replacing it with modern siding, then the qualities that make the building historic have been affected thereby reducing or eliminating its integrity.

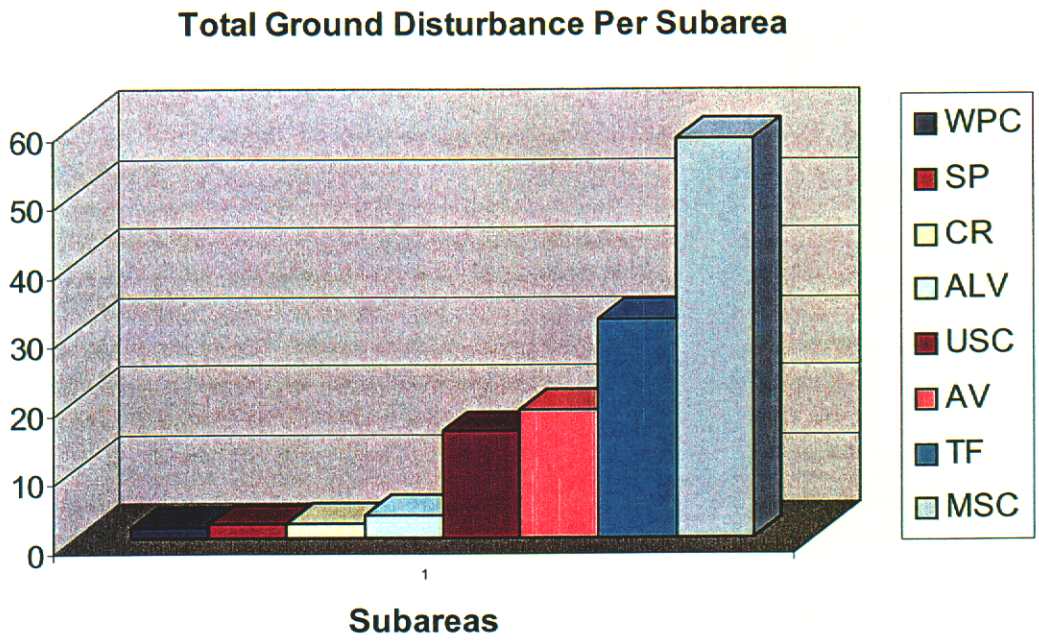
1. Ground Disturbance and Cultural Resources Integrity

In this analysis, the proportion of ground disturbance in each subarea is used as a proxy measure of integrity on the subarea level. This assumes that in places where ground disturbance is high, the probability of finding intact cultural resources, again especially archaeological sites, can be assumed to be low. Conversely, where ground disturbance is low, the probability of cultural resources integrity is high. Relative subarea integrity was measured by totaling the acres of ground disturbance from four sources: Urbanization, agriculture, mining and road construction. Table VI.1.1 presents the data for each subarea by source of disturbance. The type and location of these sources of disturbance can be seen in two maps entitled, **Urban, Mining, and Agricultural Uses in Eastern Pima County**, and, **Urban, Mining, and Agricultural Uses in Western Pima County**. Note: the urban areas are identified in grey; areas affected by agriculture are colored in tan, and mining is represented in blue. Only the major roads in each subarea are shown for clarity.

Table VI.1.1. Resource Integrity by Acreage per Subarea

SUB AREA	Urban Area	Agriculture	Mining	Roads	Total Acres	% of Sub Area	**Rank**
San Pedro Valley	0	2,131	0	1,483	3,614	2.0	**2**
Cienega-Rincon	693	1,042	0	5,273	7,008	2.2	**3**
U. Santa Cruz	15,860	13,182	28,872	12,019	69,933	15.5	**5**
M. Santa Cruz	170,453	108	0	39,806	210,367	58.1	**8**
Tortolita Fan	30,848	22,341	700	10,694	64,583	31.7	**7**
Altar Valley	9,572	6, 683	0	15,275	24,853	3.4	**4**
Avra Valley	4,892	29,666	1,648	5,378	41,584	18.7	**6**
W. Pima County	5,539	127	2,390	10,369	18,425	1.7	**1**
Total	**237,857**	**68,603**	**33,610**	**100,297**	**440,367**	**100**	

What this analysis shows is that the areas with the lowest percentage of land disturbance are those that are far removed from the urban core. This can be further illustrated in a bar chart showing total ground disturbance by subarea as presented below



The subarea with the greatest percentage of land that has been affected least by the four sources of disturbance is Western Pima County as can be seen in the accompanying map. Here mining and urbanization are the two main sources of disturbance. This is a product of how much of the subarea is in federal ownership and the small size of the principle settlement at Ajo. Second is the San Pedro subarea, followed in third by the Cienega-Rincon subarea; both have low populations. Agriculture along the San Pedro River flood plain has been the greatest source of disturbance, and in the Cienega-Rincon subarea road construction has had the biggest impact. The Altar Valley is another subarea that has been minimally affected. Here again, road construction makes up the greatest source of disturbance by acreage although some agricultural development has occurred along the Altar Wash. These four subareas have percentages of total ground disturbance ranging from 1.7 to 3.4.

The remaining four subareas, the Uppers Santa Cruz, the Avra Valley, the Tortolita Fan and the Middle Santa Cruz subareas, all have much higher levels of ground disturbance ranging from 15.5 to 58.1 percent respectively. The Upper Santa Cruz has received the most disturbance from mining along the flanks of the Sierrita Mountains; historically this activity has been augmented by the development of pecan orchards in the Santa Cruz flood Plain, and the subarea in now being rapidly affected by the urban expansion of the Green Valley/Sahuarita area along the Santa Cruz River. Avra Valley has been mostly disturbed by cotton farming and is also being affected by growth on the fringe of the expanding urban core. Much of this growth can be characterized as "wildcat" subdivision that is not regulated by County law. The subareas that have

been the most heavily impacted, and thus have the poorest chances of cultural resources integrity, are the Tortolita Fan and the Middle Santa Cruz areas. The City of Tucson has long been an urban center that historically started to undergo rapid growth after the Second World War. At the present pace of growth Tucson will have over a million people by the year 2010 and more land will be required to accommodate that growth. Not surprisingly, urbanization is the number one source of disturbance here and which covers almost the entire subarea that is not in federal ownership. The Tortolita Fan area, including unincorporated Pima county, Oro Valley and the communities of Casas Adobe, Tortolita, and Catalina, are all part of the urban growth phenomenon and it too has been disturbed by urbanization at a higher rate than any other source, although agriculture along the Santa Cruz River has also contributed to this level of disturbance.

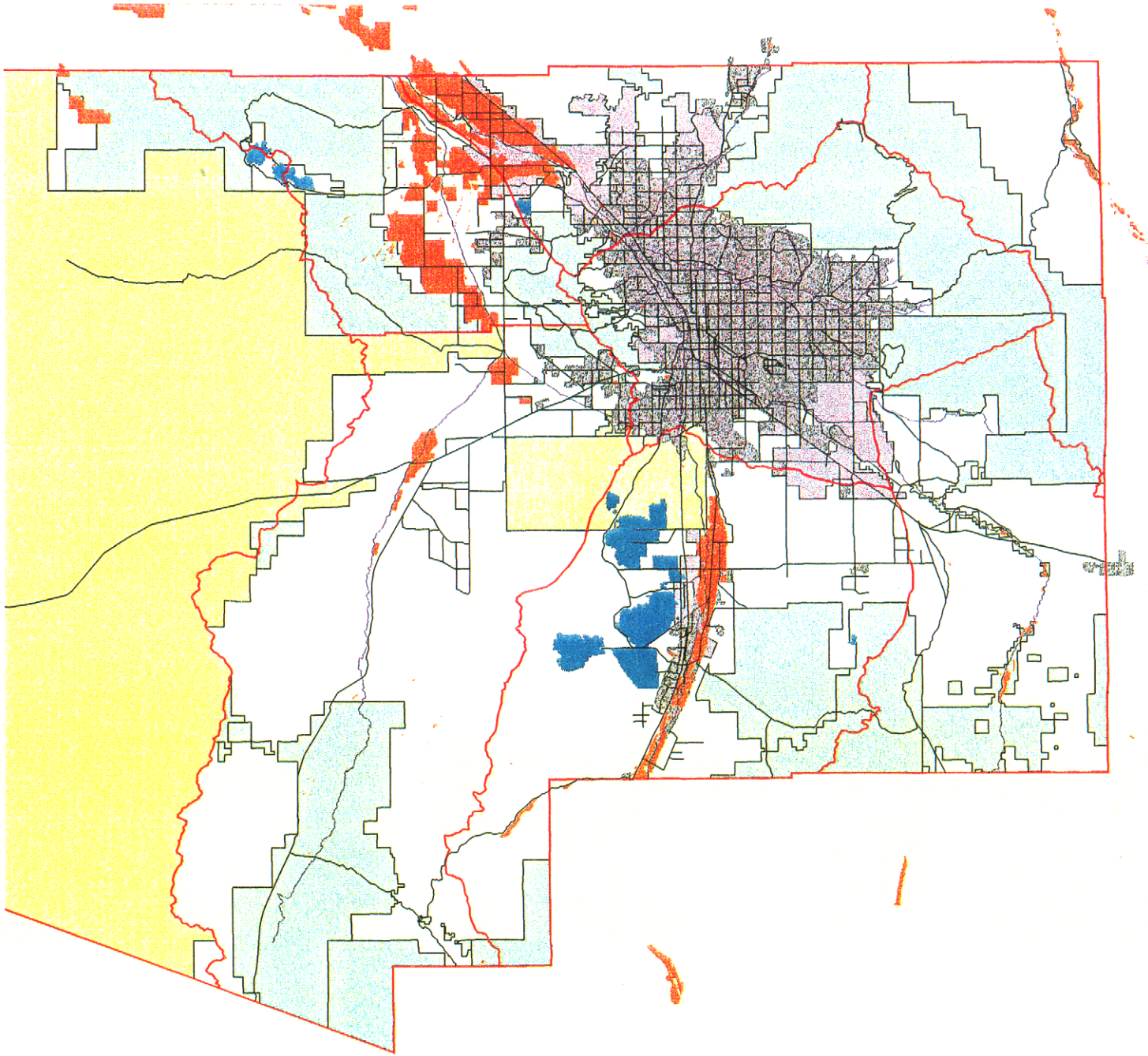
2. Estimated Effect of Ground Disturbance on Archaeological Sites

From the above analysis a total of the 440, 367 acres have been disturbed in Pima County as a result of the combined effects of urbanization, agriculture, mining and road construction. Urbanization makes up 54% of that, road construction is second with 22.7 %, third is agriculture at 15.5%, and last is mining at 7.6%. Looking at the map entitled, **"Urban, Mining and Agricultural Uses in Eastern Pima County,"** it is evident that the top three sources of disturbance have concentrated along the major drainages and adjacent lands in the Upper Santa Cruz, Avra Valley, Tortolita Fan and Middle Santa Cruz subareas. These are the same areas that are predicted to be have the highest sensitivity for cultural resources and thus it can be assumed that historically more cultural resources have been lost to these activities than anywhere else. If the regional average of 7.6 archaeological sites per square mile is used, then 4589 archaeological sites have been affected in these subareas alone, a figure that is higher than the total number of sites currently known in all of Pima County.

That is not to say, however, that archaeological sites and other cultural resources have been completely destroyed in these subareas or that these areas hold no further potential. Rather, this potential has been substantially reduced due to the likely hood that integrity has been compromised in whole or in part. Archaeological sites do survive in heavily disturbed areas. The history of Athens, Mexico City, or Tucson for that matter, could not be known through the archaeological record if this were not true. However, in these circumstances, integrity is often a matter of luck more than anything else and research questions must often be limited to those that can be addressed in disturbed contexts.

In short, cultural resources are most likely to be intact in the Western Pima County, San Pedro, Cienega-Rincon and Altar Valley subareas in general, and least likely to be intact specifically in those portions of the Upper Santa Cruz, Avra Valley, Tortolita Fan, and Middle Santa Cruz subareas that have been affected by ground disturbing activities in the past.

Urban, Mining, and Agricultural Uses in Eastern Pima County

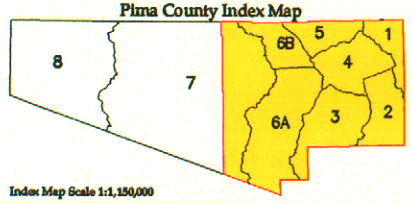


- Urban
- Agriculture
- Mining
- National Parks/Monuments/Preserves
- Incorporated Cities
- Tribal Nations
- Major Washes
- Major Roads
- Planning Unit Boundaries

Planning Units

1. San Pedro Valley
2. Cienega-Rincon Valley
3. Upper Santa Cruz Valley
4. Middle Santa Cruz Valley
5. Tortolita Fan
6a. Altar valley
6b. Avra Valley
7. Tohono O'odham
8. Western Pima County

Pima County Index Map



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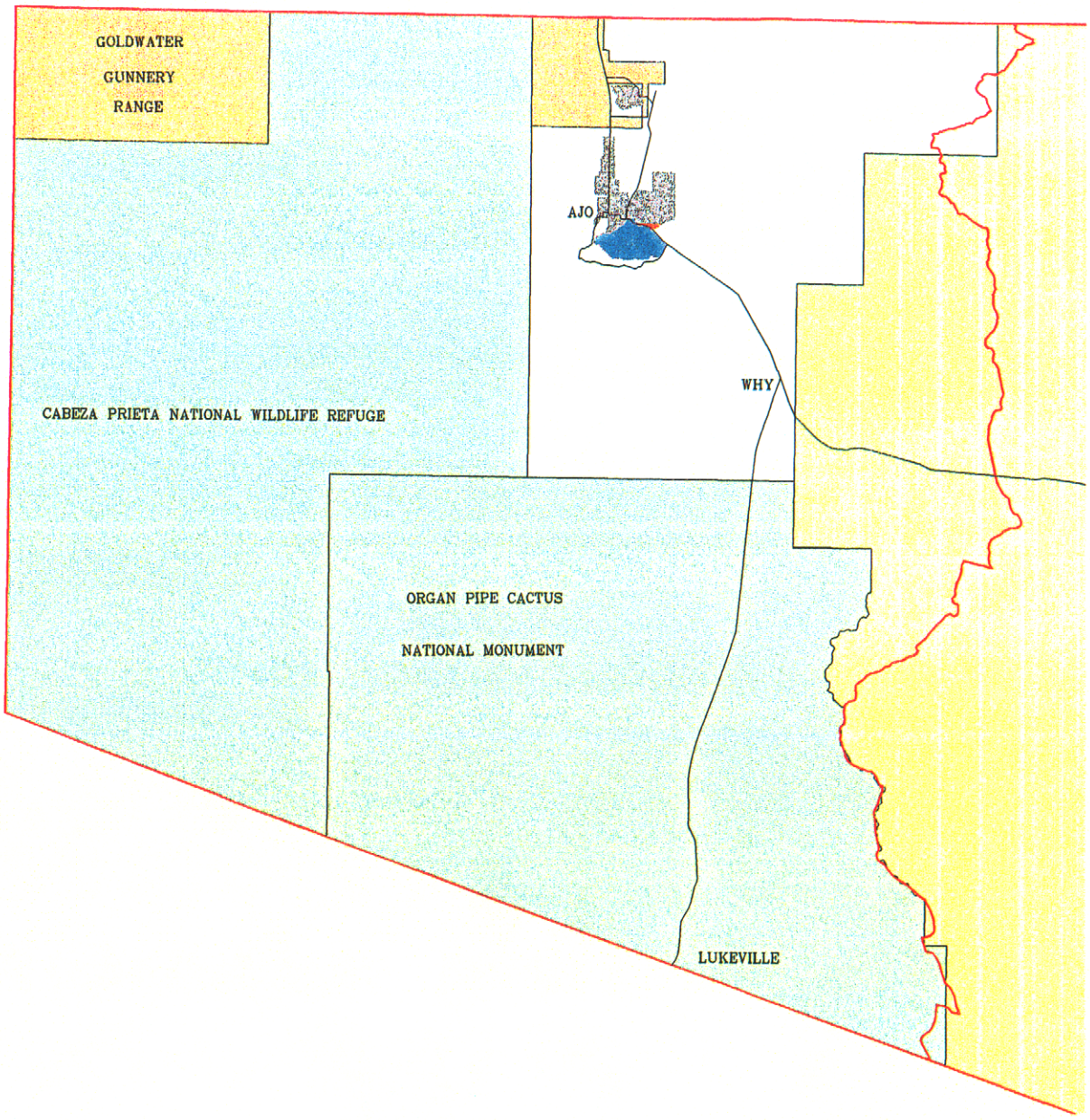
pygmyowl2/sonora/cultural/sonjoined/plan_pll/mxds/urban_ppc.mxd Plotted: 6/20/00

Urban, Mining, and Agricultural Uses in Western Pima County



- Urban
- Agriculture
- Mining
- National Parks/Monuments/Preserves
- Incorporated Cities
- Tribal Nations
- Major Washes
- Major Roads
- Planning Unit Boundaries

Planning Units

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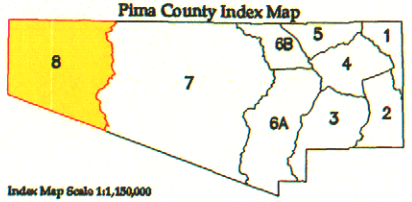
Pima County Index Map



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VII. Resource Protection

1. Law and Policy

Historic preservation is conducted within a legal and regulatory environment. Often, whether or not cultural resources can be protected depends on who owns the land they are located on and whether there is a legal basis to assert a public interest in their protection. In the United States, land ownership is an important yardstick by which legal protection for cultural resources can be measured. This is because of the clear distinction that is made between what is private property and the various lands that area held in the public domain. Who can use land, how, and for what purpose are legally defined, as are the circumstances under which government at all levels can condition the use of land both public and private. Culture resources are part of this equation because legally they exist as part of property of one kind or another. Thus an examination of how preservation law applies to different types of land in Pima County is important for assessing where cultural resources may be protected under the law and where they are vulnerable. Knowing this will help in determining resource threat, as well as the legal tools that are needed to achieve resource conservation and preservation. For the following discussion on legal protection for cultural resources, the county is grouped into three general categories by land status: all federal lands, state parks, and county parks in one group; state trust lands in a second group, and private land in a third.

Cultural resources on federal lands have the highest legal protection of any lands and those on state and county parks are protected as a matter of both law and policy. Beginning in the early 20th century, the federal government recognized the importance of preserving the record of the past and its own responsibility for doing so. The Antiquities Act of 1906 was the first piece of preservation legislation passed by Congress providing a legal means to ensure the preservation of archaeological sites on federal lands. The National Historic Landmark program was created in 1935 under the Historic Sites Act establishing a program whereby the nation could recognize places of historic importance. However, it wasn't until the mid 1960s that the national preservation program was created in its present form with the adoption of the National Historic Preservation Act of 1966, as amended. This is the nation's premier preservation law and is the model for most state preservation laws. It created the National Register program as a means by which cultural resources can be evaluated for their significance and recognized for their historical importance on the local, regional, and national levels. It also required the federal government and its agencies to take into account the effects of its actions on places deemed to be significant that are located on all lands, including private property. Lastly, a new federal agency was created to write regulations and oversee the national program. As a result of this law, all federal agencies are required to include cultural resources in their planning and to be both pro-active and reactive in meeting their legal responsibilities to preserve the record of the past.

Additional federal law also requires protection of archaeological sites on federal land (the Archaeological Resources Protection Act 1979), as well as Native American burials (the Native American Graves Protection and Repatriation Act 1989). The Environmental Policy Act of 1966 links compliance with its provisions with those of the National Historic Preservation Act, and further requires consideration of impacts to a wide variety of cultural and social resources in the planning of federally sponsored actions. Finally, the Wilderness Act of 1964 allows federal lands that meet specific conditions to be set aside for conservation purposes protecting natural and cultural resources for the future.

The big land managing agencies in Pima County are the National Park Service, the Bureau of Land Management, the U.S. Forest Service and the U.S. Fish and Wildlife Service. Together these agencies administer most of the federal lands in the county, with the addition of land controlled by the Department of Defense at Davis-Monthan Air Force Base in Tucson and the Barry M. Goldwater Bombing Range in

Western Pima County.

The federal land managing agencies all have equivalent responsibilities under law, although for some the protection of cultural resources is closer to their primary mission than for others. For example, the National Park Service and the U.S. Fish and Wildlife Service both hold preservation and conservation as principle objectives of their respective agencies. In the former, saving cultural resources is often a part of the very reason for creating a park or monument. In the case of the latter, habitat protection is the purpose of wildlife refuges and cultural resources are protected as a result of this, if indirectly. The Bureau of Land Management (BLM) is a multiple use agency that has as one of its many responsibilities the proper management of cultural resources on lands under its control. The BLM will require that private users of BLM lands mitigate effects to cultural resources in compliance with the reactive provisions of the National Historic Preservation Act. However, the BLM is also able to designate Areas of Critical Environmental Concerns (ACEC) setting them aside in order to protect natural and cultural resources, giving the agency a pro-active means of achieving resource conservation. In Pima County, the BLM manages the Empire Cienega Conservation Area and will also have the responsibility for managing the newly created Ironwood Forest National Monument in the Avra Valley, so part of the agency's mission includes conservation. The U.S. Forest Service has similar controls over land under its administration. It too can set aside and conserve lands that contain high value resources, including cultural resources, by designating them as "Special Interest Areas." National Register Historic Districts, for example, can become special interest areas and protected as such. Lands under the control of both the BLM and the Forest Service can also be set aside for conservation purposes under the Wilderness Act of 1964. In short, the federal land managing agencies are responsible for protecting cultural resources to a relatively high degree and have the legal means of doing so.

State Parks (Catalina State Park) and County Parks lands (Tortolita Mountain, Tucson Mountain Park, Colossal Cave, and the Cienega County Natural Preserve) have been included with the federal lands category because both the county and the state have legal control over these areas and both protect their cultural resources for the benefit of the public. Catalina State Park has been surveyed and the Sutherland Archaeological National Register District was created within its boundaries. The County has surveyed the lands around Colossal Cave and it too is listed on the National Register of Historic Places. Cultural Resources within Cienega Creek Natural Preserve have been recorded as a result of private research; however, a complete inventory of the Tucson and Tortolita Mountain Park has yet to be achieved. Nonetheless, by law and policy, cultural resources in these areas are protected from both public and private actions.

The second group in the analysis is the state trust land. These are lands that were created as a result of the acceptance of the state of Arizona into the Union in 1912. They are not public lands in the same sense as federal public lands, but are administered by the Arizona State Land Department (ASLD) for the purpose of generating revenue for the state school system through land sales. State trust lands are a commodity and the mission of the Land Department is to dispose of this commodity, not to protect and manage its cultural and natural resources. These lands are subject to state law that require state agencies to abide by regulations controlling the effect of their actions on cultural resources. The Arizona Historic Preservation Act passed in 1982 is modeled after the National Historic Preservation Act. This authority enables ASLD to require mitigation of effects to cultural resources on state trust lands when, for instance, trust lands are sold to a private developer. The state Antiquities Act (1973) also enables the Arizona State Museum to control archaeological investigation on state lands including state trust lands. Finally the State's burial protection law (1990) protects unmarked human graves and their contents against unauthorized disturbance.

By in large, the state laws are reactionary. They require that the destruction of cultural resources be controlled through a mitigation strategy, but actual avoidance of and conservation for cultural resources is not possible because the Land Department has no legal means of withholding lands from disposal that contain cultural resources. It is this potential for converting state trust lands into private property that makes trust lands so problematic from a conservation stand point. The Arizona State Land Department is required by law to sell state trust lands to the highest bidder. Historically, these lands have been sold for private development because this brings in the highest return for the schools in the state. Since the Land Department cannot deny a sale of property that it selects for disposal, cultural resources on state trust lands are only safe for as long as development pressures do not force the sale of the land on which they are located.

The last land ownership category is private lands. Cultural resources on private lands are not protected by law, with some exceptions. The aforementioned State Burial Protection Act also applies to private lands. It is unlawful to disturb an unmarked human grave on private land in the state of Arizona without authorization. This law, while laudable, has created an odd situation whereby graves can be protected but not the site on which the graves are located meaning that disturbance of archaeological sties on private land is not prohibited until a human grave is discovered. There is only one other instance when cultural resources may be protected on private land and that is when local governments have included these protections in local law. Pima County has a set of cultural resources requirements in the County Code that regulates certain kinds of development through its approval of land rezonings and when grading permits are issued prior to construction. While in place preservation of cultural resources is always preferred, the county has no way to mandate this course of action. As such, the legal requirements work to control the destruction of cultural resources through a mitigation process whereby information is recovered from the cultural resources prior to their destruction through development. There are limitations to this, however. The state's subdivision law allows splitting and development of five or fewer lots without having to meet subdivision planning requirements. Pima County's cultural resources requirements do not apply in these situations and therefore cultural resources within areas under going "wildcat" development are not protected in any way. In a practical sense, this means that cultural resources may be destroyed before they are even recorded.

Pima County is the only county government in Arizona that has such a set of preservation requirements in place. They apply only in the unincorporated portions of Pima County. Several other local governments within the county are addressing the preservation issue on their own. Oro Valley for instance, has a cultural resources preservation ordinance on the books that is tied to its development review process, although these provisions are minimal. The Town of Marana has begun to impose preservation requirements on development projects in its jurisdiction, but does so on a case by case basis without the benefit of a preservation ordinance. The City of Tucson has a preservation ordinance, however, it is geared towards preserving buildings more than archaeological sites and the city lacks the same legal means as the county to require surveys in advance of development. On the other hand, Sahuarita has no preservation law at all, nor does it consider cultural resources preservation in its development review process. In short, cultural resources on private lands are protected by law under certain circumstances and not in others and when the law does apply, it almost always means that some form of mitigation is employed to control destruction not to achieve conservation for the future.

2. Resource Protection by Land Status.

In light of the above discussion, it is reasonable to divide the county into three zones by land status representing varying levels of legal protection for cultural resources. Federal lands and the state and county parks are assigned a high protection status, state trust lands are considered moderate in the level of protection afforded cultural resources, and cultural resources on private lands are assumed to have the lowest protection

status. These lands are represented on two maps, one showing eastern Pima County and entitled, **Legal Protection for Cultural Resources by Land Ownership,** and the other showing Western Pima County with the same title. The Private lands are shown in rust color, state trust lands are represented in light blue, and all other public lands are in light green. From these maps it is clear that Western Pima County has the most land under federal management of all the subareas, having only a fraction of private lands around the two principle towns, and an even smaller amount of state trust land elsewhere. On the east side, excluding tribal territory, federal lands are distributed either in the mountains or in close proximity. The exceptions are the U.S. Fish and Wildlife Refuge in the Altar Valley and the Resource Conservation Area managed by the BLM in the Cienega Creek area. State trust land is distributed primarily in the Altar Valley, the Upper Santa Cruz Valley, the Cienega-Rincon and San Pedro Subareas, with smaller pockets in the Tortolita Fan and Avra Valley subareas. Private land tends to concentrate along the major drainages, their tributaries, and adjoining lands. Thus the areas that have the least legal protection for cultural resources are the same areas with the highest cultural resources potential and also the greatest development pressure.

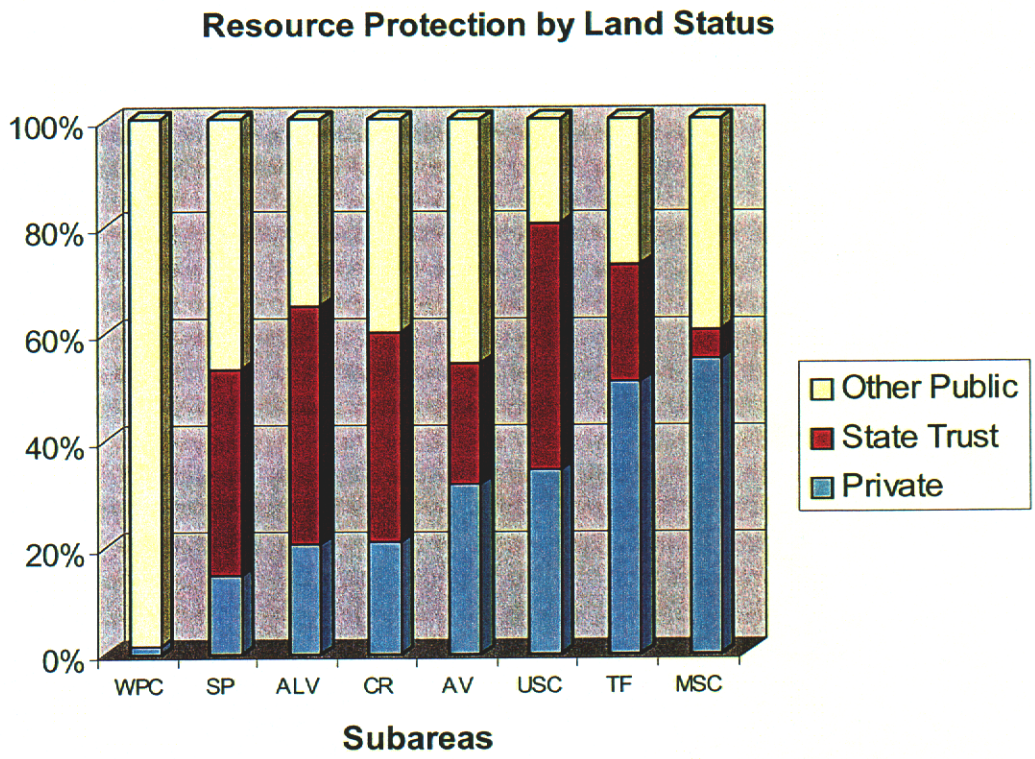
Table VII.1 breaks down the percent of land in each land status groups by subarea as a measure of legal protection for cultural resources.

Table VII.1. Comparison of Subareas by Land Status as a Measure of Legal Protection for Cultural Resources (1=Highest; 8=Lowest)

SUB AREA	Subarea Size in Acres	% of Federal Land	% of State Parks	% of County Parks	% of Total Public Lands	**High**	% of State Trust	**Medium**	% of Private Land	**Low**
San Pedro Valley	174,315	47.0	0	0	47.0	**2**	38.4	**4**	14.5	**7**
Cienega-Rincon	318,519	38.0	0	1.8	39.8	**4**	39.4	**3**	20.6	**5**
U. Santa Cruz	449,569	17.9	0	1.9	19.8	**8**	47.3	**1**	34.8	**3**
M. Santa Cruz	361,852	38.8	0	0	38.8	**5**	5.4	**6**	53.8	**1**
Tortolita Fan	203,504	23.3	2.6	1.5	27.1	**7**	22.0	**5**	50.4	**2**
Altar Valley	713,807	34.0	0	0.8	34.8	**6**	44.9	**2**	20.2	**6**
Avra Valley	221,384	45.0	0	0	45.0	**3**	22.0	**5**	31.0	**4**
W. Pima County	1,082,198	98.4	0	0	98.4	**1**	.2	**7**	1.2	**8**

From this analysis, it is clear that proportionately, cultural resources in the Western Pima County subarea have the highest level of protection under the law because so much of the land is under federal ownership. The San Pedro subarea is second and the Avra Valley is third. The subarea with the lowest percentage of land with high legal protection is the Upper Santa Cruz. The Middle Santa Cruz is not last in this category, but in the middle of the rankings due to the large amount of federal acreage held by the U.S., Forrest Service, the National Park Service, and the Department of Defense (Davis-Monthan Air Force Base). State trust lands break down along different lines. In this category, the Upper Santa Cruz is ranked number one by percent followed by the Altar Valley, Cienega-Rincon, and San pedro Valley subareas. Two subareas are tied for fifth place, the Avra Valley and the Tortolita Fan, and last place goes to Western Pima County, which has so little state trust land it is barely present. The subarea with the most private land, and thus the lowest legal protection for cultural resources, is not surprisingly the Middle Santa Cruz. This is also the heart of the urban core and covers an area that contains drainages believed to be highly sensitive for archaeological sites. The second and third ranks go to the Tortolita Fan and the Upper Santa Cruz, both areas that are experiencing rapid urbanization. The San Pedro and Western Pima County subareas are rank last because of their low percentage of private lands.

The bar chart below labeled, **Resource Protection by Land Status,** presents the data just discussed in graphic form. Here the percentages of each land status group are presented by subarea and organized to show private property in ascending order from left to right. Private lands are in blue, state trust land in plum and the other public lands are indicated in yellow.



Again, Western Pima County has proportionately more land with a higher level of legal protection for cultural resources and the Middle Santa Cruz has the least. It is worth noting that the top four ranked subareas for private property, the Avra Valley, Upper Santa Cruz, Tortolita Fan, and the Middle Santa Cruz, having the lowest level of legal protection for cultural resources on average, are the same four subareas with the highest levels of ground disturbance as discussed in Section VI. This is a product of the history of settlement in the region whereby lands adjacent to the major drainages were converted into private property in the same places that the Hohokam Indians had settled in prehistoric times. Historically, settlement was limited in density and extent until relatively recently in the history of the Tucson area. However, modern populations are now expanding out from historic urban core into the former countryside and onto private lands beyond the urban limits. Again, the areas that have the highest sensitivity for cultural resources, both prehistoric and historic in age, are the most disturbed, and have the lowest legal protection by virtue of their land status.

Federal lands have acted to curtail and direct development away from the mountains, and private lands near the drainages have been favored for settlement; however, since much of the private lands in the area of highest growth within the Tucson city limits have been or are being developed, state trust lands will figure prominently in future growth. This is already the case. The bar chart above indicates that when state trust lands are added to the private property column, the level of risk to cultural resources will increase dramatically because what legal protections will apply through the state laws will not be sufficient to achieve conservation, only the mitigation of effect during their destruction. If the percentages of private and state trust lands are added together, then an overall ranking of the potential legal threat to cultural resources is possible per subarea as presented in Table VII.2 below.

Table VII.2. Ranking of Potential Legal Threat to Cultural Resource by Subarea (1=Highest Threat; 8=Lowest Threat)

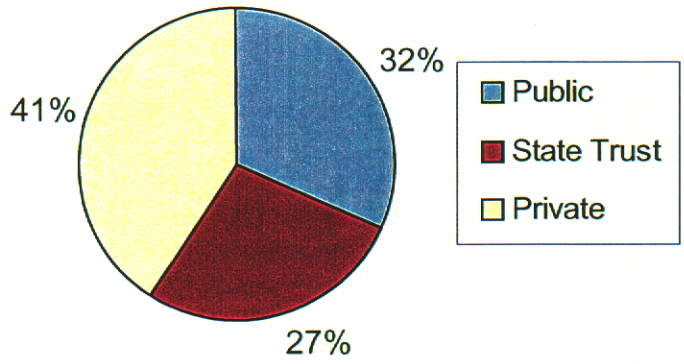
	SP	CR	USC	MSC	TF	ALV	AV	WPC
%	52.9	60.0	82.1	59.2	72.4	65.1	53.0	1.4
Rank	7	4	1	5	2	3	6	8

What this analysis suggests is that cultural resources in the Upper Santa Cruz have the highest level of vulnerability because of the way state laws and those affecting private lands are structured. Second is the Tortolita Fan and third is the Altar Valley. The remaining subareas in eastern Pima County follow in descending order as indicted. Note that in eastern Pima County, the percentage of state trust and private lands together range from a low of 52.9 percent in the San Pedro subarea to a high of 82.1 percent in the Upper Santa Cruz. Cultural resources on tens of thousands of acres of land in eastern Pima County are legally vulnerable by this analysis with little or no means to achieve cultural resources conservation. In Western Pima County, only very small percentage of the land is not federally managed and thus legal protection for cultural resources is very high.

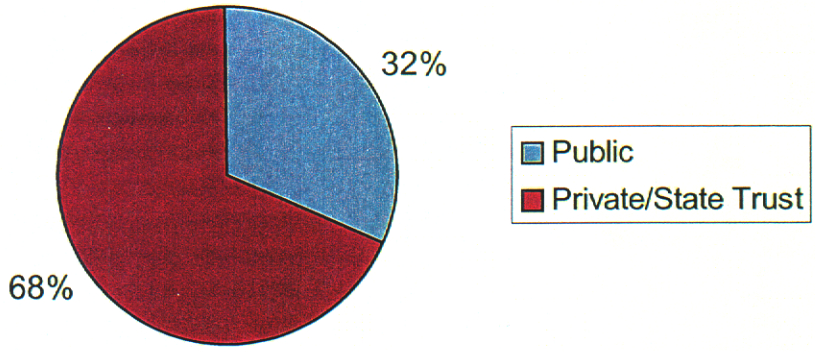
To turn from theory to reality, the next analysis involves an assessment of land ownership for the approximately 4000 known archaeological sites in Pima County. Two pie charts illustrate in proportional terms how many sites have what kind of legal status following the groupings by land status discussed above. These are entitled, **"Legal Protection for Archaeological Sites by Land Ownership: All Lands,"** and **Legal Protection for Archaeological Sites by Land Ownership: Private/State Lands,"** respectively.

The first chart shows the three general land categories representing different levels of legal protection for cultural resources. Private land is in blue, state trust land is colored in plum, all other public lands are in yellow. The percentages of sites located within each land category are also given. Of the 3984 known archaeological sites, approximately 32 percent or 1274 are on public land, 41 percent or 1633 are on private land, and 27 percent or 1075 are on state trust land. More sites are located on private property than either of the other land categories, but there are more archaeological sites on public lands than on state trust lands. In the second chart, private and state trust lands are added together to demonstrate the combined effect of legal protection as a function of land status on archaeological sites in Pima County. By proportion, approximately 68 percent of all known sites representing 2709 sites, located principally in eastern Pima County, are located on lands that have low to moderate protection under the law. This finding is relevant because of its implication for future resource conservation and preservation efforts: changes to the state laws governing subdivision development and management of the state trust lands are needed and new legal tools must be developed to offer real incentives for cultural resources conservation on private property.

Legal Protection for Archaeological Sites by Land Status: All Lands

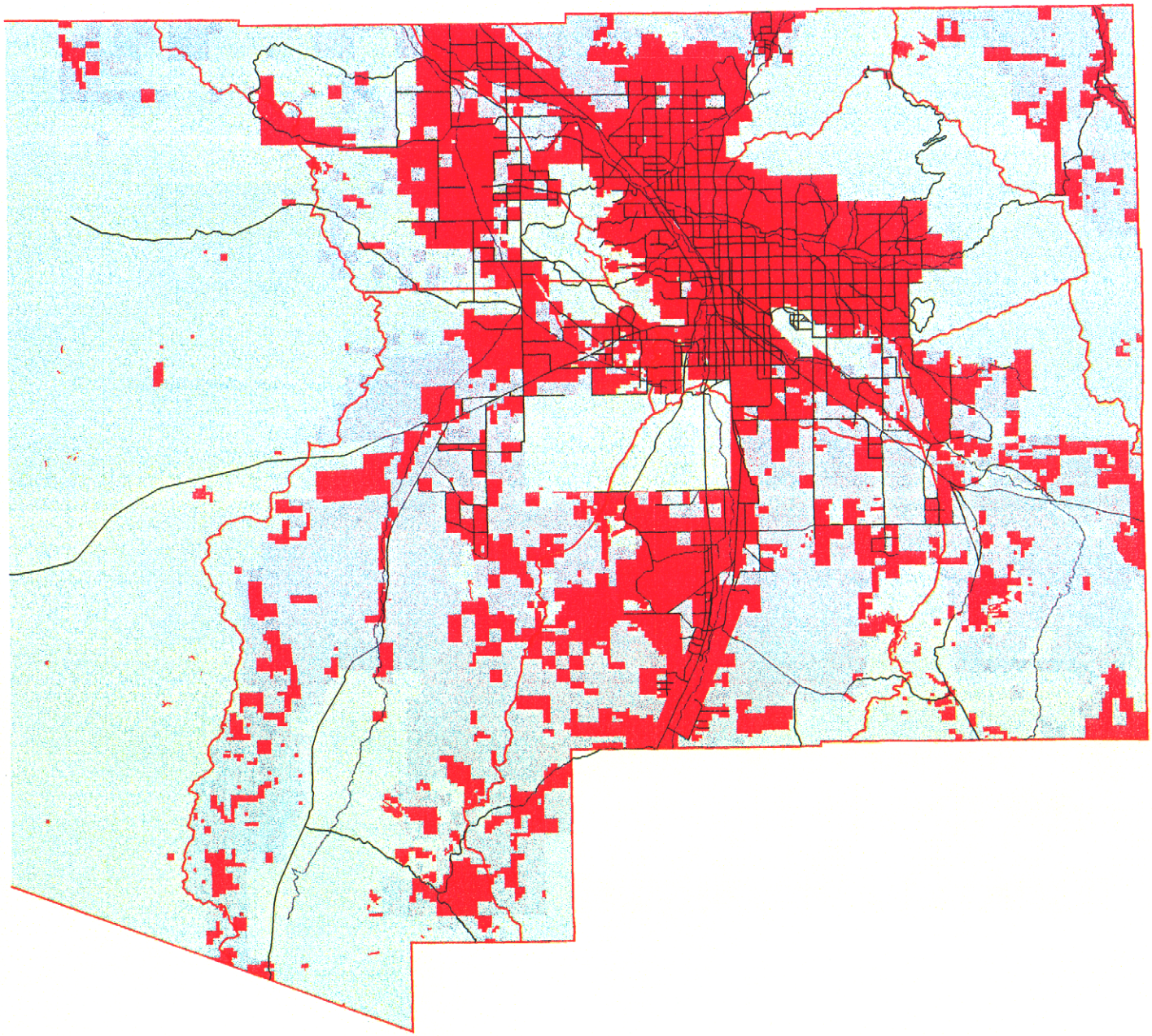


Legal Protection for Archaeological Sites by Land Ownership: Private/State Trust Land



The land status of other types of cultural resources is harder to quantify; however it is fair to say that most property within the historic communities is privately owned and thus have little or no legal protection. The exception are those properties within the five city designated historic districts in Tucson that are covered under the city's preservation ordinance. Ghost towns are generally located on federal lands, although several exist on private lands as well. The majority of National Register properties and districts outside of Tucson are on federal lands or involve combinations of federal, state, and some private lands. Within Tucson, these are almost entirely privately owned properties. Of the five known traditional cultural places, four are on federal lands and one (El Tiradito) is on City of Tucson land. In short, the variable protections afforded archaeological sites under law also affect these kinds of cultural resources for the same reasons as discussed above. Privately owned buildings and structures located within historic communities and in the rural countryside that are 50 years old or older are probably second only to archaeological sites for their vulnerability under the law.

Legal Protection For Cultural Resources By Land Ownership



- Private Lands
- State Trust Lands
- Public Lands
- Major Washes
- Major Roads
- Planning Unit Boundaries

Planning Units

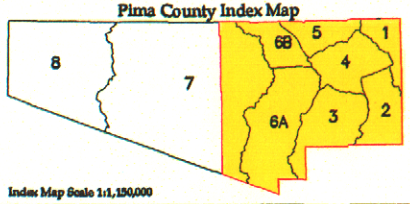
1. San Pedro Valley
2. Cienega-Rincon Valley
3. Upper Santa Cruz Valley
4. Middle Santa Cruz Valley
5. Tortolita Fan

6a. Altar valley

6b. Avra Valley

7. Tohono O'odham
8. Western Pima County

Pima County Index Map



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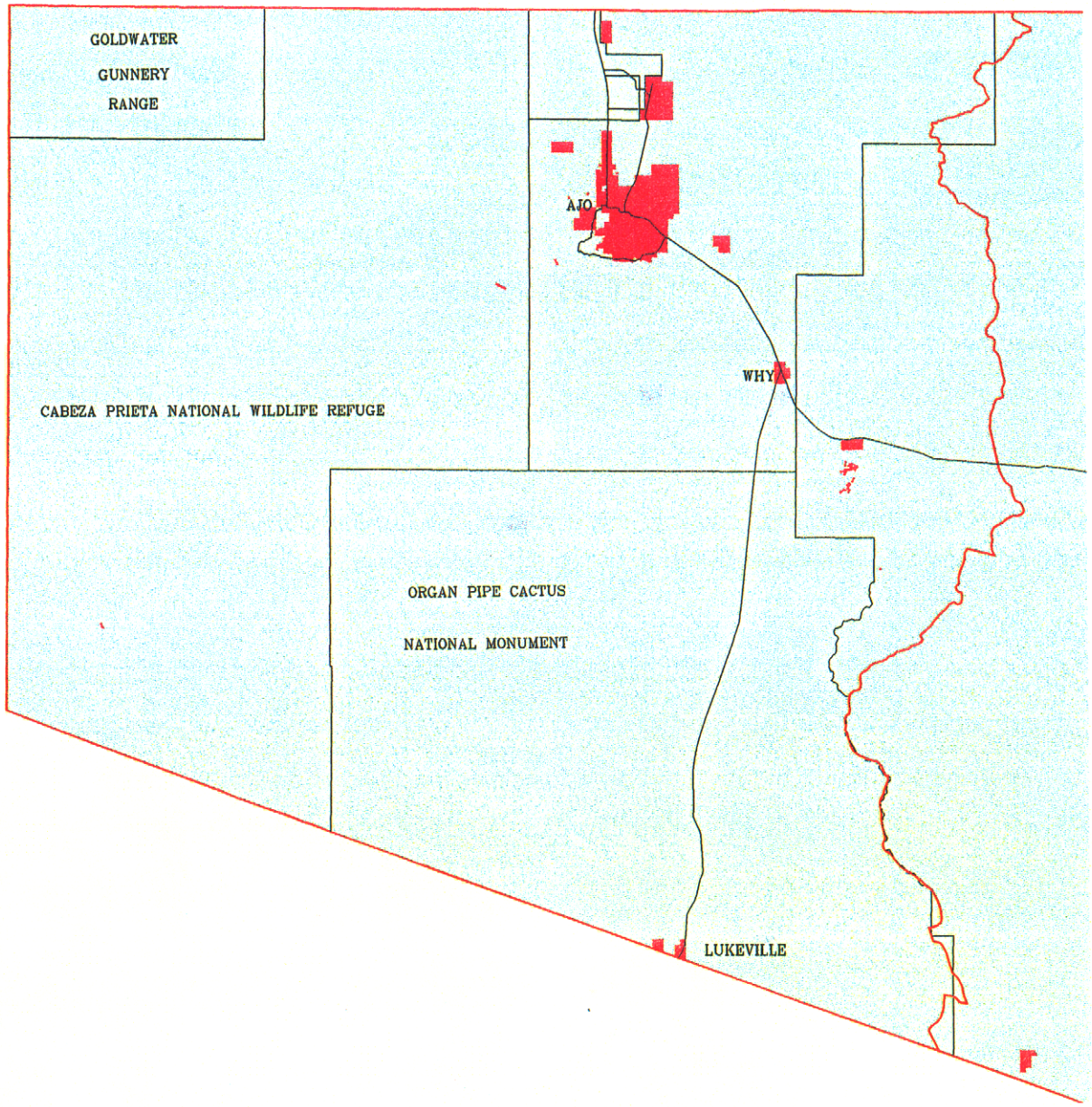
Legal Protection For Cultural Resources By Land Ownership



- Private Lands
- State Trust Lands
- Public Lands
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- Major Roads
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Planning Units

1. San Pedro Valley
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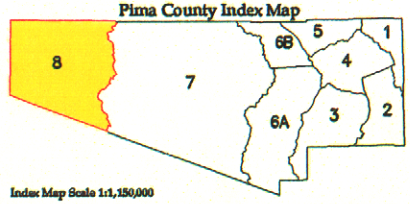
8. Western Pima County

Pima County Index Map



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VIII. Resource Threat

1. Sources of Cultural Resources Threat
   A. Physical

Protection and threat are two sides of the same coin, the latter often being the absence of the former when it come to cultural resources. In the last section, the degrees of protection afforded cultural resources by law was discussed as was their vulnerability. In this section, the discussion is expanded to include projected impacts due to future land disturbances. Of the four sources of disturbance examined in Section VI., urbanization, agriculture, mining and road construction, it is the first and last two categories that will principally threaten cultural resources in the future as the urban core in the Tucson Metropolitan area continues to expand and new houses, schools, businesses, parks, and related infrastructure are built to accommodate growth. This growth threatens cultural resources of all kinds. Old buildings are routinely torn down or significantly modified, engineered structures such as bridges are replaced, the rural landscape is converted to other uses, and archaeological sites are impacted as new areas are developed and older areas are redeveloped.

The pattern of urban development follows along two major paths: one, an extension out from existing developed areas and; two, satellite communities that are established beyond the urban limits but within a close enough proximity to facilitate commuting. Both patterns are likely to continue with negative results to cultural resources. There is another pattern that must also be considered, especially if and when growth at the urban edge declines and that is in fill within the urban area. Significant acreage exists in vacant lots throughout the City of Tucson that has the potential to contain historic and prehistoric archaeological deposits. This kind of impact is a potential by-product of growth management that must also be considered for its potential impact to cultural resources.

   B. Legal/Policy

As mentioned in the last section, different jurisdictions have varying degrees of control over actions that may affect cultural resources, with federal lands having the highest management controls and the greatest number of management options for protection depending on the agency. Cultural resources on private lands are the most vulnerable legally, except where specifically covered under state and local law. The fact that some local jurisdictions have some protections under certain circumstance and some have none at all, means that overall cultural resources are protected through an uncoordinated patchwork of legal arrangements that do not meet at the edges. At best, the protection of cultural resources is inconsistent; at worst, this lack of coordination contributes to their destruction. For example, the City of Tucson has a strong preservation ordinance that has built into it oversight of all development projects that occur within the limits of a city designated historic district or landmark. Despite the recognition of the importance of archaeological sites to the city's history, the ordinance is structured to protect historic buildings. Lacking is any provision in the City Code that requires survey and other kinds of pre-construction investigation before a building permit is issued. As a result, archaeological sites may be impacted by city approved development. The lack of this kind of regulation is particularly threatening to cultural resources that are located on vacant lots within the city limits.

On the other hand, Pima County has a historic preservation ordinance that is ineffective as a means of protecting historic buildings. Passed in 1972, it can only be used to create historic districts and only two districts have ever been designated. Both have since been annexed into the city. What the county does have is a means of requiring survey inspection both at the stage that property is rezoned (cultural resources

requirements imposed as a condition of rezoning approval) and prior to grading (cultural resources requirements have to be met before a grading permit is issued). These provisions build in two separate points in development review process in which cultural resources requirements must be met. In practice then what the city can and does protect from the effects of development are historic buildings and what they county protects are archaeological sites. The lopsided nature of how these laws work introduces a bias that undermines the historic preservation capabilities of both local governments. There are further complications that contribute to the lack of uniformity in protection. For instance, the exemption of Pima County's cultural resources requirements from the county's grading standards for the split and development of five of fewer lots. These "wildcat" developments fall below the state's subdivision law and represent a chronic threat to cultural resources of all types. Add to this those local governments such as Sahuarita that have little or no cultural resources requirements at all and the patch work nature of local government preservation efforts affecting private property becomes apparent.

2. Location of Threat

In practical terms the central question for conservation planning is where can future threats be anticipated and what steps can be taken to address them. The map entitled, **Potential Urban Expansion Zone** defines an area within which urban expansion may be expected to occur. Also shown are the three categories of land ownership used as a measure of legal protection for cultural resources. The present urban limit is shown in black hatching, the lands with the highest legal protection for cultural resources are colored in green, state trust lands are colored in blue, and private lands that are not currently used for ranching purposes are shown in rust. Private non-ranching land is a subcategory of private property that is distinguished from private ranching lands shown in white. This distinction is made here because private lands not in ranch use are often a product of ranch fragmentation, a major contributor to urban expansion, that occurs when ranchers sell off their private holdings for development. The distribution of the private non-ranch lands, in conjunction with the state trust lands, defines a zone within which it is reasonable to assume development pressure will mount. The result will be further private land development and continued sale of state trust lands for private development. For the present argument, it is assumed that private non-ranch lands are more attractive for development than state trust lands, although in some cases the reverse may be true. Future urbanization will undoubtably involve both.

The maroon ring on the map represents an arbitrary point 25 miles in diameter that is centered on the intersection of I-10 and I-19. It is simply a hypothetical growth boundary, but one that is suggested by the limit of the private non-ranch lands around Tucson. Federal lands within this ring will not be developed for urban use and development is likely to occur outside of the ring in some places; however, given the recent history of urban expansion, it is reasonable to assume that cultural resources on state trust and private non-ranch lands are particularly threatened within this zone. In this sense, the growth ring defines a "danger zone" for cultural resources. This analysis indicates that targeted conservation efforts that focus on state and private non-ranch lands within this zone would be a logical means of protecting threatened lands in eastern Pima County.

3. Ranking Resource Threat by Subarea.

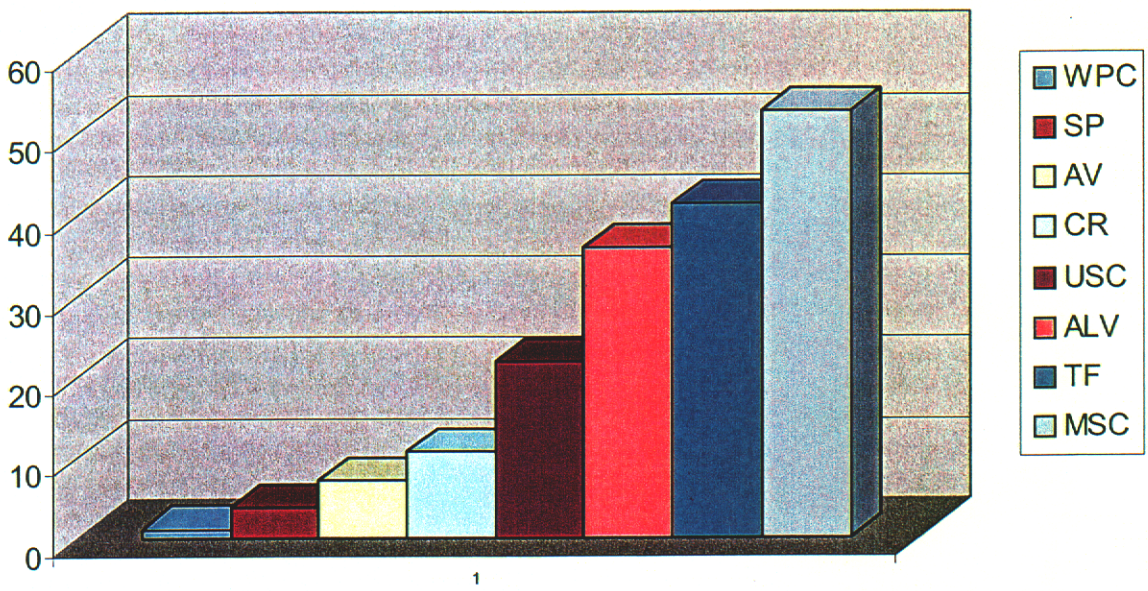
In light of the present urban limit in the Tucson Metropolitan area, and given the predicted location of future growth, its is possible to rank potential threat to cultural resources for each subarea by calculating the percent of private non-ranch lands. Table VIII.1 below provides these figures where 1=highest threat; 8=lowest Threat.

Table VIII.1. Ranking of Cultural Resources Threat by Subarea								
	SP	**CR**	**USC**	**MSC**	**TF**	**ALV**	**AV**	**WPC**
Private Non - Ranch Acres	6,676	34,305	99,353	191,560	84,075	79,658	51,902	13,485
% of subarea	3.8	10.7	22.0	52.9	41.3	35.9	7.2	1.2
Rank	**7**	**5**	**4**	**1**	**2**	**3**	**6**	**8**

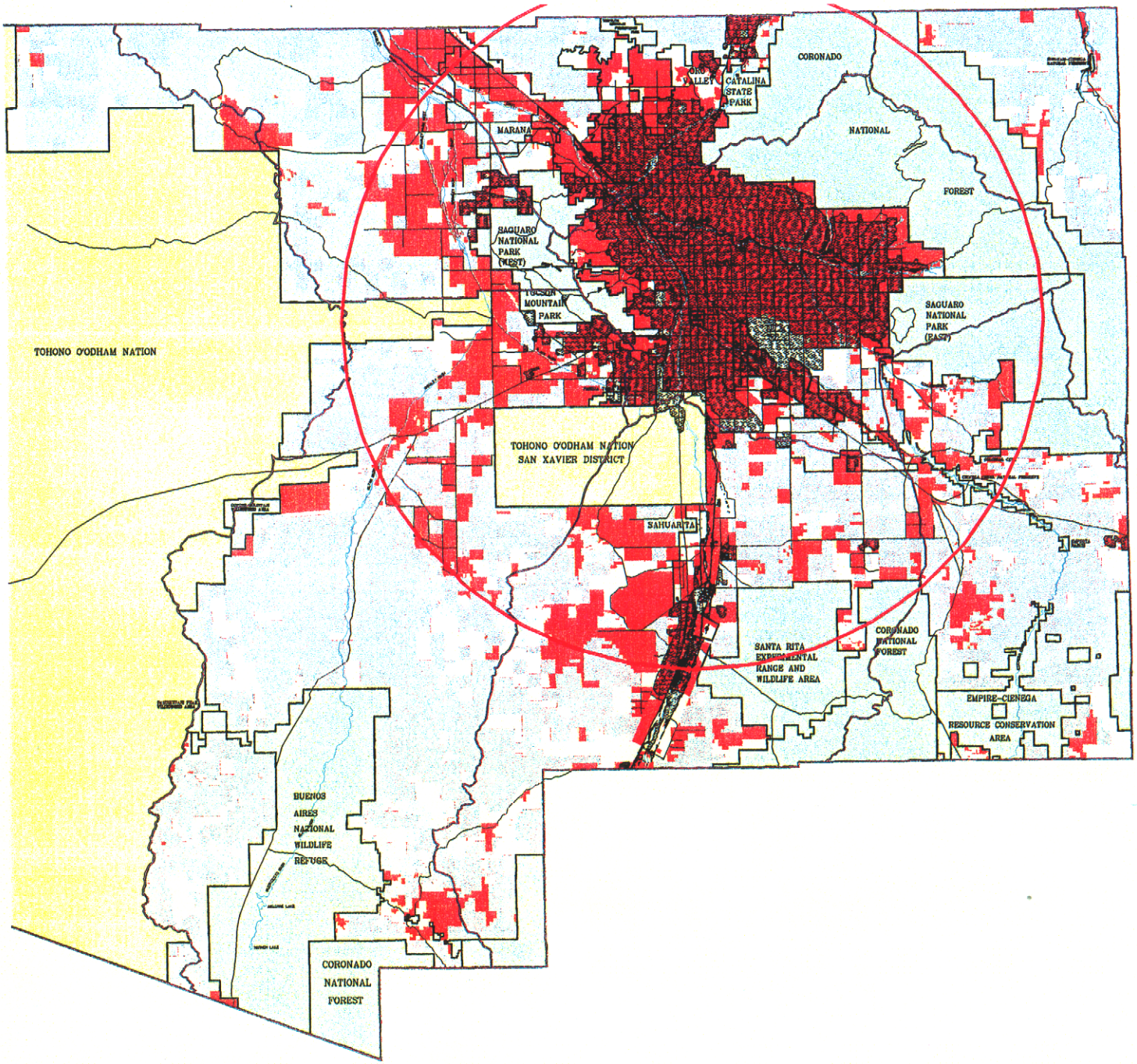
This analysis measures where urbanization has already occurred and where there is a high probability that it is going to occur. As expected, the Middle Santa Cruz and Tortolita Fan have the largest percentage of lands that are either developed, as depicted on the map showing the potential urban expansion zone, or are likely be developed in the future. Third is the Altar Valley and fourth is the Upper Santa Cruz subarea. The Cienega-Rincon Creek area is fifth, the Avra Valley is sixth and the San Pedro subarea is the last ranked subarea in eastern Pima County. The one subarea with the lowest percent of private non ranch lands in Pima County is Western Pima County and most of this land is largely being used for residential purposes within the town of Ajo and by the copper mine. As mentioned, it is certain that state trust lands will be sold in the future and converted to private lands for development and so these rankings will change. Nonetheless, it is reasonable to assume that development will continue to occur where the development is already occurring in the Middle Santa Cruz, Tortolita Fan, and Upper Santa Cruz subareas. This analysis suggests however, that much more of the northeastern end of the Altar Valley north and east of the San Xavier District boundary could be developed than has been. The same observation can be made of the eastern half of the Avra Valley north and west of Picture Rocks, along the Santa Cruz flood plain in the Tortolita Fan subarea, and in the vicinity of Sahuarita in the Upper Santa Cruz subarea. Smaller private holdings not currently being used for ranching that could be developed exist in the northern Oro Valley/Catalina area in the Tortolita Fan, north of the Coronado Forest and east of the Santa Cruz River in the Upper Santa Cruz subarea and in the Cienega-Rincon subarea long Davidson Canyon and north of I-10 near the Town of Vail.

The proportional relationship of non-ranch lands by subarea discussed above can be seen graphically in the bar chart below entitled, **Percent of Private Non-Ranch Lands by Subarea."**

Percent of Private Non-Ranch Lands by Subarea



Potential Urban Expansion Zone

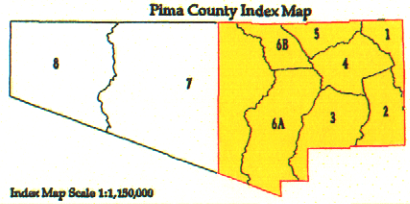


- 25 Mile Radius From I-10 and I-19
- Urban Area from GAP Vegetation Data
- Private Land
- State Trust Land
- National Parks/Monuments/Preserves
- Tribal Nations
- Private Land - Ranch Use
- Major Washes
- Major Roads
- Planning Unit Boudaries

Planning Units

1. Middle San Pedro (174,314 ac.)
2. Cienega-Rincon (318,535 ac.)
3. Upper Santa Cruz (449,684 ac.)
4. Middle Santa Cruz (361,851 ac.)
5. Tortolita Fan (203,546 ac.)
6. Avra-Altar
   - A. Altar valley (713,807 ac.)
   - B. Avra Valley (221,404 ac.)
7. Tohono O'odham (2,354,910 ac.)
8. Western Pima County (1,082,281 ac.)

Pima County Index Map



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IX. Recommendations

In this section, the results of previous analyses are brought together to present conservation recommendations for cultural and historical resources in Pima County both on the subarea level and specifically within each subarea. First, however, recognition is needed for those places that already known for their importance and must be considered for conservation. These are referred to as "constraints."

1. Constraints

Constraints are places that are viewed as so critical to the history and culture of Pima County that their loss would significantly diminish the ability of the citizens, now and in the future, to understand, appreciate and learn from the past. Every community has places like this that are of extraordinary importance. In Pima County the mission church at San Xavier del Bac comes immediately to mind, but also the Empire Ranch, the Arizona Inn, the Pima County courthouse, and El Tiradito. There are other places, though perhaps not as well known, that are equally important including the Marana Mound complex, Martinez Hill, Cocoraque Butte, and the remains of the Presidio wall around old Tucson, all archaeological vestiges of Pima County's ancient antiquity. The Cultural and Historic Resources Technical Advisory Team of the Sonoran Desert Conservation Plan has put together a preliminary listing of important archaeological sites and historic buildings from which a final constraints list can be drawn. Additional input from the technical team, other experts in the community, and the public is needed to complete this list. The preliminary constraints list is presented in Appendix A.

Many of the places included in the preliminary constraints list are properties that are listed on the National Register of Historic Places, and the State equivalent, but not all of them. The National Register is the nation's honor roll of historic and prehistoric places and each registered property has met the National Park Service criteria for listing. As such, <u>all</u> National Register properties and districts should be included in the final constraints list. In its final form, the constraint list will identify places determined to be high priorities for conservation and it is recommended that these places be included in all preserve design scenarios considered under the Sonoran Desert Conservation Plan.

2. Ranking Resource Conservation Potential by Subarea

Conserving cultural resources in Pima County means protecting what's left of the resource base and doing so at the largest scale possible. Archaeological sites, historic resources, and traditional cultural places do not exist in vacuum either now or in the past. A large part of what makes these places important is what they can say about how people in the past interacted with each other and their environment through time and across space. To save these resources and the evidence of their connectivity requires a landscape orientation. Achieving this will require assessment of where the damage has been done, where it is likely to occur, and where best to apply protective measures.

To assist in this regard, the subareas in Pima County were ranked for their integrity as presented in Section VI. Integrity is the key to any discussion about future conservation efforts, because of the nature of the resources that are being considered for conservation. As mentioned, if cultural resources have lost their physical and contextual integrity then their value is diminished or eliminated. Determining where this has occurred was the subject of Section VI. and so it is also possible to determine where it has not occurred. Each subarea has been examined for its potential to contain archaeological sites and other cultural resources. The status of land ownership is important as a measure of legal protection and conversely their vulnerability to development actions under the law, and this too was reviewed. Finally, the threat of future actions that

may adversely effect cultural resources has been considered. The result provides a sense of which subareas have the highest and lowest conservation potential. Table IX.1 presents the data used in this analysis. In light of the importance of integrity, the subarea are ordered by their integrity rankings from highest to lowest and then analyzed by the other variables to enhance clarity.

Table IX.1. Comparative Analysis of Conservation Potential by Subarea

Integrity 1=highest	Sensitivity 1=highest	Legal Protection 1=highest	Future Threat 1=lowest	Total	Rank
1. W. Pima Co.	4	1	1	7	1
2. San Pedro	4	2	2	10	2
3. Cienega-Rincon	1	5	4	13	3
4. Altar Valley	6	6	6	22	5
5. U. Santa Cruz	5	8	5	23	6
6. Avra Valley	3	3	3	15	4
7. Tortolita Fan	2	7	7	23	6
8. M. Santa Cruz	4	4	8	24	7

To help interpret these results, a key will be used dividing the ranks presented in Table IX.1 as follows: 1 or 2=High; 3 to 6=Moderate; 7 or 8=Low. This breakdown assumes a rank of 4 is the midpoint and all other ranks, either higher or lower are deviations from the midpoint.

Note that a sensitivity ranking could not be produced for Western Pima County because no data were available for proximity to water. For this final analysis it will be assumed that the Western Pima County Subarea has a moderate sensitivity ranking. While just a guess, this is based on its very high percentage of lands believed to have high and moderately sensitivity for archaeological sites, and the likelihood that only a small percentage of the area would be found to be in close proximity to a major drainage given the limited number and distribution of water sources in the Western Pima County subarea. Here the expected difference is split. With this one estimate, it is possible to rank all the subareas for their conservation value by all measures.

Overall, the Western Pima County subarea has the highest ranking of any subarea. It is ranked number one for integrity, has an estimated moderate sensitivity for archaeological sites and other cultural resources, has the highest legal protection for cultural resources of any subarea, and has the lowest threat of future development. The San Pedro subarea is rated number two for conservation potential; it has high integrity, moderate site sensitivity, moderate legal protection, and a low development threat. These two subareas have the highest ratings overall with three high ranks and one moderate rank each.

There are five subareas that have a moderate ranking overall: Cienega-Rincon, Avra Valley, Altar Valley, and two ties for last in the moderate category - the Upper Santa Cruz and Tortolita Fan. The third ranked subarea by these measures is the Cienega-Rincon area. It has moderate degree of integrity, as well as high sensitivity, moderate legal protection, and moderate threat of future development. Following this is the Avra

Valley, with a low/moderate ranking for integrity reflecting the relatively high degree of disturbance in the subarea, especially from agricultural development. However, it has high/moderate rankings for each of the other variables: Site sensitivity, legal protection, and future threat. The threat factor is further reduced by the recent creation of the Ironwood Forest National Monument in the Avra Valley. The Altar Valley is ranked fifth in conservation potential. It has moderate integrity, but low/moderate rankings for sensitivity, legal protection, and threat. The threat of future development is particularly acute in the northeast part of the subarea.

There are two subareas tied for sixth place: the Upper Santa Cruz and the Tortolita Fan. Each has negatives and few or no positives. The Upper Santa Cruz is moderate across the board with the lowest ranking of any subarea for legal protection. This reflects the high proportion of private and state trust lands in the subarea relative to other public lands. The Tortolita Fan subarea on the other hand has low moderate ranks across the board, but the second highest rank for site sensitivity. Unfortunately, that potential has been lessened by development related impacts and will be further reduced in the near future. In last place is the Middle Santa Cruz with the lowest integrity of any subarea as well as the highest future threat of (continued) development with only a moderate sensitivity for archaeological sites and other cultural resources and limited legal protection. These rankings are presented graphically in the map entitled, **Conservation Potential,** where gradations of red, brown, yellow, and white are used to indicate the subarea rank from high to low as indicated on the map.

3. Conservation Recommendations

What the analysis presented above suggests is that conservation efforts on the subarea level would be best directed towards the Western Pima County, San Pedro, Cienega-Rincon, and Avra Valley subareas. These are the areas that overall have the most to offer by way of protecting cultural resources because they are still largely intact, have moderate to high sensitivity, and the threat of future development is relatively low, although this could change. Long term conservation goals for cultural resources can be achieved in these subareas by working to secure sensitive lands now before they are threatened and then to provide the necessary legal and management protections where needed to ensure conservation. Federal lands already enjoy a large degree of management control over cultural resources. As such, the cultural resources in virtually all of Western Pima County are legally protected, and moreover, they are not threatened by the same growth related impacts as the subareas in eastern Pima County. It makes sense therefor to concentrate conservation efforts where they are really needed by seeking landscape conservation in eastern Pima County, particularly in the San Pedro, Cienega-Rincon, Avra Valley, and Altar Valley subareas.

Long term, large scale conservation strategies must also be supplemented by more short term strategies directed at specific portions of the Middle Santa Cruz, Torolita Fan, and the Upper Santa Cruz subareas where integrity is still viable but the threat of future development pressure is high so that the remaining cultural resources in these subareas may be protected for the future. This will require a more targeted approach to conservation on a more aggressive time schedule.

The map entitled, **Site Sensitivity and Private/State Ownership** presents a visual guide for eastern Pima County that may be used to achieve cultural resource conservation in areas that are not yet threatened as well as those that are in more immediate peril. This maps brings together land status and site sensitivity to show the location of places with lower legal protection and higher sensitivity for archaeological sites and other cultural resources. State trust land and all private property are combined and then broken out into high and moderate sensitivity zones colored red for high and blue for moderate. Within these areas are also included the private non-ranch lands used in the discussion of development threat in Section VIII. The hypothetical

limit to urban expansion defined by the distribution of private non-ranch lands is also shown on the map to help focus attention on those areas where conservation efforts are needed most in the short term. Outside this danger zone, conservation may be achieved on a broader level over a longer time frame; however, both long term and short terms strategies should be pursued simultaneously.

The map indicates that the high sensitivity lands within the ringed area are located along the Santa Cruz River in Green Valley and Sahuarita in the Upper Santa Cruz subarea. It passes down the Santa Cruz through the Middle Santa Cruz subarea where archaeological sites such as the West Branch site and the Valencia site are still intact, and follows the Rillito, Tanque Verde Creek and portions of the Pantano Wash. The high sensitivity zone continues through the Tortolita Fan capturing both the Los Robles Mound and the Marana Mound site complexes adjacent to the Santa Cruz flood plain but also includes the Canada del Oro Wash in Oro Valley. In the Avra Valley, high and moderate zones cover the Robles and Brawley Washes and the eastern flanks of the Silverbell Mountains. Portions of the Altar Wash where it meets the Avra Valley are also in this area but much of the high and moderate sensitivity areas within the Altar Valley subarea are further to the south. On the east side, the northern portion of the Cienega Creek Subarea is included within this hypothetical boundary including a part of Pantano Creek, Agua Verde Wash and Rincon Creek. Again, much of this subarea is outside the ring although it is likely that development will continue to occur in Davidson Canyon and in the J-six areas. The San Pedro is outside the urban expansion zone entirely suggesting that if action is taken in the near future cultural resources in this area will not experience the same degree of threat as those closer to the urban core.

4. Means of Achieving Resource Protection

This is perhaps the important subject to be addressed in this section and the most difficult to achieve. There are two basic approaches to cultural resources protection that have been used historically: 1) conservation of cultural resource where they are protected for the future; and, 2) the recovery of information from cultural resources before they are lost. The first is obviously more desirable, the second is often more achievable.

Conservation requires ownership of the land that contains cultural resources or control over how the land can be used so that the resources can be protected. The most direct means of achieving the goal is through purchase of the land in fee simple, an option that works when there is both a willing seller and the buyer has the money. The voters in Pima County, for instance, authorized the county to issue a bond in 1997 that among other things enabled the county to buy land containing several important archaeological sites for their conservation. Another option that has been used successfully is donation of the land by the owner to an organization for preservation purposes. This has the benefit of providing state and federal tax credits to the land owner, but never brings full compensation for the value of the land. The Archaeological Conservancy, a private organization modeled after the Nature Conservancy, is the nation's premier private organization devoted to the acquisition and long term protection of important archaeological sites and it uses both purchase and donation as standard methods of acquisition.

Other options include covenants and easement restrictions that are entered into voluntarily by the owner with a second party for the purposes of conservation. These are often structured to run with the land and have the effect of restricting certain uses of the land while enabling the land to continue in private ownership. An enforcement mechanism is required to ensure the terms of the agreement are followed and to establish who is accountable when and if the terms are violated. Leases have also been used for preservation purposes through private parties and public agencies where this is legal. Other examples of acquisition for preservation include combinations of these options already discussed, such as lease with buy back options and public/private partnerships where costs and maintenance responsibilities are shared.

The latest conservation tool with potential application for cultural resources protection is purchase of development rights in which certain rights to private property are relinquished through sale or exchange for development rights to other lands. This mechanism, if politically and legally feasible, is promising as a tool for conserving many kinds of resources. As a whole, the various methods discussed above have two principal benefits: A) they are designed for actual on-the-ground conservation; and, B) they can be used pro-actively before resources are threatened.

The second approach to cultural resources protection is through legal mechanisms that are usually linked to land use law and regulation. These measures are almost always reactive and mitigative in nature in that they are triggered in response to a request for approval of an action that may affect cultural resources. Laws and regulations that follow this pattern exist on the national, state, and local levels and are justified in the name of protecting the health, safety, and public welfare. Federal and state laws often only apply if federal or state lands are involved in an action that may affect cultural resources or if public monies or authorizations are needed to facilitate the action. Most land use decisions, however, affect private lands and are made at the local level through development review process or in zoning applications. Local governments across the country have succeeded in inserting preservation requirements in local law that give some measure of control over what happens to cultural resources. The advantage of this approach is that it is easier to achieve politically under the right conditions than to acquire money, especially tax dollars, for conservation. It also works to increase the public awareness of cultural resources and their value within the community. In some cases, while geared towards mitigating the effect of some action on cultural resources, avoidance and preservation in place is achieved because the land owner or developer wants to do this, or because they want to avoid the expense and time delays of going through with a mitigation strategy.

Both pro-active and reactive approaches should be used in the Sonoran Desert Conservation Plan. Pro-active acquisition of sensitive lands containing important cultural resources is recommended by using a variety of means as discussed. This will be especially profitable where cultural resources co-occur with other valued resource such as riparian zones, open space, ranch lands, and parks and preserves so as to maximize overall resource conservation Reactive legal tools that regulate land use in such a way as to ensure the consideration of cultural resources in development planning are also needed. This is especially true for those local jurisdictions that presently have no laws that include historic preservation in their development review or zoning approval processes. Both Sahuarta, which has no preservation requirements, and Marana, which has no specific legal authority to require preservation, would benefit from passage of preservation ordinances. In some cases, laws that are already on the books need to be enhanced so as to eliminate weaknesses that threatened cultural resources. The City of Tucson, for instance, needs to devise a legal means of ensuring survey or other forms of investigation during the planning stages of private development projects. Pima County must revise its Historic Zone ordinance to make it a comprehensive tool for historic preservation and to enable the county to become a Certified Local Government, a preservation program run by the National Park Service that would assist the county in its preservation and conservation efforts.

Beyond the direct means of either land acquisition or mitigation of effect, are the indirect but no less important methods of protecting cultural resources through outreach and education. People support conservation and preservation when they know what they can do for them and their communities. When they are ignorant of the goals and objectives of these efforts, they are not inclined to support them especially if there is regulatory burden or if public tax dollars are involved. Therefore, a proven means of achieving cultural resources protection over the long run is through programs that educate and inform the public about the importance of saving their heritage.

In summary, it is recommended that protection of cultural and historical resources under the Sonoran Desert

Conservation Plan be achieved in the following manner.

1) Conservation efforts should be directed at the level of the landscape within each subarea. This is needed to ensure that cultural and historical resources are protected along with the contextual evidence of past human interactions with the environment through time and across space.

2) There are known places that have high cultural and historical value, including but not limited to those listed on the National and State Registers of Historic Places, that must be included as conservation priorities under all preserve design scenarios.

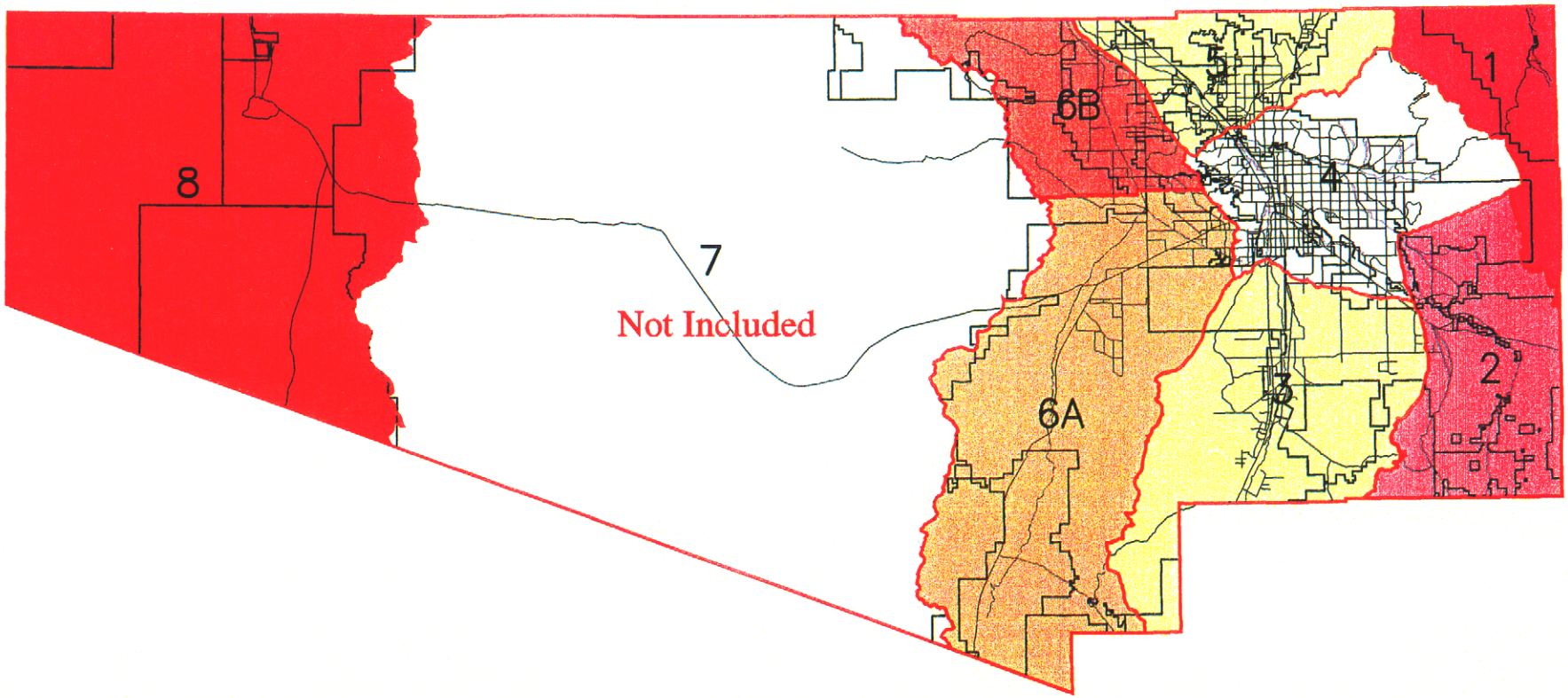
3) Cultural and historical resources will tend to co-occur with other valued resources considered under the Sonoran Desert Conservation Plan (ranch lands, recreational areas, riparian zones, biological corridors, and critical and sensitive habitat). Maximum conservation benefit will be achieved by including cultural and historical resources in designing conservation scenarios for these resources. The county must be prepared, however, to seek land conservation in order to protect cultural and historical resources that do not co-occur with other valued resources.

4) Priorities for conserving lands containing cultural and historical resources should be multi scalar based on the integrity of the subarea, the cultural resources sensitivity of specific areas within the subarea, and the of threat of future land disturbance from development.

5) Conservation of cultural and historical resources should be achieved through both pro-active land acquisition strategies and re-active preservation laws. Where needed, legal tools should be developed and utilized to correct inadequacies in existing law and to enhance consistency in resource protection.

6) The long term protection of cultural and historical resources requires that the public be informed about the past and engaged in saving their heritage for the future.

Conservation Potential



Highest Potential for Land Conservation

- 1 Western Pima County
- 2 San Pedro Valley
- 3 Cienega-Rincon Valley
- 4 Avra Valley
- 5 Altar Valley
- 6 Upper Santa Cruz Valley
- 6 Tortolita Fan
- 7 Middle Santa Cruz Valley

State Of Arizona Index Map

Index Map Scale 1:5,000,000

Scale 1: 260, 000

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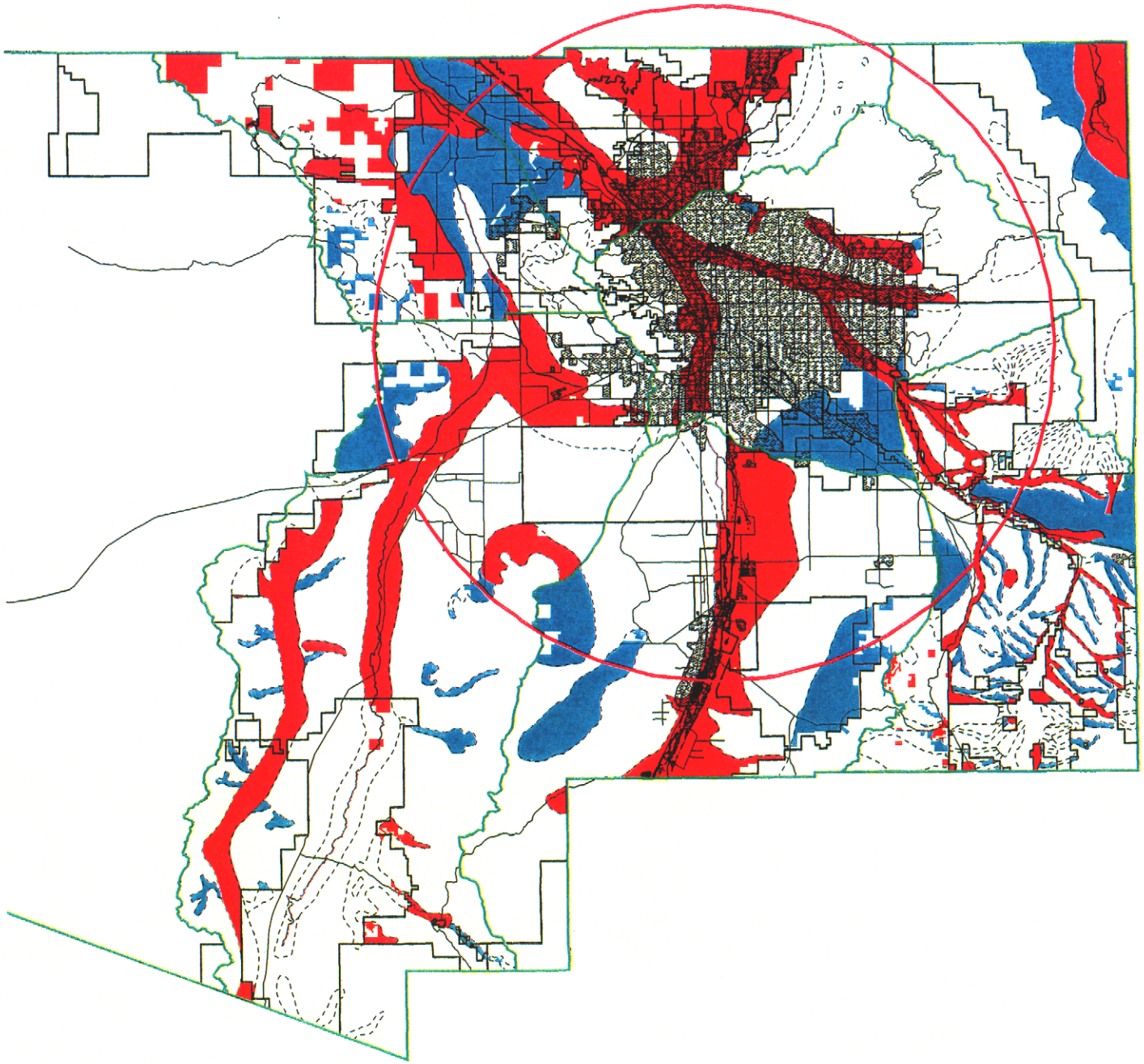
Site Sensitivity and Private/State Land Ownership



- Private/State Land @ High Sensitivity
- Private/State Land @ Moderate Sensitivity
- 25 Mile Radius from I-10/I-19
- Planning Unit Boundaries
- Major Washes
- Major Roads
- Sensitivity Area

Planning Units

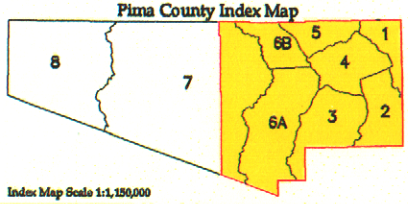
1. San Pedro Valley
2. Cienega-Rincon Valley
3. Upper Santa Cruz Valley
4. Middle Santa Cruz Valley
5. Tortolita Fan

6a. Altar valley

6b. Avra Valley

7. Tohono O'odham
8. Western Pima County

Pima County Index Map



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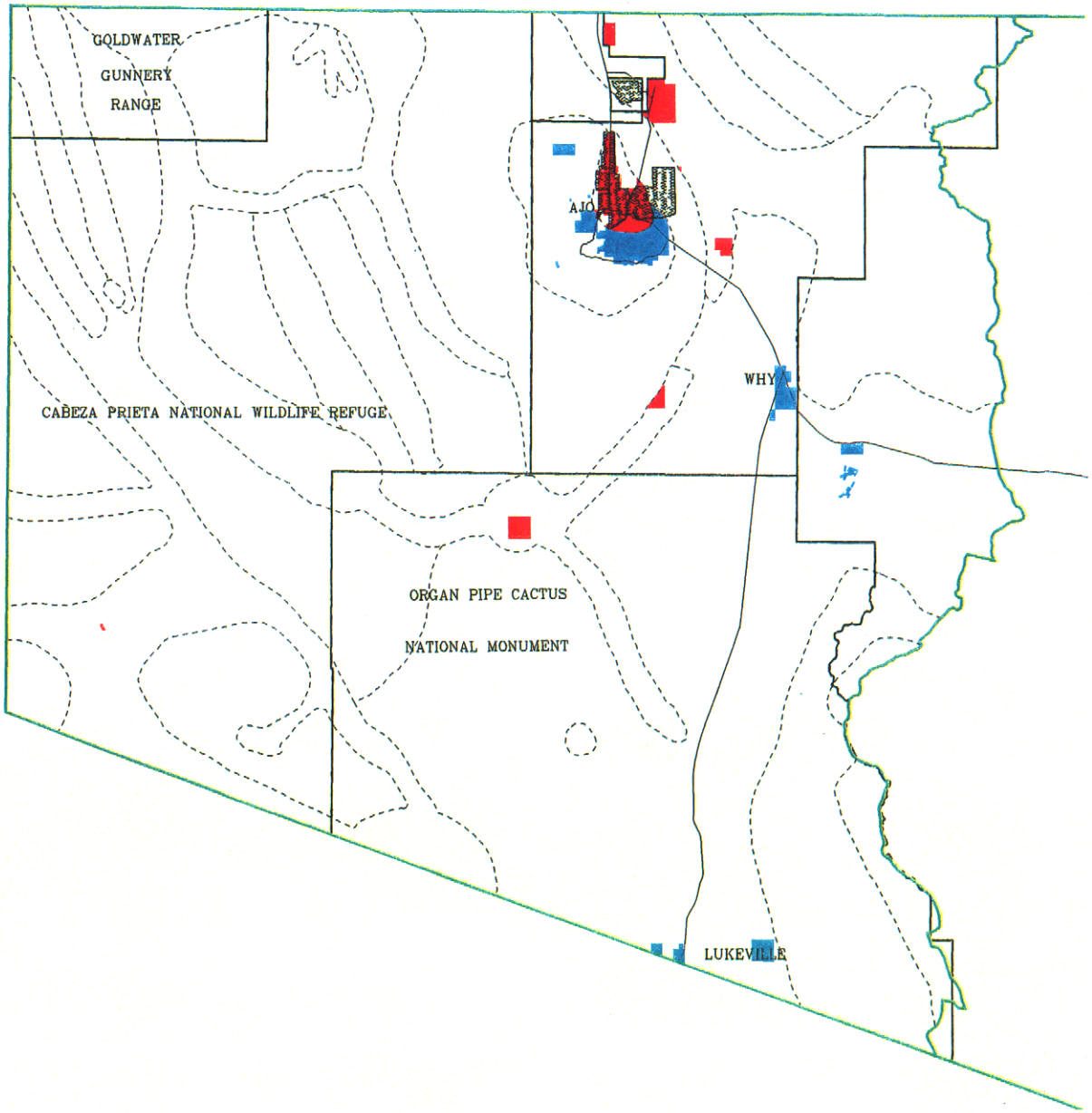
Site Sensitivity and Private/State Land Ownership



- Private/State Land @ High Sensitivity
- Private/State Land @ Moderate Sensitivity
- Planning Unit Boundaries
- Major Washes
- Major Roads
- Sensitivity Area

Planning Units

1. San Pedro Valley
2. Cienega-Rincon Valley
3. Upper Santa Cruz Valley
4. Middle Santa Cruz Valley
5. Tortolita Fan
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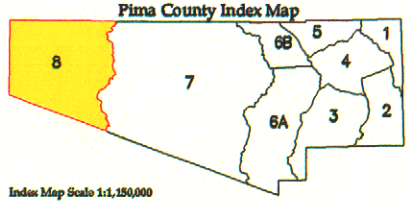
7. Tohono O'odham
8. Western Pima County

Pima County Index Map



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X. Summary

1. Review of Cultural and Historical Resources in Pima County.

This report was written to document the nature and extent of cultural and historical resource in Pima County in a comprehensive overview. The goal was to provide both base line data and interpretation of those data so that informed decision could be made about cultural and historical resources in the planning process for the Sonoran Desert Conservation Plan. This has been achieved on the subarea level as well as regionally. In the process, it has become clear that Pima County enjoys a wealth of cultural resources that embraces many cultures from many time periods. From the earliest inhabitants of the New World at the end of the last Ice Age to the modern metropolis of Tucson in the 21st century, Pima County has a record of the past that is the envy of other places not so fortunate to have had such a colorful history or one that is so deeply rooted in past. Collectively, this mass of sites, buildings, trails, and traditional cultural places, can be thought of as a resource or asset, which is fragile, finite, and valuable. This resource represents the sum of who we are and where we as citizens of Pima County have come from and where we are going. Without these places, our lives would be diminished in fact and in theory for what makes these places so important is not just what they tell us about the past, but what they can tell our children and their children about the past. Cultural and historical resources are a part of our common heritage and the protection of that heritage is both desirable and necessary.

It is also apparent that much more remains to be discovered than is presently known. Lopsided archaeological survey coverage between subareas guarantees that the present compendium of archaeological site data and the view of prehistory from which it is derived is incomplete at best and biased in ways that we may not even be aware. More survey is need in targeted areas to fill data gaps and test assumptions about past land use patterning. A comprehensive site probability model using GIS technology needs to be developed so that accurate predictive statements can be made about the potential of any part of the county to contain archaeological sites. This will greatly enhance preservation planning, management and research capabilities that are presently lacking.

While there are ten historic communities, no concerted effort has ever been made to do a systematic historic building inventory in any of these, with the exception of the City of Tucson. As such, historic buildings, structures and engineering features within these settlements and across the rural countryside are vulnerable to loss over time without the documentation that is needed to identify them as preservation priorities. The analysis of historic ranches and mines included here offers a real opportunity to investigate an important part of the 19th and early 20th century western frontier, but follow up is needed to locate these places, describe their condition, and seek preservation and conservation where warranted. The same is certainly true of traditional cultural places. Native Americans and other traditional communities need to be contacted and consulted about those places on the landscape that they value, provided they are willing to share this information, so that similar steps can be taken to ensure avoidance and to maintain their use for traditional purposes where possible. Still another study is needed to identify places that may fit the definition of rural historic landscapes, a category of historic properties that was only touched upon as a possibility in the subarea reports in Section VI. Historic ranches in particular have a high potential for this kind of designation, which would increase knowledge about the history of ranching in Pima County and bring recognition to these places and the lands that have sustained them. And lastly, much more is needed to get the word out to the public that Pima County cares about its past and has a past worth caring about.

2. Resource Loss Yesterday, Today, and Tomorrow.

In the course of preparing this report, it has also become evident how much Pima County has lost over the years from a combination of physical destruction resulting from ignorance and a lack of legal mandates to do anything about it. It wasn't until the mid 1960s that federal legislation was passed creating the nation's federal historic preservation program. The state equivalent has only been in existence since 1982. Pima County's own laws affecting public works projects didn't go into effect until 1983 and private development wasn't covered under county law until 1985. With the exception of the University of Arizona, there was no institutional effort to even locate places of historic or prehistoric interest until relatively recently in Pima County's history. It is certain that thousands of archaeological sites have been impacted or destroyed over the years from urban growth, agriculture, road construction and mining and lesser man-made impacts. Buildings and structures too have been torn down, burned down, fallen down, or been so heavily modified that they bear no resemblance to their original form. All of this is to be expected. Change happens and this often results in the old being replaced by the new, but now there is need for a balance. Because of past losses, the value of all remaining cultural and historical resources has increased thus warranting both resource conservation and historic preservation.

3. The Future of Resource Protection in Pima County

Growth in Pima County, especially in the Tucson Metropolitan area is both a blessing and a curse. While the forces of progress bring with them new economic prosperity for more people, the vestiges of a proud past are removed from the cultural landscape. Saving more than a token of these places is needed to remind people of what makes Pima County a unique place to live. That will require getting out ahead of the development curve to find and save those places that are important before they are threatened, as well as creating new legal tools for doing a better job of recovering the stories of the past before they are lost. Both pro-active and reactive tools will need to be harnessed to do the job, for without these efforts, cultural and historical resources will continue to be consumed until they are diminished to the point that they no longer have any value. To prevent this from happening, more resources are needed and new relationships among government, the private sector, tribes, and the public must be forged. In short, the future of cultural and historical resources in Pima County depends on making their protection a priority. The Sonoran Desert Conservation Plan does this and thereby offers an important opportunity to save the past for the future.

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Appendix A. Preliminary Cultural and Historical Resources Constraints List.

Prepared by the Cultural and Historical Resources Technical Advisory Team to the Sonoran Desert Conservation Plan. Archaeological site and historic buildings are ordered by the number of times each resource was recommended by the team.

Archaeological Sites

5-Tumamoc Hill (AA:16:6) and agricultural features to the west
4-Romero Ruin (BB:9:1)
4-Los Morteros(AA:12:57)/Huntington Ruin(AA:12:73)
4-Zanardelli (BB:13:1) and associated field system
4-University Ruin (BB:9:33)
4-Honeybee Village (BB:9:88)
4-Coyote Mountain Archaeological District (on National Register)Sites DD:2:17 (Hay Hook Ranch - historic ranch and prehistoric platform mound site), DD:2:45, and DD:2:46 which are outside the district but adjacent to it.
3-San Xavier del Bac
3-Robles Mound/Archaeological District
3-Marana Mound site (Nelson s Desert Ranch site) (AA:12:251) and associated canal site complex (including Chicken Ranch, Rancho Derrio, etc.)(the Marana Community)
3-Cocoraque Butte complex (AA:15:3)
3-Las Capas (AA:12:111)
3-Boundary Village (BB:13:221)
3-Ortonville (BB:13:202)
3-Hardy (BB:9:14)
3-Sabino Canyon Ruin (BB:9:32)
3-Punta de Agua site complex (BB:13:16, 41, 43)
3-Picture Rocks(AA:12:62)
3-Bosque (BB:14:22)
3-Tanque Verde Ruin (BB:14:1), Pithouse Village (BB:14:2&3) and Box Canyon site complex
3-Sutherland Wash site complex (BB:9:59&66)
3-West Branch (AA:16:3)/Dakota Wash (AA:16:49)/Solida del Sol (AA:16:44)
3-Valencia/Valencia Vieja (BB:13:15&74)
3-San Agustin/Clearwater (BB:13:6)
3-Santa Cruz Bend (AA:12:746)
3-Martinez Hill Complex, including Casa Azul (BB:13:8), Martinez Hill (BB:13:2), and the Martinez Hill Ruin (BB:13:3), BB:13:7, and the San Xavier Bridge site (BB:13:14).
2-Los Pozos (AA:12:91)
2-Hodges (AA:12:18)/Furrey Ranch (AA:12:31&32)
2-San Xavier Bridge (AA:16:14)/Casa Azul(BB:13:8)/Martinez Hill (BB:13:7)
2-Dairy Site (AA:12:285)
2-Brickyard (AA:12:51)
2-Roland (AA:12:86)
2-Julian Wash (BB:13:17)
2-Sunset Mesa Ruin (AA:12:10)
2-Emkay (BB:13:123)
2-49er's (BB:14:17)

2-Milagro (BB:10:46)
2-Loma Alta (BB:14:60)
2-BB:14:11
2-Redington Ruin/Bayless Ruin (BB:11:1, BB:11:2)
2-Donaldson Site EE:2:30
2-Reeve Ruin/Davis Ruin (BB:13:70&20)
2-Pig Farm
2-Rincon Mountain Foothills Archeological District (Saguaro National Monument)
2-Quitobaquito (Organ Pipe Cactus Nat. Monument--Protected)
2-Rock art sites in the Tucson Mountain District of Saguaro National Monument--26 sites including King Canyon and Signal Hill
2-Gunsight Mtn. Archaeological District
2-Ventana Cave
2-Sleeping Snake (BB:9:104)
2-The Presidio Walls and related features
1-Cortaro Fan (AA:12:486)
1-Cortaro Road (AA:12:232)/Valley Farms (AA:12:736)
1-AA:12:52
1-Costello-King (AA:12:503)
1-Stone Pipe (BB:13:425)
1-Rabid Ruin (AA:12:46)
1-BB:9:23 & 78
1-St. Mary's Ruin (AA:16:26)
1-AA:16:58
1-BB:13:70
1-BB:13:120
1-AA:12:12
1-BB:9:18
1-Whiptail Ruin (BB:10:3)
1-Gibbon Springs (BB:9:50)
1-Houghton Road (BB:13:398)
1-Turner (BB:14:26)
1-Pantano (EE:2:50)
1-Marsh Station Road site
1-Blackstone Ruin (AA:15:1)
1-Cement Plant Site (north of Los Morteros)
1-CCC Picnic Areas and Campgrounds in the Tucson Mountains (Saguaro National Monument and Tucson Mountain)
1-Hia Ced O'odam sites in western Pima Co.
1-Ash Hill
1-Anegam
1-Gu Achi
1-Golder Dam ballcourt site
1-The Anza Trail

<u>Historic Buildings</u> (Many are inside the Tucson City limits)

2-Binghampton Rural Landscape

2-St. Phillips in the Hills Episcopal Church
2-Old Main, U of A campus
2-El Tiradito in Barrio Historico
1-Arizona Inn
1-The Corbett House
1-The Cordova House
1-The Temple of Music and Art
1-The Steinfeld Mansion
1-The Sam Hughes House
1-The Stone Avenue Temple
1-The Manning House
1-The Masonic Temple Building
1-The Hereford House
1-The Railroad Depot
1-Santa Cruz Church
1-Quartermaster Structure in the Old Fort Lowell Neighborhood
1-San Pedro Chapel
1-The Producer Cotton Gin Building, Marana
1-Historic Ruin on Herb Kai's property--may be Butterfield Station and Charco Yuma
1-Tucson Warehouse District
1-Esmond Station (BB:13:382)
1-Adkins Property
1-Catalina Foothills Estates
1-Samaneigo House
Downtown Historic Properties:
- 2-Fremont House
- 2-C.O. Brown House
- 2-Hotel Congress
- 2-Fox Theater
- 1-4th Ave underpass
- 1-6th Ave underpass
- 1-Stone Ave underpass
- 1-U.S. Courthouse
- 1-Coronado Hotel
- 1-Pima Co. Courthouse
- 1-Arizona Daily Star Building
- 1-Willard Hotel
- 1-Chicago Store
- 1-W. A. Julian Building
- 1-Steinfeld Warehouse
- 1-Tovrea Warehouse
- 1-Old Pueblo Club
- 1-Southern Pacific Railroad Station
- 1-Reilly Funeral Home
- 1-El Paso and Southwestern Railroad Station
- 1-Arizona Hotel
- 1-Lewis Hotel

1-Odd Fellows Hall
1-Rialto Theater and Apartments
1-Baffert-Leon Warehouse
1-Thomas-Davis Clinic
1-Valley National Bank
1-First Interstate Bank Building