J. FONSECA

A CULTURAL RESOURCES OVERVIEW OF THE CIENEGA CREEK NATURAL PRESERVE

by

James E. Ayres
Laurie V. Slawson
Mark E. Sullivan

November 1994

A CULTURAL RESOURCES OVERVIEW

OF THE CIENEGA CREEK NATURAL PRESERVE

A cultural resources overview of the Cienega Creek Natural Preserve was conducted as part of a research program for the Cienega Creek Management Plan. The work was undertaken for McGann & Associates and Pima County between January 1993 and October 1994. The project area is located along the Cienega Creek drainage southeast of Tucson, Arizona.

Although the majority of the research was archival in nature, one day was spent in the Preserve examining cultural resources along an area of Cienega Creek. This document represents the technical report of all archaeological and historical data collected for this project; a summary of the results and area and site locational maps are available within the Masterplan report.

Consulted Sources of Information

During the preparation of this overview of the Cienega Creek area, information was obtained from the following sources, in addition to those listed in the References Cited section of this report:

- Arizona State Museum Site and Survey File Room
- Bureau of Land Management Public Room, Phoenix
- Bureau of Land Management Tucson Resource Area office
- The Amerind Foundation in Dragoon, Arizona
- Arizona Historical Society
- University of Arizona Special Collections

Culture History

An overview of the prehistory and history of the Cienega Creek Natural Preserve is presented in the following sections for background information.

Prehistory

The earliest period of culture history in the Preserve is that of Paleo-Indian, which has come to signify hunting and gathering cultures of late Pleistocene and early Holocene age. The Clovis or Llano tradition, an apparently distinct Paleo-Indian hunting-gathering culture that focused on the exploitation of many now-extinct megafauna, has been recognized in the approximately 11,000 to 10,000 years Before Present (B.P.) time range in southern Arizona. Although Clovis culture is well documented in the San Pedro River Valley, elsewhere in southern Arizona generally only isolated Clovis points have been found. The current lack of evidence for Clovis occupation in much of southern Arizona may be misleading due to a number of factors, including geological preservation and the presence of later prehistoric occupations, which may be obscuring the evidence for earlier cultures (Huckell 1984b:134-135).

The next period of culture history in southern Arizona is the Archaic, which is associated with a variety of hunting-gathering, largely preceramic, and, for the most part, nonagricultural, cultures that employed milling stone technology and were ancestral to many of the better-known agricultural societies. The Archaic period may be characterized as a time of increasing sophistication in hunting and gathering techniques through both technological development and the evolution of ever more complex subsistence-settlement systems, in conjunction with a gradually increasing dependence upon floral resources. A transition to a partial reliance upon agriculture accompanied population growth and the development of more sedentary settlement patterns.

Two broad traditions have been associated with the Archaic period in southern Arizona: the Cochise culture, first defined in the San Pedro, Sulphur Spring, and San Simon valleys of southeastern Arizona (Sayles 1983; Sayles and Antevs 1941); and the Armagosa Complex, initially identified in the Mohave Desert of California and adjacent parts of the Great Basin (Haury 1950; Rogers 1966). The Archaic period generally is estimated at about 10,000 to 1500 years B.P. in the Southwest, although the terminal date varies considerably from one place to another. Huckell (1984a, 1984b) provides a comprehensive summary of prior research to support approximate dates of 9500 to 7000 B.P. for the Early Archaic, 7000 to 4000 or 3000 years B.P. for the Middle Archaic, and 4000 to 3000 to 1500 years B.P. for the Late Archaic. He recommends the use of these temporal divisions, rather than the cultural terms "Cochise" and "Amargosa" for greater precision and cross-cultural comparability (Huckell 1984a:214).

The final prehistoric period of culture history in the Preserve is that of the Hohokam. The Phoenix Basin is generally recognized as a core area for the Hohokam, and it was in this area that a chronology for the Hohokam first was established. Although the Hohokam chronology follows an established sequence of periods and phases, various estimates have been generated for the temporal placement of each phase, and it is apparent that they have differed from one place to another within the larger Hohokam region. The periods and phases for the Hohokam culture in southern Arizona, and approximate time spans are listed below.

Pioneer Period (A.D. 200/300 to 700)
Snaketown Phase
Tortolita Phase

Colonial Period (A.D. 700 to 950)
Cañada del Oro Phase
Rillito Phase

Sedentary Period (A.D. 950 to 1150)
Rincon Phase

Classic Period (A.D. 1150 to 1450)
Tanque Verde Phase
Tucson Phase

Hohokam society and culture can be summarized in terms of the pre-Classic Pioneer, Colonial, and Sedentary periods, and the subsequent Classic period. Pre-Classic Hohokam societies had a more complex organization than previous Archaic peoples, and they lived in permanent, regularly patterned, pit house village settlements. Some of these societies held a preeminent sociopolitical and economic status that was characterized by ballcourts, plazas, and flat-topped platform mounds. The mounds often supported small shrines or ritual structures. Seasonal settlements also existed with cultivated fields along perennial streams, their floodplains, and major seasonal washes, in addition to a variety of specialized resource procurement and processing sites. The pre-Classic Hohokam maintained highly developed relationships with distant societies and cultures, primarily through means of trade networks. The trade networks also linked both neighboring and widely distributed Hohokam settlements.

Technologically sophisticated canal irrigation systems were extant throughout the Phoenix Basin along the Salt and Gila rivers, in addition to floodwater, runoff, and dry-farming techniques that were was used in areas where canal irrigation was not possible. Elsewhere in southern Arizona, horticulture was practiced with water conservation, capture, and redistribution techniques that included earth-and-brush berms with rudimentary ditches, stone checkdam features, earth-and-stone piles, small terraces, and various other dry-farming techniques adapted to the diverse microenvironments provided by piedmont slopes and the riparian floodplains of intermontane basins.

The Classic period is widely regarded as having departed in several respects from traditions dating back through the Sedentary, Colonial, and Pioneer periods. Of particular significance is that the Classic period brought an apparent contraction in the geographic distribution of sedentary settlements, resulting in the concentration of population into large, tightly integrated cultural communities, and a dislocation or reformulation of trading patterns. Other Classic period departures from earlier patterns included the construction of residences atop massive platform mounds, the appearance of palisaded or walled village compounds that sometimes contained multistory buildings, the construction of *cerros de trincheras* or terraced hillside agricultural and habitation sites, and the eventual loss of ballcourt architecture.

The Hohokam sphere of influence reached into the Tonto Basin regions early in the Colonial period, lasting into the Sedentary period (Doyel 1978:91). At the beginning of the

Classic period, or approximately A.D. 1150, new cultural traits, identified as "Salado," appeared in the Tonto Basin and the nearby Globe/Miami area (Hohmann and Kelly 1988:30) By A.D., Salado cultural attributes were distributed through a wide area in the Southwest, including the Preserve, Tucson Basin, Phoenix Basin, San Pedro River Valley, western New Mexico, western Texas, and Casas Grandes, Mexico (Doyel and Haury 1976:133). The Salado were characterized by a hierarchical site-settlement system and extensive regional and local exchange within a centralized redistributional framework. Salado sites typically consist of compounds and pueblo complexes that may be contemporaneous.

Also present in the Preserve and throughout southeastern Arizona are sites that have been identified with the San Simon Branch of the Mogollon. This prehistoric culture consists of six phases that may be correlated with that of the contemporaneous Hohokam culture: Peñasco (300 B.C. to A.D. 100), Dos Cabezas (A.D. 100 to 300), Pinaleño (A.D. 300 to 600), Galiuro (A.D. 600 to 800), Cerros (A.D. 800 to 1000), and Encinas (A.D. 1000 to 1200) (Ferg 1984:11). In the San Pedro River Valley, a blending of the Hohokam population with this peripheral Mogollon population between A.D. 500 and 800 is believed to have resulted in the Dragoon culture, which became established in southeastern Arizona by A.D. 900 (Ferg 1984:19).

By about A.D. 1450, the political and economic structure of Classic period society collapsed and most Hohokam sites were abandoned. The collapse of the Hohokam also may have effected the abandonment of the Salado pueblos at this time. However, several aspects of Hohokam culture are thought to have survived this collapse, and the remnant population may have been ancestral to various Piman-speakers of the protohistoric-early historic era. Reasons for the end of the Classic period are not fully understood, and the succeeding prehistoric, protohistoric, and early historic occupations remain only partially defined. A variety of sources, from Spanish documents to recent historical, ethnographical, and archaeological studies, portray a late Classic/early post-Classic situation of ethnic and linguistic diversity that later gave way to dominance by the Sobaipuri--a generic term applied by the early Spaniards to Piman-speakers of the San Pedro and Santa Cruz river valleys (Masse 1981:38).

Whether or not a cultural hiatus existed between the late Classic period and the post-Classic or Protohistoric period has yet to be definitively determined. Furthermore, questions have been raised regarding the cultural attributes that have been used to define the Protohistoric period, its time span, the possibility of a demonstrable continuum between prehistoric and protohistoric populations (i.e., Hohokam and Pima or Tohono O'odham), and whether a Protohistoric period even occurred in southern Arizona. According to Ravesloot and Whittlesey (1987:81), who provide an excellent overview of the protohistoric problem, this transitional period between prehistory and history traditionally has been defined in terms of time, material remains, or culture change. The most frequent definitions seen in the literature are those of time, of which A.D. 1450 to 1700 may be the most common. This is the time range that is proposed by Wilcox and Masse (1981:14), who base their beginning date on the general consensus that Southwestern prehistory ends around A.D. 1450, and their ending date on the extension of the Spanish mission system into southern Arizona in the 1680s through 1690s and the reconquest of the Pueblos by the Spaniards in the 1690s. However, Ravesloot and Whittlesey (1987:83) make an important point that the Protohistoric period must end at the time of continuous occupation by, or continuous contact with, Europeans; thus, the ending date will not be the same throughout the Southwest.

History

Early Period

The Preserve and its surrounding area is one with a long history of human use and occupation. Because of the presence of a permanent water supply, forage for livestock, and the fact that it served as the only low and convenient pass between the San Pedro and Santa Cruz rivers, early explorers, travelers, military parties, immigrants, and others passing through found the route through the Cienega to be particularly useful. Exploitation of resources in, or habitation of, the area by indigenous peoples during the historic period is not specifically documented, but the mere fact that Apaches were occasionally present suggests that they used the natural resources of the Cienega.

Other than the Apache, troops from the Tucson Presidio were the most frequent travelers through the Cienega area during the Spanish period; that is, before 1821 and during the Mexican period from 1821 to 1854. There appear to be no specific references to the Cienega in the records of these periods, but when traveling between Tucson and the San Pedro River Valley, it would have been a logical point through which to pass.

Before 1821, the then commander of the Presidio in Tucson, Captain Narbona, recognized that the Presidio's food supply could be augmented by raising food on the floodplain of the San Pedro River. Possibly as early as 1810, presidial troops, with a group of "peaceful" Apache in tow, left Tucson for Tres Alamos, located north of present-day Benson. The Apache performed most of the work; the troops provided protection. The group would spend the spring and summer in the Tres Alamos area planting and tending crops and would return to Tucson as the completion of the harvest (Officer 1987:89). Probably, the intent was to farm at Tres Alamos every year; whether or not that happened is not revealed in the records. Farming occurred before and during the year 1814 and possibly after, but by 1831, the fields were reported to no longer be in use (Officer 19877:89, 109). The fields may have been worked in the mid-180s, but by 1838, the site was again temporarily abandoned. As late as 1851, Tucsonans were reported to be farming at Tres Alamos (Officer 1987:148, 366, 367). The farming of remote fields may have continued until the Gadsden Purchase was signed and the Mexican troops left Tucson.

It was during the Mexican period, from 1821 to 1854, with the attention given southern Arizona by Americans, that references to travel through the Cienega area became increasingly common. Documented travel begins in 1846 with the appearance of Captain Philip St. George Cooke, who commanded the Mormon Battalion. He was ordered to march from Santa Fe, New Mexico, to California and to construct a wagon road as he went (Officer 1987:197, 376; Walker and Bufkin 1979:18, 40). Cooke's wagon road did not receive immediate recognition as an important transportation route, but portions of it saw considerable use by emigrants to the west and by those headed for the California gold fields in 1849 (Bieber 1937:58-59). Officer (1987:219-244) provides more specific information about these emigrants. The location of Cooke's road through the Cienega area has not been specifically identified, but the road labeled "Tucson to Cienega" and "to San Pedro" on the 1874 General Land Office (GLO) maps of T16S R16E and T16S R17E may represent the approximate route (General Land Office 1874a, 1874b).

The first stage line connecting Tucson with the outside world via the Cienega Creek area was the San Antonio and San Diego Stage Company, which was in operation from November 1857 to 1858 when it was acquired by the Butterfield Overland Mail Line. No station location at Cienega is known for the San Antonio line. In fact, few stations were built by the company, but Phocion R. Way (a traveler from Ohio who kept a diary of his trip) reports stopping in 1858 for breakfast at "de los Pimas Creek," which probably is at Cienega (Wagoner 1975:348). Conkling and Conkling (1947:151) state that the company's line followed Cooke's road to Tucson.

The station constructed for the Butterfield line was located in Section 30, T16S R17E according to the 1874 GLO map and Conkling and Conkling (1947:152). The site of the station is located just east of the area known today as "Three Bridges" and is designated AZ BB:14:498 in the Arizona State Museum system. King (1946:85) refers to the location of the station as "Cienega de los Pimas." This station was erected in 1858 under the direction of Silas St. John and William Buckley at a place known as Cienega Springs on the east side of Cienega Creek near the mouth of Davidson Canyon. It is possible that the stopping point reported by Way for the San Antonio line was at or near the place the Butterfield station was erected in the same year.

This adobe building, or compound, was the first building known to have been constructed in the area. It incorporated living quarters, stock corrals, and other functions in one large unit measuring about 60 feet by 114 feet (Conkling and Conkling 1947:Plate 63). Lindermuth mentions that the station had a circular tower with loopholes on its southeast corner, and that the road passed between the station and a large volcanic outcrop. The part of the road coming out of the creek at the station is still visible today (1987:14-15). Conkling and Conkling (1947) do not mention a tower in their report, nor does one show in a post-1887(?) Vail photograph on file at the Arizona Historical Society.

The Butterfield line in southern Arizona was abandoned in 1861 primarily because of the Civil War, and, in early 1862, the station burned (Conkling and Conkling 1947:153; Granger 1983:153; Theobald and Theobald 1961:35). After the Civil War had ended, the station was rehabilitated and used as a mail station until 1870. In 1867, W. A. Smith and others were attacked there by Apaches, but were able to successfully defend themselves (Barnes 1988:96). In July 1870, the station, then known as Miller's Station, was again attacked. The station manager, a man named Lawson, and his assistant, named Green, were killed. Apparently, the station was abandoned shortly after the attack, because in September it was again said to have been destroyed (Granger 1983:153; Lindermuth 1987:14-15).

Generally, the available historical documentation relating to Cienega Station is sparse, scattered, and often confusing or contradictory. This is especially true for its later years. Although the site supposedly was in ruins in 1870 and in 1876, when it was visited by W. R. Vail (Hislop 1965:37), a Mr. Wilt was reported to be the station keeper there in 1874 (*Arizona Citizen [AC]* 4 April 1985), and Myrick (1975:57) states that "John Dunbar operated the Cienega stage station," apparently in 1880. It seems unlikely that the adobe station would have been "destroyed" and rehabilitated so many times. Possibly, buildings on the site other than the 1858 station were in use or, perhaps, the later references to the station relate to another site.

There also is confusion as to when the railroad was constructed over the Cienega stage station site. Conkling and Conkling (1947:152) and Granger (1983:153) report that much of the site was destroyed by the railroad in 1880, but the Conklings also state that the station ruins could still be seen as late as 1947. Myrick (1975:109, 115) indicates that the construction over the site did not occur until the 1887-1888 line was rerouted between Pantano and Vail. Because the rerouted section of the line and bridge lying immediately to the west of the station site were not reconstructed until 1887-1888, it seems probable that the station site was not affected by the railroad until that time.

A photograph on file at the Arizona Historical Society, which was taken by E. L. Vail sometime after 1887(?), and one taken in 1921 (also on file), show standing architectural remains, of which virtually nothing exists today. The Vail photograph shows the station in an advanced state of disrepair. Myrick (1975:94, top photograph) also illustrates an undated view of the site looking west. Beyond the train in Myrick's photograph, one can see the 1904 to 1968 pin truss bridge that was replaced by the existing pre-stressed concrete bridge in 1968. This is the location of the 1887 bridge. On the far left in the photograph, one can seen the remains of the an adobe building, presumably the stage station.

In addition to the Apache attacks on the Cienega Station, Mrs. Grenville Oury (1935:57-58) reported that a family traveling by wagon was attacked in mid-1865 in the Cienega area. Two children were taken captive. Mrs. Oury makes no mention of the Cienega Station or of any other building or structure.

Southeast of the Cienega Station ruin, the Mescal Station was established by Kerens and Mitchell (Hinton 1954:371; Walker and Bufkin 1979:41) or Kearns and Mitchell (Conkling and Conkling 1947:152) for the Southern Pacific Mail Line. Walker and Bufkin date this company from 1874, whereas Conkling and Conkling date it from 1872. The station is shown on the 1874 GLO map for T16S R17E in Section 34 (General Land Office 19874b). The company ceased business in 1878 (Walker and Bufkin 1979:41). The site of Mescal Station is designated AZ EE:2:46 (ASM).

In 1878, two other stage lines, the Texas and California Stage Line and the National Mail and Transportation Company, were founded, but they operated for less than one year (Theobald and Theobald 1961:41-42; Walker and Bufkin 1979:41). Both lines appear to have run through the Cienega area, but no station sites are known.

A Mormon trail running from Mexico to the San Pedro settlements, to Tucson, and then north to the Salt River settlements was used from 1877. Much of its route from the San Pedro to Tucson would have followed Cooke's wagon road, which may be the road shown on the 1874 GLO maps (General Land Office 1987a, 19874b). This trail was abandoned with the arrival of the Southern Pacific Railroad (SPRR) (Walker and Bufkin 1979:28).

In addition to those individuals listed above, others were using the roads between Tucson and points east, including the Cienega area, during the 1860s and 1870s. Among these were freighters from Mesilla, New Mexico, who carried supplies from the east into southern Arizona, the military, ranchers, and miners. Hinton (1954:213, 231) reports that from Mesilla to Tucson, a distance of 276 miles, grass, wood, and water were readily available.

The U.S. Army also had a presence, albeit a minor one, in the Cienega area during the 1860s. In June 1862, while on their way to the Rio Grande, 140 cavalrymen under the command of Lt. Col. Edward E. Eyre of the First California Volunteers camped adjacent to the Cienega Stage Station at a location designated "Camp Cienega" (Granger 1983:151). Eyre noted that the Cienega station had burned sometime prior to his 1862 visit (Granger 1960:262). His route, which generally followed that of the Butterfield Overland Mail Line, is illustrated on the 1879 Smith map. (Wagoner 1975:461). Six years later, in 1868, a picket post was established at a location referred to as "Cienega de las Pimas" near the station. It was manned by troops from Ft. Lowell who had a tour of duty lasting for one month before being rotated back to the fort. The purpose of this post was to protect travelers using the Cienega route between Tucson and the San Pedro River. Weaver (1947:18) does not indicate how long the post was actively used, nor was information found about its specific location.

Railroads

The history of the railroads in the study area begins with the construction of the SPRR in the late 1870s to 1880 through southern Arizona. The majority of information about the SPRR is most readily available in Myrick (1975), because the records of this railroad are not accessible either in Tucson or in company headquarters in San Francisco.

The railroad arrived in Yuma from Los Angeles in 1877 and, after a delay, reached Tucson in March 1880. It formally opened the first or "old" Pantano Station in May 1880 and crossed the New Mexico border in September of the same year (Myrick 1975:50-57, 61).

Construction began in the Cienega area when several hundred Chinese laborers arrived in February 1880 to begin work on those areas along the creek that were expected to present difficulties. This effort was underway before construction crews began working in Tucson. The railroad entered Pantano Creek east of Vail, with the grade in or along Cienega Creek to a point just west of "old" Pantano. The line then ran south of Cienega Creek, crossed over it near the mouth of Mescal Arroyo, and proceeded eastward along the north side of Mescal Arroyo (Myrick 1975:50, 108, 109). During construction, the town of "old" Pantano was created with a number of railroad facilities, including side tracks, a depot, a turntable, a water tank, and other buildings and structures. The townsite proved to be temporary.

Placing the railroad line in Cienega Creek proved to be a serious mistake. Washouts occurred almost as soon as the line was constructed. The first major washout took place in July 1880; washouts frequently occurred through 1887 (Myrick 1975:108, 109, 113; *Arizona Daily Star [ADS]*, 20, 21, 22, 26, 27, 29 August 1880, 11 September 1885, 2, 10 July 1887, 30 August 1887, 10, 11, 13, 15, 16, 18, 24, 25 September 1887). An unusually heavy storm in early September 1887 was "the straw that broke the camel's back." After seven years of costly washouts, the SPRR made the decision to relocate much of its trackage between Vail and Pantano to its present position on the north side of Cienega Creek. Operations over the new line began in June 1888 after the expenditure of about half a million dollars on the relocation (Myrick 1975:115). The town of Pantano also was moved from the south side of Cienega Creek to a new location on the north side, where its remains can still be seen. A water tank is the only railroad structure that survives.

To compound the railroad's problems, earthquakes struck in May and November 1887, causing damage to railroad and other buildings in Pantano. They do not seem to have affected the track bed itself (Myrick 1975:113).

In 1891, a heavy flood damaged track between Pantano and Mescal to the east. A new route for slightly over 10 miles of track was completed in 1892. In this case, the new track was placed south of the Mescal Arroyo. In all, the changes in the line both east and west of Pantano added 3 miles to its length (Myrick 1975:113).

The final change to the original route came in 1906, when a 1.2-mile-long line change was made between Pantano and Irene (Myrick 1975:108, 115). This change is evidenced by large, dated concrete culverts that are still in place.

In addition to the SPRR facilities in Pantano, which probably were more numerous than any station between Tucson and Benson, lesser functions and facilities were located on the line between Vail and Amole. For example, in 1881, Pantano was the only small community between Yuma and Willcox to have a telegrapher-ticket agent. Vail station did not acquire a similar position until 15 years later in 1895 (Myrick 1975:75). From west to east between Vail and Amole were Cienega, Irene, Pantano, Buell, and Kadmon (Darton et al. 1933:Sheet 22; Myrick 1975:109; 1893 Pima County 1932; Roskruge 1893). Very little has been recorded about these locations, but all were sidings and some had section houses and stations. Only the first three are within the study area. Pantano is discussed separately below.

The railroad siding of Cienega is shown on both the 1893 Roskruge map of Pima County and on the 1932 map of Pima County. This must be the Cienega in which J. O. Dunbar had a hotel, possibly from 1880 to 1883 (Barnes 1988:96; McKinney 1883:270).

In 1880, a reference to Cienega Wells and the Cienega Wells Station appears in the *Arizona Weekly Star*. An advertisement touts the Cienega Wells Station owned by Jones and Turner on the Tombstone Road 20 miles from Tucson (*Arizona Weekly Star [AWS]*, 22 January 1880:3). This station was about 0.25 miles from Wakefield's station and just across the west line of his property on Tully Ochoa and Company land. Two side tracks to Wakefield's line and a station house were planned (*AWS*, 22 April 1880). Whether this Cienega was the same as the Cienega in the 1883 directory (McKinney 1883) and on the 1893 and 1932 maps (Pima County 1932; Roskruge 1893) is uncertain, but it is likely they are one and the same.

The Irene siding was supposed to have served the Irene Mine, which was named after Irene Matas (Granger 1983:323). No information relative to the mine or the siding was found It is not listed in Keith's (1974) index of Pima County mining properties. Irene, located on the north side of the tracks, was abandoned by the SPRR in 1939 (Myrick 1975:109).

Right-of-way for a long siding and station grounds to be called Buell (in Sections 7 and 8, T17S R18E) was requested by the SPRR in 1916 from the federal government. Proof of construction was not furnished to the government until 1927 (Bureau of Land Management n.d.). Buell was abandoned in 1939 (Myrick 1975:109).

The siding of Kadmon, located in T17S R18E on the south side of the tracks, is shown on the 1893 Roskruge map of Pima County and on a 1914 map for which fieldwork was

performed in 1903-1904 (Schrader 1915:Plate 1). Kadmon is not mentioned by Myrick (1975) or by Granger (1983).

East of Kadmon was the Amole siding and station, which were abandoned in 1939 (Myrick 1975:109). Amole appears on only one map, that in Darton et al. (1933:Sheet 22). No other information was located for this site.

In addition to its early problems with washed-out lines, the SPRR also experienced a few other problems in the Cienega area, namely accidents and robberies.

Accidents in the area were remarkably few. Myrick reports a head-on collision in 1903 near Esmond, located between Tucson and Vail, in which about 10 people were killed (1975:126). Thirteen years earlier, in 1890, an engineer was killed at the iron bridge about 500 yards east of the Pantano water tank. The bridge was partially washed out, and when the train crossed it, the bridge collapsed and the engine rolled down a 30-foot-high embankment (*ADS*, 15 August 1890).

There were two train robberies, both occurring in 1887--one 8 miles west, and one 9 miles west, of Pantano near Vail. Both appear to have been perpetrated by local men, because they knew the names of the railroad employees on board. Money and other valuables were taken in both cases. In the course of the 8-mile robbery, the engine and tender were overturned and several cars were derailed (Myrick 1975:99-101).

A second railroad, which essentially ran parallel to the SPRR west of Mescal, was constructed through the Cienega area in 1912. This line, built by the El Paso and Southwestern Railroad (EP&SW) crossed the SPRR twice--at Mescal and near Irene (Myrick 1975:227). None of the EP&SW is within the Preserve, but it crosses the Preserve near Irene at the place known today as Three Bridges.

The EP&SW had station sites located opposite those of the SPRR, thus its station was south of the SPRR station in Vail, the Empire station was south of the SPRR's Cienega station, Marsh was north of Pantano, and Catalina was north of Amole. Only the SPRR's Irene and Buell locations were not matched on the EP&SW line (Darton et al. 1933:Sheet 22). According to Myrick, Catalina Station was abandoned in 1936, Empire Station was abandoned in 1941, and Vail Station was closed in 1955 (Myrick 1975:109). Myrick gives no date for the closure of Marsh Station, which he also refers to as "Pantano." There was a frame station building, agents' quarters, section houses, and a coal station at Marsh (Myrick 1975:236).

The EP&SW system was purchased in 1924 by the SPRR, which operated the two lines between Tucson and Mescal as double track. The EP&SW line became the westbound line and the SPRR, the eastbound (Myrick 1975:109, 245). This arrangement persists to the present day.

Other Transportation Routes

In addition to the military, stage line, railroad, and other early transportation systems that traversed the Cienega area, historic and recent maps show other transportation routes up to the present. For example, the Smith map (1879) illustrates a road from Tucson to Cienega and

beyond with two branches leading south from Cienega along Davidson Canyon, with further branches to military posts, ranches, and mines to the south. Roskruge (1893) shows a road from Tucson running north of Cienega Creek with four branches to the south out of Pantano and one to the east towards Benson that has a branch leading to Tombstone. Through time, these multiple routes, or branches, decreased in number, but the major early routes continued to be used. Most of the major east-to-west routes illustrated on the later maps closely follow the major east-to-west route shown on the GLO maps (1874a, 1874b). This, in turn, may have followed the 1846 Cooke road, which may have followed the pre-1846 "road" used by presidial troops to reach the San Pedro area.

Major shifts from the early transportation pattern occurred with the construction of the SPRR, but the railroad followed the existing transportation corridor established decades earlier in and along the Cienega Creek. Most shippers of goods and travelers, especially those going long distances, now favored the railroad at the expense of stage lines, wagon trains, and similar modes of transportation. Local traffic continued to utilize and adjust the locations of the local roads that now allowed miners, ranchers, and others relatively easy access to the railroad and its numerous sidings. Cattle could be shipped instead of driven to market, miners could ship ore, and they and others could have readier access to the outside world by catching a train in Vail or Pantano to Tucson or points east.

With the development of the automobile, the gradually increasing pressure to improve east to west roads across southern Arizona resulted in the construction of the Borderlands Highway (U.S. 80) in 1920 and 1921. This highway deviated from the traditional corridor by being constructed south of Cienega Creek and Pantano Wash between Vail and Three Bridges. It crosses to the north side of the Preserve at Three Bridges. In fact, one of the three bridges is a highway bridge that was constructed across Cienega Creek in 1920 and 1921. This bridge, which is still in use, is on the National Register of Historic Places.

In the mid-1960s, U.S. 80 was replaced by Interstate 10, which bypassed the traditional transportation corridor entirely. Interstate 10 passes through the Preserve south of the confluence of Mescal Arroyo with Cienega Creek.

Agriculture

The Spaniards introduced cattle into Arizona, but there is no documented occupation or use of the Cienega area for ranching or other purposes by them or by their Mexican successors. It is possible, however, that occasionally cattle were grazed there occasionally or that other temporary uses were made of the area. Officer (1987:110, 112, 149) describes the problems ranchers experienced in southern Arizona before 1856.

After the Gadsden Purchase and especially after the Civil War, there appears to have been some effort made by adventuresome individuals to take advantage of the grass and water available in the Cienega area. The first to do so may have been Tully Ochoa and Company, which reportedly had cattle at "Pantano" as early as 1864 (Williams 1920:x). The exact location of its operations is uncertain, and no evidence of a legal title was found within the study area. A corral labeled "Ochoa's Corral" in Section 34 of T16S R17E on the 1874 GLO map (General Land Office 1874b) may relate to the activities of this company.

By the late 1870s, the movement of cattle into Arizona, mainly from Texas, was well underway as the establishment of several southern Arizona ranches attests; for example, the Sanford Ranch, the Empire Ranch, the Cienega Ranch, the Gardiner Ranch, Henry Hooker's Bonita Ranch, the Wakefield Ranch, and the Tanque Verde Ranch (Haskett 1935:26; Jones and Ciolek-Torello 1991:141-143; Wagoner 1952:36-41). Typical of the early ranchers was Don Sanford, who is reported to have taken a water claim near Pantano in 1873 and stocked the land with Texas cattle. In 1877, both he and his brother Franklin claimed Desert Land Entries (DLEs), with each receiving 640 acres of land on Upper Cienega Creek. Business must not have been going well for Don, because in 1880 he was arrested for stealing cattle (*AC*, 11 August 1877:2; *AWS*, 2 December 1880:3; Wagoner 1952:36, 39, 64, 105). Today, the best known of the 1870s ranches is the Empire Ranch, which is located near the headwaters of upper Cienega Creek. Its history has been well documented (e.g., King 1946; Stewart 1974; Wagoner 1952). As the Empire Ranch grew over the decades, it absorbed many of the early ranches, including Sanford's, Kane's, and Gardiner's.

Of the early ranches, only the headquarters of the Empire and Wakefield ranches have been identified in archaeological surveys or have been placed on the National Register of Historic Places. The Empire Ranch (AZ EE:2:48 [ASM]) is on the National Register; the headquarters for the Wakefield Ranch was identified by Saul et al. (1985) as site 1985-2, but never was assigned an Arizona State Museum site number.

Weather conditions in the late nineteenth century had a depressing effect on ranching following the expansion period of the 1870s and 1880s. Whereas 1888 and 1889 were exceptionally wet years, the 1890s were years of devastating drought. Drought conditions forced cattlemen to reduce their herds, and by 1895 and 1896, cattle shipments from southern Arizona had broken all records (Wagoner 1952:53-54). Many ranches did not recover from the effects of the 1890s drought and were sold to the survivors.

Owners of small properties, both farms and ranches, continued to survive and prosper until relatively recent times. Many of these individuals were located along Cienega Creek within the study area.

Historically, acquisition or use of land in the study area, as elsewhere, was accomplished by squatting on it or obtaining it through legal methods. All of the land in the Cienega area was owned by the federal government after the signing of the Gadsden Purchase treaty in 1854; thus, the government controlled access to it. Squatting appears to have been a common practice prior to the late 1870s, but as interest in the area increased, legal acquisition became the preferred method of obtaining land, mainly because having legal title was necessary to protect one's interest in a parcel of land. In the early period, in addition to Tully and Ochoa, several others were apparent squatters. The 1874 and 1881 GLO maps provide the location of two. In T17S R17E was "Harshan's House" at Davidson Spring (Section 19), and in T16S R17E was an "old house" near Cienega Station (Section 19). The former dates to before 1881, the year when the T17S R17E GLO map was completed, and the latter dates to before 1874, the year the T16S R17E GLO map was completed.

Obtained legal title to land generally required that it be surveyed, so probably no legal title to lands were acquired before the GLO surveys of T16S R16E; T15S R17E; and T17S R17E began in the spring of 1873. The interior of T17S R18E was not surveyed until 1911 (General Land Office 1911).

Whether or not the various stage lines acquired legal title to the land on which their respective stations and other facilities sat was not researched. They may well have had federal permission to conduct business as they did, without the formal requirement of land acquisition. Interestingly, Butterfield's Cienega Station represents the first permanent building known to be erected in the Cienega area.

There were a number of ways one could legally obtain title to a parcel of land. Most commonly, title to agricultural and other land was acquired through homesteading, purchase, or exchange. Of the land acquisitions made in the study area, 19 were cash entries, 6 were HEs, and 5 were SRHEs. In addition, one parcel was obtained through and exchange (FX) with the U.S. Forest Service, and one was a mineral entry to mine limestone, outside of, but adjacent to, the study area. Homesteading provided individuals of limited means a method of acquiring land by spending time on it and by making improvements. In the study area, only two types of homesteads were filed upon: the 160-acre traditional homestead entry (HE) under the Homestead Act of 1862, as amended, and the stock raising homestead entry (SRHE) provided for by the Stock Raising Homestead Act of 1916, as amended. Outside the Preserve, Don Sanford reportedly acquired his core ranch holdings as a Desert Land Entry (DLE) under provisions of the Desert Land Act of 1877. Details of the homesteading process can be found in Stein (1981, 1990).

The first patented homestead entries occurred in T17S R17E by Joseph Hopley in 1895 and by Carter O. Crane in T16S R16E in 1898. Both were ranchers who probably used their homesteads as core holdings, purchased federal land, and later leased additional lands from the federal or state governments. The last homestead entry was patented by Casimiro Bravo in T16S R16E in 1924 (*see* Table 1). Both Casimiro Bravo and Santiago León eventually lost their homesteads because of a mix-up, not of their doing, that occurred with the land in the 1890s. The confusion was caused by Carter O. Crane and J. J. Fraker, who irrigated land they thought was theirs, but was not (Collier 1937). Their actions may have been part of a deliberate plan to force Bravo and León out, but no evidence was found to support that suggestion.

The first SRHE was patented in 1921 by Norman Wagner in T16S R17E and the final one, by Winifred Lorentson, was in T16S R16E in 1937 (*see* Table 1). Those homesteads that were filed upon but later canceled or relinquished show a similar range of years (*see* Table 2)

Another popular method of acquiring lands from the federal government in the Preserve was by paying cash. The "cash entry" (CE) was only for those who could raise the required $1.25 to $2.50 an acre for which the land was sold. A surprising number of settlers were able to use this method of obtaining land.

According to the files in the Public Room, Bureau of Land Management, in Phoenix, the earliest land acquisitions in the study area were cash entries. The first was by Calisto Tarin in T16S R17E in 1877, and Polonio Ortiz, Vidal Rival, Gabino Flores, and Juan Herrera in 1879. Probably none of these individuals survived long on Cienega Creek, because their names do not show up in the 1880 census (U.S. Census Office 1880). Cash entries in T16S R16E were made by Techo Luhan and Victor Chavez in 1882. There were no cash entries in T17S R17E or in T17S R18E (*see* Table 1).

Table 1

PROPERTY PATENTEES ALONG CIENEGA CREEK

Name	Type of Entry	Date of Patent	Location	Patent Number
T16S, R16E				
Techo Luhan	Cash Entry (CE)	12-1-1882	SE 1/4 Sec. 14	155
Victor Chavez	CE	3-30-1882	SW 1/4 Sec. 14	166
Benito Dominguez	CE	6-12-1885	NE 1/4 SW 1/4, NW 1/4 SW 1/4 and SE 1/4 SE 1/4 Sec. 24	165
Ygnacio Montaño	CE	6-12-1885	NE 1/4 NE 1/4 Sec. 23	181
Carter O. Crane	Homestead Entry (HE)	6-10-1898	SW 1/4 SE 1/4 Sec. 10 NE 1/4 Sec. 15	846
Carter O. Crane	CE	8-16-1906	NW 1/4 and SW 1/4 NW 1/4, NE 1/4 and NW 1/4 SW 1/4 Sec. 10	724
Casimiro Bravo	HE	11-29-1924	NE 1/4 and SW 1/4 and SE 1/4 NW 1/4, NE 1/4 and NW 1/4 SW 1/4 NE 1/4 and NW 1/4 SE 1/4 Sec. 15	948816
Guy Monthan	CE	6-22-1926	SE 1/4 SW 1/4 Sec. 10	981326
Samuel D. Houston	Stock Raising Homestead Entry (SRHE)	9-15-1932	N 1/2 NE 1/4, N 1/2 NW 1/4 Sec. 22	1057185
William H. Ingram	SRHE	10-13-1936	NE 1/4 SW 1/4 Sec. 22 NW 1/4 NW 1/4 Sec. 15	1086340
Marie M. Contzen	SRHE	12-30-1936	NE 1/4, NE 1/4 and SE 1/4 NE 1/4, N 1/2 and SE 1/4 SE 1/4 Sec. 10	1087825
Winifred M. Lorentson (widow of Carl E.)	SRHE	7-8-1937	NE 1/4, E 1/2 NW 1/4 Sec. 14; SE 1/4, E 1/2 SW 1/4, NE 1/4 Sec. 11	1091191
T16S, R17E				
Calistro Tarin	CE	3-20-1877	S 1/2 NE 1/4, N 1/2 SE 1/4 Sec. 34	77
Polonio Ortiz	CE	9-4-1879	N 1/2 NE 1/4 Sec. 30; W 1/2 NW 1/4 Sec. 29	93

Table 1 (continued)

Name	Type of Entry	Date of Patent	Location	Patent Number
Vidal Rival	CE	12-30-1879	N 1/2 NE 1/4 Sec. 33; S 1/2 SE 1/4 Sec. 28	108
Gebino Flores	CE	12-30-1879	S 1/2 NW 1/4, N 1/2 SW 1/4 Sec. 35	109
Juan Herrera	CE	12-30-1879	S 1/2 SW 1/4, S 1/2 SE 1/4 Sec. 19	115
Francisco Chacon	CE	9-1-1880	NW 1/4 Sec. 34	118
Antonio Sedillos	CE	9-17-1881	S 1/2 NE 1/4, NE 1/4 and SE 1/4 NW 1/4 Sec. 29	157
James F. Branson	CE	3-30-1882	SW 1/4 NW 1/4, N 1/2 and SE 1/4 SW 1/4 Sec. 28	92
Lyman W. Wakefield	CE	12-1-1882	SE 1/4 Sec. 35	151
Pablo Gallegos	CE	5-25-1883	S 1/2 SW 1/4 Sec. 35	196
Anastacio Lobato	CE	6-12-1885	NW 1/4, NE 1/4, and Se 1/4 NW 1/4 Sec. 28	172
Guadalupe Lobato	CE	6-12-1885	N 1/2 SW 1/4 Sec. 34	173
John Marshall	CE	1-11-1892	SW 1/4 NE 1/4 Sec. 35	525
Archie Oakes	HE	4-2-1920	NW 1/4, SE 1/4, and NE 1/4 NE 1/4 Sec. 35; SE 1/4 and SE 1/4 SW 1/4 Sec. 26	742919
Norman R. Wagner	SRHC	10-8-1921	W 1/2 NE 1/4, E 1/2 NW 1/4, E 1/2 SW 1/4, W 1/2 SE 1/4 Sec. 31	827634
Riverside Cement Co.	Mineral Entry (ME)	6-16-1931	NW 1/4, S 1/2 NE 1/4 Sec. 21; NE 1/4, N 1/2 SE 1/4 Sec. 20	1047302
T17S, R17E				
Joseph F. Hopley	HE	11-6-1895	N 1/2 NE 1/4 Sec. 12; S 1/2 SE 1/4 Sec. 1	716
T17S, R18E				
Hilario Sedillas	HE	6-7-1913	NW 1/4 Sec. 7	340000
Walter L. Vail	Forest Exchange (FX)	8-19-1912	SE 1/4 NW 1/4 Sec. 17	288532
Joseph de Villa	HE	11-21-1912	E 1/2 SW 1/4, SW 1/4 SW 1/4 Sec. 17; NE 1/4 NW 1/4 Sec. 20 (?)	301532

Table 2

ENTRY CANCELLATIONS AND RELINQUISHMENTS

Name	Type of Entry	Date of Cancellation or Relinquishment	Location	Phoenix Number
T16S, R16E				
George A. Smith	Homestead Entry (HE)	10-20-1908	SW 1/4 and SE 1/4 SW 1/4 Sec. 10	01369
Augustin Castro	HE	8-13-1917	NE 1/4 SW 1/4 Sec. 15	033528
Casimiro Bravo	Addtional Homestead Entry (AHE)	7-25-1923	SE 1/4 SW 1/4 Sec. 10	042317
Leland St. Dennis	Stock Raising Homestead Entry (SRHE)	5-13-1930	NW 1/4 Sec. 23*	057789
Charles M. Howell	SRHE	6-9-1939	SE 1/4, SW 1/4 and NE 1/4 SE 1/3 Sec. 13*	066604
Mariana Loebs	Additional Stock Raising Homestead Entry (ASRHE)	11-7-1933	SW 1/4 and SE 1/4 NE 1/4, NW 1/4; SW 1/4, NW 1/4 SE 1/4 Sec. 25	065101
T16S, R17E				
---	HE	4-8-1885	NE 1/4 Sec. 35	T196
---	Timber Culture (TE)	4-22-1896	W 1/2 S 1/2 NE 1/4 Sec. 30	T701
John W. Purifoy	HE	6-6-1912	N 1/2 and SE 1/4 NE 1/4, NE 1/4 NW 1/4 Sec. 35	05152
Archie Oakes	AHE	12-19-1924	S 1/2 NE 1/4 Sec. 26	033500
Elmer Jones	SRHE	6-15-1932	SW 1/4 SW 1/4 Sec. 26	059727
Elmer Jones	ASRHE	6-15-1932	all but SW 1/4 SW 1/4 Sec. 27	265899
John P. Hilton	SRHE	3-10-1937	Lots 1-4, Sec. 31	066552
Wilber Grice	SRHE	12-7-1933	NE 1/4, NE 1/4 SE 1/4 Sec. 28	972009
Fred Valles	SRHE	9-25-1933	NW 1/4, N 1/2 SW 1/4 Sec. 20	069914

* = listing in BLM records; not the complete extent of the property.

The forest exchange occurred in 1912 between Walter L. Vail, the recipient of land in T17S R18E, and the U.S. Forest Service, which received comparable land elsewhere.

After 1912, the State of Arizona acquired thousands of acres of "in lieu" lands from the federal government in and around the study area. These lands were due the state as part of the process of achieved statehood.

Dozens of ranches surrounded the study area over the years on Cienega Creek and all its tributaries, Davidson Canyon, Pantano Creek, and elsewhere (Ayres 1984; Jones and Ciolek-Torello 1991; Saul et al. 1985; Stewart 1974). Only two of these were within 1 mile of the study area and only two are incorporated within it. The Rancho del Lago near Vail (Section 10, T16S R16E) and the Hopley Ranch (Section 1, T17S R17E) are within 1 mile, and the O'Leary Ranch (Section 7, T17S R18E) and the Kane and Siemond ranches (Section 17, T17S R18E) are within the study area boundaries.

Jones and Ciolek-Torrello (1991:Figure 2.5) illustrate some of the grazing allotments surrounding the Cienega area, but they provide no dates or other specifics, such as who controlled them.

The Hopley, O'Leary, and Kane ranches were occupied at least as early as 1893. The Hopley Ranch, part of which was a homestead that was patented in 1895, was still in existence, in name at least, in 1932 (Pima County 1932; Roskruge 1893) The O'Leary Ranch is last shown on a map dated 1914. The fieldwork for the 1914 map was done in 1903-1904, so it cannot be said that this ranch dates at least to 1914 as reported by Saul and others. (1985:Table 3), but rather that it dates at least to 1903-1904 (Schrader 1915:Plate 1). The Kane Ranch shows on only the 1893 map, probably because it was acquired by the Empire Ranch about that time. The Kane Ranch also is misidentified as a small town by Saul and others. (1985:Table 3). Little information about the Siemond Ranch was located. It is not shown on the 1893, 1914, or 1932 maps of the area, but it does appear on a map in Saul and others' report (1985:Figure 3; Schrader 1915:Plate 1; Pima County 1932; Roskruge 1893). Its headquarters became the headquarters of the Empirita Ranch, which is now the property of Pima County.

The Rancho del Lago, established sometime before the turn of the century, was based in part on the lands that Carter O. Crane and J. J. Fraker acquired near Vail. Part of this land was first homesteaded in 1891 and patented in 1898 (*see* Table 1). The ranch became part of the Cienega Land and Cattle Company in 1906. This company, which was owned by the Monthan Brothers, grazed cattle in the Cienega study area until 1930, when it was placed in receivership and the property sold to Cleaveland Putnam in 1931 (Collier 1937; *ADS*, 22 July 1932; Gazetteer Publishing and Printing Co. 1920:440; Obituary File for Carter O. Crane, Arizona Historical Society Library). Rancho del Lago (also referred to as Rancho del Lugo and La Loga) first appeared on a map in 1932 (Pima County 1932) and it is shown on the current USGS map (1981), the fieldwork for which was performed in the mid-1970s (U.S. Geological Survey 1981).

Irrigation of crops was practiced by both farmers and ranchers using water from springs, Cienega Creek, or Davidson Canyon. There is no evidence that runoff or dry farming were successfully used crop-raising techniques within the study area; however, small unirrigated "temporales," or gardens, are known to have been in use in the neighboring Santa Rita Mountains (Ayres 1984:337). For the agricultural interests in the Cienega area, irrigation

Table 3

CIENEGA AREA OCCUPATIONS AS RECORDED BY THE U.S. CENSUS

Occupation	1880	1900	1910	1920	Totals
Agriculture					
Cattle rancher	3	1	2	4	10
Goat rancher			1		1
Manager, goat ranch			1		1
Cowboy	5	7	6	7	25
Ranch laborer		2			2
Goat herder			1		1
Farmer	1			5	6
Farm laborer	5		5	3	13
	14	10	16	19	59
Railroading					
Station agent		1			1
Track foreman			1		1
Section foreman		1		3	4
Foreman			1		1
Civil engineer			3		3
Track walker		2			2
Telegrapher			1	2	3
Pumper			2	2	4
Stationary engineer				1	1
Signal man				1	1
Signal maintainer				1	1
Laborer		7	29	49	85
	0	11	37	59	107
Mining					
Lead miner		7			7
Silver miner			2		2
Gold miner		1			1
Copper miner		2			2
Teamster or hauler			1		1
	0	10	3	0	13
Miscellaneous					
Grocer				1	1
Saloon keeper		1			1
Merchant			1		1
Sales clerk				1	1
Stage station keeper	3				3
Forage merchant	1				1
Stage driver	1				1
Stationary engineer		1			1
Well digger				1	1
Seamstress		1			1
Housekeeper		1		1	2
Laundress				1	1
Teacher				1	1
Cook	3				3
Servant		1			1
Teamster		2	4		6
Laborer	3				3
Illegible	1	1			2
	12	8	5	6	31
TOTALS	26	39	61	84	210

systems were necessary for the production of crops such as hay and grain. Without irrigation, the viability of the farms, and even the ranches, was considerably lessened.

The first officially filed appropriation of water in the study area was made by Carter O. Crane in July 1891. Crane and J. J. Fraker had homesteaded and purchased parts of Sections 4, 9, 10, and 15 (T16S R16E) in the same year. Crane claimed enough water from Cienega Creek to fill a ditch 3 feet wide at its bottom and 18 inches deep. The diversion point, where a dam was constructed, was in the SE 1/4, Section 14, T16S R16E (Pima County Recorder 1866-1953, vol. 1:755). This system was in use at least up to the mid-1930s (Collier 1937). If there was any use of water for irrigation from Cienega Creek prior to 1891, it was apparently without official sanction. Whether the dam that is located in Section 14 today is the same as the Crane dam is unknown. It currently is silted full, but water is still diverted into a tunnel that leads into a large iron pipe that carries it towards the Rancho del Lago.

The second claim for the water in Cienega Creek came from José Villa, also called Joseph de Villa, in T17S R18E in 1904 and 1907. Villa is listed as "Josefa Villa" on the 1911 GLO map. Edward O'Leary of the nearby O'Leary Ranch was Villa's witness in 1904. The Villa ditch was on the west side of Cienega Creek, as were his fields. The ditch appears to have had its head about 2 miles south of his homesteaded land (Sections 17 and 20, T17S R18E) approximately at the intersection of Sections 19, 30, 31, and 32 (T17S R18E). Villa's system was in use at least until 1911 (General Land Office Map T17S R18E, 1911; Pima County Recorder 1866-1953, vol. 2:89, 130).

The third recorded water appropriation for agricultural purposes within the study area was in 1918 by Norman R. Wagner, who had a stock raising homestead on Davidson Canyon (*see* Table 1). He planned to construct a ditch or pipeline on the west side of the canyon with the point of diversion placed in Section 1, T17S, R17E. He appropriated up to 500 miners inches of the flow in the canyon. The definition of a miner's inch varies depending on the time period involved and area of the country. In Arizona, it is defined as 40 miner's inches equal one second foot of water (Luecke et al. n.d. 28) No evidence was found to verify whether or not Wagner actually constructed his ditch, but considering that he proved up his homestead, it is likely that the system was built (Pima County Recorder 1866-1953, vol. 3:163).

In 1904, W. H. Ferguson prepared a report for W. K. Maull on the feasibility of establishing an irrigation system on Pantano Creek "in the vicinity of Pantano and Vail stations." The recommended dam site was to be 1 mile above Vail or somewhere in Section 15, T16S R16E. There is no record of Maull or Ferguson claiming a water appropriation in this area. Apparently, this system was never constructed (Ferguson 1904).

Many of the ranchers and farmers surrounding the study area also developed irrigation systems of one type or another. Ellsworth Huntington briefly describes an irrigation system in use by the Empire Ranch owners at the Sanford Ranch in 1910 (Huntington 1910). Water appropriation claims were first recorded for the Empire Ranch in 1904; others were made up to 1926 (Pima County Recorder 1866-1953, vol. 2:83, vol 3:255).

Only one claim on water was made by nonagricultural interests. In 1892, the SPRR claimed all the water in Davidson Canyon up to 10 miner's inches to be carried by pipeline to its Engineering Station No. 365, where a water tank was located.

Ranching and farming have been integral parts of life in the Cienega Creek area since the mid-1800s. As the Cienega basin's oldest industry, agriculture has contributed significantly more to the economy of the area than the railroads or the mines combined.

The farmers and ranchers along Cienega Creek probably were, with a few exceptions, similar types of people in that they were all trying to achieve some level of success in agriculture by at least making a subsistence living, and to raise their families well. The holders of relatively small parcels included both ranchers and farmers, but the large land owners were exclusively cattle ranchers. Often, both groups were initially homesteaders--the farmers and small ranchers acquiring 160 to 640 acres that they farmed or on which they raised cattle. Some did both. The big ranchers used their homesteaded acreage as a core holding and often as the site of their headquarters. Leased federal and state acreage provided many with additional permanent grazing lands.

The small landholders often achieved only a subsistence level of life and were unable to rise above it. A few worked full- or part-time for neighboring ranchers to make ends meet. Some homesteaders sold out to the larger and more affluent landholders as soon as they had received title to their homesteads from the federal government.

One small farm in the Vail area, operated by the Santiago León family mentioned above, was, in 1910, planted in corn, beans, watermelon, grain, and fruit. Probably, these were among the crops common in the Cienega Creek area as well. The León family went to Tucson once a year by horse-drawn wagon to sell their excess produce; this likely was their only source of cash. They irrigated their fields with water from Pantano Creek, if water was available (*ADS*, 5 May 1972; *Tucson Citizen [TC]*, 31 January 1980).

Social gatherings among neighbors may have been infrequent, but occasionally community dances were held. The Leóns recalled a dance held at Norman Wagner's stock raising homestead in T16S R17E (*see* Table 1).

Interestingly, when the big ranchers, such as the Sanfords or Vails, traveled to Tucson on business or otherwise and stayed overnight, the local newspaper reported the event; no notice was taken of the small farmers or ranchers (*AC*, 11 January 1879:3).

The U.S. Census schedules are the only readily available source of information about ordinary farmers and ranchers, but they do not necessarily represent a complete inventory of people present. The census, available only for 1880, 1900, 1910, and 1920, covers the study area, but in any given decade the specific boundaries used are not readily apparent Future research should determine these boundaries. John B. Anderson of Greaterville, who took the 1900 census in the Cienega area, stated at the end of his work that, "Here ends the enumeration of Pantano Precinct No. 10 which is scattered over many miles" (U.S. Census Office 1900).

The list of occupations found in the censuses is relatively short for agriculture. Those raising cattle called themselves "stock raiser," "stock breeder," or "cattle rancher," and the laborers working with cattle variously referred to themselves as "vaquero," "herder," "cattle herder," or "cowboy." A category labeled "ranch laborer" possibly included ranch hands not working directly with cattle on a full-time basis. Nonranching agriculture is represented by only two occupation categories, "farmer" and "farm helper" or "farm laborer" (*see* Table 3).

Ranch and farm owners and managers had an age range of 22 to 76, whereas ranch and farm labor had a range of 13 to 65--when all four years of the census are compiled together. The mean age of farm and ranch laborers of all types was 39, or 10 years younger than that of the ranch and farm owners (U.S. Bureau of Census 1910, 1920; U.S. Census Office 1880, 1900).

Ethnic origin and occupation is of interest as well. Compiling the totals from the four census years shows that three times as many individuals of Mexican background (31) were employed in agricultural labor jobs as "Anglos" (10). Conversely, only five owners of ranches and farms were of Mexican background and 13, or 2.6 times as many, Anglos were owners. Anglos involved in agriculture were relative latecomers to the Cienega area (*see* Tables 1 and 2). The first were James Branson and Lyman Wakefield, both cash entries in 1882 (T16S R17E). Before that year, those engaged in agricultural pursuits were apparently all of Mexican descent.

Mining

Mining was not an important activity along lower Cienega Creek because there were virtually no commercially viable mineral deposits there. In the nearby mountain ranges, however, mining activity did provide considerable business for merchants and the railroad in both "old" and "new" Pantano for several years. In fact, the Tully Ochoa and Company and the Wakefield enterprises were established in 1880 at the original site of Pantano expressly to provide freighting of mining equipment and supplies, food, and other goods to mining operations as far away as Washington Camp and Harshaw. Other services provided from both Pantanos included mail delivery and passenger services. The nearby mining camp of Old Rosemont benefited for a few years from its proximity to the railroad. From 1894 to 1900 and, possibly, later, copper ore and sometimes copper matte were sporadically shipped from Rosemont and Pantano to points east for processing (Ayres 1984:519).

The Total Wreck Mine, the California Mine, the Verde Queen Mine, and numerous other mines in the Empire Mountains also must have utilized the facilities at Pantano. In fact, the California and the Total Wreck mines began production in 1880 and 1881, respectively, primarily because of the construction of the railroad. Without the railroad, these mines may not have been viable operations at that early period. The development of the Verde Queen Mine also began in the late 1880s (Keith 1974:117, 119). Keith states that the California Mine ceased production in 1915, the Total Wreck Mine in 1940, and the Verde Queen Mine in 1928. The city directories indicate that the latter two mines used Pantano as a mail, and probably as a telegraph, address over a period of years. The Verde Queen Mine is listed in 1907, 1909, and 1924 through 1936, whereas the Total Wreck Mine is listed in 1907, 1909, and 1918 through 1936 (The Gazetteer Publishing Co. 1907-1914; The Gazetteer Publishing and Printing Co. 1916-1936). Given the similarities in dates, the two mines may have been under the same management in their later years; in fact, they had the same manager, P. M. Hinton, listed for 1936 (The Gazetteer Publishing and Printing Co. 1936:225).

In the 1905 directory, two additional companies, the Arizona Ruby Copper Co. and the Bennett Copper Co., are listed. Where these firms were mining is not known (The Gazetteer Publishing Co. 1905:302).

Pantano precinct census schedules list 10 miners living in the area in 1900, and 2 miners and an ore-hauling teamster in 1910. No miners are listed in the 1920 census. In the 1900 census, seven of the miners reportedly worked in a lead mine, two were copper miners, and one was a gold miner. Two silver miners are listed in the 1910 census. In which mines these men labored is not revealed (U.S. Bureau of the Census 1910, 1920; U.S. Census Office 1900).

Most mining in the general place took place south of Pantano, but there was some activity in the Agua Verde or Rincon mountains to the north. Mining to the north has been little studied, except for the Colossal Cave area where only meager evidence of historic mining activity was discovered (Jones and Ciolek-Torrello 1991:158).

Closer to Pantano and the study area are three mineral entry (ME) patents, all of which lie north of Cienega Creek. All were established to extract limestone from federal lands lying north of Cienega Creek, but very little mining probably was performed on them. In T16S R16E is ME patent 1013074, dated 1928, which is situated west of Agua Verde Creek in the S 1/2 of the S 1/2 of the SW 1/4, SW 1/4 of the SE 1/4, SE 1/4 of the SE 1/4, and the S 1/2 of the N 1/2 of the SE 1/4 of Section `12, and in the N 1/2 , NW 1/4 of the SW 1/4, NE 1/4 of the SW 1/4, SE 1/4 of the SW 1/4, and the NW 1/4 of the SE 1/4 of Section 13. This patent also includes the NW 1/4 of the NW 1/4 of Section 18, T16S R17E. ME patent 1014535, also dated 1928, encompasses the SE 1/4 of Section 17, T16S R17E; ME patent 1047302, dated 1931, covers the NE 1/4 and the N 1/2 of the SE 1/4 of Section 20 and the NW 1/4 and the S 1/2 of the NE 1/4 of Section 21, T16S R17E (Bureau of Land Management n.d.)

Pantano

Both "old" and "new" Pantano, which were only significant communities within the Cienega area, played a number of important roles for the surrounding region. In their day, they provided railroad facilities with passenger, freight, and telegraph services; they housed the postal facilities; they offered a wide variety of goods and services to consumers; and they were a commercial base for freighters, stage lines, and mail delivery contractors who served the various mining communities to the south. Additionally, "new" Pantano contained the telephone system; a few public employees, such as those responsible for enforcing the law; the schools; and the cemetery.

The first, or "old," Pantano was founded by the SPRR and was located in T16S R17E, Section 35. Later, this site was abandoned and a "new" Pantano was built by the railroad on the line relocated to the north in 1887 in T16S R17E, Section 35. Both communities housed private businesses and residents, in addition to railroad facilities and personnel.

Construction of the original townsite began in early 1880. At least by February, several hundred Chinese laborers were camped in tents there. By July, the 26-foot by 60-foot wood frame depot was nearly completed (Myrick 1975:50, 108; *Tucson Daily Star [TDS]*, 15 July 1880:3).

While SPRR was busy constructing its depot and other facilities at "old" Pantano, private businesses were hard at work completing their buildings. Tully Ochoa and Company

erected a warehouse and a store that included blacksmith and carpenter shops. This firm had a contract to haul freight for the U.S. Government (*TDS*, 15 July 1880:3). A competitor, Davidson and Wakefield, constructed, among other buildings, a 20-foot by 40-foot warehouse of adobe (Myrick 1975:108; *TDS*, 15 July 1880:3). Both firms provided freight and passenger services to various mining camps such as Harshaw, Empire City, and Washington Camp, all located south of Pantano. Prior to the construction of the railroad, such services were provided directly out of Tucson.

Also present were a hotel kept by George Wolfolk (also referred to as Woolfolk), and a Wells Fargo office that probably was located in the railroad depot (*TDS*, 15 July 1880:3).

An 1880 photograph (Myrick 1975:56) shows the first Pantano located on both sides of the railroad track. It contained a water tank, a relatively large wood frame building (probably a barn), a number of tents, and a few railroad boxcars off the tracks that may have been used as temporary warehouses, dwellings, or businesses. In the background are several small buildings. The photograph also shows a gallows turntable and several short side tracks.

The José del Castillo collection at the Arizona Historical Society (MS 140, Box 1, Folder 7) contains a brief history of Pantano that states that it was originally known as "La Cienega" or "Tullyville" (after Tully Ochoa and Company). This history also mentions an old cemetery near the station; presumably this also refers to the original Pantano site, but it may refer to the new site. Barnes (1988:316) relates similar information.

On June 11, 1880, the U.S. Decennial Census was taken in the "Cienega Valley." No mention was made of Pantano, and no attempt was made to separate those living in "old" Pantano from those elsewhere. There is no way to determine how many of the 44 individuals in the nine households listed lived in "old" Pantano, but probably at least two households, Nos. 58 and 59 on the census schedule, were resident there. The former consisted of William Wakefield as head of household with his brother, Lyman Wakefield, Alexander Davidson, and three others as boarders. Both Wakefields are listed as stage station keepers, and Davidson was listed as a forage merchant. Of the other three boarders, one was a stage driver, one was a Chinese cook, and one had no occupation recorded.

The second household was made up of a laborer, his wife, a stepson, a stepdaughter, and two boarders, all of Mexican origin. The other householders, including the residents of the Sanford Ranch, all had occupations related to agriculture, except Matthew Maloney, who was listed as a stage station keeper. Where his stage station was located is unknown. The Sanford Ranch also had a Chinese cook (U.S. Census Office 1880).

On July 15, 1880, Pantano was reported to have a population of 75 (*TDS*, 15 July 1880:3). If the business directories are to be believed, old Pantano lost about 50 of its inhabitants between 1880 and 1884, at which time the permanent population was listed as 25. The directories for 1885 to 1904 are not available for Pantano.

According to the 1883 directory, J. O. Dunbar had a hotel and sold liquor in Cienega, and O. Mercer operated a hotel in Pantano. Where this "Cienega" was located is uncertain; it was not the site of the Cienega stage station. It is more likely that Dunbar was located at the railroad siding of Cienega located west of Irene. He may have been there as early as 1880 (Barnes 1988:96). In 1884, only Pantano, with a population of 25, was listed in the directory

(McKinney 1883:270; R. L. Polk and Co. 1884:598). Included in this number were J. O. Dougherty, postmaster; James T. Carne, railroad express and telegraph agent; J. A. Petter, foreman for the railroad; John Sandford, track walker; George T. Woolfolk, hotel keeper; and Wakefield Brothers, a general store (R. L. Polk and Co. 1884:598).

Lyman W. Wakefield also served as postmaster of Pantano from July 2, 1880, to September of that year when the post office was discontinued for some reason. On October 6, he resumed the duties of postmaster, a job he held until November 1881. John Dougherty took over in November and served until February 27, 1884, when Wakefield again assumed the position. The job reverted to Dougherty from April 4 to October 29, 1884, when the post office was again discontinued, with the mail going to the Total Wreck mining camp. The Pantano post office resumed operation with Walter L. Vail as postmaster from November 15, 1886, to January 15, 1897, after which the mail was sent to Benson (Theobald and Theobald 1961:117). Vail was the only postmaster to serve both in "old" and "new" Pantano.

Pantano was relocated to T16S R17E, Section 35, north of Cienega Creek, in 1887. As they had in the original townsite, businesses continued to provide passenger and freight hauling services to mines in the area. For example, from about 1894 to about 1900, a stage line served the mining camp of Old Rosemont, and mail was hauled there from about 1894 to about 1910 (Ayres 1984:518-519; Myrick 1975:115).

In 1905, Pantano was listed as having a population of 100, an unusually large figure that may have included people in part of the surrounding area, or, more likely, a railroad work crew temporarily stationed there. In that year, Pantano had a deputy sheriff, a justice of the peace, six small businesses, and two copper companies that had no offices there, but used Pantano as a place to receive mail (Myrick 1975:115; The Gazetteer Publishing Co. 1905:302). As with most directories, many individuals and occupations frequently were not included. Obvious omissions in 1905, for example, were all railroad employees, the school teacher, the store keeper, and the postmaster. With each new issue of the directory, changes in the listings of individuals, occupations, and businesses occur, but at no time did they represent a complete listing of jobs or businesses to be found in Pantano.

Given the number of businesses present, the 1905, and subsequent, directories make it clear that Myrick's assertion (1975:115) that Pantano's commercial enterprises disappeared after 1901 cannot be substantiated.

In 1907, John W. Purifoy is listed for the first time as an owner of a general merchandise store and livery. Because he is not listed in the 1900 U.S. Census, it seems likely that he arrived in Pantano sometime between 1900 and 1907. He owned and operated the store until sometime between 1941 and 1951, and the livery between 1907 and 1912. He also was the agent for the Mountain States Telephone and Telegraph Company from 1918 to 1926 (Arizona Directory Co. 1941:105; Baldwin, Mullin-Kille Co. 1951:235; The Gazetteer Publishing Co. 1907:347, 1912:365; The Gazetteer Publishing and Printing Co. 1918:387, 1936:225).

Mining companies and ranches are listed in most directories after 1905. At best they might have had offices and post office boxes in Pantano, but no mining or ranching took place there. The listed mines were the Total Wreck Mine located 9 miles to the south (1907 to 1909, 1918 to 1936); the Verde Queen Copper Company, 12 miles to the south (1907 to 1909,

1924 to 1936); and the Arizona Ruby Copper Company and Bennett Copper Company, no distances listed (1905). Ranches recorded in the directories were the La Cienega Cattle Company in Vail (1907, 1920); the Empire Land and Cattle Company, 23 miles south (1907 to 1912); and the Vail Land and Cattle Company, 23 miles south (1914 to 1920) (The Gazetteer Publishing Co. 1905:302, 1907:346, 490, 1909:369, 529, 1912:365, 1914:409; The Gazetteer Publishing and Printing Co. 1918:386-387, 1920:324, 1924:282, 1936:225).

Although the telegraph was in use in Pantano from its earliest days, the first business relating to telephones was the Pantano Telephone Company, which dates to at least 1905. The company received its first competition from the Mountain States Telephone and Telegraph Company in 1918 and apparently was forced out of business or was sold to the newcomer in 1925, after which date it is no longer listed in the directories. J. W. Purifoy, the owner of the general store, was the agent for Mountain States in Pantano (The Gazetteer Publishing Co. 1905:302; The Gazetteer Publishing and Printing Co. 1918:387, 1925:276, 1926:277).

A review of the available directories shows a remarkably stable population in Pantano. In 1884, 25 people reportedly lived in the community (R. L. Polk and Co. 1884:598). The same number is listed for the years 1907 to 1916 and 1926 to 1938. Large deviations in this number occurs in 1905 when the population is listed as 100, in 1918 to 1922 when it was 500, and 1923 to 1925 when it was 300. Population in 1939 and 1941 was 40. The reason for large increases and declines after World War I may have had to do with the presence of railroad work crews, but no evidence was found to support that supposition.

Railroad-related occupations at Pantano varied over the years (*see* Table 3). Twelve occupations are listed in three different censuses, but some of these represent positions that probably were part of special work crews temporarily living at Pantano who were not permanent residents. For example, the civil engineers and most of the laborers in 1910 and 1920 were undoubtedly employees temporarily assigned to Pantano.

The viability of a community often can be expressed in terms of its post office; multiple postmasters over a short period of time or the removal of a post office often indicate that a community is in transition or decline.

The identities of the Pantano postmasters after 1897 to 1905 were not researched in post office records, and the absence of regional directories for those years precluded use of that source. Sometime during this period, the post office was once again established at Pantano.

There was a post office in 1905, but no postmaster was listed in the directory (The Gazetteer Publishing Co. 1905:302). The 1907 directory lists Frank E. Black as the postmaster, but Theobald and Theobald (1961:117) report that he declined the appointment. In July 1909, John W. Purifoy, the store keeper, was appointed to the job, but Walter L. Vail was reappointed to it in September. The records do not make it clear how or why Purifoy was reappointed, at least by 1911, to follow Vail, but he served until 1913 when Thomas N. McCandless (or McCordlen) took the job until mid-1918. J. W. King held it from mid-1918 to 1922, J. Moores from 1923 to 1926, Mrs. Ester Cummings from 1926 to mid-1930, and Alice Lundquist from mid-1930 to mid-1950. Mrs. W. L. Carson was postmistress from mid-1950 to October 1951, when she was replaced by Mrs. Wilma Gentry. The Pantano Post Office was closed forever on April 30, 1952 (Alexander and Cross 1991:30; Baldwin, Mullin-Kille Co. 1951:235; The Gazetteer Publishing Co. 1907:347, 1909:369, 1911:352, 1912:365, 1914:409,

1915:411; The Gazetteer Publishing and Printing Co. 1916:355, 1918:386-387, 1919:373, 1922:292-293, 1923:283, 1929:294, 1931:320; Obituary File for Alice Lundquist, Arizona Historical Society Library). An article in *The Heliograph* lists different dates for the tenures of King and Moores from those in the various directories (Alexander and Cross 1991:30).

The second woman postmistress, Alice Lundquist, served for 20 years, the longest term in the Pantano post office. As for the rest, many served in this less-than-full-time job for short terms. The last postmistress served for less than one year. Many postmasters and postmistresses worked at full-time jobs and many were the community's leading citizens, such as Lyman Wakefield, Walter L. Vail, and John Purifoy. Often the postmaster was a railroad employee; for example, Frank Black, J. W. King, J. Moores, and Mrs. Lundquist's husband worked for the railroad. A busy J. W. King served in three jobs in 1922; he was the SPRR agent and manager of the Western Union Office, as well as postmaster (The Gazetteer Publishing and Printing Co. 1922:292-293).

There were other, rather short-lived, businesses in Pantano not yet mentioned. For an inexplicable reason, the year 1905 appears to have been a boom time for small businesses. In that year, in addition to the railroad facilities, there were six private businesses located there: a millinery, a carpenter and builder, Mrs. Henderson's boardinghouse, A. H. Foster's undertaking parlor, the Pantano Bank and Trust Company, and the Pantano Telephone Company. The bank president was H. F. Heffner of the Empire ranch (The Gazetteer Publishing Co. 1905:302). Except for the telephone company, none of these businesses seemed to have survived beyond 1905. When they came into existence could not be determined.

Individuals having a public responsibility were few in Pantano. In 1905, a deputy sheriff and a justice of the peace lived in the community (The Gazetteer Publishing Co. 1905:302) and between 1915 and 1917, Perry M. Hilton (also listed as P. M. Hinton) served as justice of the peace. He was listed as a notary public in the 1920 directory. Hilton, who was not listed in the 1920 census schedules, would have been 80 years of age. He spent more time in the Pantano area than any other Anglo, having arrived there at least in time to be recorded in the 1880 census. From 1918 to 1922, John Hackett was the justice of the peace (The Gazetteer Publishing Co. 1915:410; The Gazetteer Publishing and Printing Co. 1918:386, 1920:324, 1922:292; U.S. Census Office 1880).

Other public employees that are rarely mentioned in the directories are school employees. Listed as "school principal" in 1918 was Jewel Turner, in 1919 and 1920, Alice Marble, and, in 1938, Florence Bateman. In 1951, Ethel A. Taylor was listed as "teacher" (Baldwin, Mullin-Kille Co. 1951:235; The Gazetteer Publishing and Printing Co. 1918:386, 1919:373, 1920:324, 1938:248).

There is very little information available about Pantano's school buildings, especially during the early years. An Arizona Historical Society photograph shows the 1928-1929 school. It was a dreary looking, unpainted board and batten building with a shingle covered gable roof. This may have been a two-room building, but that is unclear from the photograph. A large roof, covered with corrugated sheet metal and supported by two vertical posts, was built over the front facade to form a porch. It had a dirt floor.

A photograph dated 1930-1932 is on file at the Arizona Historical Society of the one-room school known as the Hilton school, which was used for Grades 5 through 8. This building had a nearly flat roof and consisted of only one room. The photograph is slightly out of focus; other details, therefore, are not available.

In a recent article about Pantano, the post-1929 school is mentioned as a gathering place for the community. Dances were held there and the election board met there. The school is described as a wood frame building with a duplex on one end where the teacher lived (Henry 1993).

Two businesses that arrived relatively late on the scene were a honey producer and a service station. Patrick Foster was listed as a honey producer from 1931 to 1932, and X. Y. Johnson was listed with the same occupation from 1936 to 1939 (The Gazetteer Publishing and Printing Co. 1931:320, 1932:293, 1936:225, 1939:109; Henry 1993). A service station operated by Mrs. Adele Schmidt was located in Pantano from at least 1939 to 1941 (Arizona Directory Co. 1939:109, 1941:105).

Although Pantano is reported to have had a population of 40 as late as 1941, the community continued its seeming inexorable decline (Arizona Directory Co. 1941:105). After World War II, the end came rather quickly. The post office closed in 1952, and sometime before 1956 the SPRR closed its operations at Pantano. Except for the water tank that still stands, the depot, the store, the school, and houses were removed (Henry 1993). The lone remaining railroad building was demolished in the fall of 1963 (Devner 1964:9). Devner describes the condition of the community as she saw it in 1963, "All that remains today of a once busy town are foundations of a school and the teacher's house next to it, frame rubble of a former store, and a cemetery. A few other foundations can be found scattered up and down along the track" (Devner 1964:9).

Summary and Conclusions

The findings of the research that was conducted for this cultural resources overview for the Cienega Creek Natural Preserve are summarized below.

Prehistoric Period

The Preserve is located along a traditional route of great antiquity between the Tucson Basin and the San Pedro River Valley. Because of the year-round presence of water both east and west of its confluence with Davidson Creek, the portion of Cienega Creek from the town of Vail to well south of Interstate 10 apparently has been utilized and occupied by people for more than 10,000 years.

Although there are no Paleo-Indian archaeological sites recorded within the boundaries of the Preserve, there is general agreement among archaeologists familiar with the area that the existence of mammoth remains and isolated Paleo-Indian artifacts nearby is evidence enough to

assume that such sites may eventually be found within the Preserve itself (C. Vance Haynes, personal communication 1993).

Habitation and exploitation continued sporadically from the Archaic period, which followed the Paleo-Indian, until the present. In contrast, several examples of Hohokam fields and villages, some quite large (e.g., AZ BB:14:15), are known within and near the Preserve .

There is no direct evidence of Spanish or Mexican occupation or use of the area, but because of its geographic location and the existence of water, it is safe to assume that Cienega Creek was frequented by Spanish (perhaps Father Kino), Apache, Mexican, and, subsequently, Anglo populations. U.S. Military presence is documented after 1860, and, previously, stage lines had been established in the late 1850s. These were followed by increased ranching activity and the construction of the Southern Pacific Railroad in 1880.

Prehistoric and historic archaeological sites recorded on the Preserve are listed in Table 4. The apparent geographic clustering of prehistoric sites along or near Cienega Creek--(1) for about 2 miles northeast of its confluence with Davidson Canyon, (2) in the area around its confluence with Agua Verde Creek, and (3) near its intersection with Interstate 10--is probably a result of the locations of previous cultural surveys, of which 10 have been conducted in the Preserve between 1955 and 1991. The paucity of recorded sites near the creek from Davidson Canyon south and east to the interstate is probably, therefore, a result of the lack of surveys in the area, rather than a real absence of archaeological remains. The site density of the unsurveyed portions of the Preserve can be expected to be similar to those that have been systematically studied.

Historic Period

The first historic, non-Indian travel through the Cienega are occurred during the Spanish period and intensified throughout the Mexican period. This increasing use of the Cienega for its water and forage probably had little effect on its environment. That situation changed when Captain Cooke passed through on a road-building effort for the U.S. Government in 1846.

Captain Cooke's "road"-building exercise was the first known attempt to change or "improve" the area. Although it was not much of a road, the route was put to use by subsequent travelers. Among the first to use it probably were Tucsonans on their way to Tres Alamos to farm. A few years later, in the late 1840s, the road saw repeated use by those headed west to the California gold fields.

After the Gadsden purchase in 1854, stage lines appeared, at least two of which, the Butterfield and the Southern Pacific lines, established short-lived stations along Cienega Creek. Their routes generally appear to have followed the Cooke road.

Mesilla freighters, the military, ranchers, miners, and many others used the same route during the 1860s and 1870s, and from 1877 to 1880 it was even part of a Mormon trail. In 1862, Lt. Col. Eyre passed through the Cienega, but a permanent military presence was confined to a picket post established in 1868 that operated for a brief time out of Fort Lowell.

Table 4

CIENEGA CREEK ARCHAEOLOGICAL SITES

ASM Site No.	Location T	R	Section		Description
AZ BB:14:15	16S	16E	N 1/2	11	Large Hohokam village (Tanque Verde phase)
AZ BB:14:16	16S	16E	SE 1/4 NE 1/4	15	Open Hohokam site, with checkdam
AZ BB:14:18	16S	16E	SW 1/4 SE 1/4	9	Vail townsite and station
AZ BB:14:23	16S	17E	SW 1/4 NW 1/4	30	Rock shelter (Hohokam)
AZ BB:14:25	16S	17E	S 1/2 NE 1/4	35	Hohokam village
AZ BB:14:61	16S	16E	NW 1/4 NE 1/4	23	Lithic scatter (Cochise)
AZ BB:14:62	16S	16E	NE 1/4 NW 1/4	24	"Camp site" (Cochise)
AZ BB:14:63	16S	16E	NE 1/4 NE 1/4	23	Hohokam village
AZ BB:14:65	16S	17E	NW 1/4 SW 1/4	18	Hohokam village (Tanque Verde phase)
AZ BB:14:66	16S	16E	SE 1/4 SE 1/4	13	Hohokam village (Tanque Verde phase)
AZ BB:14:67	16S	16E	NE 1/4 NW 1/4	24	Sherd scatter; ranch buildings
AZ BB:14:68	16S	16E	NW 1/4 NW 1/4	24	Historic camp and trash
AZ BB:14:69	16S	16E	SW 1/4 SW 1/4	13	Lithic scatter, possible village
AZ BB:14:70	16S	16E	NW 1/4 SW 1/4	12	Sherd scatter
AZ BB:14:71	16S	17E	SW 1/4 NE 1/4	29	Habitation site (Hohokam)
AZ BB:14:160	16S	17E	NE 1/4	30	Bedrock mortars
AZ BB:14:161	16S	17E	SE 1/4 NE 1/4	30	Hohokam village
AZ EE:2:44*	17S	17E	N 1/2 NW 1/4	1	Hohokam and Mogollon artifact scatter
AZ EE:2:51*					
AZ EE:2:54	17S	18E	SW 1/4 SW 1/4	8	Lithic scatter (quarry?)
AZ EE:2:55	17S	18E	S 1/2 SW 1/4	6	Sobaipuri lithics and sherds
AZ EE:2:56	17S	18E	NE 1/4 NE 1/4	6	Lithic scatter (quarry?)
AZ EE:2:97	17S	17E	NW 1/4 SW 1/4	11	Lithic scatter
AZ EE:2:98	17S	17E	NE 1/4 SW 1/4	11	Lithic scatter
AZ EE:2:99	17S	17E	NE 1/4 SW 1/4	11	Lithic scatter
AZ EE:2:147	17S	18E	SW 1/4 SW 1/4	17	Hohokam lithic and sherd scatter
AZ EE:2:160	17S	17E	NE 1/4 NE 1/4	3	Lithic scatter
AZ EE:2:164*	17S	17E	SE 1/4 NW 1/4	1	Hohokam habitation (Tanque Verde phase)
AZ EE:2:165	17S	17E	SW 1/4 SE 1/4	1	Historic construction site, early 20th Cen.
(1985-1)	17S	18E	S 1/2 SE 1/4	17	Hohokam village

*same site

The year 1880 marks the beginning of a period of dramatic changes to the Cienega area. The arrival of the Southern Pacific Railroad in that year brought about relatively permanent settlements and easier access to Tucson and the outside world. It encouraged the spread of cattle ranching and stimulated an increase in mining development in the mountain ranges south of Pantano. In the course of creating a new transportation route, the railroad made many of the old roads obsolete. The SPRR eventually abandoned many of its sidings, all of its stations, and most of the communities that were built up around them along Cienega Creek, Pantano Wash, and elsewhere. Only Vail survives to the present as a viable community, minus its railroad facilities, of course.

Types of Sites in the Preserve

Given the long prehistoric occupation of the Cienega area and the intensive multifunctional activities that occurred there during the historic period, one would expect to find numerous and varied site types present. Archaeological surveys to date have been limited in number and area covered; therefore, few sites actually have been recorded in and near the Preserve.

Twenty-four prehistoric sites, one protohistoric, and six historic sites have been recorded in and immediately adjacent to the Preserve. One site has both a prehistoric and historic component, and one prehistoric site has been recorded under three different numbers. Although no Paleo-Indian sites have been recorded to date, two Archaic sites are known. Other recorded prehistoric site types include Hohokam villages, sherd scatters, lithic scatters, bedrock mortars, a checkdam, a quarry, and a rock shelter. The single recorded protohistoric site is a sherd and lithic scatter. Historic sites comprise a possible construction camp, the townsite of Vail, a ranch, and an unidentified camp. In addition, two stage station sites are known, but their locational information that is recorded in the ASM site files is faulty. Also present is a 1920-1921 highway bridge that is listed on the National Register of Historic Places; however, it does not have a site number assigned to it.

The diversity of prehistoric site types that one would expect to find in the Cienega area is well represented in the number of sites that have been recorded. Additionally, agave processing, canal irrigation, agricultural terrace, petroglyph, and cemetery sites might be located in the future. One might expect to find Paleo-Indian kill and camp sites and a wider variety of Archaic sites, as well.

The lone protohistoric site, a sherd and lithic scatter, may be supplemented by currently unknown village sites and sleeping circles.

At the conclusion of the research conducted to develop a history of the Preserve, a number of historic site types were evident, in addition to those recorded above. Potentially locatable within the Preserve are Apache campsites; Cooke's road; other roads; 49ers camps; mescal distilling camps; a military picket post; other military camps; cemeteries; Spanish and Mexican period campsites; irrigation systems; both formal and squatter homesteads; railroad sidings and section communities; abandoned 1880 and 1887-1888 railroad roadbeds; woodcutters' camps; trash dumps; freighters' camps; railroad construction camps for 1880, 1887-1888, and 1906; and other historic sites.

Recommendations

In the course of preparing this report, a number of recommendations came to mind that might be appropriate for the long-term care of archaeological and other cultural resources within the Preserve. Some of these may have been adopted previously.

- A complete, detailed, and intensive archaeological survey of the Preserve should be initiated as soon as possible. It could be phased over a period of years. The purposes of such a survey would be to locate and identify the numbers, types, and spatial distributions of prehistoric and historic sites and features. It also could provide a baseline of data on site conditions and the degree of, and locations of, vandalism. An archaeological survey also could provide data that would make it possible to correct problems with existing site records.

- Subsequent to the survey, the Preserve should be nominated as a district to the National Register of Historic Places.

- Sites should be preserved in an undisturbed a condition as possible. There should be no gratuitous collection of surface artifacts or excavation of sites in the Preserve.

  Possible exceptions to the suggestion that all sites remain undisturbed might in the cases where sites or features are being impacted by erosion, other natural forces, or vehicular or pedestrian traffic and thus are in imminent danger of damage or loss (an example might be a rock-filled hearth eroding from the bank of a wash).

  Another exception might be for interpretive or other public program purposes. Given the number and diversity of known and probable site types present, some may be suitable for interpretation.

- The privately held portion of the Pantano Townsite should be acquired.

- The abandoned 1880 Southern Pacific Railroad right-of-way in Section 35, T16S R17E, near the site of "old" Pantano, should be acquired.

- If they can be applied to some aspect of the Preserve, Intermodel Surface Transportation Efficiency Act (ISTEA) funds should be sought.

- If they can be applied to some aspect of the Preserve, Heritage Historic Preservation funds should be sought.

- The Site Steward program should be used to help protect the Pantano Cemetery and other sites from vandalism.

REFERENCES CITED

Alexander, William, and John K. Cross

1991 Arizona Statehood Post Offices and Postmasters, 1912-1979. *The Heliograph* 5(4):27-35.

Arizona Directory Co.

1939 Business and Professional Directory of Arizona, 1939-1940. Arizona Directory Co., Phoenix.

1941 Business and Professional Directory of Arizona, 1941-1942. Arizona Directory Co., Phoenix.

Ayres, James E.

1984 *Rosemont: The History and Archaeology of Post-1880 Sites in the Rosemont Area, Santa Rita Mountains, Arizona.* Archaeological Series No. 147, Vol. 3. Arizona State Museum, University of Arizona, Tucson.

Baldwin, Mullin-Kille Co.

1951 Arizona Business and Professional Directory, Vol. 17, 1951-1953. Baldwin, Mullin-Kille Co., Phoenix.

Barnes, Will C.

1988 *Arizona Place Names.* The University of Arizona Press, Tucson.

Bieber, Ralph P. (editor)

1937 *Southern Trails to California in 1849.* The Southwest Historical Series Vol. 5. Arthur H. Clark, Glendale, California.

Bureau of Land Management

n.d. Status of Public Domain Land and Mineral Titles Sheets. On file, Bureau of Land Management Public Room, Phoenix.

Collier, Pearl H. (compiler)

1937 Report of Cases Argued and Determined in the Supreme Court of the State of Arizona from January 3, 1935 to June 17, 1935. Vol. 45, pp. 156-175. Bancroft-Whitney Company, San Francisco.

Conkling, Roscoe P., and Margaret B. Conkling

1947 *The Butterfield Overland Mail, 1857-1869.* Arthur H. Clark, Glendale, California.

Darton, N. H., F. C. Schrader, and C. F. Tolman

1933 *Guidebook of the Western United States Part F. The Southern Pacific Lines.* Bulletin No. 845. United States Geological Survey. United States Government Printing Office, Washington, D.C. Arizona section pp. 147-241.

Devner, Kay
1964 *Backward Through a Bottle.* Privately printed, Tucson.

Doyel, David E.
1978 *The Miami Wash Project: Hohokam and Salado in the Globe-Miami Parcel, Central Arizona.* Contributions to Highway Salvage in Arizona No. 52. Arizona State Museum, University of Arizona, Tucson.

Doyel, David E., and Emil W. Haury
1976 Summary of Conference Discussion, the 1976 Salado Conference. *The Kiva* 42:127-134.

Ferg, Alan
1984 The Rosemont Study Area and Previous Research in Surrounding Areas. In *Hohokam Habitation Sites in the Northern Santa Rita Mountains*, by Alan Ferg, Kenneth C. Rozen, William L. Deaver, Martyn D. Tagg, David A. Phillips, Jr., and David A. Gregory, pp. 1-20. Archaeological Series No. 147, Vol. 2. Arizona State Museum, University of Arizona, Tucson.

Ferguson, W. H.
1904 Preliminary Report on a Projected Irrigation System on the Pantano Wash, Pima County, Arizona. Letter Report to W. K. Maull, 28 July. Tucson.

The Gazetteer Publishing Co.
1905-1915 Arizona Business Directory, for various years. The Gazetteer Publishing Co., Denver.

The Gazetteer Publishing and Printing Co.
1916-1938 Arizona Business Directory, for various years. The Gazetteer Publishing and Printing Co., Denver.

General Land Office (GLO)
1874a Map of T16S R16E. General Land Office, Washington, D.C.

1874b Map of T16S R17E. General Land Office, Washington, D.C.

1881 Map of T17S, R17E. General Land Office, Washington, D.C.

1911 Map of T17S R18E. General Land Office, Washington, D.C.

Granger, Byrd H.
1960 *Arizona's Place Names.* The University of Arizona Press, Tucson.

1983 *Arizona's Names (X Marks the Place).* Falconer, Tucson.

Haskett, Bert
1935 Early History of the Cattle Industry in Arizona. *Arizona Historical Review* 6(4):3-42.

Haury, Emil W.
1950 *The Stratigraphy and Archaeology of Ventana Cave.* The University of Arizona Press, Tucson.

Henry, Bonnie
1993 The Station at Pantano Was a Good Place to Grow Up. *Arizona Daily Star* 25 July:D2.

Hinton, Richard J.
1954 *The Handbook to Arizona 1877.* Ariozna Silhouettes, Tucson.

Hislop, Herbert R.
1965 *An Englishman's Arizona: The Ranching Letters of Herbert R. Hislip, 1876-1878.* Overland Press, Tucson.

Hohmann, John W., and Linda B. Kelley
1988 *Erich F. Schmidt's Investigation of Salado Sites in Central Arizona.* Bulletin No. 56. Museum of Northern Arizona, Flagstaff.

Huckell, Bruce B.
1984a *The Archaic Occupation of the Rosemont Project, Northern Santa Rita Mountains, Southeastern Arizona.* Archaeological Series No. 147, Vol. 1. Arizona State Museum, University of Arizona, Tucson.

1984b The Paleo-Indian and Archaic Occupation of the Tucson Basin: An Overview. *The Kiva* 49:(3-4):133-145.

Huntington, Ellsworth
1910 Fieldnotes, 7 April 1910-8 April 1910. Typescript on file, Julia Fonseca, Tucson.

Jones, Bruce A., and Richard Ciolek-Torrello
1991 *Caverns, Quarries, & Campsites: Land Use Among the Prehistoric and Historic Occupants of Colossal Cave Preservation Park, Pima County, Arizona.* Technical Series No. 31. Statistical Research, Tucson.

Keith, Stanton B.
1974 Index of Mining Properties in Pima County, Arizona. *The Arizona Bureau of Mines Bulletin* 189. Tucson.

King, Frank M.
1946 *Pioneer Western Empire Builders.* Trail's End, Pasadena.

Lindermuth, John
1987 Mescalero Standoff. *Real West* 30:14-15. September.

Luecke, Mary, Brian Power, and Jim Rock
n.d. A Glossary of Mining Terms. Manuscript on file, U.S. Forest Service, Klamath National Forest, Eureka, California.

McKinney
1883 McKinney's Business Directory. Pacific Press, San Francisco.

Masse, W. Bruce
1981 A Reappraisal of the Protohistoric Sobaipuri Indians of Southeastern Arizona. In *The Protohistoric Period in the North American Southwest, AD 1450-1700*, edited by David R. Wilcox and W. Bruce Masse, pp. 28-56. Anthropological Research Papers No. 24. Arizona State University, Tempe.

Myrick, David F.
1975 *Railroads of Arizona*, vol. 1. Howell-North Books, Berkeley.

Officer, James E.
1987 Hispanic Arizona, 1536-1856. The University of Arizona Press, Tucson.

Oury, Granville, Mrs.
1935 "Some Unpublished History of the Southwest. An Old Diary Found in Mexico." Chapter 9 (continued) Annotated by Col. C. C. Smith in *Arizona Historic Review* Vol. 6, No. 1, January.

Pima County
1932 Official Relief Map of Pima County. On file, Arizona Historical Society, Tucson.

Pima County Recorder
1866-1953 Land Claims and Index, vols. 1-3 Microfilm. Pima County Recorder's Office.

Polk, R. L. and Co.
1884 Colorado, New Mexico, Utah, Nevada, Wyoming, and Arizona Gazetteer and Business Directory, 1884-1885, vol. 1. R. L. Polk and Co., Chicago.

Ravesloot, John C., and Stephanie M. Whittlesey
1987 Inferring the Protohistoric Period in Southern Arizona. In *The Archaeology of the San Xavier Bridge Site (AZ BB:13:14), Tucson Basin, Southern Arizona*, edited by John C. Ravesloot, pp. 81-98. Archaeological Series No. 171. Arizona State Museum, University of Arizona, Tucson.

Rogers, Malcolm J.
1966 *Ancient Hunters of the Far West.* Edited by Richard F. Pourade. Union-Tribune, San Diego.

Roskruge, George
1893 Roskruge's Map of Pima County. On file, Arizona Historical Society, Tucson.

Saul, Marilyn B., Bruce B. Huckell, and Susan A. Brew
1985 Archaeological Overview of the Empirita Ranch and Additional Planning Area. Manuscript on file, Arizona State Museum, Tucson.

Sayles, E. B.
1983 *The Cochise Cultural Sequence in Southeastern Arizona.* Anthropological Papers No. 42. University of Arizona Press, Tucson.

Sayles, E. B., and Ernst Antevs
1941 *The Cochise Culture.* Medallion Papers No. 29. Gila Pueblo, Globe, Arizona.

Schrader, F. C.
1915 *Mineral Deposits of the Santa Rita and Patagonia Mountains, Arizona.* Bulletin No. 582. U.S. Geological Survey, Washington, D.C.

Smith, Fred A.
1879 Southern Arizona in the Late 1870s. Traced by G. Schneider in 1927. On file, Arizona Historical Society, Tucson.

Stein, Pat
1981 *Wintersburg: An Archaeological, Archival, and Folk Account of Homesteading in Arizona.* Research Paper No. 21. Museum of Northern Arizona, Flagstaff.

1990 *Homesteading in Arizona, 1862-1940.* Arizona State Historic Preservation Office, Phoenix.

Stewart, Janet
1974 *Arizona Ranch Houses: Southern Territorial Styles, 1867-1980.* Arizona Historical Society, Tucson.

Theobald, John, and Lillian Theobald
1961 *Arizona Territorial Post Offices and Postmasters.* Arizona Historical Foundation, Phoenix.

U.S. Bureau of the Census
1910 Enumeration Schedules for Pantano Precinct. Microfilm. Arizona Historical Society, Tucson.

1920 Enumeration Schedules for Pantano Precinct. Microfilm. Arizona Historical Society, Tucson.

U.S. Census Office
1880 Enumeration Schedules for Cienega Valley and Empire Ranch. Microfilm. Arizona Historical Society, Tucson.

U.S. Census Office
1900 Enumeration Schedules for Pantano. Microfilm. Arizona Historical Society, Tucson.

Wagoner, Jay J.
1952 *History of the Cattle Industry in Southern Arizona: 1540-1940.* Social Science Bulletin 23(2). The University of Arizona Press, Tucson.

Wagoner, Jay J. (continued)
1975 *Early Arizona: Prehistory of Civil War.* The University of Arizona Press, Tucson.

Walker, Henry P., and Don Bufkin
1979 *Historical Atlas of Arizona.* University of Oklahoma Press, Norman.

Weaver, John M.
1947 *History of Fort Lowell.* Unpublished Master's thesis, Department of History, University of Arizona, Tucson.

Wilcox, David R., and W. Bruce Masse
1981 A History of Protohistoric Studies in the North American Southwest. In *The Protohistoric Period in the North American Southwest, AD 1450-1700*, edited by David R. Wilcox and W. Bruce Masse, pp. 1-27. Anthropological Research Papers No. 24. Arizona State University, Tempe.

Williams, R. H.
1920 History of the Cattle Industry in Pima County. In *Proceedings of the 13th Annual Convention of the Arizona Cattle Growers Association.* Tucson.