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AN ARCHAEOLOGICAL SAMPLE SURVEY OF THE WHITLOW RANCH
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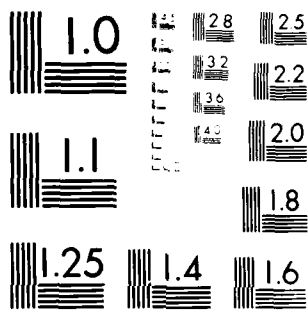
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AN ARCHAEOLOGICAL SAMPLE SURVEY
OF THE MILLER RANCH RESERVOIR
PINAL COUNTY, ARIZONA

by

Cannie L. Stone



Submitted by:

Glen E. Rice
Principal Investigator
Office of Cultural Resource
Management
Department of Anthropology
Arizona State University
Tempe, Arizona

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ABSTRACT

This report summarizes the results of an archaeological sample survey of Whitlow Ranch Reservoir. Included are summaries of the environmental and archaeological background of the Queen Creek area. Three sites and several non-site archaeological loci were found during the course of field investigations. Recommendations for future investigations are included within a separate appendix.

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INTRODUCTION

This report describes the results of a probabilistic sample survey of the Whitlow Ranch Reservoir in central Arizona. The survey was authorized by the U.S. Army Corps of Engineers, Los Angeles District, under Contract No. DACW09-77-C-0029, in legal compliance with Executive Order 11593, "Protection and Enhancement of the Cultural Environment." The draft report was submitted to the State Historic Preservation Officer for review.

Work was carried out by personnel from the Office of Cultural Resource Management, Department of Anthropology, Arizona State University, with Donald E. Weaver, Jr., Charles F. Merbs, and Glen E. Rice serving as Principal Investigators. David Greenwald served as Field Supervisor, and field crew members were Cheryl Taylor, Robert Miller, and Connie Stone.

Cultural resources were located, documented, and evaluated within a 21% probabilistic sample of Corps-administered areas surrounding Whitlow Ranch Dam (Fig. 1). The survey was conducted in order to assess the nature, number, and significance of cultural resources within the Whitlow Ranch Reservoir project area. Although the survey dealt only with those resources located in the sample survey area, predictions regarding the nature of resources within the total project area may be based upon the sample. The survey was also undertaken in order to assess present and future project impacts upon cultural resources and thus was primarily oriented to inventory purposes.

Whitlow Ranch Dam, completed in 1960, was constructed to control periodic flooding of Queen Creek, a tributary to the Gila River. It is located in Pinal County, approximately 16 km (10 mi) northeast of Florence Junction. The project area equals approximately 1136 hectares (2840 acres) and is largely composed of the flood control basin, which has a capacity of 35,900 acre-feet at spillway crest.

Field work took place between June 21 and 29, 1977. A total of 220 worker-hours was expended on field investigations, 24 worker-hours on literature search, and 100 on report preparation.

ENVIRONMENTAL OVERVIEW

Geology

The Whitlow project area is situated in the Desert Region of the Basin and Range physiographic province, a division characterized by numerous mountain ranges rising abruptly from broad plain-like valleys or basins (Wilson 1962:86). The project area is located near the

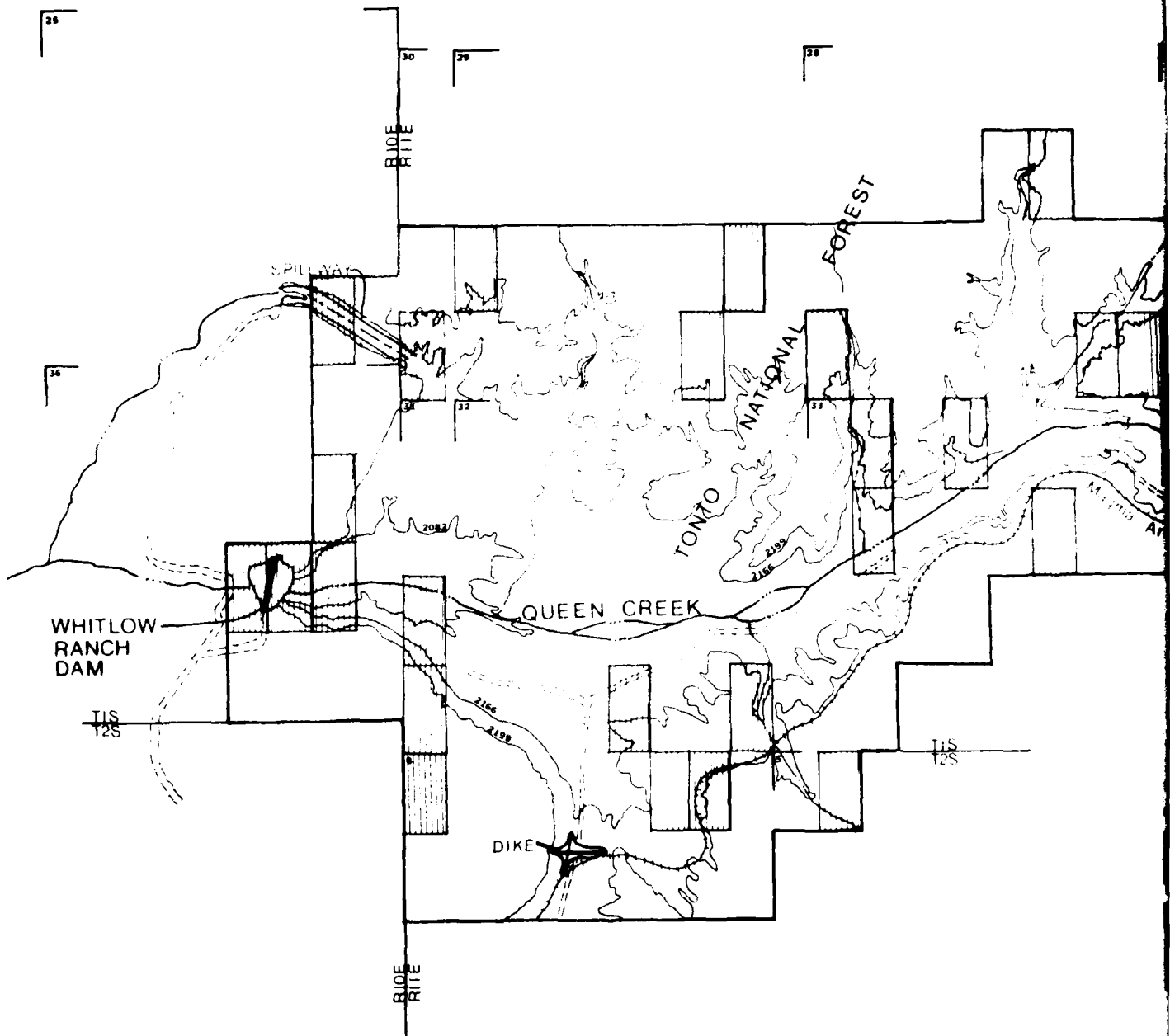
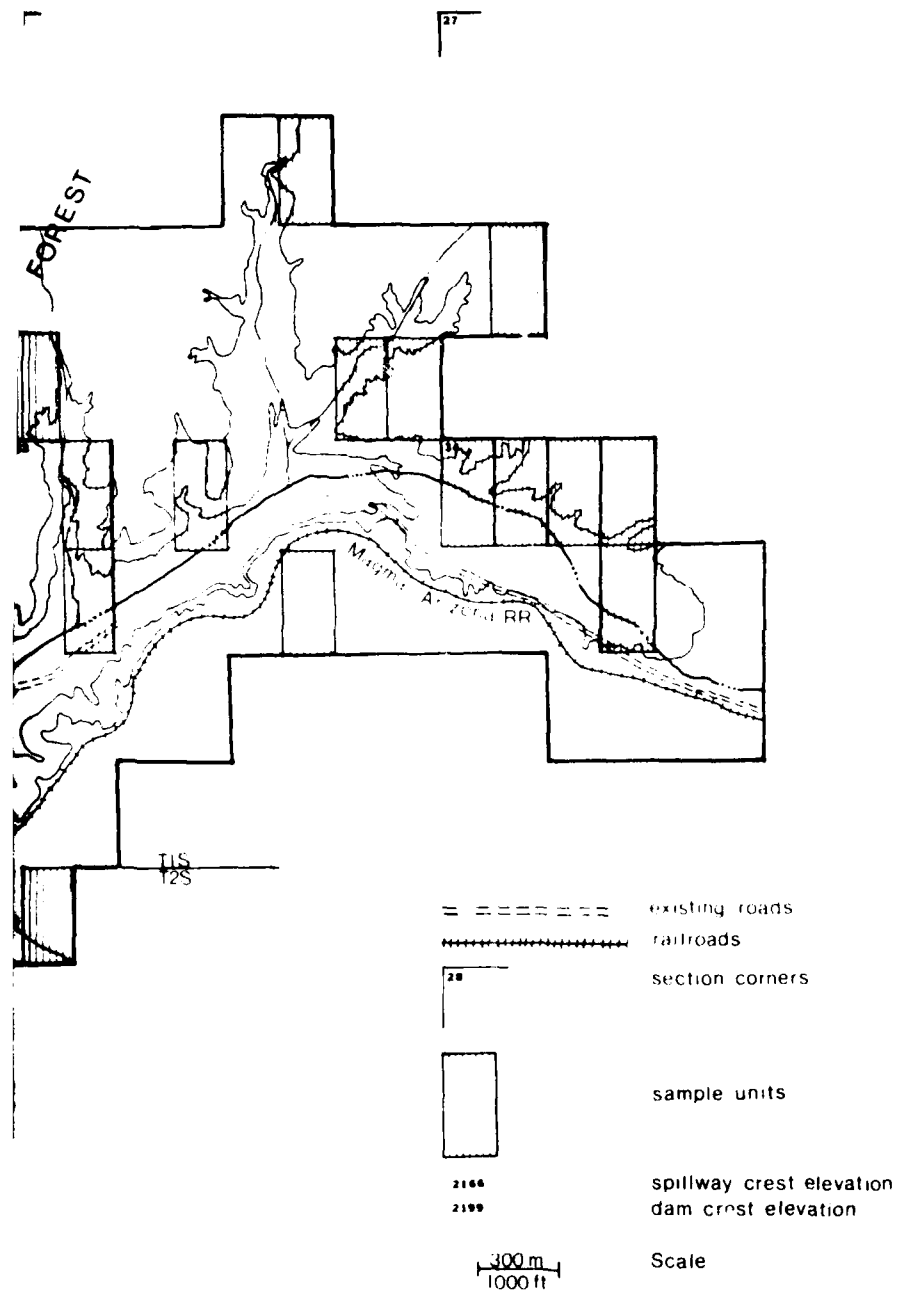


Fig. 1. Map of Whitlow Ranch project area, showing sample units.



h project area, showing

boundary of the Mountain Region of this province (Wilson 1962:86). Whitlow Ranch Reservoir is located in the rocky foothills of the Superstition Mountains, near the area where Queen Creek flows out onto the gently sloping lower bajada and eventually over a broad alluvial plain (Schoenwetter, Gaines and Weaver 1973:94).

The Superstition Mountains are composed primarily of dacite, with outcrops of andesite and Precambrian schist and granite (Forrester 1962). Dacite, an extrusive igneous rock, occurs in the vicinity of Whitlow Ranch Dam; however, most of the project area is composed of Precambrian schist and of Apache Group sedimentary deposits (Forrester 1962). In the Superior area, colluvial deposits of quartzite, shale, and limestone boulders and gravels are derived from exposed beds of Apache Group members (Wood 1976:21). Tertiary igneous deposits, which make up the Superstition Mountains and which cover the area surrounding the extinct volcano known as Picketpost Mountain, evidence extensive volcanic activity within the region. The most common lithic material found near Superior consists of vitrified rhyolite (Wood 1976:23). Obsidian also occurs in the vicinity of Picketpost Mountain, although it has mostly hydrated to perlite (Wood 1976:23).

The project area is composed of the Whitlow flood control basin and surrounding terraces, low hills, and uplands. The soil in the alluvial basin consists primarily of coarse sandy gravels and gravelly sand. The flood control basin is largely surrounded by low hills and hilly terraces; low hills also border the major washes draining into the basin. Rugged uplands consist of steep foothills separated by constricted washes. Hills are particularly steep in the vicinity of Whitlow Ranch Dam, which is bounded on the south by rugged Comet Peak.

Queen Creek flows intermittently, although it was probably a permanent stream before overgrazing damaged catchment areas and disrupted runoff patterns (Schoenwetter, Gaines and Weaver 1973). Before construction of Whitlow Ranch Dam, damaging floods occurred about every 2 years (Turner and Halpenny 1952:17; Schoenwetter, Gaines and Weaver 1973:94). The stream originates in the Pinal Mountains east of Superior. About 16 km (10 mi) west of Superior, it flows through a bowl-like basin in the foothills; it is at this point that the drainage is controlled by Whitlow Ranch Dam. From the dam, the stream follows a well-defined channel west for 30 km (19 mi), where it spreads over a broad alluvial plain, the Queen Creek delta (Schoenwetter, Gaines and Weaver 1973:94). The creek is presently being rechanneled to flow into the Gila River near Gila Butte (Brooks 1976).

Climate

The area exhibits average daily temperatures ranging between 15°C (59°F) and 26°C (79°F), although temperatures of 38°C (100°F) are common in summer (Sellers and Hill 1974). This is an area of long hot summers

and short mild winters. Average rainfall is 8-28 cm (3-11 in) per year. Rainfall is biseasonal, as in most of the eastern part of the Sonoran Desert (Lowe 1964:18).

Vegetation and Fauna

The Whitlow Ranch Reservoir area is characterized by Southwestern Desertscrub vegetation. Such vegetation is associated with the Lower Sonoran Life Zone, which ranges from sea level to 1220 m (4026 ft) in elevation (Lowe 1964:18). The maximum elevation of the project area is 787 m (2691 ft).

The project area is located in the Arizona Upland section of the Sonoran Desert. Primary vegetation consists of the paloverde-saguaro community, a common Sonoran Desert type (Lowe 1964:24). Plant species observed in the field are listed in Table 1.

The non-inundated terraces and foothills of the project area are characterized by diverse vegetation, including various cacti, paloverde, mesquite, catclaw, saguaro, and jojoba. Density of species varies according to substrate, drainage, and exposure. Desert hackberry and leguminous trees are generally found along washes, although paloverde trees cover a wider area.

The flood control basin contains extremely dense, lush vegetation consisting of salt cedar (tamarisk), mesquite, desert willow, ironwood, and cottonwood. Salt cedar, the dominant species in this case, is a non-native plant.

Fauna observed in the field included jackrabbits, cottontail rabbits, quail, rodents, lizards, and 1 desert tortoise. Cattle presently graze in the area.

Environmental Change

Upon examination of long-term pollen records (Martin 1963) and the ecological characteristics of Sonoran Desert plants (Kearney and Peebles 1951), it can be stated that probably little change has occurred in the area over the past several thousand years. Since desert plants exhibit rapid responses to both drought and rain, most variation in vegetation is short-term and cyclical rather than long-term in nature (Hastings and Turner 1965; Wood 1976:27).

Some vegetation patterns in the Superior area may have been slightly affected by overgrazing. In the Superior area, cattle may have contributed to the transport of mesquite out of its riparian habitat and to the creation of dense stands of chain fruit cholla by knocking off joints which reproduce vegetatively (Wood 1976:27).

Table 1. Plants observed in the Whitlow
Ranch Reservoir sample area.

Common Name	Taxonomic Designation
Saguaro	<u>Carnegiea gigantea</u>
Foothill paloverde	<u>Cercidium microphyllum</u>
Mesquite	<u>Prosopis juliflora</u>
Catclaw	<u>Acacia greggi</u>
Ironwood	<u>Olneya tesota</u>
Ocotillo	<u>Fouquieria splendens</u>
Hackberry	<u>Celtis pallida</u>
Jojoba	<u>Simmondsia chinensis</u>
Prickly pear	<u>Opuntia phaeacantha</u>
Chain fruit cholla	<u>Opuntia fulgida</u>
Staghorn cholla	<u>Opuntia sp.</u>
Hedgehog cactus	<u>Echinocereus englem</u> i
Christmas cholla	<u>Opuntia sp.</u>
Creosote	<u>Larrea sp.</u>
Brittlebush	<u>Encelia farinosa</u>
Bursage	<u>Franseria sp.</u>
Salt cedar (tamarisk)	<u>Tamarix (introduced)</u>
Sugar sumac	<u>Rhus ovata</u>
Cottonwood	<u>Populus sp.</u>
Willow	<u>Salix sp.</u>
Devil's claw	

PREVIOUS ARCHAEOLOGICAL RESEARCH

Previous archaeological studies have focused on the lower Queen Creek alluvial plain and delta. Numerous sites have been recorded in this area, while few studies have concentrated on that area of Queen Creek between Superior and Florence Junction. Before the present survey no sites had been previously documented in the Whitlow Ranch Reservoir project area.

The lower Queen Creek basin was examined by the Gladwins of the Gila Pueblo Archaeological Foundation in the 1920s and 1930s. They recorded several sites along Queen Creek (Gladwin and Gladwin 1929). Omar Turney also documented sites in the lower Queen Creek basin (Turney 1929). Frank Midvale recorded a number of large Sedentary and Classic period Hohokam sites in the area between Queen Creek and the present Williams Air Force Base (Midvale 1920-1971). Many sites in this area were subsequently destroyed by agricultural expansion.

In 1963-64, the Department of Anthropology at Arizona State University conducted a survey including portions of the lower Queen Creek basin. Nineteen predominantly Sedentary period sites were recorded (Ruppé 1966).

Two surveys were made of the Salt-Gila portion of the proposed Central Arizona Project aqueduct, which crosses through T.1S, R.8E, and T.2S, R.8E. The aqueduct corridor was first surveyed in 1969 by the Department of Anthropology at Arizona State University. Both habitation and limited activity sites were recorded (Dittert, Fish and Simonis 1969). The Salt-Gila corridor was resurveyed by Arizona State Museum in 1973, and additional sites were documented (Grady and others 1973). Most sites recorded by the Salt-Gila Aqueduct surveys date to the Sedentary and Classic periods of the Hohokam culture (Grady and others 1973:29). Large habitation sites generally exhibit the presence of such features as large trash mounds, water-control systems, and ball courts (Grady and others 1973). The 5 limited activity sites consisted of sherd and lithic scatters recorded by Arizona State University (Grady and others 1973).

Cultural remains occurring along Queen Creek away from the Salt-Gila Aqueduct also include large habitation sites and limited activity areas. Extensive investigations bearing upon the archaeology of the Queen Creek delta took place at the Midvale site [AZ U:10:52 (ASU)] near Williams Air Force Base. Test excavations at this large Sedentary habitation site were conducted in 1973 by the Department of Anthropology, Arizona State University. Investigations yielded valuable information regarding prehistoric settlement of the Queen Creek area (Schoenwetter, Gaines and Weaver 1973).

Recent work on the Queen Creek alluvial plain has included investigations of 14 sites near Gila Butte by Arizona State Museum. These inves-

tigations, associated with the rechannelization of Queen Creek, have been based upon a research design directed toward the study of Hohokam adaptations to the environment of the middle Gila River (Brooks 1976). Donald Simonis of the Department of Anthropology at Arizona State University has recently conducted a survey of a portion of the Queen Creek alluvial plain.

The previously mentioned sites are located in those quadrangles designated by the state wide archaeological site numbering system as AZ U:10, 13, 14, and 15. The Whitlow Ranch project area is located in quadrangles U:11 and 12. Several large habitation sites have been recorded in quadrangle AZ U:11 in the vicinity of Florence Junction. These sites are found on the lower bajada below the area where Queen Creek flows out of the Superstition foothills. AZ U:11:1 (ASU) is a large Sedentary habitation site containing 30 trash mounds and a ball court. AZ U:11:2 (ASU) is a large Sedentary habitation and agricultural site located on a northern terrace of Queen Creek. Features include large mounds, water control structures, and possible pit houses (Antieau 1977:52). AZ U:11:3 (ASU) is a small Classic period habitation near AZ U:11:2 (ASU). The site consists of a small masonry pueblo of 5 rooms in 2 units (Antieau 1977:62). AZ U:11:4 (ASU) is a Sedentary habitation site with a number of trash mounds. Also located near Florence Junction is AZ U:15:1 (ASU), a large Colonial-Sedentary habitation site with 14 trash mounds and a ball court.

As previously stated, few studies have focused on that area of Queen Creek between Superior and Florence Junction. Most sites recorded along Queen Creek have been located on the lower bajada and alluvial plain rather than in the foothills surrounding Whitlow Ranch Dam. However, recent studies have begun to narrow this geographical gap in archaeological knowledge.

John Antieau of the Office of Cultural Resource Management, Department of Anthropology, Arizona State University, has recently completed a survey of a proposed transmission line running from Kyrene (Tempe) to the Tonto National Forest boundary north of Florence Junction. The survey recorded several sites west of the Whitlow Ranch project area. Sherd and lithic scatters located directly north of Highway 60-80-89 on the terraces of Queen Creek include AZ U:11:18 (ASU) and AZ U:11:20 (ASU) (Antieau 1977). Sites located immediately west of the Whitlow Ranch project area include AZ U:11:19, 21, and 22 (ASU). AZ U:11:21 (ASU) consists of a sherd and lithic scatter with a 1-room masonry structure and several check dams. This Classic period site is located at the confluence of Whitlow Canyon and Queen Creek, near the upstream limit of soils with good agricultural potential (Antieau 1977: 72-77). AZ U:11:19 (ASU) is composed of a series of caves east of Whitlow Canyon; these may have served as campsites and/or storage sites (Antieau 1977:80). Site AZ U:11:22 (ASU) is a lithic quarry located on hillslopes east of Whitlow Canyon (Antieau 1977:77). Most documented sites date to the Sedentary and Classic periods of the Hohokam culture, although a few sites appear to exhibit Salado influence.

Archaeological investigations have recently been conducted by the U.S. Forest Service along Queen Creek west of Superior. Jon Scott Wood of the Department of Anthropology, Arizona State University, conducted a clearance survey of a Forest Service land exchange parcel consisting of T.2S, R.12E, N $\frac{1}{2}$ of Sections 8 and 9 and NW $\frac{1}{4}$ of Section 10 (Wood 1976). Wood set out to record only habitation sites and agricultural features (Wood 1976:7). The survey located 23 sites, including 14 single and multi-room masonry habitation sites, 2 sherd and lithic scatters, 1 large lithic scatter, 4 walled cave and rockshelter sites, and 2 historic sites. Many of the habitation sites exhibited associated agricultural features such as check dams and terraces. One rockshelter contained petroglyphs and pictographs. Ceramic assemblages indicate Classic period dates. Sites within the exchange parcel were designated as AZ U:12:2 (ASU) through AZ U:12:30 (ASU), including 5 habitation sites which had been previously excavated (Wood 1976).

In 1976, Ronald Yablon of the Office of Cultural Resource Management, Department of Anthropology, Arizona State University, conducted a transmission line survey between Silver King (Superior) and Hayden. The 7 sites recorded by this survey, AZ U:12:31-37 (ASU), are similar to those sites documented by Wood (1976). The sites include small masonry structures, sherd and lithic scatters, historic sites, and 1 rockshelter (Yablon 1977).

Although a number of studies have documented sites in the lower Queen Creek area, relatively few have dealt with the area above Whitlow Ranch Dam. Cultural resource investigations of the Whitlow Ranch Reservoir area would fill the geographical gap between the lower Queen Creek and Superior studies and thus contribute to the investigation of regional culture history and settlement patterns.

REGIONAL ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The culture history of southern Arizona includes traditions spanning several thousand years and exhibiting great temporal, areal, and adaptive variation. Some of these cultural traditions have been documented in areas adjacent to Whitlow Ranch Reservoir. Others, in particular the earlier cultures, have not been investigated in great detail partly because investigators have been drawn to the larger and more impressive sites of the later period. These earlier cultures are commonly assumed to have been present over large regions, although few sites have actually been documented. This section describes prehistoric cultural manifestations which could potentially be found in the Whitlow Ranch Reservoir project area. Also considered are historic Indian and Anglo occupations of the area.

The earliest people presently known to have occupied southern Arizona are the Paleo-Indians or Pleistocene big game hunters (Martin and Plog 1973:57-67). They may have lived in the region between roughly 10,000 to 6,000 BC. Notable sites include Naco and Lehner near Douglas. Paleo-Indian sites, which are characterized by an association of lanceolate

projectile points and extinct Pleistocene fauna, have not been recorded in the Queen Creek area.

Archaic peoples occupied the region from roughly 6,000 BC to AD 1. Archaic adaptations were geared to the hunting and gathering of wild foods, and small bands most likely followed a pattern of seasonal trans-humance. The Cochise culture has been defined as the southeastern Arizona variant of the Archaic tradition (Sayles and Antevs 1941). The presence of grinding implements indicates that seed collecting and processing were important economic activities. During the Sulphur Spring and Chiricahua phases of the Cochise culture, ranging between approximately 6,000 and 2,000 BC, artifact assemblages included milling stones and percussion flaked stone tools (Martin and Plog 1973:73). The San Pedro phase, dated by radiocarbon as occurring between 1,900 BC and AD 1, witnessed the appearance of projectile points and pressure flaking (Martin and Plog 1973:73). Late San Pedro developments included the appearance of permanent settlements with shallow pit houses, limited plant cultivation and pottery production (Martin and Plog 1973:73; Willey 1966:182). Few Archaic sites have been located in the vicinity of Queen Creek; a small number have been found in the Phoenix metropolitan area (Burton 1977).

The Hohokam tradition constitutes the dominant prehistoric cultural manifestation in the Salt and Gila River Valleys. Nearly all of the sites found along Queen Creek have been assigned to various phases of the Hohokam culture.

By 300 BC the Hohokam were intensively farming large river valleys and making extensive use of cultivated plants (Haury 1967). Although Hohokam origins are in dispute, Mesoamerican influences, whether through trade or immigration, are evident early in the Hohokam sequence. Such influences may have acted on an evolving Cochise base.

The definition of the Hohokam cultural sequence has been based largely on the results of excavations at Snaketown (Gladwin and others 1937; Haury 1956, 1965, 1967, 1976). Snaketown is a large multi-component site located north of the Gila River near Chandler. The cultural sequence consists of 4 major periods subdivided into several phases.

During the Pioneer period from approximately 300 BC to AD 500, settlements were composed of large semi-subterranean wattle and daub dwellings, or pit houses. Agriculture involved the use of irrigation canals and other sophisticated water control devices. Artifacts included red-on-buff pottery (Haury 1967; Martin and Plog 1973:94-98).

The Colonial period, from about AD 500 to 900, derives its name from the occurrence of areal expansion into smaller drainage valleys (Haury 1956). There was further development of agricultural systems. The Colonial period witnessed the appearance of flat-topped earth mounds and sunken earth-walled courts (Haury 1956; Martin and Plog 1973:94-98). These courts have been variously referred to as quarries, reservoirs, dance grounds, and ball courts (Martin and Plog 1973:148-149).

During the Sedentary period, from AD 900 to 1100, there was a contraction of occupied area. There was further elaboration of irrigation systems, and the occurrence of numerous luxury goods such as slate mirrors and copper bells indicates an increase in Mesoamerican influence (Hauray 1956).

Martin and Plog (1973:94-98) group the Pioneer, Colonial, and Sedentary periods into a general Pit House stage. This stage is generally characterized by pit house villages, extensive irrigation systems, basic utilitarian stone tools and pottery (primarily Gila Plain), red-on-buff pottery, carved shell ornaments, clay figurines, carved stone paint palettes, and the practice of cremation (Martin and Plog 1973:94-98).

Major changes occurred during the Classic period, from AD 1100 to 1400. Structures consisted of multi-roomed adobe houses grouped in clusters and often surrounded by compound walls. Canal systems were enlarged. Red-on-buff pottery declined in importance, giving way to polychrome and polished redwares. Inhumation became the dominant means for disposal of the dead (Martin and Plog 1973:312-317).

Around AD 1450, the Salt and Gila River Valleys were apparently abandoned by the Hohokam. Martin and Plog (1973:171-173) suggest that this abandonment may have been due to changes in climatic conditions and to a deterioration of the local environment to which the Hohokam themselves may have contributed. After 1450, there is a hiatus of 300 years in the archaeological record (Burton 1977:6). The present day Pima and Papago may be the descendants of the Hohokam.

One major Hohokam research problem concerns the transition between the Sedentary and Classic periods. This transition has often been viewed as a result of Hohokam-Anasazi interaction of varying degrees. Some have credited the Salado with the introduction of inhumation, polychrome pottery, pueblo architecture, and other traits to the Hohokam. The Salado, who possessed these traits, occupied the Tonto Basin and may have been immigrants from the Little Colorado area. Martin and Plog (1973:315-317) reject the idea that the Classic period Hohokam developments may be attributed to the Salado, suggesting that changes supposedly introduced by the Salado were actually in situ Hohokam developments. The Salado concept itself may be questioned; Hohokam and Salado constitute similar manifestations and the criteria for distinguishing between the two are vague. Wood (1976:5) suggests that the Salado may be an upland local variant of the larger Hohokam tradition.

The area containing the Mazatzal, Superstition, and Pinal Mountains was historically occupied by the southeastern Yavapai (Gifford 1932:180). The Yavapai practiced very little agriculture, relying instead upon a variety of wild plant and animal foods. They gathered a number of seasonally available plants, including saguaro fruits from the Superstitions, acorns and pinyons from the Mazatzal and Pinal Mountains, and mescal, prickly pear tunas and mesquite beans. Animals hunted included deer, wood rats, rabbits, and quail (Gifford 1932:205). Shallow caves and

rockshelters were favored winter dwellings; where caves were absent, the people inhabited beehive-shaped thatched huts (Gifford 1932:302).

Early Anglo settlement in the Queen Creek-Superior area involved the establishment of military forts and mining camps around Picketpost Mountain in the mid-1800s. Towns established in the late 1800s included Pinal, Silver Queen, Queen Creek, and Hastings (later Superior) (Wood 1976:5). Mining remains a major contemporary activity; silver was mined in the earlier days, while contemporary emphasis is on the production of copper. Another major contemporary activity is cattle ranching. Hunting constitutes the primary recreational use of the Whitlow Ranch Dam area.

FIELD PROCEDURES

The sample survey covered 240 hectares (600 acres) or 21% of the Corps-administered lands surrounding Whitlow Ranch Dam. An initial minor miscalculation of the project land area resulted in the 21% figure. This sampling percentage is quite valid although not commonly used. The use of probabilistic sampling techniques should enable predictions to be made on the basis of sample results.

A systematic random sample, rather than one involving simple random or stratified sampling, was chosen for a variety of reasons. The criteria needed to define separate strata on the basis of environmental or other grounds were not available. Although a simple random sample would have been theoretically accurate, it was determined that the use of a systematic sample insuring dispersion of sample units would better accommodate possible heterogeneity. Dispersed coverage of the project area was more likely to yield a comprehensive picture helpful in relating archaeological recommendations and Corps planning considerations.

Sample percentage and sample unit sizes were selected in order to cover the largest sample area and the maximum number of sample units possible within the allotted field time. The amount of territory that could be covered by the crew in 1 day was estimated, and such estimates formed part of the basis for the sampling design. Sample units consisted of 8 hectare (20 acre) rectangular units, or east-west halves of $\frac{1}{4} \times \frac{1}{4}$ sections. These were easy to locate on Corps maps and large enough so that travel between and establishment of separate sample units did not require an inordinate amount of time.

Systematic random sampling techniques involved the establishment of a grid system of equal-sized units, from which smaller sample units were chosen randomly. The systematic sample grid consisted of surveyed sections (2.59 km^2 or 1 mi^2) as indicated on U.S.G.S. topographical maps according to the township and range system. Two of these, Sections 30 and 31, T.1S, R.11E, consisted of 32 hectares (80 acres) or less of territory; for sampling purposes, these were incorporated into Sections 29 and 32 respectively. Portions of 10 sections were thus located in the project area.

Thirty sample units were chosen from these sections. Potential sample units within each section were numbered, and the units to be surveyed were chosen using a table of random numbers. Units which fell outside of the project area boundaries were eliminated from consideration, as they could not be surveyed. Three sections exhibited only 2 sample unit possibilities; only 1 unit was chosen from each of these. The remaining 27 units were chosen from 7 sections; thus, there were 4 randomly chosen sample units within most sections. Although there was some random clustering of units within sections, the sample covered a variety of environmental zones and construction areas and gave a comprehensive picture of variation within the project area.

Sample units were located in the field with the aid of a Brunton Pocket Transit; unit corners were found by triangulation from known landmarks as recorded on U.S.G.S. 7.5' topographic maps for the Florence Junction and Picketpost Mountain quadrangles. The field crew walked sample units in north-south or east-west transects, spaced apart at distances of 25 to 30 m. It was judged that such distances would permit adequate coverage of the area in consideration of natural conditions affecting ground surface visibility. A field crew of 3 covered an average of 4 to 5 sample units daily; this figure varied according to terrain and density of archaeological materials. For each sample unit, data were recorded concerning location, topography, vegetation, presence and types of cultural materials, and disturbances.

Sites were distinguished from non-site loci on the basis of size, density of materials, and/or the presence of features. Sites appeared to have been intensively or repeatedly used during prehistoric times, whereas non-site loci may have resulted from a single episode of use. Data were recorded regarding both sites and non-site loci. Sites were located on topographic maps, photographed, and flagged. Non-site loci were described in field notes. Data were recorded on Arizona State University, Department of Anthropology field journal and specimen-photo data forms. Site information was subsequently transferred to computerized site data forms developed by the Department of Anthropology at Arizona State University.

Artifact collection was not warranted given the scope and purpose of the survey. A small number of sherd samples were collected in order to confirm type designations.

SURVEY RESULTS

Three sites were located and documented during the survey, and several non-site loci were recorded. The nature of these cultural remains is described in this section.

AZ U:11:26 (ASU)

AZ U:11:26 (ASU) consists of a sherd scatter with few associated lithics. One mano fragment is present. Sherd types include Gila Plain, Gila variety, and Gila Red. Two possible features are present, consisting of shallow depressions approximately 1.0-1.5 m in diameter. These may be possible roasting pits, although no fire-cracked rocks are present.

The site covers an area of 3,000 m² on the eastern slope of a hill located in an area of low hills north of the Queen Creek flood control basin. Vegetation in the general area includes saguaro, paloverde, jojoba, creosote, ocotillo, chain fruit cholla, prickly pear, and barrel cactus.

The site is in good condition and has a low probability of being disturbed by flood basin inundation. However, since it is located near the reservoir spillway, it could be threatened by future spillway improvements or modifications.

AZ U:11:27 (ASU)

AZ U:11:27 (ASU) is a small masonry habitation site, consisting of 5 rooms in 2 blocks. The first block is oriented northwest to southeast and consists of 2 contiguous rooms. The northwestern room measures approximately 3 x 3 m, while the southeastern room appears to be roughly circular, with a diameter of about 5 m (Plate 1). The second block is oriented north to south, and consists of 3 contiguous rooms, each measuring about 3 x 3 m. This series of rooms is located 5 m north of the first series. Boulder masonry walls are less than 1 m high. Associated scattered artifacts are dominated by ceramics, including Wingfield Plain and Gila Red sherds. There are few lithics; those present include basalt flake debitage and hammerstones. The site area measures between 100 and 200 m².

AZ U:11:27 (ASU) is located on a gently sloping bench area directly north of the flood control basin above Whitlow Ranch Dam. To the north of the bench are found the steep hills which border the dam. A small stream of water was observed in Queen Creek immediately above the dam. Dense, lush vegetation occurs in the flood control basin south of the site and consists of salt cedar, mesquite, and cottonwoods. Plants found on the bench and nearby hills include saguaro, prickly pear, paloverde, barrel cactus, jojoba, staghorn cholla, catclaw, and desert hackberry.

The site is in good condition and has not been vandalized, as have been many sites in the region. The northern room block has been disturbed by cattle. AZ U:11:27 (ASU) is potentially subject to inundation. Since the site is located near the dam and associated facilities, further construction or modifications could threaten its existence.



Plate 1. Southernmost room at AZ U:11:27 (ASU).



Plate 2. Petroglyphs at AZ U:12:38 (ASU).

AZ U:12:38 (ASU)

AZ U:12:38 (ASU) is a petroglyph site located on 5 boulders in a narrow wash draining northwest into Queen Creek. Designs pecked into the boulders include deer with distinct racks, anthropomorphic figures of several styles, and 4-legged creatures which might represent bighorn sheep. Most designs are naturalistic rather than geometric, and some motifs are unfinished (Plate 2).

The site is located in a rugged upland area of steep, rocky hills. The boulders on which the petroglyphs are found appear to consist of a layered granite. Vegetation in the general area includes paloverde, saguaro, chain fruit cholla, prickly pear, mesquite, ocotillo, barrel cactus, and desert hackberry.

The site is in good condition and has not been vandalized. Some petroglyphs are fading as a result of erosion. Location is in a remote portion of the project area generally undisturbed by modern development.

Non-Site Loci

Several non-site loci were recorded throughout the project area. The nature of these cultural materials is briefly described in Table 2.

Table 2. Non-site loci recorded within the project area

Locus #	Sample Unit	Type of Materials	General Location
1	34-8	2 basalt lithics	Queen Creek terrace
2	34-3	Low density sherd and lithic scatter, ceramics include Gila Plain	Queen Creek terrace
3	34-2	2 small lithic scatters, 1 with an associated metate fragment	Queen Creek terrace
4	34-1	Isolated lithics	Queen Creek terrace
5	28-17	2 basalt lithics	Upland
6	33-2	1 lithic	Low hills bordering flood control basin
7	28-11	1 lithic	Low hills
8	33-4	Isolated lithics	Low hills
9	29-8	1 Wingfield Plain sherd	Upland
10	29-2	Low density sherd scatter, ceramics include Gila Plain and Gila Red	Upland
11	32-29	Isolated lithics and 1 cluster of plainware sherds	Low hills
12	36-3	Isolated plainware sherds, 1 Sacaton Red-on-buff sherd	Upland

RESEARCH POTENTIAL OF CULTURAL RESOURCES

Distribution of Cultural Materials

The consideration of site locations with respect to natural environmental features is valuable in terms of archaeological research and management decisions. Site distribution data contribute to settlement pattern studies, which seek to determine variables affecting site location and to explain differences and similarities among settlement systems. Although data from the survey are not sufficient to establish a detailed, hypothesized Whitlow Ranch settlement system, such data can be profitably placed within the context of regional settlement pattern studies.

The number and density of cultural remains found in the survey area indicate that the Whitlow Ranch Reservoir area was not heavily occupied. Materials were found in only 50% of the sample units, and these materials were quite sparse and scattered.

On the basis of the 21% sample, a total of 15 sites and 60 non-site loci might be expected to occur within the project area. Although the area exhibits a low density of cultural materials, those present appear to vary in location according to general environmental zones.

On the basis of topography, vegetation, and previous disturbance, the project area can be divided into 3 general zones (Fig. 2). The Queen Creek channel and flood control basin have been inundated both naturally and as a result of reservoir construction. The flood control basin exhibits dense, lush vegetation which is dominated by tamarisk, or salt cedar. This vegetation pattern is probably modern. Salt cedar is a non-native plant which tends to dominate riparian vegetation in many areas of the Southwest. Vegetation is probably more dense than in prehistoric times, although prehistoric vegetation may have consisted of dense mesquite bosques. No cultural resources were found in the flood control basin. This is probably due to disturbances caused by inundation, silting, and construction, although the dense vegetation may have obscured the presence of cultural resources. The remaining 2 zones have been defined largely on the basis of differences in topography and relief rather than vegetation. Vegetational variation is localized in response to variation in substrate, drainage, and exposure. Differences are not readily apparent at the level of general zone definition. The second zone includes terraces and low hills bordering Queen Creek, its flood control basin, and major tributary washes. Cultural resources appear to be more likely to occur in this zone than in the final zone, which consists of steep, rugged, upland foothills.

Table 3 describes the occurrence of cultural resources with regard to the 3 general environmental zones. Single sample units occasionally covered more than 1 environmental zone, in which case they were assigned to that zone covering more than 50% of their area. It may be noted that the distribution of non-site loci parallels that of sites. This table is descriptive rather than interpretive, showing general trends which might be incorporated

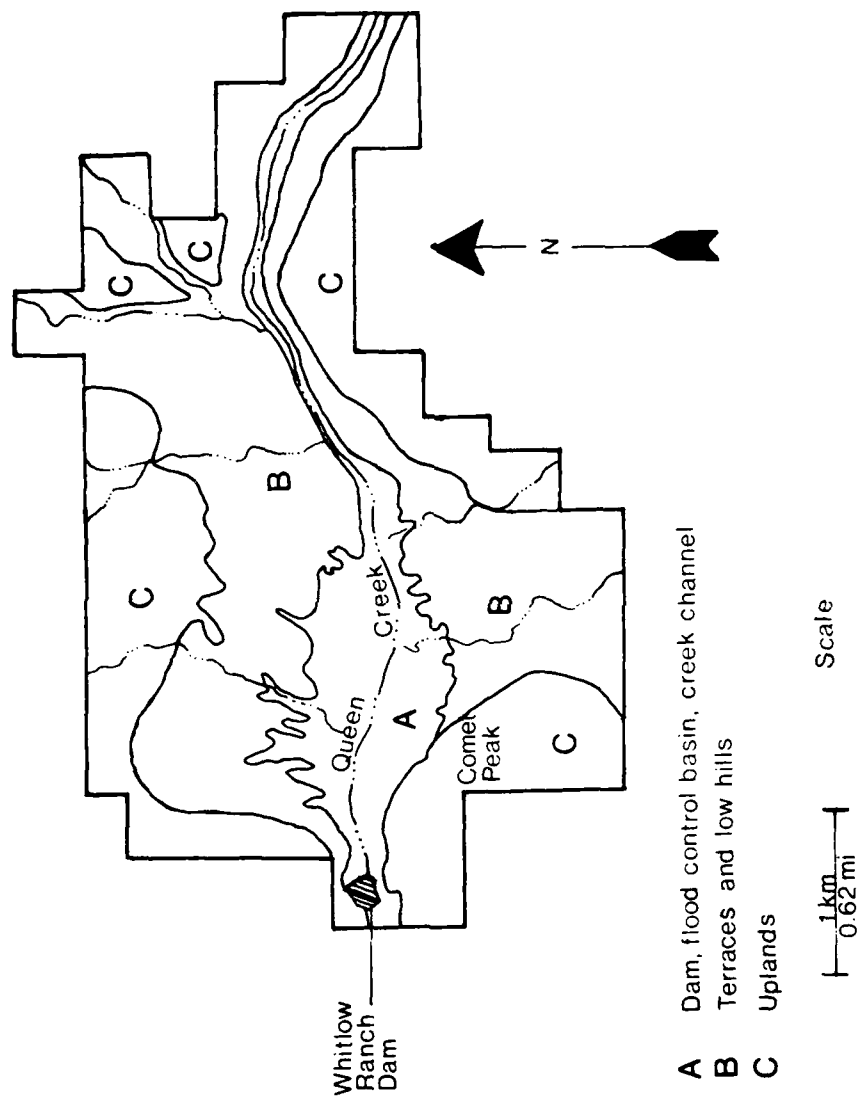


Fig. 2. Whitlow Ranch Reservoir environmental zones.

Table 3. The presence of cultural resources in relation to environmental zones.

Zone	Sample Units	Sample Units with Cultural Resources	Sites	Non-Site Loci
Flood control basin	4 (13%)	0 (0%)	0 (0%)	0 (0%)
Terraces, low hills	14 (47%)	10 (67%)	2 (67%)	8 (67%)
Rugged uplands	12 (40%)	5 (33%)	1 (33%)	4 (33%)

into future research hypotheses and management decisions. At present the size of the sample of cultural resources is too small to be accurately subjected to statistical tests of significance. Although there are possible relationships between environmental zones and the location of cultural resources, further investigations might indicate that these fall within the statistical limits of those distributions which might be expected to occur by chance.

Ceramic and Site Types

Ceramic types can be useful in the definition of local and regional culture historical sequences. Types found in the Whitlow Ranch project area include Gila Plain, Wingfield Plain, Gila Red, and Sacaton Red-on-buff. These types, with the possible exception of Wingfield Plain, are primarily associated with the Hohokam tradition. Most of the above ceramic types have been documented at sites near Superior (Wood 1976) and Florence Junction (Antieau 1977).

Gila Plain is a Hohokam utility ware occurring over a wide area and long time span. It is usually light gray, although colors range from reddish to brown shades. Gila Plain is manufactured using the paddle and anvil method and is tempered with a variety of materials, the most common being quartz sand and mica from finely ground micaceous schist. It is rarely slipped, although often smoothed (Gladwin and others 1937; Haury 1945). Gila Plain has been divided into a number of varieties; that most common in the Queen Creek area is Gila Plain, Gila variety. This variety exhibits abundant mica particles and is tempered with crushed rock or crushed rock and sand (Haury 1945; Schoenwetter, Gaines and Weaver 1973:115). Gila Plain is abundant in the Whitlow Ranch project area.

Another common type found in the project area is Wingfield Plain. The Wingfield series constitutes a poorly-defined ceramic category associated with a geographical area rather than a specific cultural tradition. The Wingfield category includes plainwares exhibiting great variation in temper, surface finish, and color. Wingfield types are commonly tempered with phyllite and/or large platy fragments of schist. Wingfield series ceramics are found over much of southern Arizona; their cultural affiliation is debated, but recent evidence indicates connections with the Hohokam (Weaver 1974:25).

Gila Red is one of the Classic period Hohokam redwares, dating from AD 1100 to 1300. It is similar in manufacture to Gila Plain and is tempered with abundant mica and quartz and/or micaceous schist sand. Slips are deep maroon to brown and exhibit highly patterned and obvious polishing or wiping striations. Anvil indentations are often evident on the unslipped surface (Haury 1945; Schoenwetter, Gaines and Weaver 1973:117). Gila Red sherds are found at sites AZ U:11:26 (ASU) and AZ U:11:27 (ASU), dating them to Classic period times.

One isolated Hohokam red-on-buff sherd was noted. Sacaton Red-on-buff dates to the Sedentary period of the Hohokam tradition. The slip is chalky white to pinkish buff, with dense, fugitive maroon red paint. Sherds are extremely thick, and the Gila shoulder is a common feature of vessels. Designs are based upon the use of broad lines and large, solid elements (Gladwin and others 1937).

Ceramic types noted in the Whitlow Ranch project area help to place it in the context of the regional cultural history (Hohokam Sedentary and Classic periods) and link it to nearby areas in which similar ceramic assemblages have been documented (Wood 1976; Antleau 1977).

AZ U:11:27 (ASU) appears to be similar to the small boulder masonry habitation sites documented for the Superior area (Wood 1976). Wood has noted artifactual and architectural similarities between these sites and those Classic sites occurring in the vicinity of Florence Junction, such as AZ U:11:5 (ASU) (Wood 1976:38). For the Superior area, Wood hypothesized that such small habitation sites were more likely to be located in hills and upland areas and to be associated with water control features, while large sites with a smaller relative number of agricultural features would be found along the Queen Creek floodplain (Wood 1976:29-33). Functions and relationships of small and large habitation sites remain to be studied in greater detail in the context of regional settlement pattern research.

AZ U:11:26 (ASU), a sherd scatter with no indications of structures, probably represents a limited activity, resource procurement or processing site. Most surveys within the region have concentrated on the documentation of habitation sites; resource zones and limited activity sites have largely been excluded from major consideration. The nature of such sites and their relationships to habitation sites and resource zones needs to be examined in greater detail. Such sites form an integral part of the regional settlement pattern, and thus should constitute a major focus for future research.

Few petroglyph sites such as AZ U:12:38 (ASU) have been found along Queen Creek. Wood (1976:13) found petroglyph and pictograph panels at a rockshelter site near Superior. The petroglyphs at this site, AZ U:12:29 (ASU), appear to be similar to those found at AZ U:12:38 (ASU). The most common designs include anthropomorphic figures and possible bighorn sheep. The research potential of AZ U:12:38 (ASU) is encompassed by research goals related to the study of petroglyph sites in general. Major problems include the determination of chronological sequences, cultural affiliation, and function. The determination of chronology and cultural affiliation are related goals. Relative chronological sequences of petroglyph styles, such as that established by Pilles (1975) for the Little Colorado Valley, have been based upon considerations of element superpositioning, vertical location in petroglyph panels, differential weathering, and similarity of petroglyph elements to pottery designs and other diagnostic materials. Relative chronological sequences may eventually be established using the technique of seriation. The determination of petroglyph site functions involves the consideration of patterning in the location of such sites. Interpretations have included the consideration of possible ceremonial or

magico-religious significance. For example, petroglyphs may have served as shrine markers or have been associated with hunting magic (Pilles 1975: 16). They may also have signified clan or social group affiliation, as do those along the Hopi salt trail (Pilles 1975:16). Petroglyphs may also have represented the practice, creation, and remembrance of designs for pottery, basketry, and blankets; such designs may have been ceremonially significant (Turner 1963:28). Site functions probably involved all of the above possibilities plus others, including various combinations. The preponderance of animal figures at AZ U:12:38 (ASU) may indicate that the site functioned in relation to hunting activities, although such a hypothesis requires further evidence for substantiation.

Regional Settlement Patterns and Cultural History

One aspect of regional settlement pattern studies is the examination of the functional interrelationships among limited activity and small and large habitation sites in terms of economic and social systems. Another aspect of research is the study of changes in settlement systems. Studies of the cultural history of the Queen Creek region have revealed that a major change in settlement patterns took place during the Classic period. During the Sedentary period, major population centers were located on the Queen Creek delta and in the vicinity of the present town of Florence Junction (for example, site AZ U:11:2). In the Classic period, after AD 1100, reorganization and resettlement along lower Queen Creek involved the relocation of sites and the consolidation of populations at some villages (Schoenwetter, Gaines and Weaver 1973:155). Drought and channel trenching along lower Queen Creek may have disrupted the agricultural subsistence and organization of densely populated Hohokam communities. Other factors contributing to settlement changes may have included over-exploitation of water resources and stresses caused by heavy population densities (Schoenwetter, Gaines and Weaver 1973:155). Classic period settlement pattern changes may have included the colonization of the Superior area by small groups seeking undisturbed agricultural land. Ceramics and radiocarbon dates indicate that the area west of Superior was settled after AD 1100 (Wood 1976). Antieau (1977) documented small Classic period habitation sites in the Superstition foothills and suggested that these may have represented the dispersion and relocation of sites during this period. In general, habitation sites located above the point where Queen Creek leaves the mountain foothills appear to represent Classic period settlement reorganization.

The Whitlow Ranch Reservoir area was probably used as a source of wild plant and animal food products in pre-Classic times (Schoenwetter, Gaines and Weaver 1973). Thus, pre-Classic remains would probably be limited to limited activity loci and campsites. The predominance of Classic redware ceramic types at recorded sites indicates that the area was more heavily occupied during the Classic period. Heavier utilization of the Whitlow Ranch area, along with the establishment of small habitation sites, probably represents Classic period settlement reorganization and most likely coincides with the colonization of the Superior area. Thus, data from Whitlow Ranch Reservoir are significant in the study of

regional settlement patterns. Information from the project area has the potential for increasing knowledge of the nature of Classic period settlement reorganization along Queen Creek. The study of the causes and systemic mechanisms of these settlement changes has relevance to the study of settlement patterns throughout the Southwest, as situations similar to that of Queen Creek evidently occurred in several areas. Finally, information regarding settlement reorganization can contribute to the general study of cultural change.

SITE SIGNIFICANCE

Moratto and Kelly (1976) have recently defined several types of archaeological site significance, including scientific, historical, ethnic, public, geographic, monetary, legal, and managerial values. This section includes an evaluation of the Whitlow Ranch Reservoir sites with regard to these aspects of significance.

Scientific significance has been defined as "the potential for using cultural resources to establish reliable generalizations concerning past societies and cultures deriving explanations for the differences and similarities among them" (Scovill, Gordon and Anderson 1972:20). The scientific significance of the Whitlow Ranch sites has been described in the previous chapter; all of these sites have the potential of yielding information valuable in scientific research.

Historical significance defines a quality associated with a specific individual event or aspect of history (Scovill, Gordon and Anderson 1972:20). This criterion of significance generally applies to those periods for which written records are available. The Whitlow Ranch sites do not exhibit this type of significance; they are associated with the day-to-day lives of prehistoric peoples rather than with unique or specific events.

A site holding significance for a discrete community of people is ethnically significant (Moratto and Kelly 1976:196). Although the Whitlow Ranch sites might hold potential significance for Native Americans, they are not specifically significant to any tribe presently occupying the area. The Yavapai, who occupied the area historically, evidently entered the area after its abandonment by prehistoric groups.

Public values of archaeological resources are based primarily upon education, recreation, and social identity (Moratto and Kelly 1976:197). The public significance of archaeological sites is supported by a high level of public interest in archaeology, as evidenced by increasing visits to archaeological and historical parks and monuments. Public significance is a quality of all 3 Whitlow Ranch sites. The petroglyph site, AZ U:12:38 (ASU), is particularly significant in this regard. Well-preserved petroglyph sites tend to generate high public interest. Provided that it can be protected from vandalism, the site has a high potential significance for development as a public display.

Geographic significance is a quality largely based upon political units as defined by various historical registry systems; a site may exhibit significance within a local, regional, state, or national context (Moratto and Kelly 1976:197). Archaeologists have used prehistoric cultural criteria to define local and regional significance. The Whitlow Ranch sites exhibit geographic significance; sites AZ U:11:26 (ASU) and AZ U:12:38 (ASU) are at present geographically significant because few limited activity or petroglyph sites have been documented within the region.

Monetary significance is defined as the cost of total data (as opposed to total artifact) recovery (Moratto and Kelly 1976:198). This type of significance should never be used as the sole criterion for site evaluation. Evaluations of site monetary significance are given in Table 4.

Legal and managerial significance are based upon government agencies' legal obligations to manage cultural resources located on their administered properties. At the federal level, these obligations are based upon several public laws and one executive order (Moratto and Kelly 1976:199). All of the Whitlow Ranch sites are significant in this sense. Table 4 summarizes the significance values of individual Whitlow Ranch Reservoir sites.

In order to be eligible for inclusion in the National Register of Historic Places, sites must "have yielded, or may be likely to yield information important in prehistory or history" (Code of Federal Regulations, Title 35, Chapter VIII, pp. 351-358). When evaluated against this criterion, the 3 Whitlow Ranch sites are considered eligible for inclusion in the National Register. However, since they are not particularly unique within the region, and since they do not constitute the only or best representative examples of regional sites, nomination to the National Register is not necessarily warranted at this time. The sites should be managed with regard to their potential National Register eligibility, and thus efforts should be made toward site preservation. In the event that preservation is overruled by other considerations, the sites should be investigated in a manner consistent with defined research goals and procedures.

Table 4. Significance values of Whitlow Ranch Reservoir sites.

ASU Site #	Significance Type						
	Scientific	Historical	Ethic	Public	Geographic	Monetary*	Legal-Managerial
AZ U:11:26	2	0	0	1	2	1.8 units	1
AZ U:11:27	2	0	0	1	1	2.9 units	1
AZ U:12:38	2	0	0	2	2	1.0 units	1

Code: 0 = not presently significant *Monetary units: In 1977, based on
 1 = significant 1 unit = \$1000.00
 2 = highly significant

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