COYOTE NAMED THIS PLACE
PAKONAPANTI

CORN CREEK NATIONAL REGISTER ARCHAEOLOGICAL DISTRICT
DESERT NATIONAL WILDLIFE REFUGE, CLARK COUNTY, NEVADA

hra, inc. Conservation Archaeology

Prepared for U.S. Fish and Wildlife Service, Desert National Wildlife Refuge

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DESERT NATIONAL WILDLIFE REFUGE
CLARK COUNTY, NEVADA

Prepared by

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Prepared for

U.S. Fish and Wildlife Service
Desert National Wildlife Refuge

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PREFACE

In the harsh deserts of the American West, water means life. The dozens of springs that once dotted Las Vegas' broad valley are now silent and dry—a casualty of the city's thirsty growth. Today only a few springs located around the Valley's fringes still flow. One such place, located 15 miles north of Las Vegas, is the Desert National Wildlife Refuge's Corn Creek Field Station. Here clear fresh water wells up from the ground and flows downhill to a small resevoir made by Corn Creek's first European settlers. Archaeological evidence tells us that before the Mormons settled Las Vegas, Corn Creek was home to Native Americans for at least 5,000 years.

Native Americans were attracted to the lush plant and animal resources thriving around the springs. Some plants, such as mesquite trees, produce large crops of reliable food. At Corn Creek the mesquites tap into moisture welling-up along a geologic fault. For thousands of years the mesquites' lush foliage trapped fine sands blowing across the Valley's floor. The result is nearly a square mile of sand dunes reaching up to forty feet high. The springs and lush plants thriving in moisture trapped in the sand dunes drew rabbits, coyotes, bighorn sheep, and waterfowl. For thousands of years Native Americans camped at Corn Creek to harvest mesquite pods and gather edible plants like prince's plume and rice grass seeds. At first they lived in the open and later in earth lodges. With food and water nearby, family groups gathered at Corn Creek to trap jackrabbits in nets and perform ceremonies and dances. *Pakanaponti*, as it is known in the Paiute language, lives on today in native legends and stories.

When the first Europeans settled Las Vegas, they too used the springs--first, as a stop- over for wagon roads and the nearby railroad, and later as a homestead. Between 1914 and 1939 ranchers and farmers eked out a living at Corn Creek. They raised cattle, planted orchards and vegetables, and during hard times some individuals even made bootleg whisky. In 1936 George Worts, a writer of Hollywood fame, purchased the farm and moved there with his young wife. As a gentleman rancher, Mr. Worts improved the property by modernizing the older ranch house and adding newer buildings. Perhaps the isolation did not suit the writer and his young wife, or work elsewhere beckoned, as just three years after taking residence George Worts sold the property to the U.S. Department of Agriculture.

Even before the government's purchase was final, Corn Creek was identified as a suitable place for the country's growing Civil Conservation Corps (CCC) program. By 1940 at least 25 men were stationed at the Corn Creek "side camp." For a year or so the CCC developed springs, built concrete storage tanks, cleaned-out the reservoirs, and constructed roads, fences, and corrals. By late 1940 the camp became the Desert Game Range CCC Camp and soon after that it was closed. Protected as part of the Desert National Wildlife Refuge, the Corn Creek Field Station is a treasure trove of history and prehistory—a unique remnant of our past.

This report tells the story of these events as well as the results of the archaeological survey and limited excavations conducted within the Corn Creek National Register Archaeological District. This important work was conducted for the U.S. Fish and Wildlife Service by HRA, Inc. in 2002. This is a condensed version of two separate technical documents as well as other pertinent research prepared by HRA, Inc. on behalf of the U.S. Fish and Wildlife Service for the scientific community and interested general public. Without the help of many individuals who shared their knowledge, it would be far less complete. HRA would like to extend thanks to everyone who participated in this gathering of information on the past and to Kathleen Sprowl, archaeologist for the Desert National Wildlife Refuge, for assisting in the editing of this report for the public.

CHAPTER 1
INTRODUCTION

In 1975 the Corn Creek Campsite (26CK2605), the Mesquite (Railroad Tie) House and the Blacksmith Shop located at the Corn Creek Field Station of the Desert National Wildlife Refuge were formally listed on the National Register of Historic Places. Established in 1966, the National Register is a program that coordinates public and private efforts to identify and protect historic and archaeological resources.

The Desert National Wildlife Refuge, established in 1936 to protect desert bighorn sheep, encompasses over 1.5 million acres of land and is home to over 500 species of plants and 320 species of birds (Figure 1.1). The Corn Creek Field Station, which extends for 650 acres, lies on the northern edge of Las Vegas Valley between the Spring and Sheep mountain ranges approximately 15 miles north of Las Vegas (Figure 1.2). Today the Field Station houses U.S. Fish & Wildlife (FWS) personnel and contains residences, storage and service buildings, offices, and 10 acres of pasture and water flowing from ancient spring mounds into reservoirs. Sand dunes reaching 30 feet high in some places surround the Field Station.

In 1963, as part of the Tule Spring early man investigations, several hearth features were discovered deeply buried in the sand dunes just north of the Corn Creek Field Station. Radiocarbon dates obtained from excavated hearths suggested that Native Americans had lived in the dunes for at least 5,000 years. Artifacts found throughout the dunes hinted that additional hearth features lay buried. In recognition of the site's significance, and its potential to contain additional intact deposits, FWS personnel prepared and submitted a National Register Nomination form on the site in 1974.

To better define the archaeological resources of this important National Register Site, the FWS contracted HRA, Inc. Conservation Archaeology (HRA) to conduct an intensive archaeological survey of the sand dunes surrounding the Corn Creek Field Station. During the spring and summer of 2002, HRA archaeologists surveyed approximately 1,000 acres and identified numerous areas of prehistoric and historic activities, called loci. Twelve of these are historic in age and include four roads, five trash scatters, one mine, one dugout, and one windmill. Forty-four loci are prehistoric, including one large habitation area in the vicinity of the Field Station, 29 camp sites (which contain flaked stone and ground stone artifacts), 13 thermal features (such as hearths or roasting pits), and one human-made trail. The 56 loci suggest that Corn Creek has been used continuously since the Middle Archaic (5500 BC – present).

During the fall of 2002, HRA conducted test excavations near a spring channel in the Field Station Locus in order to determine the extent, integrity, and significance of archaeological deposits that were unexpectedly encountered by the FWS as they worked to improve wildlife habitat. Archaeologists excavated seven test units — four of which were placed in disturbed areas near the spring channel, and three of which were excavated in an undisturbed area northwest of the channel. This area contained a dense scatter of artifacts surrounding 11 circular depressions. These depressions measure two to four meters in diameter and were suspected to represent partially filled prehistoric habitation structures. Two units placed in one of these depressions were dug to a depth of 50-70 cm below the surface. A prepared floor was identified beneath four cultural strata containing charcoal, burnt animal bone, ceramic sherds, and flaked and ground stone artifacts. The test excavations support the suggestion that the midden-covered depressions are the remains of Puebloan habitation structures.

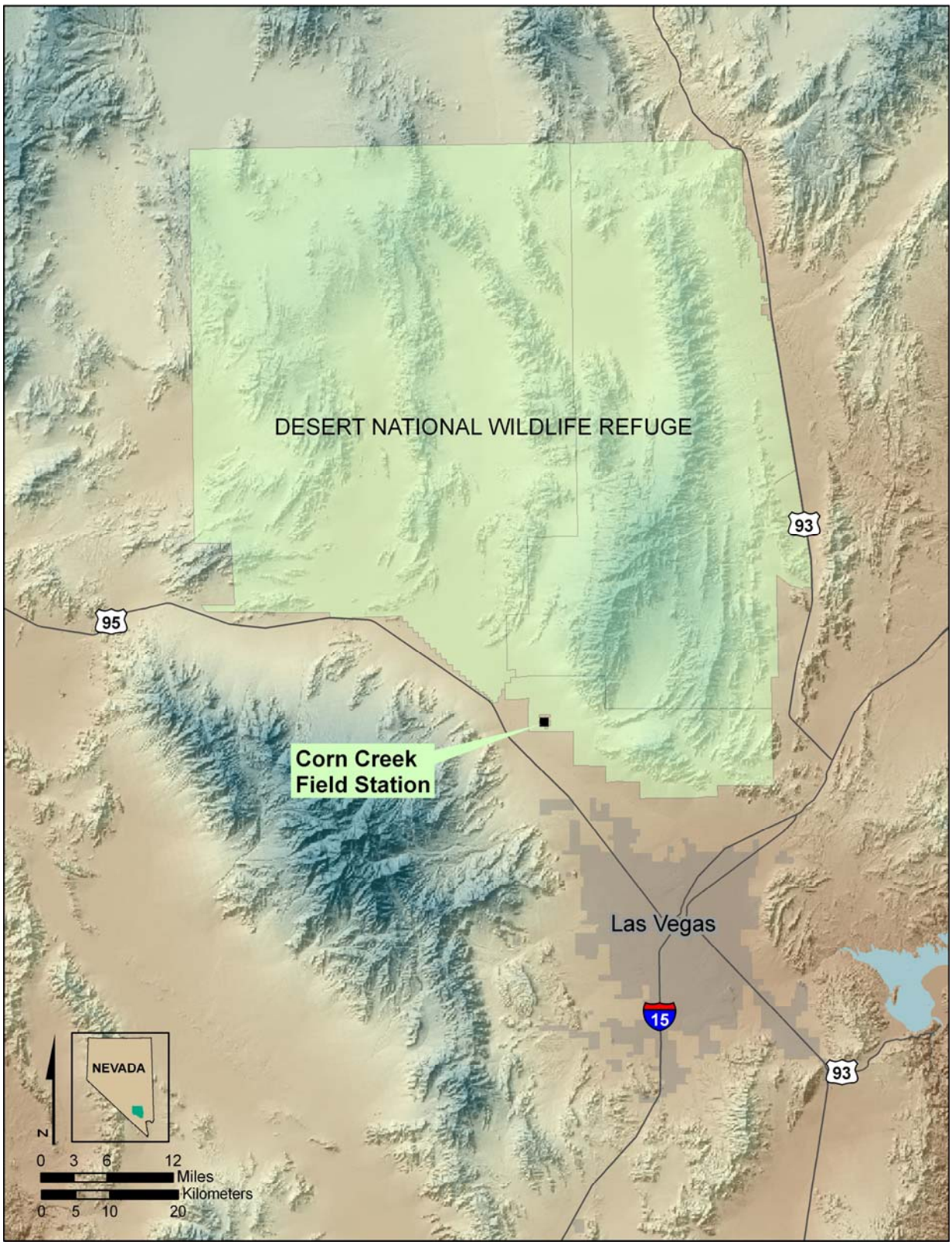

Figure 1.1. Map of Desert National Wildlife Refuge, Clark County, Nevada.

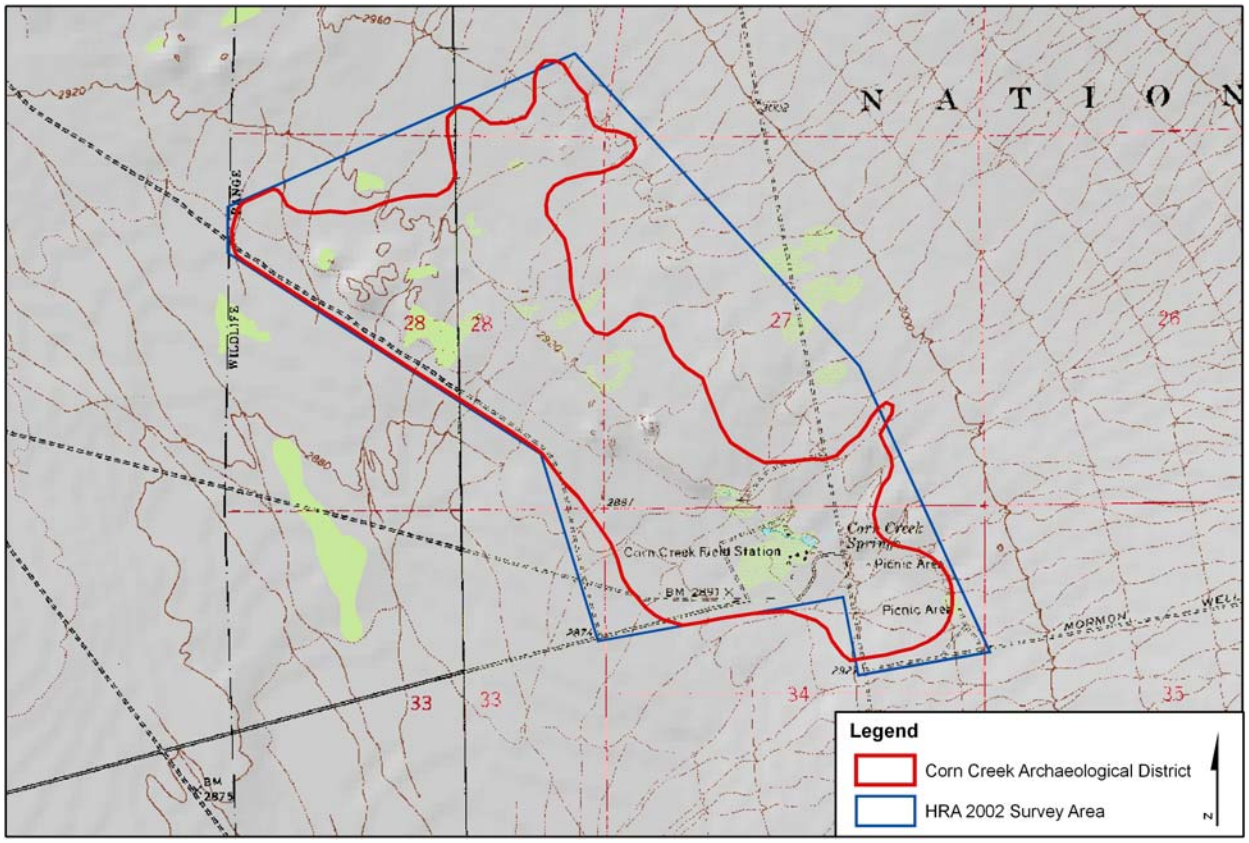

Figure 1.2. Map of the Corn Creek Field Station and the Corn Creek Archaeological District boundaries as recommended by HRA in 2003.

As part of their investigations HRA interviewed several Southern Paiute Elders from the Las Vegas, Moapa, Shivwits, and Pahrump tribes (Figure 1.3). The Elders provided invaluable firsthand information about the natural resources at Corn Creek. They told of how plants such as mesquite beans were collected, dried, and ground into flour, which was added to stews and eaten with jerky. Mesquite flour, when mixed with water and rolled into a ball, also made a tasty candy. Other plants such as Indian spinach (prince's plume) and cattail were picked, boiled, and then eaten. In addition, yucca leaves and roots were used as soap and shampoo. Yucca was also used for sandals.

Historical research by HRA historian Elizabeth von Till Warren resulted in the discovery of a rich collection of photographs and maps dating to the early part of the 20th century. Warren's research, which is detailed in Chapters 5 and 6, uncovered information about the families who lived at Corn Creek, including the Richardson and Worts families. In 2002, HRA interviewed Bob Worts and toured Corn Creek with him. Bob Worts' father bought the ranch in 1936, and Bob spent several years there. He kindly shared his memories and tidbits of knowledge of ranch life at Corn Creek.

CONSULTATION WITH NATIVE AMERICAN ELDERS

Heidi Roberts

The FWS requested that HRA compile ethnographic information on the Corn Creek Station as part of its archaeological investigations. Funding limitations made it impossible to conduct this study using the consultation model established for the Nevada Test Site by Richard Stoffle and his associates (Stoffle et al.

2001), so HRA proposed instead to conduct interviews with Southern Paiute people. The interviews were to focus on the archaeological loci that were found during the survey and on special places or important locations in the project area. Dr. Catherine Fowler offered to provide technical guidance as well as access to pertinent entries in Isabel Kelly's ethnographic field notes. FWS provided funding for the Paiute Elders' travel expenses. My role was to conduct the interviews.

The following section was written by the Elders of the Las Vegas, Moapa, Shivwits bands and Pahrump Paiute Tribes using information obtained during a series of interviews that took place during visits to the Corn Creek Ranger Station. Kenny Anderson organized the meetings and taped the interviews. The first of the visits to Corn Creek took place on August 10, 2002 and included Juanita Kinlichinie, Lalovi Miller, Tracy Miller, Lavinia Myers, Flora Simmons of the Moapa Band of Paiutes and Bud Myers of the Shivwits band and Kenny Anderson of the Las Vegas Paiute Indian Tribe. Additional visits were held on August 20, 21, and 27, 2002 and October 3, 2002. Juanita Kinlichinie, Lalovi Miller, Tracy Miller of the Moapa Band of Paiutes, Bud Myers of the Shivwits band, Kenny Anderson of the Las Vegas Paiute Tribe, Lawanda Cushman, Brett Cushman, Susan Eswonia Anderson, Clarabelle Jim, and Richard Arnold of the Pahrump Paiute Tribe participated in one or more of these visits. Velda Begay, Clarabelle Jim, Bud Myers, and Lalovi Miller agreed to author this portion, with my assistance as secretary. The following portion is organized around a series of questions that are relevant to the identification of cultural resources and to their future management.

I would particularly like to thank the authors of this portion for their generosity, enthusiasm, and patience. All of the Paiute participants gave freely of their knowledge and time. I would also like to thank Kenny and Susan Eswonia Anderson for coordinating the visits, and thereby making it all possible. I am also indebted to the sounds of the bubbling creek and the songs of the birds for helping memories flow like the waters from the spring.

Coyote Named This Place *Pakonapanti*

Velda Begay, Clarabelle Jim, Lalovi Miller, and Bud Myers

Some of our relatives lived here and are buried here. Whispering Ben, who was Clarabelle's great-great grandfather, lost his son here. He is buried somewhere in the vicinity of the Field Station. We do not know the exact location where this person is buried, but Fish and Wildlife managers and archaeologists should keep this in mind whenever they dig. The manos, metates, and other artifacts should be left alone, right where they lay. This place is known as *Pakonapanti* in Paiute. Coyote, our god, named the springs. It is just the name he gave—it doesn't necessarily mean anything it is just the name. The Euroamerican name, Corn Creek probably came from the fact that the Indians were growing corn and squash here. Two kinds of squash were grown, one like a pumpkin and another like Italian squash. The name of the Indian squash is Patahaung.

A million moons ago before white man came to Las Vegas the Paiute people lived in caves. When not in caves, they lived in brush shelters made out of branches and tied at the top to let the smoke out. This type of shelter is round and is made from eight or 10 willow poles that are placed in the ground with mud. The mud dries and holds the poles in place. Then the willows are tied at the top and bundles of arrow weed or willows are placed over the poles. Euroamericans called these types of structures wickiups. We also used a brush arbor. Arbors are made with four forked Cottonwood poles. Sticks are placed over the top, and then willow braches or other types of wooden poles were placed over them. Some of us were raised in these shelters. In the summer everything was moved outside—the stoves and tables—were placed in a can of water so the ants wouldn't walk up the table. Water was sprinkled over the ground to cool it off. The willows were also used for baskets.

There are some plants located here, at Corn Creek, which are important to the Paiute people. Some of these plants are Indian spinach, which is prince's plume (there are two types), and mesquite beans, and cattail. Watercress was eaten and it also grew around the springs. Indian spinach is harvested before it blooms. The

leaves are picked and boiled. Some like to rinse the boiled leaves more than once after they are cooked others like them bitter. Cattail roots are eaten too, they are boiled. There are other plants here that are medicine, but we only know the Indian name. Hedgehog cactus fruit are eaten when they are ripe. They have a lot of seeds. The fruit is good, and we still eat these when they turn red in June. Barrel cactus is used for needles. Sap is put on the bottom and when the sap dries the needle is used to make baskets. Richard Arnold showed one of the needles to the anthropologists working on the Yucca Mountain project. Yucca leaves and roots are used as soap and shampoo. The leaves are split and tied and hung to dry you cut and put in water then used to wash your hair. Yucca pods were eaten and agave fruit were roasted and yucca used for sandals.

Mesquite beans were collected and ground into flour after they were dry. They were also eaten raw when they were green. Some mesquite trees produced better tasting beans than other trees. We all ate mesquite seeds when we were young. We remember grinding the pods then sifting them with a screen. The seeds are removed before the beans are ground and then the seeds were put in water to soak. This makes a good sweet drink. Water was added to the mesquite flour to make candy in the form of balls. The flour would also be added to stews and eaten with jerky. Mesquite powder was the first instant drink. Brown the flower in a frying pan and add jerky. It is good. This reminds us that we stored squash in the basement with corn, which was used later in the spring. Although people would be up in the mountains gathering pine nuts, someone would be left to watch the fields near the springs.

A thorough assessment is needed of the plants located at the Ranger Station. It would be good to work with an ethnographer like we did at Yucca Mountain and the Nevada Test Site. Then we would have an inventory of the plants at the Station, and we could tell you about the Indian uses.

Rabbits, doves and quails are also important food sources and we have seen these animals in this area. Sheep and deer probably came to the springs and were hunted. The men also hunted them in the mountains and brought the meat back to the clans at the spring. Locusts were eaten too. The legs were removed and then they were roasted in the fire and eaten. When we were young, some of us, would catch the locusts and cook them on the fire, and then eat them. Grasshoppers and caterpillars were eaten too. We have heard that caterpillars were squeezed and eaten or cooked in the hot sand, then stored for the winter, tortoises were used as a food source and their shells were used as bowls.

In the mountains pine nuts were roasted in pits. First you dig a hole about a foot or two deep, then put sagebrush in the hole in the shape of an Eagle's nest. Then you collect pinecones in a burlap sack, and dump the pinecones in the pit with the sagebrush. Then you cook the pinecones by starting a fire and stirring it properly with a stick. After the fire goes out you eat lunch and wait for it to cool. Then you crack the cones with a mano and metate while sitting next to the roasting pit. This is the best way to eat pine nuts. They taste better when they are cooked this way.

Anthropologists come and study us. They write books on the information we tell them, and they make money off of the books they write. There would be no books without the Paiute people, yet the white authors profit from these books. The Indian people get nothing from these books' profits, yet without them there would be no book. We think the Paiute informants should share in the profits, and they should be able to verify the contents before the books are published.

The Elder's Management Suggestions

We would like to see that the archaeological sites around the Corn Creek Station be managed in a respectful way. The most important thing is that archaeologists do not dig at the archaeological sites unless it is absolutely necessary. The Paiute people should be consulted if it is necessary to excavate in archaeological sites. For example, we believe it would be better to leave the creek alone (as it is without the concrete lining), rather than to restore the creek to its original form. Restoring the creek to a more natural form will disturb the nearby archaeological site and it may cause the water to stop flowing. If you disturb a spring the water level can be affected and the spring can dry-up. In Pahrump a spring was excavated and the water level went down.

People who visit the Station should be told where to go and told how to behave. It would be a good idea for the Fish & Wildlife Service to display information on the history and life ways of the Paiute people before Euroamericans arrived. You might explain to the visitors that the Paiute people lived here in clans and they farmed the land. They also collected and processed wild plants like mesquite beans and Indian spinach. Animals, such as rabbits and doves, were hunted for food. The Paiute people lived in brush shelters, arbors, and caves.

Visitor trails at the Station should be designed to avoid the archaeological sites. You are disturbing history when you bring a lot of people in, and they do not stay on the trails. It is educational for the children and other people as long as tours are guided or groups are chaperoned at all times.

The area around the Ranger Station contains some "special places." These places are the springs and the trail located to the east of the springs. This trail, which is just west and parallel to the Mormon Wells road, is important and should be preserved. When I (Clarabelle) was a young girl we were living at Wheeler Spring picking pine nuts with my mother and the family. When Fred Ben gave a sorrel horse to his niece at Wheeler Springs, Abe Pete came through this trail. I don't know how long it took him to get here but he spent the night at Corn Creek, and he hobbled his horses. However, the horses got loose and they knew which way they came from, so they went up into the mountains. He followed the horses and after a long journey that brought them to Wheeler Springs through one main gully at the Station.

Corn Creek springs themselves are important to the Paiute people. All seven springs are significant. Although Isabel Kelly says that some of the springs were owned, this is not the way of the Paiute people. Springs were not owned, but a clan lived there and was associated with the spring and the location. For example, my family (Lalovi Miller) was associated with the part of the Moapa Valley that is now owned by the Yamishita family.

We are worried that the Corn Creek spring's water level may have gone down when the concrete liner was removed, and we worry that the spring will go low because of the construction nearby. With the State buying up the water we are afraid that this overuse will drop the water level of these springs. The water level at this spring should be monitored to make sure it doesn't go low. The springs should also be managed in a respectful and natural way. Paiute Springs near Searchlight used to be the only water source, and once word got around the jeeps and four-wheelers went there and left their trash and beer cans. Key Hole canyon is also visited by people in jeeps and by other visitors who may not be respectful of the canyon. There used to be springs at Big Springs. Whispering Ben stuck a willow whip in a tree there, but it is probably gone now.

Corn Creek is mentioned in the Salt Song Trail, which is also known to some of us as the Silver Song. This song is used for funerals. It used to be a three-day song, and now it is just sung for one night, from sundown to sun-up. There is a map of the Salt Song Trail in the Chemehuevi book.

ENVIRONMENTAL SETTING

The Corn Creek Project Area lies on the western bajada of the Sheep Range in an area where spring mounds have formed in association with the Corn Creek Fault. Large sand dunes, some as high as 30 feet, cover major portions of the project area. The project area also contains a FWS Field Station with both modern and historic buildings and structures. The Field Station, located at the northeast edge of HRA's project area, contains ancient spring mounds that are associated with the Corn Creek Fault. Seven spring mounds (Figure 1.4) surround the Field Station and water from three of the springs is channeled and collected in three ponds. In recent times, linings of concrete were added to portions of these channels.

Located in southern Nevada, the regional environmental setting can be defined in several ways. First, and in the broadest terms, the area lies within the Basin and Range Physiographic Province, which extends from southern Oregon to southwestern Arizona and from eastern California to western Utah. In fact, all of Nevada is part of this province. The southern Nevada portion of the Basin and Range is bordered on the

Figure 1.3. Kenny Anderson, Lalovi Miller, Susan Eswonia Anderson, Velda Begay, Tracy Miller, Lane Miller, Amy Sprunger, and Juanita Kinlichinie at the Corn Creek Field Station..

Figure 1.4. One of the spring mounds at the Corn Creek Field Station.

southeast by another physiographic province, the Colorado Plateau. The Basin and Range is characterized by narrow, north-south trending mountains separated by broad valleys. Southern Nevada's environment can also be defined with reference to three definitions of the Great Basin (Grayson 1993). First, it is located within, but near the southeastern edge of the physiographic Great Basin. This concept of the "Great Basin" is defined with reference to the spatial extent of the region's mountain ranges and intervening valleys. Second, much of southern Nevada, including the Corn Creek Project Area, is located outside, but near the southeastern edge of the hydrographic Great Basin. This is the portion of the desert west that drains internally. Instead, the portion of southern Nevada that contains the project area drains into the Colorado River and, by that route, into the Pacific Ocean. Finally, southern Nevada is located well south of the floristic Great Basin, a cool desert characterized by sagebrush in the valleys and coniferous trees in the mountains. In terms of its flora, southern Nevada is at the northern edge of the Mojave Desert.

Three of the seven Mojave Desert plant communities present in Las Vegas are found in the area studied by HRA. These tree communities include Mojave Creosote Bush Scrub, Mojave Desert Wash Scrub, and Mesquite Bosque. A distinctive form of the Mesquite Bosque community can be found on the sand dunes that occur in a northwest to southeast oriented band running along and on the upslope (northeast) side of the Corn Creek geological fault. Dense thickets of shrubby mesquite trees cover most of the sand dunes in this zone, including the tallest ones. The dunes have developed around the mesquite trees whose tap roots can access spring water in the fault (Warren 2001:20). Mesquite beans were one of the most important food sources for the Southern Paiutes in the Las Vegas Valley. In fact, mesquite trees with superior tasting fruit were selectively tended by Southern Paiute people to enhance their seed production (Chapter 1; Rhode 2002).

Mojave Creosote Bush Scrub can found throughout the project area to the northeast and southwest of the band of mesquite-covered dunes (Figure 1.5). This community occurs in the Las Vegas Valley "on slopes, fans, and valleys. Soils associated with this community are well-drained and have low available water-holding capacity. A tremendous diversity of species comprises the Mojave Creosote Bush Scrub community. Dominant species include creosote bush and white bursage (Knoblock and Ezzo 1995:30). Blair (1986:177-229) has listed a number of plant species that grow in the California Wash area (located east of the Sheep Range) and that were used by Native Americans. Among these were several species that were recognized in the course of the Corn Creek Survey and were mentioned during our discussions with Southern Paiute Elders (Table 1.1).

The Mojave Desert Wash Scrub community is found near the springs in the vicinity of the Field Station. This community contains numerous plant species that were and continue to be important to the region's Native American people (Table 1.1).

We can infer from the well-used bedrock mortars located in the Field Station Locus that mesquite beans were collected and processed at Corn Creek. Mesquite trees are found in dense stands throughout the project area. As described by the Paiute Elders in Chapter 7 and summarized elsewhere by Rhode (2002), mesquite beans were one of the most important food source for Southern Paiute people. In Ash Meadows, and probably elsewhere in Southern Nevada, Southern Paiute families maintained mesquite groves to enhance their productivity (Rhode 2002:18). When ripe, the beans were, and still are, eaten raw or dried and ground into flour for use as a drink or mash. In some areas, mesquite flour is combined with water and stored in the form of cakes. Mark Harrington recovered mesquite cakes from some Anasazi burials at the Lost City site on the Muddy River (Shutler 1967). Rhode (2002:19) mentions that mesquite beans were also pit baked when they were green. The dense groves of mesquite found throughout the Corn Creek project area could have supported a sizable population. Rhode (2002:21) noted that two women can produce 88 pounds of flour in two days, which amounts to enough food energy to supply three adults for three weeks.

Table 1.1. Important Economic Plant Species Identified in the Corn Creek Project Area.

Species	Common Name	Notes
Prosopis glandulosa	Honey mesquite	Pods are pit cooked when green, pounded and made into a drink when ripe, ground and made into flour when mature (Chapter 1; Rhode 2002:17-21).
Salix exigua	Sand willow	Branches are used for making baskets and building material; the bark has some medicinal uses (Chapter 1; Rhode 2002:27-30).
Pluchea sericea	Arrowweed	Used for arrowshafts and building materials (Rhode 2002:44)
Vitis arizonica	Canyon grape	Fruit and seeds eaten raw or made into jelly and wine, vines used as building material (Chapter 1; Rhode 2002:46)
Larrea tridentata	Creosote	Fuel, tools, medicinal uses (Rhode 2002:47-48)
Ephedra viridis	Indian tea/Mormon tea	Used as a beverage and medicine (Rhode 2002:59)
Stanleya pinnata	Indian spinach/Prince's plume	Leaves and stems boiled or fried (Chapter 1; Rhode 2002:86)
Oryzopsis hymenoides	Indian ricegrass	Seeds ground into flour for mush and breads; readily stored for later use (Rhode 2002:174)
Eriogonum inflatum	Desert-trumpet, buckwheat	"The tender top stems were used in salads. The shoots were eaten raw or boiled and as pot herbs. Seeds were gathered, ground and made into mush and breads." (Blair 1986:207)
Datura wrightti	Thorn apple	Ceremonial uses and medicinal uses (Chapter 1; Rhode 2002:123-124).
Typha domingensis	Southern cattail	Stems, pollen, and seeds eaten and whole plant used as building material (Chapter 1)
Yucca baccata	Spanish bayonet	Fruit eaten fresh or dried, cooked and pressed into food bars, baked in roasting pits or chewed after drying for use as cathartic; stems used for soap, leaves for fiber (Rhode 2002:100-101)
Yucca shidigera	Mohave yucca	Fruits eaten green but puckery to the taste, usually roasted in pits; leaves for fiber (Rhode 2002:98)

Figure 1.5. Creosote Bush Scrub community and mesquite-covered sand dunes in the Corn Creek project area.

A number of animal species are characteristic of the Mojave Creosote Bush Scrub and Desert Riparian Habitats including several kinds of mice and other rodents, bobcat, raccoon, muskrat, coyote, fox, numerous lizards and snakes, and over 90 species of birds (Knoblock and Ezzo 1995:32-33) that include waterfowl. Species particularly important to Native Americans were the desert cottontail, black-tailed jackrabbit, and desert tortoise. Burned bones from tortoises and rabbits as well as large mammals were recovered from the excavation units during HRA's recent test excavation project at Corn Creek.

Corn Creek lies within the area of distribution of mountain sheep (bighorn sheep)—as for that matter, so does all of Nevada (Hall 1946:Figure 473), and sheep probably watered at the Field Station's springs. The Sheep Range does not, on the other hand, lie within the area of distribution of mule deer, though these animals are noted as occurring to the west in the Spring Mountains, across the Las Vegas Valley from the Sheep Range (Hall 1946:Figure 463) and in the northern part of the Sheep Range.

Geoarchaeology of the Corn Creek Field Station

During the course of the survey project, geoarchaeologist William Eckerle visited the Corn Creek Dunes area in order to assess the data potential and integrity of the archaeological resources. Eckerle developed a geologic and geomorphic context for the area (Figure 1.6), and by examining the soil types, amount of gravel, caliche (calcium carbonate), the age of the geologic deposits, and the slope of the ground surface, he was able to evaluate the scientific and cultural resource value of the Corn Creek Field Station area.

The method used by Eckerle divided the different loci on site into high, low, and moderate or unknown sensitivity classifications. High sensitivity loci have a good potential for containing buried artifacts and features with good integrity, while low sensitivity loci have poor potential for buried artifacts and features and poor integrity (Eckerle 2003:30). Loci that fall into the moderate or unknown category either cannot be determined because of their location near spring mounds (in which case they could not be thoroughly examined) or because they do not fall into either the high or low sensitivity categories. Eckerle's study found that 22 loci and features had high sensitivity, eight loci and features had low sensitivity, and 18 loci and features fell into the moderate or unknown sensitivity category.

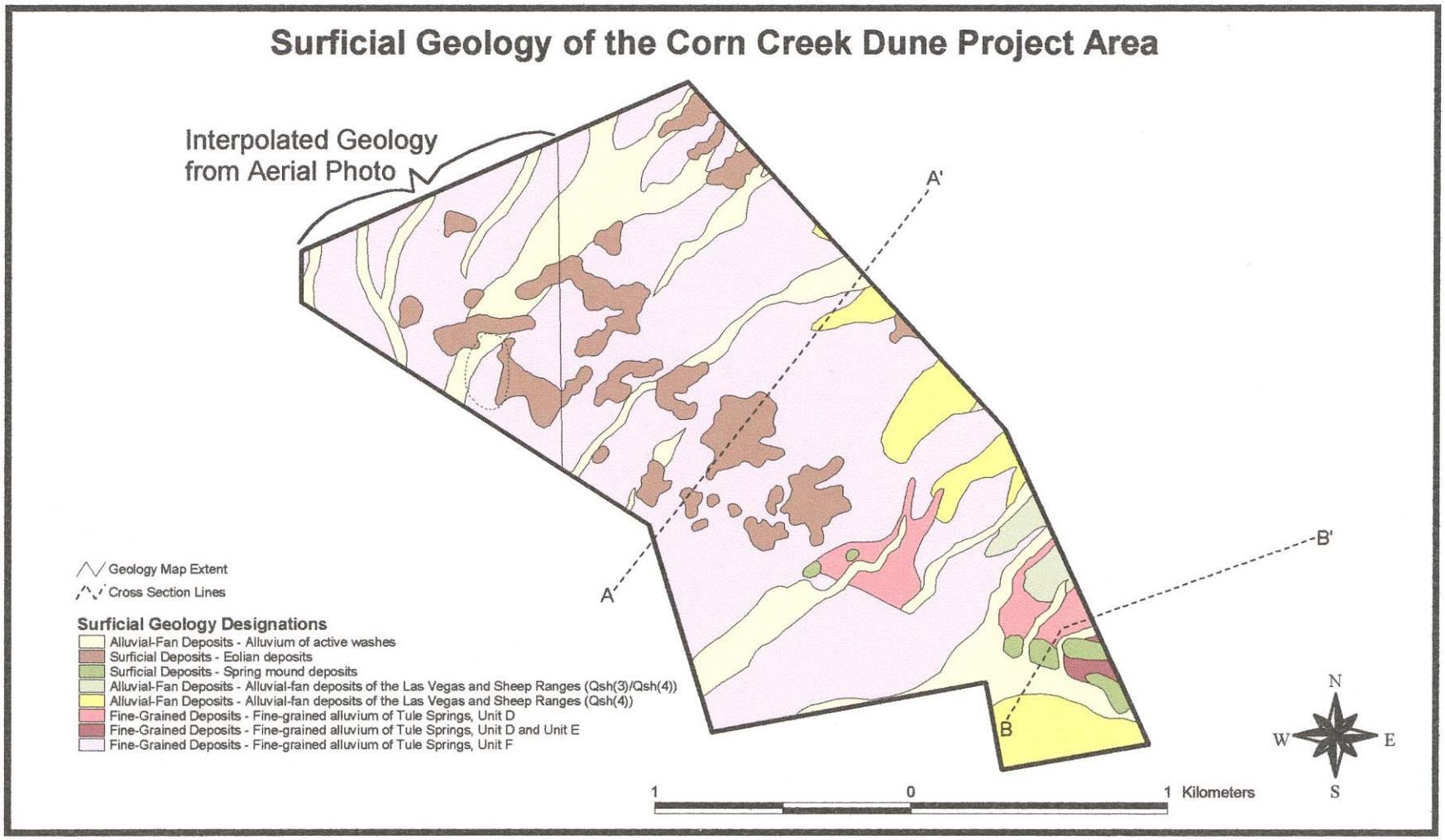

Figure 1.6. Surficial geology of the project area (redrafted from Bell et al. 1999; western portion interpolated from imagery).

CHAPTER 2

PREVIOUS ARCHAEOLOGICAL STUDIES IN THE LAS VEGAS VALLEY

Heidi Roberts, Richard V.N. Ahlstrom, and Jerry D. Lyon

During the last two decades, Las Vegas has grown faster than any other city in the United States. The city's population increased from 8,422 in 1940 to 164,674 in 1980, and each decade since the population has doubled (Las Vegas News Bureau). Many of Las Vegas Valley's historic properties have been a casualty of this rapid growth. Because the Las Vegas economy has been fueled by the construction of new and glitzy casinos, preserving remnants of the past has been in conflict with the city's basic economic philosophy. Las Vegas' rapid growth combined with a "new is better" bias made the preservation fight, along some fronts, a losing battle. Sites under private ownership—the Berger Site (26CK501/1528), Burnt Rock Mound (26CK3601), the Whitney Mesa Site (26CK3333), Twin Dunes (26CK1525), and Grapevine Springs site (26CK1333)—were among the first to go. Many of the city's most important historic sites—the Las Vegas Hospital, the Ice Plant, the El Portal Theater, and the Union Pacific Depot—were also not spared.

Although many privately owned archaeological sites have been lost, often without the benefits of academic excavation, most federally managed archaeological sites that are identified as significant for their information potential are excavated or documented before they pass from federal ownership. Since much of the developed land in Las Vegas was either originally under federal management, or its development involved federal funds, the history of previous archaeological research in the valley is deeply entwined with the valley's federal land management agencies. In fact, millions of public and private dollars have been spent on the preservation, evaluation, and study of the Las Vegas Valley's archaeological sites.

This chapter explores the history of those archaeological studies to provide evidence of how precious Corn Creek's resources truly are. What were the valley's major archaeological inventory and excavation projects, and what have we learned from these studies? A review of the previous archaeological research is a key to understanding the context of the region's archaeological resources, particularly in terms of their uniqueness and ability to provide information important to prehistory. Synthesizing previous research provides insight into gaps in our understanding of the region's prehistory and history.

EARLY EXPLORATIONS IN LAS VEGAS (1930-1960)

Until the 1960s, archaeological research in the Las Vegas Valley was for the most part sporadic (Harrington 1930:15-17) and focused on the search for evidence of early man (Harrington 1933; Harrington and Simpson 1961). The spectacular archaeological finds of the Muddy Valley's Lost City and Mojave Desert drew the pioneering archaeologists away from the Las Vegas Valley (Harrington 1930:17). It was in these areas that Malcolm Rogers, of the San Diego Museum of Man, and Harrington, of the Heye Foundation and later the Southwest Museum, defined the major cultural periods of the region (McClellan et al. 1980). Rogers (1939, 1945, 1966) is best known for his definition of the three major cultural periods in the Mojave Desert, which include the San Dieguito, the Amargosa, and the Yuman periods. Harrington is known for his work directing the Civilian Conservation Corps excavations of Lost City prior to the site's inundation by Lake Mead as well as for his search for Pleistocene remains at Tule Springs and Gypsum Cave (McClellan et al. 1980).

Gypsum Cave, located less than 10 miles east of Las Vegas, was one of the first stratified rockshelters excavated in the Great Basin. Between 1930 and 1931, Harrington, then of the Southwest Museum, led an expedition financed by private donations to excavate the cave and hopefully recover evidence

of man living alongside, and hunting, extinct Pleistocene mammals. In the winter of 1930, a camp was set up and excavation began, following mapping and establishment of a grid. The five stratigraphic levels excavated in the cave were called, from youngest to oldest, Layers 1 through 5. Layer 5 was covered by sloth dung (Figure 2.1). The five rooms comprising the cave were either partially or completely excavated:

> we thoroughly excavated every deposit which in the opinion of Dr. Stock and myself [Harrington] might shed light on our problem. The only exceptions were two small areas in Room 4 where the sloth dung and other layers were left intact for future checking, and a similar area in Room 1. The older layers of the cave, deposited before the coming of the ground sloth were only partially excavated [Harrington 1933:17].

In the room adjacent to the cave's opening, Harrington and the excavators uncovered what they felt were "traces of two campfires, as well as two worked sticks and an oval scraper-knife of chert" sealed under a layer of ground-sloth dung (Harrington 1933:24). These hearths in Layer 5 were buried under 7 feet of cultural fill and other debris. In Room 4 Harrington found "a stone dart point imbedded in a partially consolidated gypsum layer between two layers of burnt sloth dung" (Harrington 1933:165), which he believed was additional evidence of the association of extinct sloths and people. Room 3 contained a similarly embedded dart point sealed under rock fall. In the absence of radiocarbon dating methods, Harrington interpreted the association with sloth dung as evidence of man in Gypsum Cave 13,000 to 15,000 years ago (Harrington 1933:190).

Despite his apparently convincing argument for the presence of man coexisting with Pleistocence mammals at Gypsum Cave, radiocarbon dating later disproved the association (Fowler and Madsen 1986:173). Sloth dung from the cave dated to 9700 and 6500 BC, whereas dates from the artifacts fell in the range of 900 to 400 BC (Heizer and Berger 1970, cited in Fowler and Madsen 1986:173; Willig and Aikens 1988:7). The recent date on the atlatl dart that was associated with sloth dug hints at the use of older cave materials by the site's more recent occupants (Willig and Aikens 1988:7).

Artifacts and hearth features recovered in a stratigraphic position above Layer 5 suggested to Harrington that the cave was occupied for a long period of time that included the Pueblo, Basketmaker, and pre-ceramic periods. Thousands of artifacts, coprolites, bones, and plant remains were recovered from the cave and were curated at the Southwest Museum (Gilreath 2003:61). These artifacts could provide a wealth of data that has yet to be fully analyzed and evaluated (Gilreath 2003:61-62).

Closer to Las Vegas, near the intersection of Valley View and U.S. 95, an amateur archaeologist, William S. Park, excavated "a five-room pueblo" at Big Springs in the 1930s (Rafferty 1984:33). Few records or artifacts survived from Park's excavations; however, on-going work at this site by the Las Vegas Springs Preserve has uncovered evidence of a Virgin Anasazi habitation feature (Roberts and Seymour 2006) confirm Park's identification from 60 years ago.

In the 1940s, Gordon Baldwin excavated at sites in the Mojave Desert that were later inundated by Lake Mohave and the reservoir for Davis Dam. Another important contributor of the period was Albert Schroeder, noted for his excavation of the Willow Beach site (Schroeder 1961). Willow Beach, located along the Colorado River 10 miles below Hoover Dam, was an open, stratified campsite that was occupied from 250 BC to AD 1150, and sporadically after that.

THE TULE SPRINGS PERIOD (1960-1980)

The 1962-1963 Tule Springs expedition overshadowed all other archaeological research during the period from 1960 to 1980. Spurred by Harrington and Simpson's (1961) claim that man and Pleistocene mammals were associated near Tule Springs, the expedition hoped to verify the presence of Early Man in Las Vegas. Although the expedition was unable to verify the association of man and Pleistocene mammals, it was successful in locating evidence of man's presence in the Valley 10,000 years ago, and it resulted in

paleoenvironmental reconstructions that led archaeologists in new research directions. It also taught important lessons regarding the use of radiocarbon dates and the necessity of identifying the association between artifacts and radiocarbon-dated materials.

Discovery of the Tule Springs Site

[The following section is taken from Roberts and Ahlstrom 2002.] The Tule Springs site was first discovered in 1933 during a paleontological expedition by the American Museum of Natural History. Fenley Hunter, who financed and organized the expedition, found an obsidian flake in a deeply buried charcoal and ash layer (Site A, Area 3) containing remains of extinct animals (Harrington 1985:223-224; Shutler 1967a:3). Upon hearing of the finding, Mark Harrington, of the Southwest Museum, applied for excavation permits and, with Fay Perkins, visited Hunter's site in October 1933. They excavated two ash deposits (Ash Bed 1 and Ash Bed 2) that were associated with charcoal and two bone objects that Harrington considered tools. During this expedition, stone tools were also recovered from the Tule Springs area, but they were not in association with the ash deposits and bone beds.

In 1955 the charcoal from these original expeditions was located by Ruth DeEtte Simpson at the Southwest Museum, and Harrington sent it to Willard Libby at the Institute of Nuclear Studies, University of Chicago (Harrington 1985:226; Shutler 1967b:299) for radiocarbon dating. This method for dating events in the past was then in its infancy. After Harrington received the astounding news that the Tule Springs samples dated to 23,800 years BP, he hastily assembled an expedition to collect additional evidence for the presence of Early Man at Tule Springs. Harrington, Simpson, and Charles Rozaire of the Southwest Museum spent two weeks in May at Tule Springs locating additional charcoal and mammoth sites (Harrington 1985:226). A third Southwest Museum expedition in 1956 continued work at Site A, Areas 1 and 2 and at Ash Bed 1, and it reported four new bone exposures (Shutler 1967b:299). Evidence of human occupation associated with extinct animal bones from this expedition consisted of a unifacial scraper found in association with camel bones and charcoal. A date of older than 28,000 BP was obtained from carbon associated with the scraper.

The 1962-1963 Expedition

The largest Tule Springs expedition was born out of a meeting called by Willard Libby in 1962 to discuss "matters relating to better coordination and understanding of radiocarbon dating in relation to archaeology" (Shutler 1967a:3). The participants of the meeting, Wallace Broecker, J. Desmond Clark, Robert F. Heizer, Carl Hubbs, Willard F. Libby, Clement Meighan, H. B. Nicholson, Phil C. Orr, Charles Rozaire, Richard Shutler, Jr., Herschel C. Smith, and Claude Warren agreed that Tule Springs was the best available candidate for a study on the topic of Early Man in the Americas. The complexity of Tule Springs' geology, paleontology, and archaeology made a multidisciplinary approach essential, and Heizer proposed that a "major effort be made to determine if man and Pleistocene fauna were contemporaneous at Tule Springs and, if so, on what time level" (Shutler 1967a:3).

ARCHAEOLOGICAL FINDINGS OF THE 1962-1963 INVESTIGATIONS

Excavations began on October 1, 1962 and were continued through January 31, 1963. Extensive use of heavy equipment was made to remove the overburden. During the field season, 200,000 tons of overburden was removed and two miles of trenches, 12 ft wide and up to 30 ft deep, were cut. In key localities, units were excavated with shovel and trowels and soil was screened with ¼" screens. All told over 75 localities were tested or excavated including all the localities previously excavated by Hunter, Harrington, and Simpson. At least 50 localities of bone and carbonized wood were excavated for evidence of associated tools, burning, cut-marks, and other evidence of human modification. Turn-around time for the processing of radiocarbon dates was an unheard of one-week interval from the time the sample was removed until the date was received back in the field.

Another important aspect of the project was an intensive surface collection of artifacts in the project area. Throughout the fieldwork session, surface artifacts were flagged by crew members. At Shutler's request, Margaret Susia (Lyneis) performed an intensive survey of the Tule Springs area during the final six weeks of the project (Susia 1964). All surface artifacts previously located were collected, and Susia surveyed the area for additional artifacts. Site maps were drawn and all artifacts were plotted using the Tule Springs aerial photographs. In all, 278 artifacts were identified, collected, and analyzed. Most of the artifacts were recovered from the caliche surface that capped the 20,000 BP lacustrine unit (Susia 1964:1). In her final report of these investigations, Susia (1964) convincingly argued that the artifacts represented use of the area during the Pinto period (7000-5000 BP) (Lyneis 1982a; Warren and Crabtree 1986).

Despite weeks of effort and, to the disappointment of many, the claim that artifacts were associated with extinct fauna could not be substantiated. Although Harrington and Simpson's earlier dates (>20,000 BP) were dismissed, evidence of man's presence in Tule Springs during the Paleoindian period (10,000-11,500 BP), consisting of five flakes and one scraper, was widely accepted. In light of these new findings, Shutler reviewed the previous claims for pre-Clovis dates in the final expedition report.

> The 1962-1963 work of the Nevada State Museum showed that the first of these radiocarbon dates (Sample C-914-more than 23,800 B.P.) was meaningless, for the sample was a mixture of materials, from Site A, Area 3 and from Ash Bed 2, Area 1, which are of quite different ages….The second radiocarbon date (L 533-B-more than 28,000 B.P.), which was obtained from a sample from Site D, Area 2, is believed to apply to carbonized wood and camel bones, but not to the scraper found there. The stone tool came from either Unit B2 or F1, or the contact between them. If the scraper belongs to Unit B2 it is more than 37,000 years old, but an examination of the scraper showed that it has a coating of manganese oxide similar to, and of the same degree as that on surface artifacts found in the Tule Springs area. This 'desert varnish' is a very important factor in interpreting the age of the scraper….I am of the opinion that the scraper belongs with the surface artifacts reported on by Susia (1964)….Burned and split bones had also been regarded as providing evidence of human activity. …On superficial examination, some of the bones, notably from Ash Bed 2, Area 1 (Locality 10 in this report), did have a burned appearance, but a more careful examination revealed that, although there was a discolored matrix, this could be peeled off and there was no evidence of calcining on the surface or below the surface of the bone as one would assume there would have been had the bones been burned [Shutler 1967b:299-301].

The expedition's Pleistocene discoveries were summarized in a Nevada State Museum Papers volume edited by H. M. Wormington and Dorothy Ellis (Wormington and Ellis 1967). The report contained chapters on geology, fossil vertebrates, pollen analysis, biotic communities, and archaeology by the respective staff specialists. The investigations at Localities 1 through 5 were described individually in a special section of the volume, which also contained a section on shells and an analysis of bone.

The individual reports on these localities concluded that only a handful of artifacts were recovered from deeply buried deposits, at Localities 1, 3, 4a, and possibly 5. The geological and radiocarbon data demonstrated that the Tule Springs area was occupied possibly as early as 13,000 BP and definitely between 10,000 and 11,000 BP. The oldest remains, dating from 13,000 to 11,000 BP, were bone tools (an awl tip and a possible bi-pointed bone tool) and a caliche bead recovered from Localities 3 and 5, the Qe1 Unit (Fitzwater 1967; Tuohy 1967). While Shutler believed that the bone tools and caliche beads were in fact artifacts, opinions on their validity have varied (Ceram 1971; Jennings 1994). A quartzite scraper and five flakes (four chert and one obsidian) reported by Stein (1967) and Fitzwater (1967) from Qe2 alluvial deposits in Localities 1 and 4a are the oldest definitive evidence of man's presence in the Las Vegas Valley. These artifacts are from geological deposits that were securely dated between 10,000 and 11,000 BP.

In the 40 years since the Tule Springs investigations, no additional evidence of Paleoindian period remains has been discovered in the Tule Springs area. Evidence is also sparse for the Paleoindian period

elsewhere in southern Nevada (Leavitt and Rafferty 2002; Roberts and Ahlstrom 2000). With the exception of a Clovis point discovered during a survey of Clark County Wetlands Park along the southern end of Las Vegas Wash by the present authors, most other Clovis finds in the Las Vegas Valley (Leavitt and Rafferty 2002) cannot be verified (Roberts and Ahlstrom 2000), are in later contexts, or are not definitively fluted (Dubarton et al. 1991). While evidence is sparse for Paleoindian remains in the Las Vegas Valley, what the Tule Springs project did teach us is that, if substantial remains dating to this period are present, they are probably deeply buried in locales like the Tule Springs site or on the surface of such places as Pleistocene lakes. Based on previous investigations, it is possible that the site contains additional, deeply buried evidence of Paleoindians in the Las Vegas Valley.

TULE EXPEDITION'S EXPLORATIONS AT CORN CREEK

Since the 1930s, Corn Creek has been well known as a locale for collecting artifacts (Figure 2.1), but most of the archaeological research conducted in the project area was done as part of the Tule Springs Early Man investigations in the 1960s (Williams and Orlins 1963; Wormington and Ellis 1967). Williams and Orlins (1963:4) reported that the Corn Creek archaeological site was first discovered in 1930 by Bertha Cody, Mark R. Harrington's nieces, and one of the participants in the Gypsum Cave project. When Ruth Simpson and Stuart Peck worked at Tule Springs in 1956, they surveyed the field station and made an artifact collection (Harrington and Simpson 1961:25). This collection is probably located at the San Diego Museum of Man.

The Corn Creek Dunes site, also known as 26CK2605, was formally reported by Richard Shutler, Jr. and C. Vance Haynes during a geological and archaeological survey of the area for the Tule Springs project. After radiocarbon samples collected from two hearths located in the sand dunes one mile from the Field Station produced two dates between 5300 and 4300 BP, Shutler and Haynes decided that the site should be investigated further. Fieldwork was conducted at Corn Creek in December of 1962 and January of 1963 as part of the Tule Springs investigations (Figures 2.2-2.5). A report of this research was prepared by Pete A. Williams and Robert I. Orlins and published by the Nevada State Museum in 1963 (Williams and Orlins 1963).

Excavations were conducted in three different areas of the Corn Creek site. Two of the areas were artifact scatters located at the Field Station. Test excavations (5 × 5 foot excavation units) in these areas revealed cultural deposits to a depth of 0.5 to 2 feet; however, no cultural features were encountered.

The third excavated area is located 1 mile northwest of the Field Station. This locus, which dates to the Middle Archaic Period, was described by Williams and Orlins (1963:5) as a surface site in the sand dunes. Surface evidence included flaked stone tools, lithic debitage, and six hearths. Fieldwork on the Middle Archaic component included excavation of the surface features, surface collection of artifacts, and excavation of two bulldozer trenches. The trenches were excavated into the dunes for the purpose of locating a geological fault that was presumed to be present. The excavation of a north-south trench (155 feet in length, 12 feet wide, and 10 feet deep) uncovered five more hearths, all of which were excavated. No hearths were identified in a second, east-west trench (262 feet long, 12 feet wide, 3 feet deep). Seven radiocarbon dates obtained from the surface and buried features fall between 5300 and 3930 BP. The artifact assemblage from this area includes only one temporally diagnostic projectile point, a lanceolate-shaped point, and that artifact's association with the Archaic component is questionable. Nevertheless, it is clear from the clustering of the radiocarbon dates that the locus dates to the Middle Archaic period.

In addition to the excavations, Williams and Orlins (1963:38) performed a reconnaissance survey of an unspecified area of the sand dunes that surrounded the third excavated area (Area E). During this survey, they identified and collected milling stone fragments and core tools, the contents of three chipping stations, three whole projectile points, six fragmentary projectile points, and one blade fragment (Williams and Orlins 1963:38). One of the projectile points was a (Middle Archaic) Pinto style point.

Figure 2.1. Janet “Tommy” MacFarlane Worts in the desert by Corn Creek Ranch in 1937. The mound in the foreground was excavated by Tommy and Robert Worts and sherds of a complete pot were found. (Photograph from the private collection of Elizabeth V.T. Warren.)

Figure 2.2. Photograph of the fieldwork at Corn Creek in the 1960s (FWS photograph files).

Figure 2.3. Photograph of the fieldwork at Corn Creek in the 1960s (FWS photograph files).

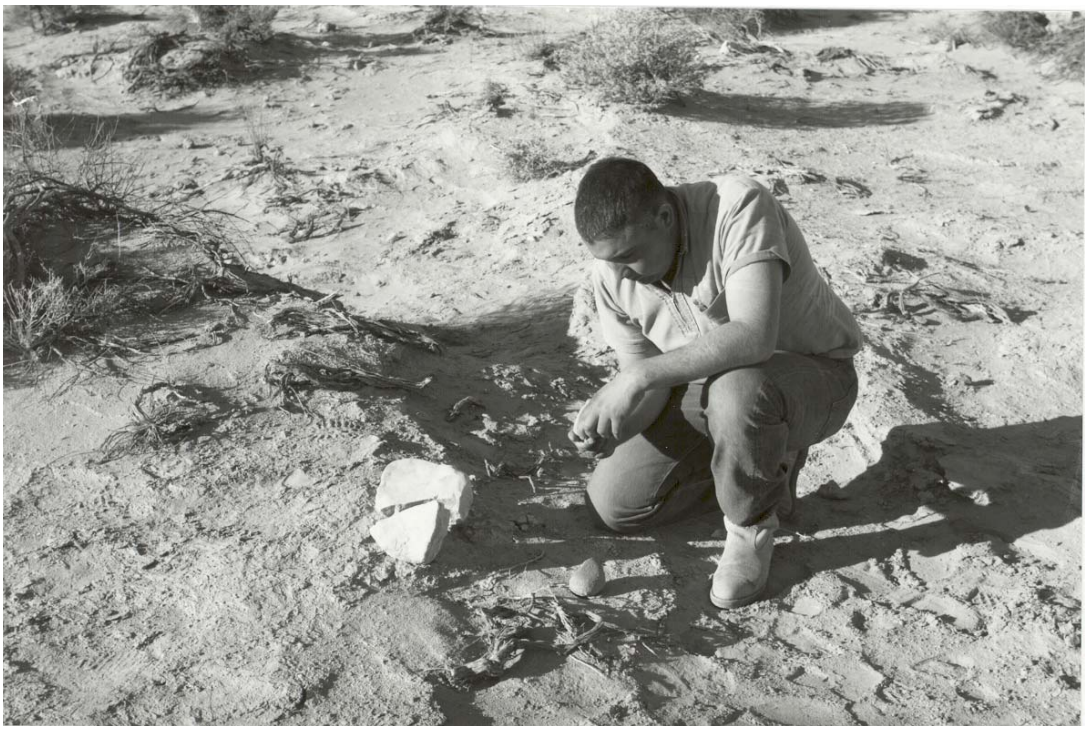

Figure 2.4. Photograph of an unidentified participant in the 1960s investigations with ground stone artifacts (FWS photograph files).

Figure 2.5. Photograph of the 1960s investigations (FWS photograph files).

Until a few years ago, most of the investigations in the vicinity of Corn Creek after the Tule Springs Expedition were associated with small development projects for the Bureau of Land Management and the Fish and Wildlife Service. The only other site other than 26CK2605 that was recorded during these investigations was 26CK1649. This site consists of the old Las Vegas and Tonopah Railroad bed located two miles west of the field station.

Other Important Projects of the Tule Springs Period

Many of the other archaeological projects conducted in the Las Vegas area during the period from 1960 to 1980 were undertaken in an effort to save or salvage the area's important archaeological sites. In 1962, Richard and Mary Elizabeth Shutler conducted an archaeological survey of Red Rock, located west of Las Vegas, that resulted in the recording of 18 archaeological sites, including mescal pits, petroglyphs, and campsites (Shutler and Shutler 1962). The ceramics found at the campsites suggested to the Shutlers that the area was used by Virgin Anasazi, Patayan, and Southern Paiute groups (Shutler and Shutler 1962:19). In 1972, Professor Claude N. Warren, from the Department of Anthropology at the University of Nevada, Las Vegas, conducted test excavations in the Las Vegas/Big Springs vicinity in what is known today as the Las Vegas Springs Preserve, located east of the intersection U.S. 95 and Valley View. Warren's excavations located substantial, intact prehistoric and historic archaeological deposits at Sites 26CK948 and 26CK949. His investigations led to the listing of Site 26CK949 on the National Register in 1978 (Seymour 1999:172). Also in the 1970s, Richard Brooks and students from the Archaeological Research Center (ARC) at the University of Nevada, Las Vegas carried out numerous surveys and excavations in the Spring Mountains (Rafferty 1984:36). Some of these investigations were reported as student theses (Cunningham 1978; Larson 1978; Turner 1978).

In 1972 Claude Warren's University of Nevada Field School conducted a survey along the Duck Creek Drainage. Numerous sites were recorded and artifacts were collected from many of the recorded sites.

During this period the Archaeo-Nevada Society was active in excavating the Berger Site and other sites that were in danger in the Eglington Escarpment.

In 1978 and 1979, the Nevada Archaeological Survey (NAS) of the University of Nevada, Las Vegas conducted test excavations at the Grapevine Springs site (26CK1333) (Ellis and Brooks 1978; Crownover et al. 1979) for a Las Vegas Water District project. Despite the presence of numerous artifacts and bones and extensive cultural deposits Crownover et al. (1979:11-13) recommended that "further testing of the site would be unnecessary for the purpose of mitigating the pipeline installation" (Crownover et al. 1979:20). They did suggest, however, that future investigations should be conducted at the site. Despite their recommendations, Rafferty (1984:110) reported a few years later that no further work was conducted at this site.

Richard Brooks, of the NAS at the University of Nevada, Las Vegas, and formerly a participant in the 1962-1963 Tule Springs project, took the lead in the Las Vegas area in the development of the then-new field of contract archaeology. Brooks and the NAS undertook the Navajo-McCullough transmission line survey, one of the earliest contract projects in the Las Vegas Valley (Brooks et al. 1975). (The NAS has experienced several name changes over the years: soon after the Navajo-McCullough project, it became the Archaeological Research Center [ARC], and today it is known as the Harry Reid Center [HRC] for Environmental Studies, University of Nevada, Las Vegas.) Under the direction of Brooks, the survey led to the discovery of a concentration of archaeological sites at the southern end of Las Vegas Wash in Henderson. After the completion of the transmission line project, Brooks and David Ferraro began a series of archaeological surveys and excavations in this area, known today as Clark County Wetlands Park.

BOOM OR BUST (1980-1995)

The awareness that archaeological sites were endangered spurred the local archaeological community and the Nevada State Historic Preservation Office (SHPO) into action. A state historic preservation plan was prepared in 1982 (Lyneis 1982b), and soon after funds were allocated by the Nevada Division of Historic Preservation to NAS, of the University of Nevada, Las Vegas to undertake a program of survey "designed to preserve for posterity the record of human occupation of the region, a record which is being threatened by the rapid expansion of the Las Vegas urban area" (Rafferty 1985a:1). The monies were used to conduct a sample inventory of areas with high site densities and record the archaeological sites. Initially, it was hoped that funding would be made available to excavate important sites prior to their destruction; however, no additional excavation phases followed the surveys.

By 1995 the break-neck pace of development had out-distanced the ability of local archaeologists to save many of the Las Vegas Valley's prehistoric habitation sites and base camps. Rock art areas located outside the city's boundaries were identified for preservation, but many of the Native American habitation sites were destroyed. In our opinion, the reason many of these sites were lost is because they were located on the more desirable private lands where water resources were at one time more prevalent. To the frustration of archaeologists and amateurs alike, some of the valley's most important sites were lost. By 1995, the Duck Creek prehistoric district and the Eglington Escarpment sites were covered by new housing developments. Efforts to excavate some of the larger sites by university, contract, and BLM archaeologists did not result in substantive findings (Crownover et al. 1979; Ellis and Brooks 1978; Ferraro and Ellis 1982; Green et al. 1983; Rafferty 1985b; Rafferty and Blair 1984), and many of the excavations were never reported. In fact, papers detailing the findings of these efforts have never found their way to peer-reviewed journals or widely distributed publications.

On Common Ground

The state-funded surveys conducted during the beginning of the 1980-1995 period by Kevin Rafferty (1984, 1985a, 1986) of NAS are described in this section in considerable detail because this excellent series of projects represents one of the most comprehensive efforts to record the Las Vegas Valley's prehistoric sites.

The following management and research goals were identified in the reports. The management goals included:

1) Identification and delineation of the boundaries of lands controlled by private landowners and developers in the Paradise Valley, Duck Creek, and Green Valley areas.

2) Sample surveys of immediately threatened areas.

3) Recordation of sites and the collection of samples of artifacts from sites.

4) Development of sensitivity maps for the SHPO.

5) The selection of sites for detailed excavations.

Rafferty's research questions dealt with the area's Paleoindian occupation through the Southern Paiute period (Rafferty 1984:7-8). Most of the questions for the Paleoindian and Archaic periods were general in nature and involved the nature of the occupations, the size of the population, subsistence strategies, and evidence for trade. Questions for the Puebloan or Ceramic period were also general and focused on temporal issues, settlement types, population size, subsistence, trade, and the relationship of the Puebloan groups to earlier and later occupants of the region. Questions regarding the Paiute period were directed at understanding when the Paiute people arrived in the region, what was their settlement pattern, and what was their relationship to the Puebloan and Lower Colorado groups. During three years of fieldwork, high-density site areas, including the Duck Creek Drainage and the Eglington Escarpment, were surveyed using a random sampling method (Rafferty 1984:9-12). A total of 7320 acres was intensively surveyed resulting in the documentation of 148 new sites and reevaluation of seven sites. In addition, curated and archival data from 48 sites that no were longer in existence were reviewed.

In the Duck Creek area, Rafferty discovered a large concentration of prehistoric sites with evidence of use from the Middle Archaic through the Late Ceramic period. He was surprised that 71 percent of the sites with ceramics contained sherds of Lower Colorado Buffware (Rafferty 1984:151). In a later study, Seymour (1997) analyzed a large collection of sherds from several sites located along Duck Creek and found that 41 percent of the ceramics were Anasazi wares, 42 percent were Patayan wares, and 17 percent were Southern Paiute brownware (Seymour 1997:Figure 14). Rafferty believed that the location of the sites indicated exploitation of the mesquite and riparian resources, but he also noted that the soils would have been suitable for cultivation of corn and other cultigens (Rafferty 1984:152). Of the 33 sites recorded in Duck Creek, roughly 24 percent were classified as residential bases and the rest were temporary or specialized resource procurement areas (Rafferty 1994:152).

Along the Eglington Escarpment, Rafferty recorded a second concentration of prehistoric sites, and he also investigated several major sites including the Twin Dunes site (26CK1525) and the Burnt Rock Mound site (26CK3601). Here Rafferty recognized a settlement pattern that resembled that in the Duck Creek area:

> In examining the location data of the sites, another pattern begins to emerge. As could be anticipated, a pattern of several large campsites surrounded by numerous small procurement loci seems to be common along the Eglenton [sic] Escarpment. If Twin Dune (26CK1525) and Burnt Rock Mound (26CK3601) are factored in, there seems to be a major campsite approximately every one-half mile along the escarpment, surrounded by dozens of small procurement loci (the firecracked rock loci) [Rafferty 1986:31].

Applying Binford's collector versus forager theories to the surface artifacts, Rafferty hypothesized that the prehistoric residents were part of a collector system of resource procurement. He suggested that mesquite beans were the food being exploited along the escarpment, along with quail and rabbits.

Rafferty's 1984 report, *On Common Ground*, contained recommendations that nine sites were eligible for listing on the NRHP including the Berger site (26CK1528/501), 26CK500, Sites 26CK1441/1443/1447, 1445/1446, the Whitney Mesa site (26CK3333), and fragile pattern sites 26CK3337/3338, 3352, and

3363/3364 (Rafferty 1984:152). In the 1985 project report, Rafferty recommended that the Whitney Mesa site was eligible and that Burnt Rock Mound (26CK3601), along with Sites 26CK3600, 3602, and 3605 were eligible as part of a district (Rafferty 1985a:108). Curiously, he did not recommend the Twin Dune site (26CK1525), located in the northern area, as eligible, although it was one of the few sites that dated to the Early, Middle, and Late Archaic periods. In the final project report, Rafferty (1986) recommended that four of the 148 recorded sites were eligible for listing on the NRHP, including the Berger site (26CK1528/501) and the Whitney Mesa site (26CK3333), along with two sites in North Las Vegas, 26CK3753 and 26CK3766. These four important sites along with Burnt Rock Mound and the Twin Dunes site have been consumed by urban growth.

Following the publication of *On Common Ground*, archaeological investigations in the Valley were dominated by hundreds of individual survey projects that evaluated the direct impacts of one or another project to particular sites, rather than to the resource base as a whole. The goal was to develop the land for a growing population. Most of the archaeological surveys of this period were carried out in preparation for improvements to infrastructure rather than for the construction of housing developments. Archaeological surveys were done for flood control, road construction, schools, and utilities projects. Several other large, multi-state projects conducted during this period fit into the infrastructure category, including the Kern River Project and the Intermountain Power Project.

During this period, from 1980 to 1995, thousands of acres of federal lands were intensively inventoried prior to land sales and exchanges. These surveys led archaeologists at the BLM to conclude that the Las Vegas Valley's prehistoric sites were concentrated in four areas—Tule Springs Park, Eglington Escarpment, Las Vegas Springs and Creek, and Duck Creek (Myhrer 1991:9). Using the BLM Class I and Class III survey data as a springboard, the BLM developed and implemented a plan to waive archaeological inventories for projects less than 200 acres in size if they were located outside the Duck Creek or Eglington subzones (Myhrer 1991: Figure 3). The Tule Springs Park subzone and the Las Vegas Springs and Creek subzone were excluded from consideration because they were thought not to contain BLM lands (Myhrer 1991:9).

By 1990, many areas containing archaeological resources, such as Clark County Wetlands Park and Duck Creek, were considered destroyed because the ground surface was so heavily disturbed. Archaeological sites that had been demonstrated, through excavation, to contain significant cultural deposits were viewed as lacking integrity or as having been "mitigated". Most archaeologists working in that area considered the sites in the original archaeological district to be no longer eligible for the National Register due to the loss of their integrity.

PRESERVATION, PLANNING, AND NEW DISCOVERIES (1995-PRESENT)

The rapid pace of the city's growth continued through the 1990s and into the twenty-first century; however, the focus of city, state, and federal agencies shifted from project-specific mitigation to preservation planning. Gregory R. Seymour and Lynn E. Hatzenbuehler's (1995) Cultural Resource Overview for the Clark County Wetlands Park Master Plan and Statistical Research's Class I Overview for the Southern Nevada Water Authority's Treatment and Transmission Facilities (Ezzo 1995) mark the beginning of this new trend. Seymour and Hatzenbuehler's (1995) overview, which was funded by Clark County, Bureau of Reclamation, and the Southern Nevada Water Authority (SNWA), preceded a multi-year project to build erosion-control structures in Wetlands Park and develop recreational facilities in the park. The overview was prepared as a first step toward evaluating the multi-year project's effects on the cultural resources of the area. The objective of Ezzo's overview for SNWA was to assess the impacts that the construction of a new water-treatment and transmission facility would have on the valley's cultural resources. This large project included a raw-water intake structure in Lake Mead, a water-treatment facility, a water-transmission system to deliver water from Lake Mead to the water-treatment facility, and a system to deliver treated water throughout the

valley. The overview evaluated various alternatives to determine their relative effect on the valley's cultural resources.

Between 1993 and 2000, preservation plans were developed for two other important archaeological and historic sites, the Old Las Vegas Mormon Fort and the Las Vegas Springs Preserve. The Old Las Vegas Mormon Fort plan was developed for Nevada State Parks by the Louis Berger Group, Inc., and Ryden Architects (Hohmann et al. 2000). The goal of the plan was to reconstruct the fort and develop interpretive facilities. This was accomplished through a series of field investigations, historic research, and public meetings. The Las Vegas Springs Preserve Preservation Plan was prepared by the HRC for the Las Vegas Valley Water District. As described by Seymour (1999:1), "the purpose of this Cultural Resource Management Plan is to provide the Las Vegas Valley Water District with a set of general guidelines pertaining to the conservation and treatment of the cultural resources at the Las Vegas Springs Preserve" (Seymour 1999:1). The preservation plan later became the cornerstone of a multi-year project to develop the property into a preserve and build a museum with other interpretive facilities.

For the first time, the cumulative effects of long-term projects on the cultural resources in entire project areas were evaluated before construction began. The management plans were all developed using data from archaeological surveys, test excavations, and archival research. Some of this research has had unexpected results. Seymour's survey and test excavations at the Las Vegas Springs Preserve led him to the conclusion that the site still contained important historic and prehistoric features (Seymour 1999). Roberts and Ahlstrom's (2000; Ahlstrom and Roberts 2001a) survey and testing projects in Wetlands Park led them to the conclusion that many sites, which were thought to have been destroyed, were in fact still present. Test excavations in the Wetlands Park floodplain for the SNWA's water transport system in 2002 led to the discovery of a prehistoric pit structure buried under 2 meters of floodplain deposits (Ahlstrom and Roberts 2001a). Seymour's discovery of a prehistoric habitation feature at the Las Vegas Springs Preserve (Roberts and Seymour 2006), Roberts and Ahlstrom's excavation of a pithouse structure in Wetlands Park (Ahlstrom 2005), and the identification of a cluster of pithouse structures at Corn Creek (Roberts et al. 2003b) shows that there are still important archaeological discoveries to be made in the Las Vegas Valley.

Although preservation efforts continued through the 1990s and into the early 2000s, the city's rapid growth has also continued. In the late 1990s, archaeological surveys were conducted on thousands of acres of BLM lands for exchanges and land sales. With the passage by Congress of the Southern Nevada Public Lands Management Act of 1998 (Public Law 105-263) and the Clark County Conservation of Public Lands and Natural Resources Act of 2002 (H.R. 5200-6), the pace of BLM land sales increased. The land exchanges and enactment of these laws resulted in the intensive archaeological inventory of thousands of acres of land (Ahlstrom and Roberts 2001b; Blair and Wedding 2001; King et al. 2003) prior to their sale.

The results of these surveys and research suggest that the four sensitivity subzones identified in the BLM's Justification Proposal to Limit Archaeological Survey on BLM Lands in Las Vegas Valley (Myhrer 1991) are accurate in capturing most of the major site concentrations located on the valley floor. The framework does not, however, include two additional site concentrations, one located in Clark County Wetlands Park and the other at Corn Creek Dunes. The latter locality cannot be considered an omission from the BLM's framework since it is located outside the area that the BLM was considering in its proposal. Its presence as a major site concentration is important to note, however. Two other limitations in the BLM's framework of sensitive subzones should also be mentioned. First, because it was based solely on surface evidence, it does not adequately model the location, nature, and significance of subsurface cultural deposits. It also does not recognize the existence of higher site densities, particularly involving rockshelters and toolstone-procurement sites, in the foothills at the bases of the mountains that surround the valley.

In the last decade, Blair et al. (2000) and Ahlstrom and Roberts (2001a) have demonstrated that small thermal features, with or without associated artifact scatters, can provide useful subsistence and settlement data. HRC excavated features of this kind at Site 26CK3799 during data recovery for the Beltway Project (Blair et al. 2000). The features produced radiocarbon dates and subsistence data. Blair et al.'s excavation

data suggest that the sites were used between 6730 and 4440 BP and, later, between 590 and 710 BP. Artifacts collected from the vicinity of the features that dated to the early period (Middle-Late Archaic) included waste flakes, bifaces, ground stone, and a Pinto Point. Artifacts collected from the vicinity of the more recent thermal features included Virgin Anasazi and Southern Paiute potsherds. Macrobotanical samples suggested the site's inhabitants ate cacti and yucca pods. Ahlstrom and Roberts (2001b) demonstrated that small rock shelters, concentrated at the base of the mountains in the Apex Project Area, were occupied primarily during the protohistoric period. The people who used these sites were foraging in the area for yucca seeds, tortoises, and cactus flowers. Importantly, the existence of this period of occupation was revealed by patterning in radiocarbon dates and was not indicated by assemblages of temporally diagnostic artifacts.

SUMMARY

In 1979, F. Rick Hauck, Dennis G. Weder, LaMar Drollinger, and Andrew MacDonald prepared a Cultural Resource Overview for the BLM. They noted that flotation analysis results had not been widely reported by archaeologists working in Clark County (Hauck et al. 1979) and they recommended that these studies could provide important data on the region's prehistoric occupants. Although flotation and pollen studies were relatively new at that time, Hauck et al. recognized that by excavating roasting pits and processing flotation and radiocarbon samples, much could be learned about subsistence and settlement strategies. Unfortunately, this advice was not widely heeded, and no macrobotanical studies were done on prehistoric sites in Las Vegas Valley until the late 1990s (DuBarton et al. 1991; Ellis et al. 1978; White et al. 1989). Occasionally samples were taken, but they were never processed and reported (Ferraro and Ellis 1982) either because of funding shortages or because the contexts were considered too disturbed (Rafferty and Blair 1984). Subsistence questions were considered important, but there was not a perception that pollen or flotation samples, even from midden contexts, could answer questions about diet and the use of cultigens. Today we know that pollen samples collected from middens, small features, and even fields (Ahlstrom and Holloway 2000), can contain quantities of cultigen pollen that could provide answers to these questions.

When Rafferty began his *On Common Ground* project, he lamented that "despite years of research the archaeology of the Las Vegas Valley is poorly understood" (Rafferty 1984:1). When HRA began working in the Las Vegas Valley, we made the same observation. We have come to believe that there are several reasons for this gap in knowledge. First, Las Vegas as a community lacks a preservationist philosophy because its economy depends on new construction, sometimes at the expense of archaeological sites and historic properties. Second, there has been a widespread misconception that the larger campsites lack intact cultural deposits that are meaningful and interpretable (DuBarton et al. 1990; Green et al. 1983; Kelly et al. 1990; Myhrer 1988). Many of the valley's prehistoric sites, which appear from the reports to have contained intact cultural deposits, were only surface collected and sample-excavated (DuBarton et al. 1991; Green et al. 1983; Crownover et al.1979; Rafferty and Blair 1984). However, if larger samples of buried strata had been investigated, they might have revealed intact hearths and habitations. An example is provided by the previously mentioned Site 26CK3766, or Pardee site. In that case, the discovery of a buried, pre-ceramic hearth—which was described and radiocarbon dated—did not inspire any additional effort to investigate this temporal component of the site. Radiocarbon and botanical samples, when obtained from such features, can provide a wealth of chronological, subsistence, and settlement-pattern data (Roberts et al. 2003b).

Third, in the Las Vegas Valley the BLM considered probing to be adequate subsurface testing of all archaeological sites, despite the fact that numerous studies in southwestern Utah, southern Nevada, and adjacent desert regions have shown this method to be inadequate in certain depositional contexts (Ahlstrom 2003; Ahlstrom and Roberts 2001c; Roberts and Ahlstrom 2003; Talbot and Richens 2002). Probing with a trowel cannot locate deeply buried sites in floodplains (Ahlstrom 2003) or other alluvial contexts such as dry lakes. Talbot and Richens (2002) and Roberts and Ahlstrom (2003) have found that intact thermal features and middens are present in the areas of sand dunes where surface artifacts may not be visible. There is also evidence that small areas of desert pavement that have been disturbed—for example by the excavation and

use of hearths and small roasting pits—can "heal-over" in time frames of one to several thousand years, effectively hiding the cultural features from view. In these circumstances, there is a good chance that a handful of small test units will not provide an inadequate sample for identifying and evaluating buried cultural deposits (Ahlstrom and Roberts 2001c).

Lastly, the collection of surface artifacts by professionals and amateurs has obscured the true significance of many sites. For example, during HRA's survey of the Corn Creek Dunes site, a cluster of possible pithouses was almost missed during the survey because no surface ceramics were present. Typically, Ceramic period middens, which can surround and cover the remains of habitation features, contain fairly dense concentrations of potsherds. Excavations in one of the midden areas demonstrated that sherds were present, but not on the surface. This puzzle was resolved when one of the authors met a woman who, as a child, had spent time collecting "all of the sherds" from that midden area with a friend who lived nearby.

While many of the Las Vegas Valley's archaeological sites have been lost to urban growth, awareness of this destructive process has led federal, state, and local agencies to protect the remaining historic treasures. Preservation plans, under development since the early 1990s, will ensure that archaeological sites and features at Corn Creek, Sloan Canyon, along the Spanish Trail, in Clark County Wetlands Park, at the Mormon Fort, and in the Las Vegas Springs Preserve will remain intact for future generations. Corn Creek, perhaps the archaeological equivalent of the Valley's crown jewels, will be protected and managed for future generations.