

CHAPTER 4

CORN CREEK'S PREHISTORIC ARCHAEOLOGY

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This chapter describes the prehistoric features and artifacts discovered by HRA during their survey and test excavations in the 1,000 acre study area surrounding the Corn Creek Field Station. The artifacts and features recorded during the intensive survey are discussed first. The remaining section of the chapter describes HRA's test excavations in the Field Station.

ARCHAEOLOGICAL SURVEY

The archaeology of the 1,000 acre area surveyed in and around the Corn Creek Field Station is dense, varied, and widespread. For this reason, the archaeological features and artifact concentrations were recorded as individual loci. HRA's survey of the Corn Creek dunes area resulted in the identification of 44 prehistoric loci. Most of these loci are artifact scatters with thermally altered rock, which is also known as "fire-cracked/fire-altered" rock (FCR). One locus is a trail and the remaining two loci (the Corn Creek Field Station, known here as the Field Station Locus, and Locus 17, the area explored during the Tule Springs Expedition in 1963) are large multi-component loci with a variety of features (such as hearths or earth ovens and/or the remains of prehistoric habitation structures) and artifacts. Together, these loci suggest that Native Americans occupied the Corn Creek site perhaps continually since the Middle Archaic period.

PREHISTORIC LOCUS TYPES

Forty-four prehistoric loci were identified in the project area (Figure 4.1). The loci consist of 1 habitation locus, 27 camps or artifact scatters with FCR scatters or FCR features, 2 lithic scatters without FCR scatters or FCR features (lithic scatters), 13 FCR scatters or features with less than two artifacts (thermal features; Figures 4.2 and 4.3), and 1 trail. These locus types are defined and described below.

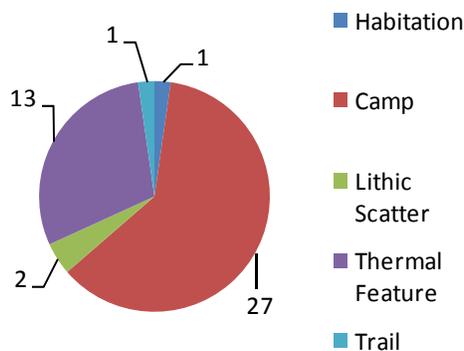


Figure 4.1. Prehistoric locus types at the Corn Creek Field Station.



Figure 4.2. Example of an intact thermal feature recorded at Locus 62.



Figure 4.3. A concentration of FCR that may be a partially buried or heavily eroded thermal feature.

Habitations

Only one locus, the Field Station Locus, was classified as a habitation. The presence of several middens (Figure 4.4) that are associated with ceramics suggests to us that the Field Station Locus was occupied on a permanent or semi-permanent basis during the Ceramic period and possibly during other periods of prehistory. Furthermore, Midden 1 contains a cluster of 10 depressions that are probably Virgin Anasazi pit structures. Test units excavated in one of the depressions yielded Logandale Gray Virgin Anasazi ceramics associated with a compact clay surface, which is probably the floor of a pit structure (habitation). A radiocarbon date obtained from a cluster of burned twigs on the clay surface yielded a radiocarbon date of 1420±70 BP (A.D. 530-710), which fits well with the Basketmaker III/Pueblo I period. In the Virgin Anasazi area, pit structures occupied during this period are circular and semi-subterranean (Lyneis 1995:211).

In this study a midden is defined as a dense scatter of prehistoric artifacts, FCR, and charcoal- or ash-stained soil. The middens recorded in the Field Station Locus contain thousands of flaked stone artifacts and small pieces of FCR, which are evenly scattered across the entire ground surface. Ceramics were identified at Middens 2 and 5, and a few potsherds were present on the surface of Midden 1. Test excavations conducted near the center and southern edge of Midden 1 indicate that cultural deposits in this midden are stratified to a depth of more than 60 cm. Intact thermal features and the Anasazi type pit structure already mentioned were identified during these test excavations in the deposits of Midden 1. The pit structure appears as a circular depression in the surface of Midden 1. Approximately 10 other depressions in Midden 1 may also be pit structures. It is likely that the other middens, especially those with ceramics, may also contain habitation features.

The Field Station Locus also contains a group of bedrock mortars (Figure 4.5). The mortars were originally recorded by Williams and Orlins in 1963, and they were found with ceramics and flaked stone artifacts. Today, only a few flakes remain near the mortars. Bedrock mortars are rare in Las Vegas, and have only been recorded in Clark County Wetlands Park (Ahlstrom 2005: Figure 19.2), at Whitney Mesa (Rafferty 1984:85), and at the Mary K Site (Rafferty 1984: 96).

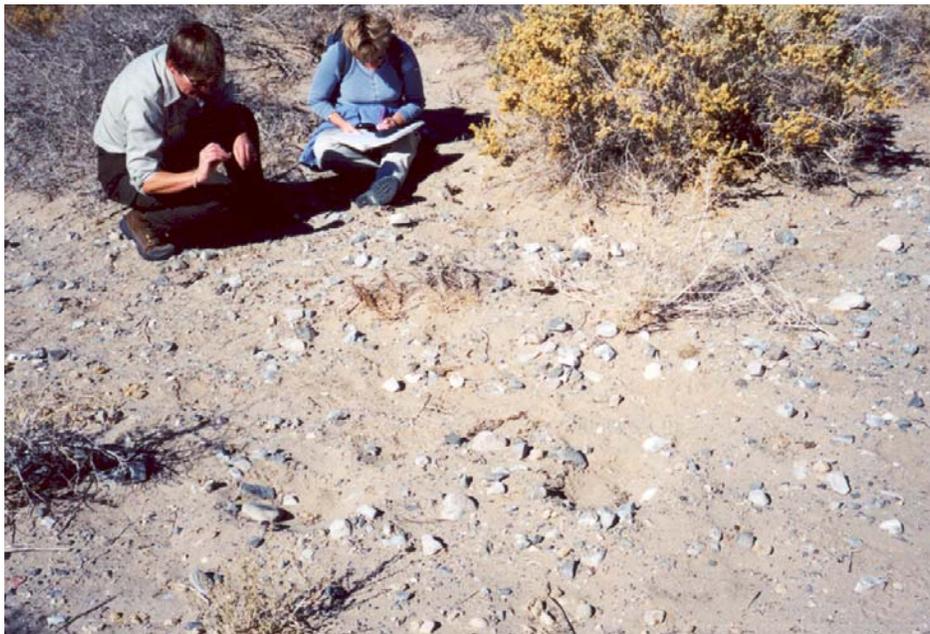


Figure 4.4. Heidi Roberts and Amy Sprunger recording Midden 5 in the Field Station Locus. Note the density of fire-cracked rock.



Figure 4.5. A close-up photograph of a boulder with bedrock mortars identified during the survey.

In the Southwestern United States archaeologists generally agree that Anasazi pit structures were occupied on a permanent or semi-permanent basis (Ahlstrom 1985). Therefore, sites with evidence of pit structure type habitations are typically categorized as habitation sites. The presence of middens and the evidence for habitation features in Midden 1 suggests that the Field Station Locus served as a permanent or semi-permanent habitation, at least during the Ceramic period, and possibly during other prehistoric periods.

Artifact Scatters with FCR (Camps)

Twenty-seven loci are small artifact scatters (generally containing fewer than 50 artifacts) that are associated with thermal features (Figure 4.2) or with FCR (Figure 4.3). Ground stone artifacts were recorded at 78% (n=21) (Figures 4.6 and 4.7) of these loci and flaked stone tools were identified at 93% (n=25) of the loci. Tool types include core tools, bifaces, scrapers, utilized flakes, choppers, hammerstones, and projectile points (Figure 4.8). Core tools and cores are the most common tool type recorded at these loci (n=14). Circular-shaped limestone scrapers (Figure 4.9) were identified at five loci. Projectile points were identified at seven of the loci (26%) and bifaces were recorded at seven loci (26%). Most of the projectile points are arrow points, suggesting that hunting may have been more important at these loci during the Ceramic period. Ceramics were identified at only four (15%) of these loci. The total number of potsherds recorded at these four loci numbered fewer than 50.

The loci in this type category had a high diversity of artifact types, yet flaked stone was sparse at all but one (Locus 26) of the loci. At 66% (n=18) of the artifact scatters with FCR we identified far less than 50 flakes. Seven loci contain between 100-300 flakes and one locus, Locus 26, contains over 1,000 flakes. Locus 26 is unusual in terms of the quantity of flaked stone, the variety of tools types, the quantity of bifaces, the number of arrow point fragments, the presence sherds from a Virgin Anasazi decorated bowl, and the numerous calcined bone fragments from small mammals. Tool production was more important at this locus than at any of the other camps. The diversity and quantity of artifacts suggest that Locus 26 was used more

extensively than the other 27 loci in this category. Without additional research it is not possible to determine if the extensive flaked stone is a product of functional differences or use intensity/duration.

All of the 27 loci in this category contained thermally altered rock, generally burned caliche or limestone, in scatters, concentrations, or discrete features. FCR is a by-product of the food-cooking process, and it results when plants or animals are cooked in pits lined with heated rocks. FCR can also be produced when heated rocks are used to boil liquids in waterproof cooking vessels, such as pitch-covered baskets or wooden bowls. It was not until the invention of pottery that liquids could be heated directly over a hearth. There are also non-cooking functions associated with FCR, such as sweat lodges and heating to warm habitations or sleeping locations.

Ten of the 27 loci contain clusters or mounds of FCR that appear to be the remnants of earth ovens or roasting pits. Charcoal and ash is visible under the FCR at some of these features. In eight of these 10 loci where FCR features were identified one or two features were the norm; however, two loci contained more than two features. Four features were recorded at Locus 35 and 24 features were recorded in the area explored during the Tule Springs Expedition. While the latter area contained many features, the artifact densities at each feature were not much greater than those reported for the other loci in this category.

The feature shown in Figure 4.2 is an example of a thermal feature, or earth oven, which at one time was probably a rock-lined pit in the ground where plants and animals were roasted. Elsewhere in the Southwest, particularly in southern Arizona where mesquite trees are also common, these small earth ovens were used for roasting cholla and other cactus buds (Roberts and Ahlstrom 1999:15.3). Generally, pit baking is done by digging a pit and lining it with rocks. A fire is then built in the pit to heat the rocks. After the fire dies the pit is lined with plants that contain moisture, and then the foods to be cooked are placed over these plants. Next the pit was filled with alternate layers of weeds and food plants, and then covered with earth. After the prescribed cooking time, which varied depending on the plants, from several hours to two days (for agave hearts), the pit was opened and the plants eaten.

Some of the preserved thermal features at the Corn Creek Field Station, like the feature shown in Figure 4.2 contain quantities of charcoal and ash underneath the mounded or concentrated FCR. Other thermal features are eroded and consist of unstructured scatters or concentrations of FCR that lack charcoal



Figure 4.6. A metate recorded north of Midden 1, in the Field Station Locus.



Figure 4.7. Sandstone metate at Locus 36.



Figure 4.8. Projectile point identified during HRA's survey of the area investigated during the 1963 Tule Springs Expedition.



Figure 4.9. A circular scraper recorded at Locus 62.

and ash. It is generally not possible to determine from surface indications if FCR scatters or concentrations represent heavily eroded thermal features or a partially buried feature. Without excavation, it is also difficult to determine whether a scatter or concentration of FCR represents a hearth or a more formal roasting pit (Ahlstrom 1994; Lyon and Holloway 2000). In the Las Vegas Valley (Blair et al. 2000; Seymour and Rager 2001) and elsewhere in the Southwest and Great Basin (Lyon and Holloway 2000; Leach et al. 1997; Roberts and Ahlstrom 2001; Thomas et al. 1997), scatters or concentrations of FCR are one of the most conspicuous and common types of surface archaeological remains. Excavations elsewhere in the Southwest (Ahlstrom 1994; Roberts and Ahlstrom 2001) have shown that FCR scatters that are associated with artifacts may signal the presence of intact buried thermal features even if the FCR on the surface is sparse and lacks evidence of ash and charcoal.

All of the well-preserved thermal features that we recorded in Corn Creek are smaller than the earth ovens used to roast agave, which are typically located at higher elevations. The consistent size of many of the Corn Creek FCR concentrations suggests that the original thermal features measured 1-2 m in diameter. Agave roasting mounds, which are found elsewhere in the Desert National Wildlife Range (Stoffle et al. 2001), are typically large mounds of burned limestone that have been reused for hundreds of years. These features are most common where agave plants and fuel are plentiful. The large size of the agave heart, and the periodic reuse of the features, results in a mound of FCR and charcoal that can exceed 1 m in height and several meters in diameter.

What plants were likely cooked in the earth ovens at Corn Creek? Because the loci are situated in or near the sand dunes we can infer that the types of plants and animals that are present today were cooked in the earth ovens. During the survey and during our discussions with the Paiute Elders (Chapter 7) we noticed that the dunes contain numerous edible plant and animal species including mesquite beans, Prince's Plume, Indian Ricegrass, Mojave prickly pear cactus, Hedgehog cactus, and Desert trumpet, rabbits, lizards, tortoises, insects, and birds. Mesquite pods were a welcome source of food in the early summer when not much else had

ripened. The unripened pods were eaten raw or cooked either as flowers or green pods. The Timbisha Indians (Rhode 2002:19) and the O'odham of Arizona (Rea 1997: 184-185) were known to cook unripened mesquite beans in earth ovens or over hot coals.

Animals were also likely cooked at these loci. Small calcined bone fragments recorded at Locus 26 were from small mammals. We can infer that these available foods were gathered and processed at these loci, but we cannot be certain without excavation. Excavation of the thermal features would provide subsistence data, as well as radiocarbon dates, and information on construction methods.

Diverse activities including plant and animal processing, and cooking are suggested by the types of artifacts and features recorded at the 27 loci with artifacts and FCR. The presence of FCR, either as scatters (eroded features) or as partially intact thermal features (earth ovens and hearths) suggests that food preparation activities involved cooking. The prevalence of ground stone tools supports a plant oriented subsistence focus; however this inference should be made cautiously because animals were also processed with ground stone implements. Since pit cooking generally requires an overnight stay, we tentatively suggest that these 27 loci functioned as camps. We can hypothesize from the low artifact densities that these loci were seasonal or short-term camps. Unlike at the Field Station Locus, where middens and broad scatters of artifacts and FCR suggest continuous occupation or frequent reuse, 25 of the camps lack such evidence.

Two of the loci categorized as camps are somewhat unique. Locus 26 has an extensive flaked stone scatter that is unlike any of the other camp loci, and the area initially explored during the Tule Springs Expedition (Locus 17) contains over 24 thermal features. The geomorphological study (Chapter 1) combined with previous excavations indicates that additional buried features are present at Locus 17. The large quantity of flaked stone at Locus 26 and the large size and complexity of Locus 17 suggest that these loci may have been used more intensively or for a longer period of time. Diagnostic artifacts at Locus 26 suggest that it was occupied during the Virgin Anasazi Pueblo II period exclusively; however, artifacts and radiocarbon dates from Locus 17 indicate use over a long period of time. Because the artifact distributions around the individual thermal features at Locus 17 conform closely to the majority of other camp loci, we argue that use intensity resembled the other camps; however, we believe that Locus 17 was occupied on a seasonal basis for thousands of years. Because of the large number of points, bifaces, and flaked stone identified at Locus 26, we argue that hunting and tool production were more important at this Virgin Anasazi locus than at any of the others. It is also possible that the social group that occupied the locus was larger than it was at the other camps; however, this hypothesis is not possible to evaluate without additional study.

In conclusion, we infer from the presence of FCR and from the small yet diverse artifact assemblages that the 27 loci functioned as seasonal or temporary camps. The size and complexity of the social groups that occupied these camps is not understood; however, we can hypothesize that because most loci have only one or two thermal features per loci that this may translate to one or two family groups occupied the camps. The more extensive artifact/FCR scatters at Locus 17 and Locus 26, and possibly others (Locus 8, 13, 15, 37, and 38) hint at more intensive use. However, without a better understanding of the site formation processes in the sand dunes, and without more detailed data on subsistence systems and site structure, we hesitate to categorize the loci into more refined categories such as base and temporary camps.

Lithic Scatters Without FCR (Lithic Scatters)

Two loci (Locus 23 and Locus 33) are lithic scatters without FCR scatters or FCR features. Both of these loci contain fewer than 50 pieces of flaked stone and ground stone fragments. A Gypsum point was recorded at Locus 23 suggesting that this locus may date to the Archaic period.

FCR Scatters With Less Than Two Associated Artifacts (Thermal Features)

Thirteen loci consist of FCR scatters, clusters, or features that are associated with less than two artifacts or no artifacts. Five of these loci (18, 55, 60, 61, and 63) appear heavily eroded and eight of the loci (9, 14, 21, 27, 40, 47, 48, and 59) are in depositional contexts that indicate additional artifacts and features maybe buried under the eolian or alluvial deposits. FCR was clustered or mounded in nine (9, 14, 18, 21, 27, 40, 47, 48, 55, and 59) of the 13 loci suggesting that intact deposits may lie buried.

Artifacts were identified at four of these loci (18, 40, 55, and 63). Two artifacts were identified at Locus 18 and single artifacts were identified at the other three loci. The associated artifacts were flakes (n=3), core tools (n=1), or circular scrapers (n=1).

The lack of associated artifacts could be related to the depositional context of the loci or to the prehistoric function of the loci. It is possible that some of these loci functioned as camps, but the associated artifacts remain buried. Because all of these loci have FCR scatters or FCR features they are categorized for the purposes of this report as thermal features. The FCR suggests that Native Americans burned caliche and limestone rocks as part of the cooking process. However, the actual function of these loci and features can only be determined through additional research.

Trails

One trail segment (Locus 7) was identified east of the Field Station in an area of desert pavement. The trail runs east to west and is roughly parallel to the modern road to Mormon Wells. Rock-pile features and artifacts are found along the entire trail segment recorded. Moapa Gray ceramics that were identified near a trail rock pile indicate that Native Americans have probably used the trail since the early Ceramic period. In Chapter 1, Begay et al. note the cultural importance of this trail and identify it as the route linking Corn Creek and the Pahranaagat Valley.

Table 4.1 lists the recorded trail sites in Clark County that were identified during a site-file search at the Harry Reid Center, University of Nevada, Las Vegas. As a group, they share several of the attributes noted for the trail in Locus 7. The recorded trail segments, which are scattered widely about Clark County, range in length from 50 m to 1.7 km. This does not include a 30 m trail segment recorded at 26CK2171, which was later re-interpreted as natural in origin. Doubts are also expressed in the site record concerning 26CK2114, a trail that was clearly used by burros and that may have been established by these animals. Site 26CK3717 is another horse trail, though one that was used in the Historical period by Paiute riders. This case somewhat confounds the distinction between human-made and livestock-made trails. For all of the other trails listed in Table 4.1, the recorders thought they were human in origin. These trails vary in width from 30 to 50+ cm. Several of them were recorded as occurring on desert pavement, and some of the others, which have rather skimpy site records, may be on this kind of surface as well. Some trails are, or appear to be, associated with artifact scatters and features, and at least two of the trails pass by other sites. Three of the trail segments—26CK4637, 5132, and 5433—are located in the northwestern corner of the Las Vegas Valley, as is the Corn Creek Trail segment.

Table 4.1. Recorded Trails in Clark County.

Site: 26CK	Location	Description	Recorder	Comments
1285	LV Wash, between LV Valley and Lake Mead	300 m long, 30-40 cm wide; partly on desert pavement	Harry Reid Center, UNLV	Possible associated faint cleared circle
1531	LV Wash, between LV Valley and Lake Mead	ca. 1.5 km long	DAS*, UNLV (Ferraro)/ 1978	Passes by two rock-shelter sites
2114	SE flank of McCullough Range	ca. 750 m long	DAS, UNLV (Fenenga)/ 1979	No associated artifacts or features; “presently used by burros”
2171	W Lake Mead, near Boulder Beach	ca. 30 m long	DAS, UNLV (Bernard)/ 1979	Trail ID’d within a large clearing in the desert pavement
2605 (Locus 7)	Far NW LV Valley	300 m; on desert pavement	HRA	five associated rock piles, two with artifacts
2622	Between Muddy River and Mormon Mtns.	ca. 1.70 km long	BLM? (Rolf)/ 1977	Cores and flakes observed along 0.40 km
3246	LV Wash, between LV Valley and Lake Mead	Intermittent over ca. 800 m, 50 cm wide; on “patinated volcanics” and desert pavement	DAS, UNLV (Rafferty)/ 1984	Sites nearby (Rafferty 1984)
3717	California Wash	–	DAS, UNLV (Rafferty)/ 1986	Historic (1930s) horse trail identified by Paiute observer (Rafferty 1986)
4637	Far NW LV Valley	ca. 250 m long; on desert pavement	NDOT (Leavitt)/ 1991	No associated artifacts or features; possible continuation of 26CK5132
4802	Far NE LV Valley	82 m long; on desert pavement	Knight & Leavitt (Leavitt)/1991	15 m to stone cist [rock ring] feature, with flakes
4835	LV Wash, between LV Valley and Lake Mead	2 segments: 150 m and 50 m long, both 50 cm wide	Arch. Res. of Southern Nev. (Rafferty)/ 1991	Rock ring next to longer segment; no associated artifacts
4845	Valley of Fire	180 m long x 30 cm wide	Knight & Leavitt (Leavitt)/1992	No associated artifacts or features
4853	Virgin Valley, near Riverside	120 m long x 45 cm wide	Knight & Leavitt (Leavitt)/1992	Lithic scatter: biface blank, 3 tested cobbles & cores, 14 flakes; sites within 750-900 m
5132	Far NW LV Valley	300 m long; on desert pavement	Knight & Leavitt (Leavitt)/1994	No associated artifacts or features; possible continuation of 26CK4637

Site: 26CK	Location	Description	Recorder	Comments
5433	Far NW LV Valley	1.20 km long x 50+ cm wide x 3-5 cm deep; on desert pavement	Knight & Leavitt (Leavitt)/1996	No associated artifacts or features
6488	LV Wash, far SE LV Valley	225 m long x 50 cm wide; on desert pavement	HRA (Woodman)/2001	Rock ring and 3 lithic cores located nearby
6841	NW Las Vegas Valley	300 m long x 30-40 cm wide; on desert pavement	HRA (Lyon)/2004	Rock cluster and biface located within 10-15 m

Note: * DAS = Division of Anthropological Studies, Environmental Research Center, UNLV

DIAGNOSTIC ARTIFACTS

Twenty-five percent (n=11) of the 44 loci with prehistoric components contained temporally diagnostic artifacts such as projectile points and ceramics. Ceramics were present at six loci including the Field Station Locus, Loci 7, 10, and 15, Locus 17, and Locus 26 (Figure 4.10). Projectile points were recorded at eight loci including the Field Station Locus, Locus 17, and Loci 23, 26, 32, 36, 37, and 63.

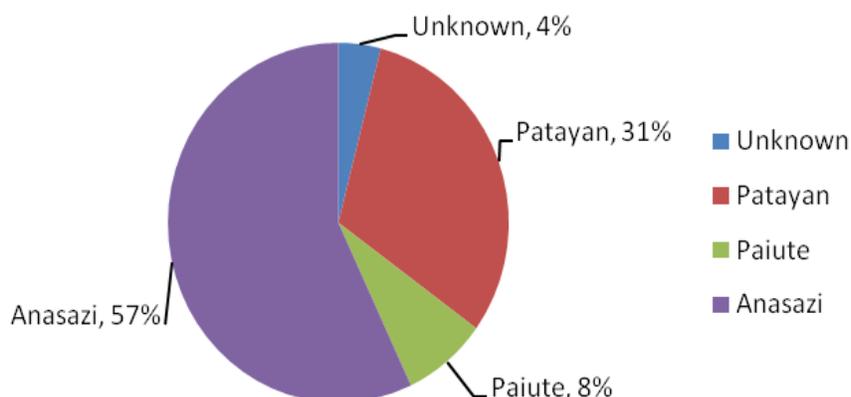


Figure 4.10. Affiliations of ceramic artifacts identified at the Corn Creek Site.

Virgin Anasazi and Patayan sherds that are associated with the Early and Middle Ceramic periods were recorded at Loci 1, 7, 10, 17, and 26. Virgin Anasazi ceramics were most plentiful in the Field Station Locus around Middens 1, 2, and 5. Boulder Gray sherds from a single vessel were identified at one of the rock pile features of Locus 7, the most important feature of which is a trail segment and from Locus 17. Locus 10 is a concentration of approximately 20 small North Creek gray sherds, and Locus 26 is a dense concentration of thousands of flakes and a few Pueblo II period sherds from a single vessel (Figure 4.11). Due to the artifact densities and varieties, we suspect that Locus 26 may be a camp used over an extended period of time or possibly by a large group of individuals. Locus 26 differs from the other Virgin Anasazi loci in that it is located in the western end of the project area near Locus 17, and at least one mile west of the springs. Sherds collected from Locus 17 suggest Patayan and Anasazi use during the Ceramic period.

Southern Paiute or Patayan (Tizon Brown) sherds that are associated with the Late Ceramic period and the Historic Southern Paiute period were identified in the Field Station and at Locus 15. The sherd that was associated with Loci 15 was identified near the historic road, Locus 3, which runs along the southern edge of the sand dunes. Other artifacts associated with this road, including a brown glass scraper and a can made into a strainer, are probably also associated with the Southern Paiute period. Most of the Southern Paiute pottery identified in the project area is located in the Field Station area. Within this locus, Paiute pottery was recorded at Feature 6, a possible Paiute camp and at Feature 9, a thermal feature. A few Paiute sherds that may represent a pot drop were recorded as IO 14.

Projectile points were identified at the Field Station, the area explored during the Tule Springs Expedition (Locus 17), and at Loci 23 (Figure 4.12), 26 (Figure 4.11), 32, 36, 37 (Figure 4.13), and 63. Projectile points recorded in the Field Station Locus included a white chalcedony Pinto point base and two small triangular obsidian arrow points from Middens 4 and 5.



Figure 4.11. Decorated ceramic sherd and the base of an Eastgate Constricting Stem projectile point from Locus 26.



Figure 4.12. A Gypsum type projectile point made of black chert at Locus 23.



Figure 4.13. Projectile point recorded at Locus 37.

The Pinto point, which hints at a Middle Archaic date, was found in the sand dunes west of the Field Station at Feature 21. The other points were all recorded at camps or lithic scatters. One Rose Springs type arrow point was associated with Feature 15 at Locus 17. A complete Gypsum Point identified at Locus 23 suggests that this camp may date to the Late Archaic period. One Eastgate point and one Parowan Basal notched point identified at Locus 26 are consistent with the Virgin Anasazi Pueblo II period date indicated by ceramic evidence (Lyneis et al. 1989:Figure 23). A point of the Humboldt type, which was used from the Archaic throughout the Ceramic period, was identified at Locus 32. Eastgate Expanding Stem points recorded at Loci 36 and 63 suggest use of these places during the Ceramic period. An Elko Corner Notched point was identified at Locus 37. Elko points were used throughout the Archaic period and into the Ceramic period.

ARCHAEOLOGICAL TEST EXCAVATIONS

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In the fall of 2003, HRA conducted test excavations in the vicinity of a spring channel to determine the extent, integrity, and significance of archaeological deposits that were inadvertently discovered during work to improve wildlife habitat by the FWS (Figure 4.14). The prehistoric archaeological deposits were exposed when vegetation was cleared from a spring and associated channel at the Corn Creek Field Station in late June of 2002. Following the discovery of the archaeological deposits, further work on the spring was halted until an assessment of the deposits was made.



Figure 4.14. Archaeologists excavating a test unit at the Corn Creek site.

The purpose of the archaeological testing project was to determine the extent, integrity, and significance of archaeological deposits. Toward this goal seven test units (Figure 4.15) were excavated by HRA archaeologists in the vicinity of a spring channel and in the nearby midden known as Midden 1. Four units (Test Units 1, 2, 4, and 5) were excavated within the area disturbed during vegetation removal and three (Test Units 3, 6, and 7) were excavated outside the area of recent disturbance.

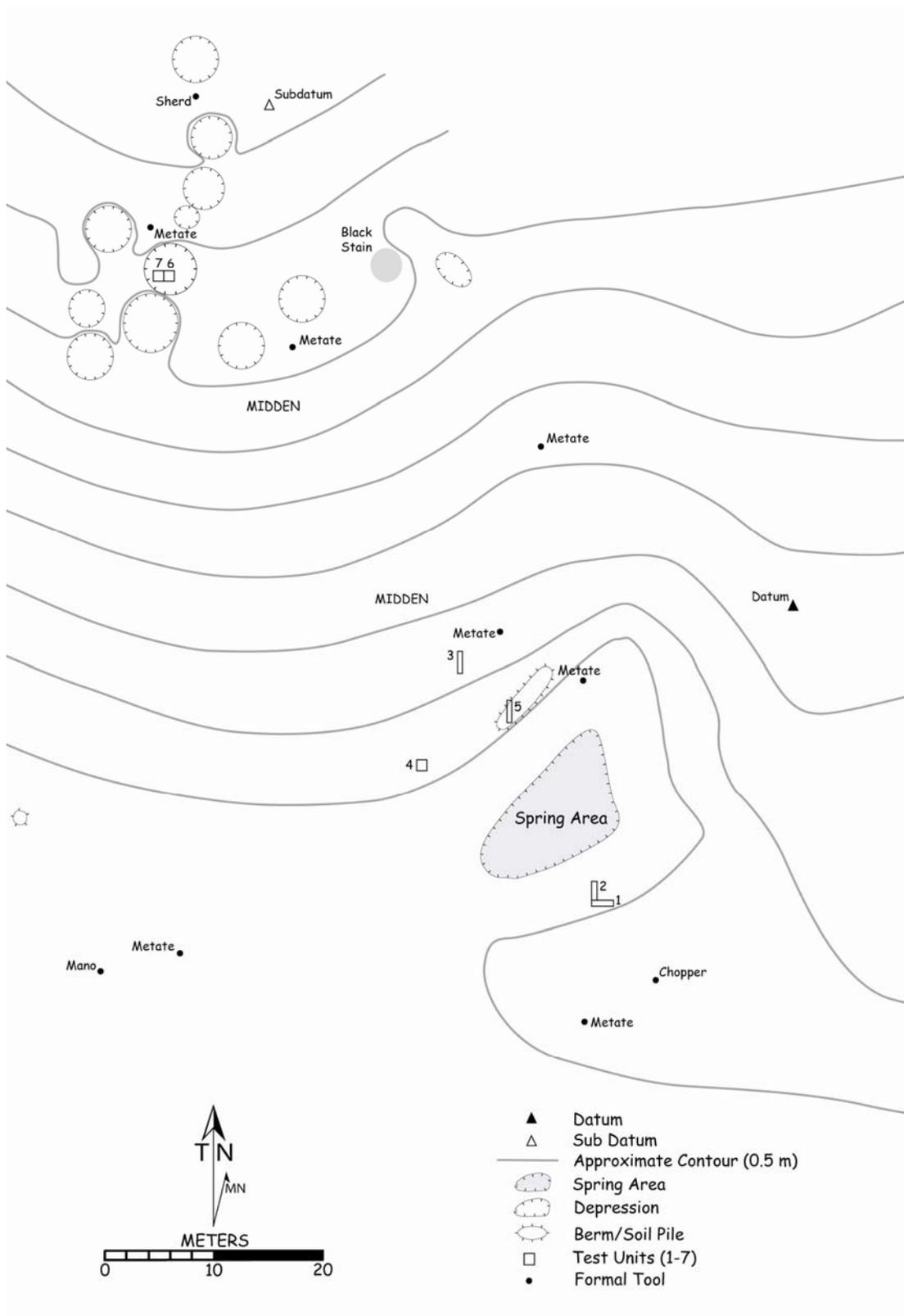


Figure 4.15. Site map showing test units and depressions at the Corn Creek Field Station.

Test Units 1 and 2, which were located south of the channel, lacked undisturbed cultural deposits or features. In both of these units caliche bedrock was encountered at depths of 5-20 cm below the surface. It is likely that the soils within the disturbed area on the south side of the channel were bladed and piled-up during previous cleaning episodes of the spring. Test Unit 5, which was located north of the spring, contained thick undifferentiated clay soil with decomposed organics to a depth of 60 cm. Although all levels excavated in this unit contained numerous artifacts to a depth of 60 cm, the clay composition of the soils and the undifferentiated nature of the deposits suggest that the soils north of the spring have been disturbed. The mounded soil in the vicinity of Test Unit 5 was likely placed there during cleaning episodes of the channel.

Two test units were excavated north of the springs within 7 m of the channel (Figure 4.15). Test Unit 3 was excavated just outside the area disturbed during vegetation removal, and Test Unit 4 was located within the area of disturbance. These units contained four intact cultural features, which were overlain by the cultural deposits of Midden 1. Test Unit 3 measured $2 \times .5$ m and was excavated to a depth of 60 cm below the surface. Three features (Features 1-3) were identified in Test Unit 3, including a hearth (Feature 3) and two thermal features with fire-cracked rock (Features 1 and 2). Charred material from Feature 2 yielded a conventional radiocarbon age of 2760 \pm 40 BP, with a two sigma calibrated age range of B.C. 1000 to 820 (Beta-172584).

A macrobotanical sample from the fill of the feature contained one charred saltbush seed and seed fragment and three charred unidentified seed fragments, suggesting that seeds were processed in this feature. A woody member of the sunflower family, juniper, creosote bush, mesquite, and a woody member of the rose family were burned as fuel. Processing of animal remains is suggested by the recovery of a few charred, calcined, and uncharred bone fragments.

Although the excavation was conducted using arbitrary levels, at least three cultural strata were identified in the profiles of Test Unit 3. Each of the three levels contained numerous flaked and ground stone artifacts and fire-cracked rock. A few Virgin Anasazi sherds were also recovered from the upper strata of this unit. Our excavations in Test Unit 3 suggest that Midden 1 is a true cultural midden with a dense scatter of flaked and ground stone artifacts and fire-cracked rock. The midden deposits within this unit extended from the present ground surface to a depth of 60 cm. Excavation was stopped at a tan layer that contained fewer artifacts and charcoal staining; however, cultural levels may have continued below the 60 cm level. Test Unit 4, located north of the channel, measured 1×1 m and was excavated to a depth of 40 cm. The fill of the unit contained numerous artifacts and fire-cracked rock. This unit also contained a shallow pit (Feature 4) that may represent a man-made ditch leading from the main channel.

During our examination of the surface deposits near the springs we identified several depressions located on a low hill 40 m northwest of the springs. The hill, which is covered with Midden 1 deposits, contains 11 circular depressions that measure 2-4 m in diameter and are 30 to 60 cm deep. Based on surface evidence we hypothesized that the depressions may represent prehistoric pit structures. Because of the close proximity of the depressions to the channel area, we felt that it would be beneficial for planning efforts to determine if this was the case. To this end, we excavated two test units within one of the features.

Two 1×1 m units (Test Units 6 and 7) were excavated in one of the depressions (Feature 5) to a depth of 50-70 cm below the surface. At this depth a smooth tan/yellow clay surface was encountered that was likely a prepared floor. We identified four cultural strata in the fill of the possible pit structure. The upper stratum is a 15-20 cm deep layer of gray/brown silt with organics and a few charcoal fragments. Below this is a 30 cm-thick stratum of gray silt with numerous flaked and ground stone artifacts, plus fire-cracked rock and bone. The charred faunal remains include bones from bighorn sheep, tortoise, chuckwalla, jackrabbits, cottontail rabbits, woodrat, and kangaroo rat. Below this level is a 10-15 cm deep layer of gray silt with numerous charcoal flecks and artifacts. Several Logandale Gray sherds were recovered from this stratum and also from the 2-5 cm layer of brown silt that covered the floor. Overlaying the floor is a thin layer of brown silt with only a few charcoal fragments. A pit (Feature 6) was encountered in the floor in Test Unit 6. At or near the surface of this pit were two large Logandale Gray sherds, two hammerstones, and a metate fragment.

Feature 6, the pit in the floor of Feature 5, was not excavated although the artifacts located near the surface were collected.

At the west edge of Unit 7 the floor turned sharply upward. We felt that this change in orientation probably represents the base of the pit structure's wall. In the southwestern corner of Unit 7, we also encountered a shallow depression containing a concentration of burned fragments from winterfat. Winterfat is a highly branched shrub with densely wooly foliage. A portion of this charred material was submitted for radiocarbon analysis, and it yielded a conventional radiocarbon date of 1420+- 40 BP with a two sigma calibrated age range of A.D. 530 to 710 (Beta-172585).

TEST UNITS

The seven test units excavated by hand within Midden 1 (Table 4.2, Figure 4.15) are described below.

Table 4.2. Test Units Excavated in Midden 1, Locus 1, 26CK2605.

Unit #	Location	Depth Below Datum	Results
1	Disturbed from vegetation removal	28 cm	Measured 2 × 0.5 m: Flakes, ground stone, biface fragment, faunal bone
2	Disturbed from vegetation removal	37 cm	Measured 1.5 × 0.5 m: Flakes
3	Edge of disturbance	72 cm	Measured 2 × 0.5 m: 3 stratigraphic levels, 5 excavation levels yielded charcoal, ash, and flakes
4	Disturbed from vegetation removal	35 cm	Measured 1 × 1 m: Flaked stone, flaked stone tools, fire-cracked rock, charcoal
5	Disturbed from vegetation removal	45 cm	Measured 2 × 0.5 m: Flakes, flaked stone tools, ground stone
6	Outside of disturbance, in depression adjoining Test Unit 7	70 cm	Measured 1 × 1 m: Trough metate, mano, 2 olla sherds. Probably the floor of a pithouse.
7	Outside of disturbance, in depression adjoining Test Unit 6	70 cm	Measured 1 × 1 m: 12 grayware ceramic sherds from 2 vessels, faunal bone, charcoal. Probably the floor of a pithouse.

Test Unit 1

Test Unit 1 (2 × .5 m east-west oriented) was placed south of the drainage channel and to the north of the spring. The soils in the area surrounding Test Unit 1 were disturbed from episodes of cleaning the vegetation from the spring during the ranching period. Soil on the surface was gray and ashy with some FCR. A single level was excavated representing a natural stratum from the surface to a layer of caliche, which sloped down to the west and appeared at 16-28 cm below datum. The fill was shallow gray silt with abundant cobbles and pebbles. Most of the encountered flaked stone artifacts were located on the caliche cap. However, one metate was discovered on the ground surface in the southwest corner of the unit and was collected.

Test Unit 2

Test Unit 2 was a 1.5 × .5 m north-south oriented unit placed south of the drainage channel. The western end of this unit abutted the southern end of Test Unit 1; the entire unit extended north from Test Unit

1 to the drainage. The first level was excavated from the ground surface to approximately 30 cm below datum. Ground stone and numerous flaked stone artifacts were collected. Excavation of Level 1 ceased when the soil became more compact. Level 2 was excavated to the caliche layer at a depth of 32-37 cm below datum. The soil in this level was gray silt with intermixed organics, pebbles, and cobbles. A small piece of burnt Douglas fir board was found laying on the caliche. Flaked stone artifacts were also recovered from Level 2.

Test Unit 3

Test Unit 3 was a 2 × 0.5 m north-south oriented unit located just north of the spring and northwest of Test Unit 5. This unit was located outside but adjacent to the recent disturbed area. There were five excavation levels and three stratigraphic levels in this unit.

Stratum 1 (a stratum is defined as a layer of rock or soil that has internal characteristics that differentiate it from the surrounding soil) was dark gray (7.5 YR 4/2), powdery silt with charcoal and FCR inclusions. Level 1 was encountered at a higher elevation in the northern end of the unit. Level 1 was excavated to a depth of approximately 28 cm at the north end and 35 cm at the south end. At this depth the soil became compacted. A small pocket of FCR/charcoal was visible at the base of the northeast corner. In addition, a small circular concentration of ash, charcoal, and FCR was identified in the southern half of the unit. Because of the ashy and silty nature of Stratum 1, it was impossible to visualize a clear outline of the concentration. However, the charcoal and FCR were much denser in the southern half of the unit and may have represented a hearth. Considering this possibility, the concentration, which was about 10 cm deep, was designated as Feature 1. FCR was common in Level 1, and was typically golf-ball size. Overall, the fill was uncompacted fine silt with very few rocks. A sherd was collected from this level. Level 2 was mixed with Stratum 1 and 2. Stratum 2 was brown/gray silt with lenses of charcoal and FCR. It was more compact and less ashy than Stratum 1. Flakes and FCR were abundant throughout this level, but when compared to Level 1, the amount of FCR in Level 2 was halved, and the rocks were noticeably larger in size. Level 2 was excavated to a depth of 38 cm below datum. The artifacts collected from Level 2 consisted solely of debitage.

The soil in Level 3 was brown organic with smaller quantities of FCR (about the same quantity as in Level 2) intermixed. Flaked stone artifacts were recovered from this level, the base of which was reached at a depth of about 50 cm. Charcoal speckling appeared at the southern end of the unit near the base of Level 3. This speckling was the surface of Feature 2, a thermal feature.

Level 4 was excavated to a depth of 62 cm at the north end of the unit where Stratum 3 was first encountered. At the south end of Level 4 excavation was stopped at 53 cm, which was the top of Feature 2. The soil in this level was a continuation of Stratum 2 soil – brown (7.5 Y/R 4/2) with low ash content. Stratum 3, encountered at the base of Level 5, was gravelly yellow/tan (7.5 Y/R 8/2) clay. Feature 3 was identified in Level 5 as a concentration of ash and charcoal in Stratum 3. Excavation of the unit was stopped at the base of Level 5 at a depth of 72 cm below datum. Artifacts in Level 4 included a biface, debitage, and faunal remains. Debitage was also recovered from Level 5.

Test Unit 4

Test Unit 4 was a 1 × 1 m unit located west of the spring and south of Test Unit 3. The unit was excavated in two arbitrary levels to a depth of 35 cm below datum. Two natural strata were encountered. Stratum 1 was a predominantly gray silty clay deposit containing abundant flakes and some pieces of burned and fire-cracked rocks. The upper portion of Stratum 1 (1a, 7.5-12.5 cm thick) was compacted and darker in color, while the lower portion of Stratum 1 (1b, 10-15 cm thick) was lighter, gray-brown silt with some clay. Caliche was encountered on the east wall at a depth of. Stratum 2, a thin band of tan pebbly silt, (approximately 2.5 cm thick) contained flake stone artifacts and fire-cracked rock. A sharp break was evident between Stratum 2 and the fill deposit of Feature 4, a shallow pit encountered in the former level at approximately 18 cm below the ground surface in the southeast corner of the unit. Feature 4 continued to a