NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name: Wupatki National Monument

other names/site number: Same

2. Location

street & number: Wupatki National Monument HC 33 Box 444 A ☐ not for publication

city, town: Flagstaff ☐ vicinity

state: Arizona code: county: Coconino code: zip code: 86004

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
☐ private	☐ building(s)	Contributing	Noncontributing
☐ public-local	☒ district		23 buildings
☐ public-State	☐ site	2,561	97 sites
☒ public-Federal	☐ structure		structures
	☐ object		5+ objects
		2,561	125+ Total

Name of related multiple property listing:

Number of contributing resources previously listed in the National Register 0
See Attachment 1 (Sect. 8 pp. 17-18)

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official — Date

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

☐ entered in the National Register.
☐ See continuation sheet.

☐ determined eligible for the National Register. ☐ See continuation sheet.

☐ determined not eligible for the National Register.

☐ removed from the National Register.

☐ other, (explain:) _____

Signature of the Keeper — Date of Action

. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
Domestic = village site, family house (hogan)	Landscape = park
Commercial/trade = trade	Education = research facility
Religion = religious structure, ceremonial site (shrine, kiva)	Recreation = cultural outdoor recreation
Agriculture/Subsistence = Agricultural field storage, processing	
Defense = fortification (Wupatki Pueblo)	

'. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
N/A	foundation walls roof other

Describe present and historic physical appearance.

SECTION 7: DESCRIPTION

The nominated archeological district is located in north-central Arizona at the southern edge of the Colorado Plateau, about 60 km northeast of Flagstaff. The boundaries of the district are coterminous with those of Wupatki National Monument (WNM), encompassing an area of 35,254 acres (Figure 1).

WNM occupies a unique position in a boundary area between three prehistoric cultural groups: the Sinagua, the Cohonina, and the Kayenta Anasazi. The eruption of nearby Sunset Crater in A.D. 1064 created environmental conditions unusually favorable for agriculture, and for about 150 years, beginning in the late eleventh century, WNM was home to a cultural mix of people who intensively farmed a marginal environment. The district was abandoned by the early to mid-thirteenth century, possibly because of depleted soil conditions (Colton 1932:589). Almost 600 years later, in the nineteenth century, WNM was reoccupied by a group of Navajos, most of whom were descended from a single individual (Roberts 1990). In the early twentieth century, the impressive prehistoric masonry structures at WNM caught the interest of archeologists in the Flagstaff region, especially Harold S. Colton, stimulating decades of intensive archeological study (Colton 1946).

WNM contains more than half a dozen spectacular masonry ruins perched on bluffs and mesas. These ruins are maintained and interpreted by the National Park Service for visitors to WNM. A recent survey of WNM documented an additional 2,561 prehistoric and historic sites (Anderson 1990), of which 17 have been excavated (Tables 1 and 2). Prehistoric site types range from large masonry pueblos, like Wupatki Pueblo, to small fieldhouses often associated with agricultural features, such as terrace gardens and bordered fields. Other site types include pithouse villages, building stone quarries, isolated hearths, and shrines. Historic Navajo sites include hogans, corrals, and sweatlodges. Both prehistoric and historic rock art is abundant. Because the area has been a National Monument for almost 70 years, the sites in WNM are largely undisturbed and in excellent condition.

The cultural affiliations of the prehistoric inhabitants of the district have been determined primarily by ceramic associations (Colton 1946). The presence of Sinagua people at sites such as Wupatki Pueblo is signaled by an abundance of Alameda Brown Ware ceramics. Tusayan Gray Ware is indicative of Kayenta Anasazi presence; almost 60 percent of the sherds recorded on the recent WNM inventory survey are of this type, suggesting a dominant Kayenta Anasazi presence in WNM (Downum and Sullivan 1990:85). Cohonina culture is indicated by the presence of San Francisco Mountain Gray Ware sherds. Most sites show a mingling of these ceramic types, suggesting either trade among cultural groups, or, at some sites, actual co-residence of peoples from different cultures (Smith 1952:153), an archeologically rare phenomenon in the Southwest.

Temporal affiliations of WNM sites are based on dendrochronological dates, ceramic affiliations, and the unusual geology created by the Sunset Crater eruption. Using a combination of these techniques, 977 sites (20% of recorded sites) are dated (Downum and Sullivan 1990:82). Other sites, especially agricultural features, have yielded no indications of temporal affiliation, but presumably have been used during the primary occupation of WNM. Sites predating the eruption of Sunset Crater are rare; only two sites have ceramic affiliations that place them in the pre-eruptive period (Downum and Sullivan 1990:82). Intensive occupation of WNM took place after the eruption, possibly beginning as late as A.D. 1100 and terminating as early as A.D. 1220 (Downum and Sullivan 1990:82). Navajo occupation by the family of Peshlakai Etsidi, beginning in the 1860s, is recorded in historic documents and supplemented by ethnohistoric research (Roberts 1990).

[x] See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:
☐ nationally ☐ statewide ☐ locally

Applicable National Register Criteria ☒ A ☐ B ☒ C ☒ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Archeology: prehistoric, historic, aboriginal	Post-eruptive - Historic	A.D. 1064-1941
Commerce		
Ethnic heritage: Native American		
Religion		

Cultural Affiliation
Anasazi, Sinagua, Cohonina, Navajo

Significant Person

Architect/Builder
N/A

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

SECTION 8: SIGNIFICANCE

Wupatki National Monument occupies a unique position in a boundary area between three prehistoric cultures. Sites in WNM are representative of a set of dramatic regional events that occurred in the Flagstaff region and throughout the northern Southwest during the twelfth and thirteenth centuries. These events include population movement, cultural interaction, and the adjustment of populations to rapidly changing environmental conditions.

Beginning about A.D. 1100, an enormous increase in sites at WNM indicates a major population movement into the area. For a period of 150 to 200 years, three cultural groups--the Sinagua, the Kayenta Anasazi, and the Cohonina--interacted at WNM, sometimes sequentially occupying the same site, perhaps co-existing at other sites. While population movement and cultural interaction are recognized in the Flagstaff area and other parts of the northern Southwest during this period, the degree of cultural interaction apparent in WNM has been documented nowhere else in the currently understood prehistoric Southwest. Sites at WNM also show evidence of interaction with distant cultures, such as the Hohokam and Chacoan Anasazi.

Countless agricultural features dot the WNM landscape, indicating the adjustment of populations to changing environmental conditions, especially the middle eleventh century eruption of Sunset Crater. Agricultural conditions in the Flagstaff area may have improved as a result of the eruption, and the improved conditions may have played a role in attracting immigrants. Those immigrants used innovative techniques, including terraces and bordered gardens, to intensify agricultural yield. The WNM agricultural system is one of the best documented in the Southwest.

The temporal and spatial boundaries of the prehistoric remains at WNM provide a unique opportunity to examine the adjustment of populations to changing social and environmental conditions in a controlled setting. WNM was occupied for a relatively short period of time, and its prehistoric remains are largely intact and undisturbed. It is a microcosm for studying a plethora of topics and has the potential for dramatically increasing knowledge of cultural and environmental responses of populations throughout the entire prehistoric Southwest.

The history of WNM in the last half of the nineteenth and early twentieth centuries continues the tale of interacting, although often conflicting, cultures; this time the participants were Navajo and Anglo. The historic occupation of WNM began about 1860 when the family of Peshlakai Etsidi settled the area. The interactions of this man and his descendants with the local Anglo ranchers and the United States government exemplify relations between Anglos and Native Americans during the late nineteenth and early twentieth centuries throughout the northern Southwest. The superb documentation of historic Navajo occupation at WNM is almost unparalleled among studies of this Native American group.

Archeological sites within WNM include the impressive masonry structures and the extensive agricultural features of the prehistoric period and the well-documented hogans and livestock management facilities of the historic period. These remains are considered significant in the context of criteria a, c, and d of the National Register of Historic Places. They are associated with events that have made a significant contribution to the broad patterns of prehistory and history; they include distinct characteristics of a type, method, and period of construction and represent a distinct phase and cultural entity; and they possess scientific value.

☒ See continuation sheet

Major Bibliographical References

☒ See continuation sheet

'revious documentation on file (NPS):
- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:
- ☐ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: _____

0. Geographical Data

Acreage of property 35,254

UTM References

	Zone	Easting	Northing
A	12	415160	3937610
B	12	467610	3937700
C	12	467400	3941300
D	12	468200	3941300

☒ See continuation sheet

Verbal Boundary Description

The boundary of the nominated property is delineated by the polygon whose vertices are marked by the UTM references listed on the continuation sheet and shown on the accompanying USGS map.

Wupatki National Monument is bordered on the northwest by a private ranch, on the south by the Cohonino National Forest, and on the northeast by the Navajo Indian Reservation. Wupatki National Monument was established in 1924 and added to in 1937.

☐ See continuation sheet

Boundary Justification

The nominated district boundaries are coterminous with the National Monument boundaries.

☐ See continuation sheet

11. Form Prepared By

name/title Catherine M. Cameron/Cherie L. Scheick

organization Southwest Archaeological Consultants, Inc. date 7/28/92

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ENVIRONMENT

Wupatki National Monument lies at the southern end of the arid Colorado Plateau and at the northern edge of the San Francisco Peaks volcanic field, about 25 km north of Sunset Crater. The Monument is located at the northern end of a physiographic and archeological unit called "the Flagstaff area" (Downum 1988:25). Basins, mesas, and cinder cones comprise the major landforms at WNM, where elevations range from about 4,300 to 6,000 feet (Hartman and Wolf 1977:3).

Travis (1990:32-33) defines two major physiographic zones within WNM, characterized by differences in topography, geology, hydrology, vegetation, and climate. The western portion of WNM is identified as the Upland zone, with elevations above 5,000 feet, extending from Antelope Hills on the west to the Doney Cliffs on the east (Figure 2). The western part of the Uplands is characterized by variable relief and numerous microenvironments. Landforms include dissected canyons, basalt mesas, limestone troughs, open parklands, and a large sink. The eastern end of the Uplands is a flat plain known as Antelope Prairie, with deep Antelope Wash meandering through it.

The Lowland Zone, comprising the eastern portion of WNM, is structurally a part of the Little Colorado River Valley (Travis 1990:33). The Little Colorado River forms the eastern boundary of WNM. Lowland physiography is dominated by the Wupatki Basin, an alluvial surface surrounded by uplifts such as Doney Cliffs and Woodhouse Mesa (Hartman and Wolf 1977:3; Travis 1990:33). Numerous small watercourses drain the basin; landforms include residual limestone/sandstone ridges, round-top hills, and dunes.

Situated in the rainshadow of the San Francisco Peaks, WNM is arid, and the possibilities for prehistoric agriculture in such an arid environment probably were marginal. The Monument receives an average of only seven inches of rain per year (Hartman and Wolf 1977:3), and temperatures vary widely, reaching as high as 105° F in summer, and as low as 7° F in winter (Carothers and Goldberg 1979:14). Although the Upland zone receives fairly consistent moisture, the Lowland zone is much dryer and hotter (Travis 1990:33). Most of the precipitation that falls within WNM comes as violent summer thunderstorms and does not saturate the soil; snowfall is limited. Intense solar radiation, infrequent cloud cover, and high winds also contribute to area aridity (Hartman and Wolf 1977:3).

WNM is characterized by Upper Sonoran plant forms (Carothers and Goldberg 1979:19). The Upland zone is covered by a combination of open piñon-juniper woodlands and various grasses, especially grama grasses (Cinnamon 1988a:8; Travis 1990:33). The Lowland zone, with its higher temperatures and lower rainfall, exhibits sparse vegetation of cold desert shrubs, such as four-wing saltbush, gramma grasses, prickly pear (Opuntia sp.), and yucca (Hartman and Wolf 1977:6; Travis 1990:33).

Fauna found in the district are common to desert-grassland environments. Jackrabbits, cottontails, small rodents (kangaroo rat, pocket mouse, wood rat) and reptiles (collared lizard, side-blotched lizard) are the most ubiquitous species (Hartman and Wolf 1977:6; Carothers and Goldberg 1979:21). The most common large mammal is the pronghorn antelope; mule deer are occasionally seen. Bobcats and coyotes are common carnivores. Although bighorn sheep once inhabited the monument, they were eliminated during historic times (Hartman and Wolf 1977:6).

WNM is geologically remarkable (Breed 1976). Dominated by the Sunset Crater volcanic field, the Monument also exhibits a number of unusual features related to the underlying sedimentary formations. The base rock is divided by a northeast-southwest trending fault running through the middle of the district. West of the fault lies the Permian-aged Kaibab formation, while east of the fault is the Triassic-aged Moenkopi formation. Both formations are sedimentary deposits, the Kaibab primarily limestone, and the Moenkopi sandstone. Quaternary basalt flows and volcanic ash from Middle Pliocene volcanic eruptions cap the Kaibab and Moenkopi formations (Hartman and Wolf 1977:3). Mounds of volcanic ash and cinders from the eleventh to thirteenth century eruptions of Sunset Crater can be seen in basins and arroyos. This material once covered the entire region, but wind has stripped it from higher landforms and redeposited it in areas of low relief (Hartman and Wolf 1977:3).

Earthcracks, blowholes, and sinks, all unusual geologic structures, are found at WNM and apparently were known prehistorically. Earthcracks, some of which are 500 feet deep, are faults that have opened at areas of displacement along contact zones (Figure 3). Where displacement is small, cracks have appeared; where displacement is great, large blocks along joint planes in the Kaibab limestone have collapsed creating large subsurface structures resembling karst sinkholes (Cave Research 1976:3). Blowholes are small openings to buried earthcracks (Cave Research 1976:4) that expel cool air even in summer. Prehistoric sites are found around some blowholes, and prehistoric artifacts are found in earthcracks, suggesting the inhabitants of Wupatki were aware of and

used these unusual features (Hartman and Wolf 1977:5). Suggestions that the sinks were used prehistorically as reservoirs is unlikely because they are formed of porous limestone (Hartman and Wolf 1977:5).

The Eruption of Sunset Crater

In September, A.D. 1064, the eruption of Sunset Crater began when a 15 km long fissure opened from a vent in the ground, allowing lava to flow out (Pilles 1979:464). Tons of cinder and ash were extruded over the next several decades, which built up the Sunset Crater cone and blanketed the surrounding 2,000 sq km, including the area of WNM (Colton 1945:8 cited in Pilles 1979:465). Eruption columns reached several hundred feet high (Holm and Moore 1987:394). A second major eruption possibly occurred between A.D. 1066 and 1067. During the eruptions, prevailing winds apparently were from the southwest, causing the east side of the cone rim to grow higher and depositing more ash north and east of the crater (Pilles 1979:464; Holm and Moore 1987:394).

During the next 150 years, activity in the Sunset Crater volcanic field continued, and two large lava flows were extruded from the cone (Pilles 1979:466; Holm and Moore 1987:395-396). In A.D. 1150, the Kana'a flow emerged from the base of the cone and flowed for more than 10 km down Kana'a Wash. Between A.D. 1180 and 1200, fumaroles formed along the original fissure, and Gyp Crater, southeast of Sunset Crater, was formed. The Bonito lava flow emerged west of Sunset Crater in A.D. 1220 and covered 4.63 sq m of the present parkland to a depth of between 2 and 30 m (Holm and Moore 1987:395). In A.D. 1250, a layer of red cinders was deposited around the rim of Sunset Crater, inspiring its current name (Colton 1945:1 cited in Pilles 1979:466).

The ash layer deposited by Sunset Crater may have had a beneficial effect on the surrounding region, including the present area of WNM. The layers of cinder retain moisture for long periods, promoting plant growth. For example, after the eruption, pine and juniper grew at elevations 300 m lower than previously (Colton 1932:589-590). More important for prehistoric populations, the light cover of ash also would have increased corn growth (Pilles 1979:468). Colton (1932:588-589, 1937:11, 1946:311) suggests that the Sunset Crater ash fall created excellent conditions for agriculture in the Flagstaff region, which ultimately led to increased population in the area. Pilles (1979:468), however, has de-emphasized the importance of the ash layer to prehistoric agriculture, noting that volcanic soil often lacks nutrients necessary for plant growth. He suggests that climatic change coincident with, but unrelated to, the eruption may have permitted agriculture at lower elevations.

PREVIOUS RESEARCH IN THE DISTRICT

WNM was one of the first portions of the Flagstaff area to undergo detailed archeological study, largely under the direction of Harold S. Colton of the Museum of Northern Arizona. In spite of this early research, until recently, WNM was known primarily for its few spectacular masonry ruins. The National Park Service inventory survey conducted between 1981 and 1987 provided comprehensive data on cultural remains in the district, enormously increasing knowledge of the prehistoric and historic occupations (Anderson 1990). Still, very few sites within the district have been excavated (less than 1%), and some of these excavations, conducted decades ago, are either unreported or inadequately reported. As discussed below, the large number of prehistoric agricultural features discovered at WNM during the inventory survey is remarkable, and much remains to be learned about these features, as well as other site types in the Monument. Table 3 lists in chronological order major research projects at WNM.

Early Research

The first scientific record of the ruins at WNM was in 1851 by Brevet Captain Lorenzo Sitgreaves, who lead a military expedition to the Flagstaff area. The goal of the expedition was to assess the navigability of the Zuni and Colorado rivers. When the party reached Black Falls on the Colorado River, they were forced to turn west and travel through the area that is now WNM. Sitgreaves reported that "all the prominent points (were) occupied by the ruins of stone houses of considerable size, and in some instances, of three stories in height" (Sitgreaves 1853:8, cited in Hartman and Wolf 1977:20). He felt the ruins resembled the Hopi and Rio Grande Pueblo towns and had been abandoned for lack of water (Sitgreaves 1953:8, cited in Downum 1988:42-43). The Sitgreaves expedition described several ruins and produced a sketch of Wupatki Pueblo (Downum 1988:44).

The next explorations of the ruins in WNM were by representatives of the U.S. Bureau of American Ethnology (BAE). In 1885, Major John Wesley Powell, founder of the BAE, arrived in the Flagstaff area to study the connections between local ruins and known Southwestern tribes (Downum 1988:50). Powell visited WNM and described Wupatki Pueblo and the Citadel in his report (Powell 1891:xviii, cited in Downum 1988:50). Based on the abundance of perishable artifacts that remained in these ruins, he surmised that the ruins had been abandoned only three or four centuries earlier. In 1900, Jesse Walter Fewkes, ethnologist and archeologist for the BAE, visited WNM and mapped and photographed many large ruins, including Wupatki, Wukoki, Lomaki, and the Citadel (Hartman and Wolf 1977:7; Downum 1988:58). Both the location and extent of excavations conducted by Fewkes at WNM is unknown, though apparently that work included the removal of several burials. Fewkes' main objective, like that of Powell's, was to trace the historical migration of tribes and establish connections between prehistoric sites and historic Pueblo groups.

A brief and rather unfocused visit to WNM was made in 1923 by a party from the Milwaukee Public Museum. The expedition was led by Samuel A. Barrett, Director of the Museum. Barrett's party spent a week surveying and taking collections near the Citadel (Downum 1988:76). The group mapped and photographed 55 sites and excavated a large, previously pothunted burial ground north of the Citadel (Hartman and Wolf 1977:7).

In 1924, Wupatki National Monument was created, largely through the efforts of Harold S. Colton, Samuel A. Barrett, and J. C. Clarke, a Flagstaff artifact collector (Hartman and Wolf 1977:7). For the first nine years, J. C. Clarke was an unpaid custodian for the Monument (Stanislawski 1963:30).

By the mid-1920s, Andrew E. Douglass had begun the systematic study of tree-rings that was to become so important a part of dating Southwestern archeological sites. WNM played an important role in early dendrochronological studies; in search of tree-ring samples, Douglass, Harold Colton, and J. C. Clarke excavated three rooms in Wupatki Pueblo in 1926 and 1927, rooms 35, 36, and 45 (Stanislawski 1963:31). Although no report of these excavations was written, the tree-ring dates obtained helped define the age of the WNM ruins and other similar sites in the Flagstaff area (Douglass 1938).

The 1930s saw an enormous burst of archeological activity in the Flagstaff area and especially in WNM. Behind this activity was Harold S. Colton and the Museum of Northern Arizona. "...Driven by the persistent, ecologically-oriented vision of Harold Colton " (Downum 1988:138), the Museum of Northern Arizona in the decade before World War II provided a foundation for Flagstaff area archeology that exists to this day. Under Colton's direction, the following was accomplished: 1) the collection and interpretation of an enormous number of tree-ring specimens, 2) the dating of the eruption of Sunset Crater, although erroneously at first, 3) the development of a ceramic chronology for the Flagstaff area, 4) the recognition of the prehistoric cultures of Sinagua and Cohonina, and 5) the development of a culture history for the Flagstaff area that pointed to Sunset Crater as the cause of both the occupation and abandonment of WNM and the Flagstaff area (Downum 1988).

Before 1930, the relationship between the eruption of Sunset Crater and the prehistoric occupants of the Flagstaff area was unknown, but in 1930, excavations outside WNM indicated that the eruption had occurred during prehistory. Colton and personnel from MNA began to direct their attention toward defining the effects of the eruption on prehistoric cultures (Downum 1988:107-117). Part of their goal was to trace the connection between the Pueblo II and Pueblo III periods, which may have been profoundly affected by the eruption. As part of these objectives, the site of Heiser Springs (NA1754) in WNM was excavated by L. L. Hargrave (Hargrave 1931b:3). Here, an aboveground pueblo had been placed directly over a Pueblo II pithouse, clearly demonstrating a continuity between the Pueblo II and III periods.

Excavation and Research at Wupatki Pueblo

Initial efforts to date the eruption of Sunset Crater were disappointing, but, nonetheless, definition of cultural manifestations in the Flagstaff area were more successful. In 1933, with the Depression in full swing, Colton decided to concentrate his efforts on the largest Pueblo III site in the region, Wupatki Pueblo (Downum 1988:121). The excavations at Wupatki Pueblo were aimed at restoring rooms for public interpretation, recovering Pueblo III artifacts and food remains for further study, and continuing dendrochronological studies (Hargrave 1933, cited in Downum 1988:122). The excavations were conducted first by Hargrave and then by Colton but were partly funded by the U.S. Civil Works Administration (CWA). Excavations at Wupatki Pueblo were completed in 1934. Over the course of the work, several rooms were excavated, including an unroofed round structure called the Amphitheater (Colton et. al. 1933 cited in Downum 1988:122), several hundred artifacts were catalogued, and 51 tree-ring dates were obtained (Downum 1988:122). Subsequent analysis of ceramics removed from the pueblo suggests the site was established by Kayenta peoples, but the main occupation was by the Sinagua (Colton 1946:62).

In 1936, Erik K. Reed and James W. Brewer completely excavated Room 7 at Wupatki Pueblo, which was eventually made into a museum display. Although the room was partially excavated by the CWA in 1933 and 1934, it was beginning to erode (Hartman and Wolf 1977:8). Reed and Brewer wrote a detailed report on the excavation (1937), and later Reed produced an equally detailed report of the ceramics recovered from that work (Reed 1939). Further excavations at Wupatki Pueblo took place in 1940 to 1941 when David L. Jones, ranger at Wupatki National Monument, excavated rooms 11 and 12 (U.S.D.I. 1953a:14, cited in Hartman and Wolf 1977:8). No report on the excavations was completed, and the field notes are missing (Hartman and Wolf 1977:8). The final archeological work at Wupatki Pueblo focused on the ballcourt. In 1965, Alexander J. Lindsay and George J. Gumerman excavated the ballcourt (Lindsay 1965) and discovered the feature had been built late in the occupational history of the pueblo (Hartman and Wolf 1977:9).

A detailed analysis of the material remains and architecture from Wupatki Pueblo was not produced until 30 years after the initial 1933 excavations (Stanislawski 1963). Stanislawski's study of Wupatki Pueblo suggests that, in addition to local Sinagua peoples, Wupatki Pueblo experienced mixing of both Hohokam and Chacoan groups (Stanislawski 1963:527-543). Stanislawski's suggestions concerning the presence of these groups in the Flagstaff area, especially Chacoan peoples, has been strongly questioned by other scholars (Reed 1963; Schroeder 1963; Fish, Pilles, and Fish 1980).

In 1933, in addition to the Wupatki Pueblo excavations, the small site of NA2765 located nearby also was excavated. This excavation was conducted by A. Ten Broeck Williamson and James W. Brewer, both part of the party excavating Wupatki Pueblo (Williamson 1933). One of the two structures at NA2765 was a pithouse, and later research revealed that the other structure was an Anasazi kiva (Voll 1965:7, cited in Hartman and Wolf 1977:7; Figure 4). No report on these excavations was produced, so the place of this project in the MNA research design is unknown. The kiva was re-excavated in 1965 (Lindsay 1965).

In the winter of 1933-1934, Colton had planned to excavate in Walnut Canyon as part of a CWA project to restore the cliff dwellings there for public display (Downum 1988:123-124). Bad weather forced a change of plan, and Colton decided instead to excavate Nalakihu, a small pueblo just below the Citadel in WNM. The excavations were conducted by Dale King (1949), who produced a detailed report on the site. Nalakihu is a small Pueblo III site, and the excavations provided information on the form and content of smaller pueblos at WNM. These small pueblos were contemporaneous with the larger sites (Downum 1988:124) and possibly formed part of a community around some of the larger settlements.

Several archeological surveys were conducted at WNM during the late 1930s and early 1940s. Charlie R. Steen, also part of the 1933-1934 MNA project, conducted a survey around Nalakihu and recorded numerous small pueblos, fieldhouses, and agricultural features (Steen 1949; Downum 1988:124). In 1937, the boundaries of WNM were expanded by the addition of lands adjacent to and south of the monument. The additional areas were surveyed in 1944 by Ben H. Thompson and Phillip F. Van Cleave (Thompson 1945, cited in Hartman and Wolf 1977:8). Thompson's excellent report is one of the few that discusses the overall setting of WNM as well as providing a thorough review of land use (Hartman and Wolf 1977:8).

In the late 1940s, personnel from the Museum of Northern Arizona continued to investigate the cultural boundaries of groups they had defined in the Flagstaff area and assess the degree of cultural interaction among them (Smith 1952:5). An expedition mounted to the Big Hawk Valley in the southwestern part of WNM was an attempt to further examine these questions. The expedition, led by Watson Smith and assisted by Milton A. Wetherill, was successful in its efforts to examine cultural interactions. Three square miles of the valley were surveyed, and 59 sites recorded. Four of these sites were excavated, NA618 (Three Courts Pueblo), NA680, NA681, and NA682 (The House of Tragedy); in addition, one room and a kiva at Crack-in-the-Rock Pueblo were excavated (Smith 1952). NA680, NA681, and NA682 were identified as the homes of Kayenta Anasazi peoples. Nonetheless, the remarkable mix of architectural traits and pottery types as seen in several pithouses at NA618 suggests occupation by a succession of residents of different cultural affiliation: first Sinagua, then Cohonina, and finally Kayenta (Smith 1952:173). Work at Crack-in-the-Rock Pueblo resulted in its identification as a Klethla Focus Kayenta site, the most northerly known such site in the San Francisco Mountain region (Smith 1952:70).

During and after World War II, the pace of the Museum of Northern Arizona's work in the Flagstaff area, and especially in WNM, decreased significantly, largely as a result of changes in funding sources (Downum 1988). During the 1950s, the only archeological work done involved the excavation of three small fieldhouses by National Park Service personnel as part of salvage work during road construction projects. NA5701 and NA5702, both near Wupatki Pueblo, were excavated by George S. Cattanach in 1953; NA6301, near Doney Mountain, was excavated by Zorro Bradley in 1957. All three sites were rep of a one-room isolated structure associated with arable land. Bradley feels the structures functioned as either farm shelters or granaries; based on ceramics, two (NA5701 and NA5702) were of Kayenta cultural affiliation, while the third (NA6301) was Sinagua (Bradley 1959:7-9).

In 1961, the Museum of Northern Arizona and the Rand Corporation jointly sponsored an investigation of the WNM blowhole system (Schley 1962, cited in Hartman and Wolf 1977:9). Site NA7824 was excavated to determine the relationship between blowholes and prehistoric sites. Schley's (1962) report describes the site as consisting of two small pueblos, a rockshelter, and a platform near the blowhole. Unfortunately, the report did not include a discussion of the relationship between the site and the blowhole (Hartman and Wolf 1977:9).

National Park Service employees excavated the small site of NA2077, a one-room field house, in 1968. Albert Ward (1976) provides a thorough report of this site, suggesting it was occupied before the eruption of Sunset Crater. Hartman and Wolf (1977:9) note that Ward's evidence for this temporal assignment consists of a single pre-eruptive sherd found in a questionable floor contact situation. They prefer to leave the temporal assignment of NA2077 open.

The Museum of Northern Arizona excavated a single isolated burial in a small alcove in 1973 (Hartman 1973); the excavation was conducted by Dana Hartman and James Bradford. The site, NA12512, is located near the Citadel, and apparently, the alcove was used only for the burial (Hartman and Wolf 1977:9). Pottery associated with the burial is indicative of both Sinagua and Kayenta cultural affiliations.

In 1981, National Park Service personnel began an intensive survey of WNM that was intended to inventory all cultural remains within the Monument boundaries. The survey was necessary in order to protect and manage the Park's cultural resources, evaluate the impacts of any developments on the Monument, evaluate preservation and stabilization needs, and adequately interpret resources within the Monument (Anderson 1990:2). In seven field seasons, ending in 1987, survey personnel recorded 2,562 (contributing) sites ranging from undiagnostic lithic scatters to multiroom pueblos and from the prehistoric to historic periods. A series of reports on the survey compiled by Bruce A. Anderson (1990) provide the most complete documentation of the archeology and history of WNM available.

Two sites, both dam and water collection areas (WS165 and WS224), were excavated by Lauren Ritterbush in 1983 (Ritterbush 1984). Most recently, archeological work at WNM was conducted by the Department of Anthropology at Northern Arizona University (NAU). In 1989, led by David P. Braun, NAU conducted a field school at WS1437, a small site near Wupatki Pueblo (Braun 1989). The site is a 10- to 20-room, two-story pueblo with an adjacent pit structure, work areas, and trash deposits. Field school excavations apparently were limited to one or two 2-by-2 m squares.

SITE INFORMATION

Of the sites located at WNM, 2,397 are prehistoric (Table 1), and 164 are historic (Table 2). Prehistoric sites include pueblos ranging in size from two to more than 100 architectural spaces (N=828), pit structure villages or isolated pit structures (N=47), isolated masonry rooms (N=1,046), enclosures (288), artifact scatters (N=29), agricultural fields (68), reservoirs (N=15), cists or hearths (N=28), building stone quarries (N=16), shrines (N=8), petroglyph sites (N=18), and burials (N=4). Artifacts at these sites included ceramics, chipped stone debitage and tools, and groundstone (Downum and Sullivan 1990:5-6). Forty-one percent of the sites have been dated, and almost all fell between A.D. 1064 and 1275. Two sites may date to the period immediately before the A.D. 1064 eruption of Sunset Crater, and a single isolated Clovis projectile point may indicate use of the WNM area between 9000 and 9500 B.C.

Historic sites, primarily associated with the Navajo occupation of WNM, include Navajo residential sites with hogans and associated features, isolated sweatlodges, temporary camps, livestock management facilities, water-control facilities, isolated historic dumps, historic petroglyphs, and sites relating to the Black Falls crossing of the Colorado River (Roberts 1990). The majority of sites date after A.D. 1860 (Roberts 1990). Artifacts associated with historic sites included objects of glass, metal, paper, rubber, and leather (Anderson 1990).

Prehistoric Sites with Architecture

Downum and Sullivan (1990:25) divide prehistoric sites into those with architecture and those without architecture. They classified architectural sites by the number of "architectural spaces" they contain. Architectural spaces can be either masonry rooms or pit structures. Based on these criteria, architectural sites can be grouped into 7 categories: more than 20 architectural spaces, 11 to 20 architectural spaces, 7 to 10 architectural spaces, 2 to 6 architectural spaces, isolated or multiple pit structures, isolated masonry structures (field houses), and enclosures.

Prehistoric Pueblo Sites with More Than 20 Architectural Spaces

Only ten pueblo sites at WNM have more than 20 architectural spaces, primarily masonry rooms. These sites include the large named ruins for which WNM is famous, such as Wupatki Pueblo, the Citadel, Campground Ruin, and Crack-in-Rock. Most were built of sandstone, at least half presumably had upper story rooms, and eight had extramural construction, such as wing walls or freestanding walls (Downum and Sullivan 1990:39). These would have been the largest settlements in WNM and may have been a focus of activities for surrounding communities.

With more than 100 masonry rooms, Wupatki Pueblo is by far the largest site and is the only one of these large sites that has been extensively excavated (Figure 5 and 6). The pueblo was built against and atop a mesa and consists of two multistoried elongated blocks of rooms. The two roomblocks are connected by a pair of unexcavated room tiers. Two community structures are associated with the pueblo, a "dance plaza" (an unroofed, circular masonry area; Figure 7) and a ballcourt (Burchett 1990:77; Figure 8). Tree-ring dates and architectural analysis indicate the pueblo was built between A.D. 1100 and 1190 (Burchett 1990). Burchett (1990:184) suggests that at peak occupation Wupatki Pueblo housed a total of about 85 people, although more residents inhabited the small sites surrounding Wupatki Pueblo.

Although Wupatki Pueblo was subject to extensive excavations beginning in 1933 with Colton's MNA project, no report was written. Thirty years after the excavations at Wupatki Pueblo began, however, Stanislawski (1963) produced a detailed analysis of the material remains recovered from the site. He analyzed architectural practices, ceramic artifacts (sherds, vessels and figurines), chipped and ground stone tools, stone ornaments, copper bells, bone tools, shell artifacts, wooden tools, textiles, and almost 40 burials.

The purpose of Stanislawski's research was the identification of "cultural influences" that had contributed to the post-eruptive Sinagua cultural pattern at the site (Downum 1988:270). Based on ceramic evidence, Colton (1946:62-63) originally identified an early Kayenta occupation at Wupatki Pueblo, but felt that peak occupation in the mid-twelfth century was by the Sinagua; more than 70 percent of the ceramics from Wupatki Pueblo are Alameda Brown Ware, the classic Sinagua type (Downum and Sullivan 1990:85). Stanislawski also suggested the presence of Hohokam and Chaco Anasazi immigrants. His main lines of evidence for their presence is the occurrence of MesoAmerican traits such as the amphitheater, ballcourt, plazas, core masonry, and extended burials, presumably passed from MesoAmerica to the Hohokam and Chaco Anasazi (Downum 1988:271). The significance of these traits has been seriously questioned by other scholars (Reed 1963; Schroeder 1963; Fish, Pilles, and Fish 1980).

Crack-in-Rock is the only other excavated prehistoric site with more than 20 architectural spaces (Smith 1952). Compared to Wupatki Pueblo, Crack-in-Rock is small (Figure 9), consisting of slightly more than 20 masonry rooms (Downum and Sullivan 1990:39). The main portion is an eight-room fortified pueblo on the summit of an isolated mesa (Smith 1952:70). Access to the site is through a cleft in the caprock that enters almost onto the floor of one of the rooms. An additional row of rooms is along the southeastern side of the mesa at the summit of the talus, protected by an overhanging ledge. In 1948 Smith (1952) excavated two of the talus rooms (Rooms 3 and 4), one of which was probably a kiva. The kiva (Room 3; Figure 10) is hexagonal in shape and contains a circular, basin-shaped firepit in the center. A ventilator tunnel occurs in the northeast wall. An empty slot in the floor was covered with a recessed limestone slab, which may have functioned as a resonator or sipapu (Smith 1952:72-73). The identification of Room 3 as a kiva is based on the presence of this feature. Room 4 is rectangular and contains no floor features. The room has a sealed doorway in the east wall, and a round stick embedded in the same wall (Smith 1952:73-74).

The Citadel (Figures 11, 12) is second in size to Wupatki Pueblo, with at least 50 masonry rooms (Downum and Sullivan 1990:39). The ruin is atop a mesa and the rooms almost completely enclose a central plaza (Colton 1946:52). A depression in the plaza may represent a kiva. Campground Ruin has more than 30 masonry rooms, smaller than either Wupatki Pueblo or the Citadel. The other six sites in this category have between 20 and 30 masonry rooms (Downum and Sullivan 1990:39).

Prehistoric Pueblo Sites with 11 to 20 Architectural Spaces

Forty sites have 11 to 20 architectural spaces, primarily masonry rooms, although 10 sites also have between 1 and 4 pit structures (Downum and Sullivan 1990:38). Fourteen sites (35%) have upper story rooms, while 23 (58%) have wing walls or freestanding walls. These sites represent the remains of substantial settlements that presumably were used for habitation (Downum and Sullivan 1990:58).

Nalakihu is the only excavated site in this size category (Figures 11 and 13). The ruin is below the Citadel and consists of ten first story rooms and three to four second story rooms (King 1949). Primarily constructed of sandstone, the masonry is a rubble-core style with occasional decorative bands of basalt. Floors are grayish plaster, and hemispherical or oval firepits are in several rooms, sometimes associated with ventilators. A jar-shaped storage pit is in the floor of one room, loom holes in another. A possible sipapu may indicate use of one rectangular room as a kiva.

Both T-shaped and rectangular doors mark room walls. Interior walls often are plastered, but exterior walls are not (King 1949:46-49).

Apparently, Nalakihu grew in three stages: first, two large rectangular rooms were built; second, rooms were added to the ends of the original construction, and a wing wall at the northeast end; third, four small rooms were added to the front of the dwelling, and several second story rooms were constructed (King 1949:18). Equal frequencies of both Sinagua and Kayenta Anasazi pottery types were found at Nalakihu, as well as pottery representative of other groups; architectural style suggest either Kayenta Anasazi or Sinagua associations. Both pottery and tree-ring dates indicate the site was occupied between the early A.D. 1100s and early 1200s (King 1949:141).

Prehistoric Sites with Seven to Ten Architectural Spaces

Downum and Sullivan (1990:58) feel that sites with more than seven architectural spaces were used for habitation because construction usually was substantial and they contain a variety of artifacts types. Sixty-seven sites are in this category. All have masonry rooms, but 19 (28%) also have between one and four pit structures. Only a few (N=8, 12%) have masonry structures with more than one story. More than half (N=37) have wing walls, free standing walls, or both. Sandstone is a common building material, predominating at 41 percent of the sites.

Kaibab House is representative of sites of this size (Figure 14). The site has never been excavated but has been stabilized and is the subject of a historic structure report (Adams 1982b). Kaibab House is on a low limestone escarpment overlooking Cedar Canyon (Adams 1982b:5) and is only one-half mile west of the Citadel. The site consists of seven to eight rooms arranged in three roomblocks. Roomblock A has five rooms: rooms 1 and 4 are long and rectangular; rooms 2 and 3 were created by dividing another long room; and Room 5 is a large squarish room. Apparently, all the rooms were only one-story high. Walls are of limestone and sandstone, and a long wing wall extends to the north (Adams 1982b:5-6). Roomblock B consists of two rooms and three wing walls, although one room may not have been a house room but an area enclosed by wing walls. This roomblock is primarily of limestone. A single room and wing wall comprise Roomblock C, again, constructed of limestone (Adams 1982b:6). Ceramics found at the site reflect Kayenta cultural affiliations of the late Pueblo II and early Pueblo III periods.

Prehistoric Sites with Two to Six Architectural Spaces

A total of 711 sites have two to six architectural spaces (Downum and Sullivan 1990:34). Most exhibit features indicative of habitation sites, and some probably were "unit pueblos" or single household dwellings (Downum and Sullivan 1990:63). Only two contain evidence of upper stories, but almost one-third have wing walls, freestanding walls, or both.

Two sites excavated by Watson Smith (1952) in the Big Hawk Valley fit into this category of sites with two to six architectural spaces. Site NA681 (Figure 15) has three contiguous masonry rooms flanked by two long, angled wing walls (Smith 1952:41). A pit structure is in front of the roomblock to the east. Walls are primarily of basalt with a rubble-filled core. Room 1 contains a deep circular cist, two burned areas on the floor, and a narrow door (Smith 1952:41). No floor artifacts were recovered. Room 2, the principal living room, has two firepits (circular and basin-shaped) and two postholes that apparently contained roof supports. A doorway is at midpoint in the southeast wall. Numerous usable artifacts were found on the floor of Room 2, including metates, manos, restorable vessels, hammerstones, axes, mauls, and cylinders (Smith 1952:45). Room 3 has a single basin-shaped firepit and evidence suggests that the room once was partitioned with a dividing wall. A low ledge was built into the north wall. A metate and several manos were found on the floor (Smith 1952:46). The pit structure is roughly rectangular, 1.5 to 2.0 m deep, with a oval basin-shaped firepit in the center. A sandstone box in a corner contained decaying wood. Manos, bone awls, and other artifacts were in the same area (Smith 1952:49).

NA682, the House of Tragedy (Figure 16), has four masonry rooms in sets of two, built at right angles to one another. Wing walls extend from opposite ends of each set of rooms, and a kiva is southeast of the rooms. Walls, as at NA681, are of basalt with a rubble-filled core. Rooms 1 and 4 form the northern set of rooms. Room 1 has a circular firepit, a storage cist, and a masonry partition wall across the room; an ax and mano were on the floor. A burial had been placed in the room after abandonment (Smith 1952:53). Room 4 has two firepits, and a metate and three bone awls were on the floor. Rooms 2 and 3 form the western set of rooms. Room 2 has numerous pits, at least two of which are firepits, and a third probably was for storage. Seven postholes were found. A mano and a bone needle are the only floor artifacts (Smith 1952:54). Room 3 has six pits and four postholes. The main firepit is a heart-shaped basin. Apparently, no artifacts were on the floor of the room. The kiva was rebuilt at least once, and in its latest phase had a firepit, deflector, and probable sipapu added (Smith 1952:57-66).

Ceramic affiliation for both sites indicate an affiliation with Kayenta Anasazi cultural groups (Smith 1952:94-96). Smith (1952:104) feels ceramics from both sites fall into Colton's (1946:20) Ceramic Group 7, dating after A.D. 1130.

Prehistoric Sites with Isolated or Multiple Pit Structures

Forty-seven sites fit this category. Downum and Sullivan (1990:33) note that the difficulty in observing surface indications of pit structures blurs the distinction between isolated and multiple pit structure sites. They suggest (1990:59) pit structures functioned as permanent habitation.

The Heiser Springs Pithouse site (Figure 17) serves as an excavated example of a multiple pit structure site, even though a later three-room pueblo and associated pit structure were built on top of it. Unfortunately, no formal report on this site was written, although the site is described briefly in an overview of Flagstaff archeology written by Colton (1946:128-131), in a NMA Bulletin by Hargrave (1933), and in a prestabilization report by Anderson (1980). The site consists of two masonry pit structures excavated by Lyndon Hargrave in 1931 for the Museum of Northern Arizona. A third pit structure, apparently, was associated with the later surface pueblo (Colton 1946:131). Both early pit structures are rectangular with projecting ventilator shafts. One is approximately 2.5 by 3 m, and the other 2.5 by 3.5 m, both about 1 m deep. Pit structure A is roughly lined with lava boulders, while pit structure B is neatly lined with well-selected blocks of sandstone. Both have firepits, but not deflectors (Colton 1946:129). Colton (1946:131) feels these pit structures were occupied by people of different cultures at different times. He assigns one pit structure (A) to a Cohonina occupation between A.D. 1070 and 1100, and the other (B) to a Sinagua occupation between A.D. 1070 and 1125.

Isolated Masonry Rooms

Downum and Sullivan (1990:63) suggest that isolated masonry rooms probably were associated with short-term agricultural pursuits and might be termed "fieldhouses". Isolated masonry rooms are common at WNM (Figure 18); a total of 1,046 were recorded. If all were used as field houses, this suggests a significant dependence on agriculture by the prehistoric inhabitants of WNM. These rooms were constructed most often of basalt (45%), but many others of limestone (38%) or sandstone (10%). A fairly large number (17%) have wing or free-standing walls, although none gave any evidence of having a second story (Downum and Sullivan 1990:29). Most sites have either very few surface artifacts or none.

Three isolated masonry room sites have been excavated at WNM. NA5701 (Figure 19) and NA5702 (Figure 18) are near Wupatki Pueblo and were excavated by George Cattanach in 1953 for the Museum of Northern Arizona. NA5701 is a roughly rectangular room and measures 2 by 3 m. Three of the walls are of coursed sandstone, double-faced and rubble cored. The fourth consists of upright slabs of sandstone with a rubble backing (Bradley 1959:3). There are no floor features, and a single basalt cobble was on the floor. NA5702 is a rectangular room with one rounded corner and measures 2.5 by 2.3 m. Before the room was constructed, a shallow hole had been dug and vertical sandstone slabs were placed upright around the edge of the hole and backed with a coursed basalt wall. A circular, basin-shaped, clay-lined firepit was on the floor, along with five postholes. A single basalt hammerstone was found (Bradley 1959:3-5). Bradley (1959:7-8) attributes both NA5701 and NA5702 to the Klethla Focus of the Kayenta Anasazi, although based on ceramic associations, he feels that NA5701 was occupied later in time than NA5702.

NA6301 (Figure 21) is rectangular and smaller than the other two rooms, measuring 1.5 by 1.7 m. The walls are of limestone blocks. A roof is indicated by the presence of roofing clay in the room fill and rocks at the corners and midway along the walls that probably served as wall supports (Bradley 1959:5-6). No floor features were found, although a slight depression in the northeast corner held some ashes. Ten sherds from a single vessel were on the

floor. Based on ceramic associations, Bradley (1959:9) places NA6301 in the Elden Focus of the Sinagua Branch, dating approximately 1120 to 1200 A.D. He perceives that all three structures represent either fieldhouses or granaries (Bradley 1959:15).

Enclosure Sites

Downum and Sullivan (1990:4) define an enclosure as a rock construction with a minimum interior dimension of less than 2 m and which is enclosed on at least three sides (Figure 22). A total of 288 enclosure sites were recorded; more than one-half were constructed of basalt, one-third of limestone, and the remainder of other or mixed materials. Very few enclosures (9%) have wing or free-standing walls. Most have few surface artifacts.

Only a single enclosure, NA1186, has been excavated at WNM (Steen 1949:159, cited in Anderson 1990:19). This feature is a stone ring, a little more than 1 m in diameter, surrounding a circular pit. The walls of the pit are perpendicular and extend 1.5 m to bedrock. Steen (1949:159) believes the structure served as a granary. Downum and Sullivan (1990:58) suggest that these structures might have been shelters during trips to hunt, gather wild plant-foods, collect lithic resources, or do agricultural tasks.

Prehistoric Sites Without Architecture

Downum and Sullivan (1990:16-24) define nine site types at WNM that do not have architecture: artifact scatters, agricultural fields, reservoirs, upright slab features (cists, hearths, etc), building stone quarries, prehistoric shrines, petroglyph panels, burial areas, and isolated artifacts of special significance. No sites within this category have been excavated at WNM, and Downum and Sullivan (1990:17) caution that research is necessary to assess the range of activities carried out at these sites. These sites, especially agricultural fields, possess enormous potential for contributing toward an understanding of the prehistory of WNM.

Artifact Scatter

Twenty-nine sites were classified as artifact scatters, ranging in size from 21 to 5,600 sq m (Downum and Sullivan 1990:17). More than 40 percent have over 100 artifacts, and the most common artifact types are ceramics and lithics. Only a few sites have ground stone, flaked tools, or other artifact types. Most of these sites could not be dated. The identification of artifact scatters is problematic because in some cases artifact scatters were recorded as part of the nearest large site to which they occur. In other cases, especially with lithic artifact scatters, they were simply called "resource procurement areas" and not recorded as sites (Downum and Sullivan 1990:17). These problems remain to be resolved with future field work.

Agricultural Fields

WNM has an enormous number and variety of agricultural features, which emphasize the importance of domesticated plant foods to prehistoric residents of the monument. Sixty-eight sites are agricultural fields. In some cases, agricultural features also were recorded as parts of other site types. In his study of the prehistoric agricultural landscape at Wupatki, Travis (1990) incorporates agricultural features recorded as parts of other sites with the sites defined as agricultural fields. All of these agricultural fields are grouped into seven types of agricultural field systems: rock pile fields, simple fields, bordered fields, bordered gardens, composite fields, terrace gardens, and terrace fields.

Rock pile fields have variably spaced rock piles that show little pattern or consistency in orientation. They probably served to demarcate boundaries, or were the location of field shrines, cleared field rock, or windbreaks (Travis 1990:18). Simple fields have closely spaced, parallel rock alignments, sometime accompanied by other features such as gridded alignments, rock pile borders, rock pads, and field shelters. The alignments, possibly, represent the remains of windbreaks or foundation supports for brush fences. Simple fields may represent opportunistic farming rather than the primary agricultural effort of a community (Travis 1990:19). Bordered fields consist of a variety of alignments and other features such as rock piles, pads, field shelters and structures, and rock borders (Figure 23). During use, this field type provided wind protection, soil and water conservation, water control, and stabilization of field surfaces. They were adapted to a variety of physiographic and environmental conditions (Travis 1990:20).

Bordered gardens are the least common form and consist of perpendicular, gridded alignments surrounded on all sides by an enclosing wall or border, which separates a series of adjacent farming plots (Figure 24). Most are near substantial habitation sites, and household trash probably was used as fertilizer (Travis 1990:23). Composite fields are the most complex agricultural field type (Figure 25), consisting of parallel and contoured alignments, foundation grids, small bordered gardens, water diversion alignments, and rock piles in conjunction with processing and/or seasonal habitation areas (Travis 1990:23). Composite fields occur only in a few specific areas of WNM and suggest long-term field use.

Terrace gardens are walled plots, sometimes abutted against a natural outcrop (Figure 26). They may be isolated or contiguous, and all are associated with a pueblo, suggesting that they functioned as household gardens (Travis 1990:25). Terrace fields (Figure 27) have closely spaced masonry walls running perpendicular to a slope, which served to impede erosion and provide a level terrace for planting. Travis (1990:26) suggests these terrace fields required a great deal of organization in their construction, possibly necessitating corporate work efforts.

As Travis (1990:26) notes, the morphological and functional range of agricultural facilities at WNM is remarkable. The seven types of agricultural field systems recognized "reflect almost the entire spectrum of agricultural technologies presently identified for the prehistoric Southwest and more than anything else indicates an inherently flexible subsistence system" (Travis 1990:26).

Reservoir

Reservoirs are either natural water basins or areas modified to retain runoff (Figure 28). Artifacts and other evidence suggest they were used as sources of domestic water (Downum and Sullivan 1990:19). Fifteen reservoir sites were recorded at WNM, but other reservoirs also were recorded as parts of other site types (Downum and Sullivan 1990:18). Almost half of these sites have more than 100 surface artifacts associated with them, and the most common artifact type is ceramics. Ceramic artifacts of course, would be expected with water-carrying activities.

Cists, Hearths, or Other Upright Slab Features

Small, upright rock constructions that seemingly were not used as shelters may represent the remains of extramural hearths, mealing bins, storage cists, or graves (Downum and Sullivan 1990:19). Twenty-eight of these features were recorded in WNM. Most of these sites have few surface artifacts; one-third have no surface artifacts.

Building Stone Quarry

Building stone quarry sites (Figure 29) are locations where bedrock was removed, reduced, or dressed, presumably to provide construction material for prehistoric sites (Downum and Sullivan 1990:19). There are 16 known building stone quarry sites. These sites at times, were, difficult to identify because natural processes also can create the appearance of quarrying activities. Furthermore, some quarries may have resulted from the historic Navajo inhabitants of WNM, who also built stone structures (Downum and Sullivan 1990:20). More than one-half of the building stone quarry sites have no surface artifacts.

Prehistoric Shrine

The eight sites identified as shrines consist of rock piles, stacked rock constructions or other features, or feature and artifact constructions that did not easily fit into any other site type category (Downum and Sullivan 1990:22; Figure 30). None of these sites have more than 25 surface artifacts, most of which are chipped stone.

Rock Art Site

Rock art at WNM is abundant and takes a variety of forms (Anderson 1990; Figure 31). Zoomorphs (Figure 32) include game animals, dogs, mountain lions, and, especially, mountain sheep. Anthropomorphic elements include stick figures, human hand and footprints, and kokopelis. Many geometric rock art elements were recorded, including concentric circles, spirals, sunbursts, crosses, and stepped figures. A number of geometric forms are reminiscent of ceramic and textile designs. Rock art is often assumed to have had religious significance, although it also has been called "doodles," and "art for art's sake" (Anderson 1990:13). The eighteen petroglyphs recorded as sites are those localities with rock art that were not included as part of another site; 85

additional sites include rock art as a feature (Downum and Sullivan 1990:22-23). Almost half the petroglyph sites have no associated surface artifacts, while most of the remaining sites have fewer than 10 artifacts.

Burial Areas

These areas were identified by the presence of slab cists and other features that indicated burials; most could be dated to the prehistoric period by associated ceramics. One site, WS79, located near the Citadel, may have been a prehistoric cemetery. The site was extensively pothunted in the late 1910s and early 1920s, but published accounts describe slab-lined graves, broken pottery, human remains, and other items indicative of a graveyard (Barrett 1927:26-27; Colton 1946a:52; cited in Downum and Sullivan 1990:23). Only four burial sites are included in this site type, but burials also were recorded as features within other site types (Downum and Sullivan 1990:23).

Isolated Artifacts of Special Significance

This category includes only two examples: an isolated, intact Clovis projectile point (WS 1340), and a large, complete prehistoric basket that was cached in an earth crack (WS1603) (Downum and Sullivan 1990:23). The Clovis point is suggestive of use of the WNM area during the PaleoIndian period, 11,500 years ago, while the basket probably dates to the later part of the Puebloan occupation, around A.D. 1200 (Downum and Sullivan 1990:25).

Historic Sites

Roberts (1990:35) notes that, historically, the region that is now WNM was used by a variety of cultural groups, including Hopis, Anglo ranchers, miners, pothunters, National Park Service and Civilian Conservation Corps employees, archeologists, geologists, cave researchers, Basque sheepherders, traders, film makers, and tourists. This results in some difficulty in identifying the cultural affiliation of historic sites. Regardless, the most intensive and long-term occupation of WNM, continuing to the present day, has been by Navajos, most of whom are related to the original Navajo resident of the area, Peshlakai Etsidi. Sites recorded as part of the Navajo occupation of WNM were either identified as such by former site occupants, or were considered diagnostic of a seasonally mobile, pastoral adaptation, typical of the Navajo (Roberts 1990:35).

The history of the Navajo occupation of WNM is a fascinating study of Native American land use and Anglo-Native American interaction. As Roberts (1990:1) notes:

> The Wupatki Navajos are a distinct group of people, intimately tied to the Wupatki landscape and united by strong genealogical ties. The archeological sites, which represent over a century of Navajo occupation in the Wupatki basin, are considered not as isolated entities but as the material manifestations of a dynamic cultural whole. These archeological sites are physical links to a rich Navajo history--a history that continues through living people and is inextricably intertwined with the Monument itself.

Roberts (1990:35) groups the 164 historic sites recorded at WNM into 10 types: Navajo residential sites, isolated sweatlodges, temporary camps, isolated livestock management facilities, water control facilities, isolated dumps, historic petroglyphs, sites relating to Black Falls Crossing, historic sites of unknown function, and miscellaneous "other" historic sites (Table 2).

Navajo Residential Sites

Navajo residential sites are the most frequent historic site type at WNM, totaling 48 sites (Figure 33). They were defined by the presence of dwelling structures, either houses or hogans, and associated features (Roberts 1990:35). An assumption is made that residential sites were for permanent occupation, while temporary camps (described below) were not. This definition is problematic because some settlements with dwelling structures were used only temporarily, while some "temporary camps" probably were occupied for a considerable period of time (Roberts 1990:35-36). Nonetheless, regardless of duration of occupation, residential sites yield the greatest amount of information on the ethnohistory and land use of the WNM Navajo.

Dwelling structures at Navajo residential sites were of several types (Figure 34; Anderson 1990:6). Hogans are circular or subcircular single room dwellings (Jett and Spencer 1981:14). Forked stick hogans consist of a tripod frame of poles on which other poles rest; this framework is covered with brush or bark and the entire structure is covered with earth. Cribbed log hogan are constructed of logs stacked on a polygonal plan with the ends of each log interleaved with others. Interstices are chinked with brush or earth (Jett and Spencer 1981:80). Masonry hogans are constructed of stone blocks sometime chinked with spalls, adobe, or cement (Jett and Spencer 1981:102). Houses are square-cornered, rectilinear-plan, vertical-walled dwellings (Jett and Spencer 1981:24). An example of this dwelling type at WNM is the stone house built by Clyde Peshlakai near Wupatki Pueblo, which now forms his burial place. Figure 33 shows a typical Navajo residential site with a circular hogan, a square house, a corral, and other associated features.

Isolated Sweat Lodges

Sweat lodges are small wooden structures in which heated rocks are placed so that a sweat bath can be taken (Figure 35). Even when the superstructure is removed, piles of burned rock signal the former location of the sweatlodge (Anderson 1990:9). Six isolated sweatlodges were recorded at WNM; however, other sweatlodges were recorded as parts of residential sites (Roberts 1990:37).

Sweatlodges were built in the same manner as forked stick hogans, but in miniature (Jett and Spencer 1981:193). Sometimes rock slabs are placed around the outside of the structure, and brush, pelts or blankets may be used instead of the earth covering. The sweatlodge at site WS1229 was used by the family of Peshlakai Etsidi sometime between the 1910s and 1940s.

Temporary Camps

Temporary camps consist of tents, brush structures, or hearths (Figure 36). Tents are commercially produced. Brush structures or "ramadas" typically consist of a flat roof of poles or boughs supported on stringers running between four vertical posts (Jett and Spencer 1981:41). Hearths are circular stone-lined features that may be found within brush structures or ramadas. Four temporary camps were recorded. As noted in the discussion of Navajo residential sites, the duration of occupation at these sites presumably was short, but not always. Temporary camps usually were related to Navajo livestock-grazing activities, although use of WNM by Anglo cattle ranchers and non-Navajo sheepherders make assignments of cultural affiliation of some temporary camps problematic (Roberts 1990:56).

Livestock Management Facilities

Livestock management facilities refer to corrals or pens, or to walls or fences blocking off portions of canyons (Figure 37). Canyons often were blocked to form sheep corrals or holding areas for horses during roundup (Roberts 1990:56). Corrals were constructed of a variety of materials, including dry-laid slabs, sheep-wire fences, cribbed logs, or logs and brush. Sometimes the wall of a canyon, arroyo, or cliff is used as one wall of a corral or pen. In some cases, a sheep manure deposit is the only indication of the location of a corral because the superstructure was removed for use elsewhere (Anderson 1990:6). Eighteen isolated livestock management facilities were recorded at WNM; others were recorded as features at other sites.

Historic Water Control Facilities

Historic water control facilities include features such as check dams and rain catchment reservoirs. Ten isolated historic water control facilities were recorded at WNM, although others were included as parts of other sites (Roberts 1990:68). Ma'ii To' (Coyote Water), site number WS1725, is a reservoir that served as the primary water source at WNM beginning prior to 1930. During the rainy season, the reservoir could reach a depth of 10 feet, enough water to last at least three months (Roberts 1990:64).

Isolated Historic Dumps

Isolated trash dumps typically contain domestic refuse of a variety of types of material, including glass, animal bone, and cans. One historic dump was recorded at WNM. The cultural affiliation of this dump cannot be determined and cannot necessarily be attributed to the Navajo occupation of the district (Roberts 1990:56, Table 6.8).

Historic Petroglyphs

Historic petroglyphs consist of a variety of figures that are clearly not prehistoric: horses (Figure 38); men in cowboy hats; wagon wheels; cars; names; dates; and words (Roberts 1990:71-72). Eleven historic petroglyph sites were recorded at WNM. Like historic dumps, the cultural affiliation of many of the petroglyphs cannot be determined.

Sites Related to Black Falls Crossing

Black Falls was a major crossing point on the Colorado River since the first Anglo exploration of the area. The crossing was the western turning point for the Sitgreaves expedition of 1851 and was a rest stop along the Mormon trail in the 1870s. Several short-lived trading posts operated there in the late nineteenth and early twentieth centuries (Roberts 1990:56). The Wupatki Navajo sold wool and lambs to traders at Black Falls (Hartman and Wolf 1977:22), and the trading post served as a central meeting place for many Navajos in the region. Eight sites in the area are associated with the use of the Black Falls Crossing. These include the remains of a residence possibly occupied by the Peshlakais, tent pegs and scattered trash suggesting a camp area, and the possible remains of one of the turn-of-the-century trading posts (Roberts 1990:74-75).

Historic Sites of Unknown Function

Most historic sites of unknown function are isolated rock structures and features. Criteria used to assign them to the historic occupation of WNM include: presence of historic artifacts, absence of prehistoric artifacts, location in wash bottoms, dry-laid masonry, and/or presence of cut juniper (Roberts 1990:75). Fifty-one of these structures were recorded at WNM. Navajo informants report that some of these structures, possibly, were small pens built to hold a new-born lamb when a herd is grazing, and others may be storage rooms built in natural caves under overhangs. The cultural affiliation and function of most of these structures are unknown (Roberts 1990:75-76).

Miscellaneous Other Historic Sites

Seven sites do not fit into the previously discussed site categories, although they are part of the historic use of WNM. These include a portion of a trail, a sandstone quarry, an ax-cut juniper, the site of the 1936 Craftsman Exhibition (a large forked stick hogan, four ramadas, and a sweathouse), and a coyote trap (Roberts 1990:82-83).

NONCONTRIBUTING SITES

A total of 125 sites and buildings were non-contributing properties. Of these, 65 were sites recorded during the Inventory Survey of WNM and consisted of sites produced by Navajo and other cultural groups that dated after 1941. An additional twenty structures are associated with the current National Park Service use of WNM; other sites consisted of modern road dumps from highway construction and associated acitivities. Attachment 1 provides a detailed list of all noncontributing sites/features.

SITE AND DISTRICT CONDITION

The sites in WNM have been subject to pothunting and vandalism from at least the late 1800s, until the area became a monument in 1924. Before 1880, the Forest Service had built a road into the area that allowed access to the WNM ruins (Stanislawski 1963:25). Shortly thereafter, a sheep owner cleared and occupied several rooms at Wupatki Pueblo (Scott 1989:36). About the same time, Benjamin Doney, a local adventurer, began excavating artifacts from the WNM ruins and selling them. When Fewkes surveyed the area in 1900 (Fewkes 1900), he hired Doney to guide him and, at the same time, examined Doney's artifact collections. Fewkes' (1904) report on the ruins in the Wupatki area stimulated interest in prehistoric artifacts and resulted in increased levels of pothunting by local residents (Scott 1989:39). Apparently, curio dealers sent teams of Mexican laborers into Wupatki Pueblo to hunt for relics to sell (Stanislawski 1963:26). Because the monument was so poorly staffed during the first few decades after its establishment, usually only by a seasonal custodian, (Roberts 1990:14; Stanislawski 1963:30), more than likely some pothunting and vandalism continued.

Continuing impacts to WNM sites include professional excavations and surveys, heavy visitor traffic, and stabilization to impede continuing human and environmental damage. As discussed above, professional excavations in WNM have not been extensive; only 17 sites have been excavated. Most early surveys (Fewkes 1904; Barrett 1927; Smith 1952; Steen 1949:152) involved the collection of artifacts and resulted in impacts to site surfaces in certain areas. During Anderson's recent survey, artifact collections were taken only at sites with the most extensive surface artifact scatters, a total of 18 percent of the sites recorded (Anderson 1990:8).

The most extensively excavated and stabilized site is Wupatki Pueblo. During the 1933-34 excavations, several rooms and the amphitheater were restored, and other rooms were stabilized (Hartman and Wolf 1977:11). Throughout the latter part of the 1930s and early 1940s, stabilization and restoration work continued at Wupatki Pueblo, resulting in the restoration or stabilization of a number of rooms. Two rooms were prepared as living quarters for the ranger and his wife, and the site was used as a testing ground for various stabilization techniques (Hartman and Wolf 1977:11).

A few early stabilization projects also were completed at other sites. After the 1933-34 excavations at Nalakihu, the walls were rebuilt, and roofs were reconstructed (King 1949), although repairs were needed as early as 1936 (Hartman and Wolf 1977:11). Possibly, one wall at Lomaki was stabilized in 1934. About the same time, emergency stabilization was conducted at the Citadel (Hartman and Wolf 1977:11). Emergency stabilization took place at a number of other ruins in 1940 as well, although the nature and location of the work is unknown (Hartman and Wolf 1977:12). In 1941, Albert H. Schroeder assessed stabilization needs at a number of sites in the Monument and completed much of the recommended work (Schroeder 1941). Heiser Ruin, Wukoki, the Citadel, Lomaki, and Wupatki Pueblo all received attention (Hartman and Wolf 1977:12).

Early stabilization work often consisted of attempts to restore or reconstruct sites to their pre-abandonment condition. In 1952, the National Park Service began stressing preservation rather than restoration of archeological sites (Hartman and Wolf 1977:12). At Wupatki Pueblo, all of the earlier restoration was removed, and stabilization was completed on all excavated rooms (Richert n.d,; Vivian and Richert 1953). In 1953, as a result of the earlier stabilization, the drainage system was renovated (Richert 1953b). Restoration done at Nalakihu was removed and the walls capped in 1952 (Richert 1953a). Wukoki, the Citadel, and Lomaki received their first comprehensive stabilization in 1954, including replacing some of the earlier stabilization work (Richert 1954a, 1954b, 1954c; Hartman and Wolf 1977:12). NA377 and NA378 were stabilized in 1955, following suggestions made by Schroeder in 1941 (Richert 1956). Both sites are on the route to Lomaki and were being impacted by visitor traffic (Hartman and Wolf 1977:13).

In 1956, another stabilization inventory was conducted (Hartman and Wolf 1977:13). Priority was given to work at NA404, NA1754, and Crack-in-Rock, though the work was not accomplished until sometime later. By 1961, several small ruins were in need of emergency stabilization. These included NA348, NA350, NA352, and NA637 (Shiner 1961). Work at the first three sites included defining and stabilizing walls; more intensive stabilization was required at NA637. Minor repairs also were made at Wupatki Pueblo, Heiser Ruin, Wukoki, the Citadel, and NA377 (Hartman and Wolf 1977:13).

Crack-in-Rock received substantial stabilization in 1964, affecting almost every part of the ruin (Voll and Mayer 1964d). At the same time, maintenance stabilization was conducted at Wupatki Pueblo, Lomaki, and Nalakihu (Voll and Mayer 1964a, 1964b, 1964c; Hartman and Wolf 1977:13-14). At Wupatki Ruin, this included evaluating every room for stabilization needs, while at Nalakihu, a reconstructed flagstone floor was removed. The Wupatki Pueblo Ball Court was stabilized in 1965, following the excavation of the feature (Mayer 1965a; Hartman and Wolf 1977:14). The interior was reconstructed, and the well-preserved exterior walls were grouted. A blowhole near the ballcourt was cleared and fitted with a screen as a visitor display (Mayer 1965b). Other ruins stabilized during 1965 were Antelope House, Heiser Ruin, NA202, NA756, NA2765B, and three other small sites (Hartman and Wolf 1977:14; Voll 1965; Voll and Mayer 1965).

In 1976, prestabilization archeology was conducted at the three small sites of NA404, NA407, and NA2922 (Chambers 1976). In addition, 14 other sites were inventoried and cost estimates were developed for prestabilization archeology (Gilman and Thornton 1976; Hartman and Wolf 1977:14). In 1978, 16 rooms at Wupatki Pueblo received maintenance stabilization (Trott 1981). Prestabilization archeological excavations were conducted at the Heiser Springs Pithouses (Anderson 1980), and then they were stabilized (Trott 1978a). Also in 1978, initial stabilization was conducted at NA632, NA754, NA755, NA794, NA795, and NA796 (Trott 1978b).

In 1979, Stephen E. Adams produced a guide to preservation treatment in Wupatki. Information was provided on preservation techniques, materials, and equipment. Between 1981 and 1987, numerous stabilization projects were undertaken. Emergency stabilization was conducted at several rooms in Wukoki in 1981 (Adams 1981). Pretreatment documentation was conducted at Kaibab House in 1982 (Adams 1982b), and at NA633, NA634, NA635,

NA636, and NA2222 in 1983 (Adams and Cinnamon 1983). Wupatki Ruin received maintenance stabilization in 1982, and yearly between 1984 and 1988 (Adams 1982a; Cinnamon 1989; Healy 1982a; Davis 1984b; Protiva 1985, 1986, 1988; Trott and Sulam 1987; Welton 1986). Maintenance stabilization was conducted at Wukoki in 1982, 1986, and 1987 (Healy 1982b; Protiva 1986, 1987); at Heiser Ruin, NA377, and NA378 in 1982 (Adams 1982a; Healy 1982c); at Lomoki in 1984 (Davis 1984a); and at the Citadel in 1983 (Protiva 1983d). Initial stabilization was conducted in 1983 at Long Lintel House, NA634, NA633/WS1027 (Protiva 1983a), at the Campground Ruin (Protiva 1983b), and at Kaibab House (Protiva 1983c). Nine small sites received initial stabilization in 1985 (Chandler and Gaunt 1986).

Collections

Artifact collections recovered from excavation, survey, and stabilization at WNM are housed in a number of institutions, most located in the Southwest. These collections have enormous research potential. Many were obtained during the early days of Flagstaff archeology and have received scant study; others were collected during survey or stabilization, and no analysis of the material was made. Stanislawski's (1963) comprehensive study of the artifacts from Wupatki Pueblo is an excellent example of the possibilities for research using the WNM collections.

Collections from WNM are housed at the Western Archeological and Conservation Center (WACC) in Tucson, the Museum of Northern Arizona (MNA) in Flagstaff, the Southwest Cultural Resources Center (SWCRC) in Santa Fe, the Milwaukee Public Museum, WNM Park Headquarters, Arizona State University (ASU) in Tempe, and Arizona State Museum (ASM) in Tucson. Curated materials include whole pots, sherds, chipped stone tools and debitage, ground stone tools, wood, textiles, burials, and other objects.

Although many WNM collections are not fully inventoried, WACC and MNA apparently hold the largest collections. WACC has between 30,000 and 40,000 artifacts, several thousand of which are cataloged. Their collections include the following: 1) 255 boxes of archeological material, mostly sherds, from excavations at Wupatki Pueblo by David J. Jones and A.E. Buchenberg in 1941; 2) an undetermined amount of archeological material (probably sherds) from Albert Schroeder's 1941 survey of WNM; 3) 25 boxes of sherds, bone, 30 whole and partial vessels, and 1 box of stone from stabilization excavations by Roland Richert in 1952; 4) 2 pieces of wood from Crack-in-Rock Pueblo, recovered during stabilization by Charles B. Voll and Martin T. Mayer in 1964; 5) 3 boxes of archeological material and 1 bag of wood from Antelope House (NA625), recovered during stabilization by Voll and Mayer in 1965; 6) archeological material from pre-stabilization excavation of NA404, NA407, and NA2933 by Patricia Gilman in 1976; 7) ceramic, stone, and vegetal archeological material from The Citadel, collected by Richert in 1954; 8) other miscellaneous objects, including a prehistoric basket and a Tusayan Polychrome bowl. No analyses of these materials are available, although some receive brief mention in stabilization or survey reports.

In addition to these collections, WACC also houses the collections from the 1981 to 1987 NPS inventory survey of WNM (Anderson and McDonald 1990). These include 25,000 sherds (Stanislawski 1990:2), more than 3,000 lithic artifacts, including projectile points and debitage, almost 100 pieces of ground stone, shell bracelets and other objects, and historic artifacts of glass and metal. Brief analyses of these materials are contained in Anderson and McDonald (1990) and Stanislawski (1990).

The Museum of Northern Arizona collections are in the initial stages of an inventory process, but at this time no accurate record of their holdings is available (Elaine Hughes, personal communication 1991). MNA is known to house at least the following collections (others are likely): 1) archeological material excavated from Wupatki Pueblo in the 1930s, which was analyzed by Stanislawski (1963), and include ceramics, chipped and ground stone, copper bells, bone artifacts, shell artifacts, wooden artifacts, basketry, textiles, and more than 40 burials; 2) archeological material from Nalakihu, excavated in 1933 and analyzed by Dale King (1949), which includes six burials, numerous artifacts of ground and chipped stone, clay objects and worked sherds, fragments of textile and basketry, vegetal material, and almost 6,000 sherds; 3) archeological material from Watson Smith's survey and excavations in the Black Hawk Valley in 1948 (Smith 1952), including about 40 whole or restorable pottery vessels, more than 13,000 sherds, ground, pecked, and chipped stone, basalt cylinders, a stone figurine, bone tools, shell artifacts, jet "buttons", and fragments of basketry (Smith 1952); and 4) several hundred items from Colton's surveys.

The Southwest Cultural Resources Center in Santa Fe has the following collections: 1) a type collection of 42 lithic items and 157 ceramic items used during the WNM inventory survey; 2) one box of ceramic sherds from WS165 and WS224 from an excavation in 1983 by Lauren Ritterbush; 3) one box of excavated material from a fence posthole at the Citadel Ruin, containing sherds, stone, bone, charcoal, and metal.

The Milwaukee Public Museum has collections from Samuel A. Barrett's survey and excavation near the Citadel. Cataloged items total 437 and include ceramics, stone, basketry, and textiles.

The WNM park headquarters maintains a small exhibit collection of 65 items. Arizona State University has seven boxes containing the partial remains of 22 individuals. The provenience of these individuals is unknown. Arizona State Museum in Tucson has five catalogued items from WNM, with unknown provenience.

10 sites ref. in text 7,7

TABLE 1

SITE TYPE - SITES WITH MORE THAN 20 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
142	PII PIII		8			
831	PII PIII	2400	2	9		
834	PII PIII & NAVAJO	180000	9	8	20	
890	LPII PIII	1800	2			
1494	MID-PIII					
1556	PIII					
1636	LPII-EPIII					
1723	LPII-EPIII					

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7,8 more than 7; text includes 7

Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 7 AND LESS THAN 10 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
46	LP II PIII		2			
100	LPII EPIII		2			
111	LPII EPIII		1	8		
134	PII PIII		41			
138	PII PIII		8			
143	LPII EPIII		8			
157	LPII EPIII		2			
182	PII PIII		2			
245	PII PIII		2	26	1	
329	PII PIII	3375	2			
346	PII PIII	462	2	26		
439	PII PIII	19000	3			
452	PII PIII	1520	3			
463	PII PIII	4500	2	7		
471	PII PIII	1600	2			
506	PIII & PROTO-HOPI	18750	2			
519	PII PIII	100000	2	3		
537	PIII	1200	2			
546	PII PIII	4000	2			
777	PII PIII	1026	6			
787	PII	1000	2			
807	PII PIII	1782	2			
838	PREHISTORIC & NAVAJ	0	41	9		
839	PII PIII	756	2			
840	PII PIII	2000	2			
891	PII PIII	960	2	41	26	
895	PII PIII	2000	2			
913	LPII PIII	3895	2			
983	PII	615	2			
1027	PIII	5100	2			
1043	PIII	9800	2	8		
1067	PIII	825	2			
1089	LPII EPIII	5600	2	26	13	
1281	PIII					
1319	LPII EPIII					
1361	PIII					
1400	LPII EPIII					
1432	PIII					
1466	LPII-EPIII					
1485	LPII-MPIII					
1487	LPII-EPIII					
1500	LPII-EPIII					
1507	LPII-EPIII					
1525	LPII-EPIII					
1637	LPII-EPIII					
1645	LPII-EPIII					
1685	LPII-EPIII					
1748	LPII-EPIII					
1801	LPII-PIII					
1806	PIII					
1807	PIII					

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Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 7 AND LESS THAN 10 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1808	LPII-PIII					
1900	PIII 1125-1250					
1907	PII - PIII					
1980	1100-1225					
1990	PII - PIII					
2000	LPII - EPIII					
2002	1125-1225					
2110	PII - PIII					
2133	1100 - 1200					
2260	PII - III					
2286	PII - III					
2445	LPII - EPIII					
2460	PII - PIII					
2492	LATE PII-EARLY PIII					
2522	PII					
2568	PII - PIII					

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Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 11 AND LESS THAN 20 ARCHITEC

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
112	PIII		2			
136	LPII EPIII		2			
146	PII PIII		2			
239	PII PIII		2	26		
249	PII PIII		2	26		
323	PIII	14400	2			
355	PII PIII	1120	2			
404	PII PIII	2160	2			
459	PII PIII	2600	2			
472	PII PIII	1000	2			
473	PII PIII	3200	2	3		
522	PII PIII	3648	41	3		
574	PII PIII	13000	2			
590	PII PIII	22500	2	26		
833	PII PIII	36000				
860	PII PIII	3105	2	7	41	
933	PII PIII	3000	41			
941	PII PIII	1508	2	26		
1020	PIII	600	2	26		
1258	LPII EPIII					
1395	EPIII					
1571	LPII-EPIII					
1635	LPII-EPIII					
1638	LPII-EPIII					
1664	LPII-EPIII					
1680	PIII					
1692	PIII					
1695	PII-PIII & HISTORIC					
1736	PIII					
2001	1100-1150					
2135	PII - PIII					
2161	1070-1100					
2176	PII - III					
2189	LPII - EPIII					
2199	PII - PIII					
2371	LPII - PIII					
2378	LPII - PIII					
2424	NAVAJO, ?					
2430	PIII					

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Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITEC

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
17	PII		2			
27	PII PIII		1			
32	LPII EPIII		1			
36	PII PIII		2			
37	LPII		1			
45	PII-PIII		1			
47	LP II		8			
51	P.II		1			
55	PII PIII		1	32		
58	LPII		8	31		
59	LPII		41			
61	PII		41			
63	LPII EPIII		1			
65	PII		41			
66	LPII		2			
71	PIII		1			
75	PII		2			
76	PII PIII		1			
77	PII		1			
80	LPII EPIII		41			
81	LPII EPIII		41			
82	PII PIII		2			
92	PII PIII		1			
98	LPII EPIII/HISTORIC		1	32		
99	PII PIIIII/HISTORIC		8			
101	LPII EPIII		8			
104	PII PIII		8	12		
105	PIII/MODERN		9	8	32	
113	PII		8	32		
115	PII		8	32		
116	LPII EPIII		8	7		
119	LP II-EP III		1	8	9	
120	LP II-EP III		8			
122	LP II-EP III		1	32		
124	LP II-EP III		1			
125	LP II		1			
126	P II-P III		1	31	32	
130	HISTORIC NAVAJO OR P		7			
133	PII?		8	32		
135	PII PIII/HISTORIC		41	20	34	21
140	LPII EPIII		8	20		
141	PII PIII		2			
147	LPII EPIII		8			
148	LPII EPIII		8			
151	LPII EPIII		8			
152	LPII EPIII		1	32		
153	HISTORIC NAVAJO/PII		41	32	9	
155	LPII EPIII		8	9		
156	LPII EPIII		8	9		
158	PII PIII		8	9	12	
160	LPII EPIII		8	9		

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Table 1 (cont'd.)

ITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

ITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
164	P.II EPIII		1	32		
167	P.II		1	32		
169	LP11 EPIII		1	32		
170	PII PIII		1			
171	PII PIII		1	32		
173	LPII EPIII		1	32		
175	PII PIII		1			
176	PII PIII		1	32		
177	PII PIII		1	32		
183	PII PIII		1	32	7	
186	PII PIII		1	7		
187	LPII EPIII		1	32		
188	PII PIII		1	32		
189	PII PIII		1	32		
196	PII PIII		1	32		
198	PII PIII		1	32		
199	PII PIII		32			
200	PII PIII		1	32		
201	PII PIII		1	32		
203	PII PIII		41	32		
208	LPII		1	32		
213	PII		1	32		
216	PII PIII		1	32		
227	PII		1	32		
228	PII PIII		1	7	32	
234	PII PIII		1			
236	PII PIII		1	32		
240	LPII EPIII		1	32		
244	PII PIII		1	32		
251	PII PIII	9514	1	35	32	
254	PII PIII		1	28	32	
261	PII PIII		1	32		
263	PII PIII		1			
266	PII PIII		1	32	28	
268	PII PIII	9514	1	32		
270	UNKNOWN	20000	41			
274	PII PIII	7500	41			
275	PII PIII	27000	41			
276	PII PIII	86250	1			
280	PII PIII	3600	1			
281	PII PIII	40000	1			
285	PII PIII	12180	41	1		
301	PII	320	9	1		
302	PII	5625	14			
305	PII PIII	3960	8			
315	PII	400	1			
326	UNKNOWN	84	1			
328	PII PIII	9295	1	13		
334	PII PIII	13600	2			
336	PII PIII	420	13			
337	PII	21000	41			

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Table 1 (cont'd.)

ITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

ITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
338	PII PIII	2000	1			
341	UNKNOWN	3000	32			
344	PII PIII	2500	6			
349	UNKNOWN	6450	41			
359	PII PIII	600	2			
363	PII PIII	1400	1			
365	PII PIII	15750	1			
369	PII PIII	1275	2			
374	PII PIII	35	1			
382	PII	600	6	41		
391	PII PIII	202500	41	3		
400	PIII		6			
412	PIII	135	6			
413	PII PIII	55	6			
415	UNKNOWN	63	8			
418	PII PIII	342700	1			
419	PII PIII	576	1			
423	PII PIII	60000	2	26		
426	PII PIII	15000	1			
428	UNKNOWN	408	1			
431	PII PIII	250	6	41		
433	PII	900	8	31		
434	PII	2400	1			
435	PII PIII	20124	8	32		
436	PII PIII	4416	1	32		
437	PII PIII	17250	35	8		
440	PII PIII	2600	6			
443	PII	10000	2			
445	PII	250	1			
446	PII PIII	22200	6			
453	PIII	1200	1			
455	PII PIII	600	2			
457	PII PIII	100	41	3		
458	PII PIII	3000	13	32		
461	PII PIII	315	1			
462	PII PIII	1400	1			
465	PII PIII	8400	1			
466	PIII	600	1	13		
467	PII PIII	3500	2			
468	PII PIII	1500	2	7		
469	PII PIII	4875	1			
475	PII PIII	6400	1			
478	PII PIII	15000	1			
480	PII PIII	30000	1			
486	PIII	15600	1			
487	PIII	2400	1			
488	PIII	8925	1			
489	PII	18000	1	13		
491	PII PIII	16000	7	20	32	
492	PII PIII	24200	1			
493	PII PIII	14400	20			

SQL> SPOOL OFF

able 1 (cont'd.)

ITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

ITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
498	PII PIII	39900	8			
500	PII PIII	21000	41			
501	PII	2940	41			
502	PII	7000	1			
503	PII PIII	15400	1			
505	PII PIII	132000	1			
508	PII PIII	2500	41			
509	PII	96	1			
510	PII PIII	25000	1			
511	PII PIII	25000	1	13		
514	PII PIII	2500	1			
518	PII PIII	18750	2			
521	PII PIII	100	8			
523	PII PIII	550	1			
524	PII PIII	750	1			
526	PII PIII	2000	1			
528	PII PIII	1250	1			
529	PII PIII	400	1			
531	PII PIII	9000	1			
533	PII PIII	57500	3			
536	PII PIII	1500	1			
540	PII PIII	300	41			
541	PII PIII	28000	1	8		
549	PII PIII	1300	1			
552	PII PIII	2000	1			
555	PII PIII	2875	1			
559	PII PIII	100	1			
560	PII PIII	150	1			
566	PII	10000	41	13		
568	PII PIII	2500	1			
569	PII PIII	600	3	8		
575	PII PIII	3400	32	3		
576	PII PIII	22525	1	8		
578	PII PIII	1400	1			
582	PII PIII	1700	1			
588	PIII	500	41	3		
593	PII PIII	7000	41	12		
596	PII PIII	1900	1			
597	PII	57330	41	13		
604	PII PIII	22500	1			
609	PIII	100	1			
613	PII PIII	20000	1			
615	PII PIII	4400	8	12		
616	PII PIII	1800	8	9		
617	PII PIII	1200	8	29		
618	PII PIII	900	1			
623	PII	1250	3	26	41	
644	PII PIII	3300	1	35		
648	PIII	1400	1			
652	UNKNOWN	4800	1			
654	PII PIII	3200	2			

SQL> SPOOL OFF

Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
668	PUEBLO II	96	41	3		
676	PII PIII	2800	8	7		
682	PII PIII	39600	1			
690	UNKNOWN	3000	1			
693	PII	1020	6			
697	PII PIII	1350	6			
699	UNKNOWN PREHISTORIC	98	6			
700	PIII	128	6			
704	PII PIII	3850	6			
706	PII PIII	70400	2	32		
709	NAVAJO-PII PIII	20400	8	31	15	
722	LP II	225	1	16		
746	PII PIII	4556	2			
751	PII PIII	6400				
759	PIII	264	41			
761	UNKNOWN PREHISTORIC	10500	1			
763	UNKNOWN	42000	8			
771	UNKNOWN PREHISTORIC	17500	41	16	19	29
778	PII PIII	7175				
784	UNKNOWN PREHISTORIC	154	41			
788	UNKNOWN PREHISTORIC	61200	1			
793	UNKNOWN	45100	1			
805	PII PIII	55	41			
806	UNKNOWN PREHISTORIC	400	41			
811	PII PIII	66	8			
813	PII PIII	336				
817	PII PIII	126	41			
818	UNKNOWN	700	6			
855	PII PIII	2700	1			
856	PII PIII	225	1			
870	PII PIII	77	41			
874	PII PIII	154	8			
880	PII PIII	450	8			
882	UNKNOWN PREHISTORIC	80	8			
883	PII PIII	77	8			
884	LPII PIII	4920	2	9		
886	PIII	400	2			
887	PII PIII	3000	8			
892	PII PIII	1100	2			
898	PII	200	8	9		
903	PII PIII	2145	2			
905	LPII PIII	900	2	7		
906	PII PIII	1600	41	13		
907	PII	3000	1			
918	PII PIII	13500	1			
919	PII PIII	11900	3			
920	PII PIII	30000	1			
925	PII PIII	48300	41	7		
926	PII PIII	850	1	13		
932	UNKNOWN PREHISTORIC	49	1			
940	PII PIII	51	41			

SQL> SPOOL OFF

Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
943	PII PIII	20	41	35		
945	LPII-PIII	48	1			
949	PII PIII	250	41			
951	PII	385	8			
953	LPII	400	41			
954	PII PIII	60	8			
957	LPII	195	41			
958	PII PIII	400	2			
960	LPII PIII	3600	13			
962	PII PIII	84	41			
965	PII PIII	1000	8			
966	PII PIII	144	8			
971	PII PIII	7050	41			
973	PII	375	8			
975	PII PIII	56	8			
976	PII PIII	760	8			
982	LPII PIII	12000	2	8		
984	PII PIII	26400	8			
985	LPII	60	8			
988	PII PIII	90	8			
994	LPII PIII	400	1			
995	PII PIII	56	41			
997	UNKNOWN	10000	1			
999	PII PIII	9	1			
1003	PII PIII	2500	8			
1007	PII PIII	2500	8			
1010	PII	100	8			
1017	PIII	816	8	7		
1023	PII PIII	1350	3	16		
1036	PIII	32	8			
1038	LATE PII PIII	1750	8			
1039	PIII	2100	1			
1042	PII PIII	1110	2	9		
1045	PII	1500	32			
1059	PIII	256	1	41		
1061	PIII	400	2	20		
1066	PIII	255	2	20		
1068	PIII	352	2			
1069	PIII	286	8			
1071	PIII	3400	6	20	9	
1081	LPII EPIII	6000	2	26		
1082	LPII EPIII	700	2	7		
1087	EPII EPIII	8250	2			
1090	LPII EPIII	300	1			
1094	?	33400	1			
1096	LPII EPIII	1950	2	32	18	
1099	PIII	378	2			
1101	PIII	483	1	20		
1107	LPII EPIII	1248	2	13	9	37
1109	LPII PIII	800	6			
1111	PIII	3780	2			

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Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1112	PII PIII	7840	2			
1117	PII PIII	15	1			
1119	PII PIII	100	1			
1122	PIII	209	3			
1124	PIII	51980	2	35	8	
1125	PIII	22000	1	20		
1132	PII PIII					
1137	PIII					
1151	UNKNOWN					
1153	PIII					
1154	PIII					
1158	PII PIII					
1162	LPII EPIII					
1168	UNKNOWN					
1169	LPII EPIII					
1174	PII PIII/MODERN					
1175	LPII EPIII					
1177	PII PIII					
1185	LPII EPIII					
1190	PIII					
1194	LPII EPIII					
1200	PII PIII					
1201	PIII					
1203	PIII					
1205	PIII					
1206	PIII					
1207	PII PIII					
1209	PII PIII / HISTORIC					
1211	PIII					
1213	LPII EPIII					
1232	LPII EPIII					
1237	PII PIII					
1241	PII PIII					
1243	PIII					
1251	PII PIII					
1256	PII PIII					
1259	PIII					
1264	PIII					
1266	LPII EPIII					
1267	PIII					
1268	PIII					
1271	EPIII					
1272	PII PIII					
1276	LPII EPIII					
1278	LPII EPIII					
1282	PII PIII					
1283	LPII EPIII					
1284	PIII					

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Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1288	PIII					
1295	LPII EPIII					
1297	LPII EPIII					
1310	PII PIII					
1315	LPII EPIII					
1316	LPII EPIII					
1320	PIII					
1326	PII					
1343	PII PIII					
1344	PIII					
1347	LPII					
1351	EPIII?					
1352	PII PIII					
1355	PIII					
1356	PIII					
1357	PIII					
1358	EPIII					
1360	PIII					
1366	PIII					
1368	PIII					
1371	PIII					
1373	PIII					
1374	PIII					
1377	LPII					
1378	PII PIII					
1380	PIII					
1381	PIII					
1383	PIII					
1384	PIII					
1385	PIII					
1386	PIII					
1389	PIII					
1390	PII PIII					
1396	PII PIII					
1406	PIII					
1408	PII PIII					
1411	PIII					
1414	PIII					
1418	PIII					
1421	PIII					
1422	LPII EPIII					
1424	PII PIII					
1427	PIII					
1430	PIII					
1433	EPIII					
1437	PII					
1439	PIII					
1441	UNKNOWN					

SQL> SPOOL OFF

Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1443	PII PIII AND MODERN					
1444	PIII					
1445	PIII					
1453	LPII - EPIII					
1454	LPII - EPIII					
1455	PIII					
1467	LPII-EPIII					
1472	LPII-EPIII					
1475	LPII-EPIII					
1484	LPII-EPIII					
1488	LPII					
1497	LPII-EPIII					
1512	LPII-EPIII					
1513	LPII-EPIII					
1516	LPII-EPIII					
1517	LPII-EPIII					
1518	EPIII					
1519	LPII-EPIII					
1528	PIII					
1529	LPII-EPIII					
1550	UNKNOWN					
1551	P-III					
1552	P-III					
1553	LPII-EPIII					
1565	LPII-EPIII					
1567	PIII					
1569	PII-PIII					
1572	LPII-EPIII					
1573	LPII-EPIII					
1574	PII-PIII					
1578	PII-PIII					
1579	LPII					
1585	LPII-EPIII					
1586	EPII-EPIII					
1587	LPII-EPIII					
1589	PI & LPII					
1590	PIII					
1594	PIII					
1595	PII-PIII					
1597	PII-PIII					
1601	PIII					
1604	LPII-EPIII					
1605	EPIII					
1606	PII-PIII					
1613	UNKNOWN					
1614	UNKNOWN					
1619	PII-PIII					
1620	PII-PIII					

SQL> SPOOL OFF

Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1628	LPII-EPIII					
1629	LPII-PIII					
1630	PIII					
1634	LPII-EPIII					
1639	LPII					
1640	UNKNOWN					
1641	PIII					
1647	LPII-PIII					
1650	LPII-EPIII					
1652	LPII-EPIII					
1653	PII-PIII					
1654	PII-PIII					
1657	LPII-EPIII					
1658	LPII-EPIII					
1659	EPIII					
1660	PII-EPIII					
1661	PII-EPIII					
1666	PIII					
1670	PIII?					
1673	PIII					
1679	PII-PIII					
1688	LPII-EPIII					
1689	UNKNOWN					
1690	PII-PIII					
1691	PII-PIII					
1694	UNKNOWN					
1697	LPII-EPIII					
1700	PII-PIII					
1703	LPII-EPIII					
1705	PIII?					
1706	UNKNOWN					
1717	LPII-EPIII					
1718	PIII					
1719	PII-PIII					
1720	LPII-EPIII					
1722	PII-PIIIII					
1724	LPII-EPIII					
1726	LPII-EPIII					
1729	PIII					
1730	LPII-EPIII					
1731	LPII-EPIII					
1732	PIII					
1739	PII-PIII					
1740	PII-PIII					
1742	PII-PIII					
1743	LPII-EPIII					
1744	LPII-EPIII					
1746	LPII-MID PIII					

SQL> SPOOL OFF

Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1750	LPII-EPIII					
1756	UNKNOWN					
1759	LPII-EPIII					
1760	LPII-EPIII					
1762	LPII-MID PIII					
1769	LPII-MIDPIII/CA 1930					
1770	PIII					
1771	LPII-MID PIII					
1786	LPII-MID PIII					
1805	PIII					
1816	PII-PIII					
1819	LPII-MID PIII					
1830	UNKNOWN					
1853	PII-III					
1856	LPII-EPIII					
1864	PII - PIII					
1866	CA. A.D.1050-1150					
1882	PII-PIII A.D. 1070-1					
1894	PII-PIII					
1895	1070-1150					
1896	PII - PIII					
1897	1070-1200					
1901	LPII - EPIII					
1905	LPII-EPIII					
1906	PII - PIII 1100-1200					
1916	LPII - EPIII					
1920	1070-1200					
1926	PII - PIII					
1927	11-1250					
1929	1070-1220					
1934	PII - PIII					
1935	PII - PIII					
1936	PII - PIII					
1938	PII - PIII					
1942	?					
1943	PII - PIII					
1951	11-1225					
1952	?					
1960	LPII -EPIII					
1962	PII - PIII					
1965	PII - PIII					
1966	11-1200					
1976	PII - PIII					
1977	LPII - EPIII					
1981	1125-1225					
1982	PII - PIII					
1986	1100-1200					
1989	1100-1175					

QL> SPOOL OFF

Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1992	LPII - EPIII					
1994	1100-1200					
1998	PII - PIII					
2004	PII - PIII					
2005	PII - PIII					
2008	PII - PIII					
2009	1100 - 1200 ?					
2013	1000 - 1150					
2016	EP III					
2018	PII					
2019	UNKNOWN					
2023	PIII					
2032	LPII - EPIII					
2034	1070 - 1200					
2036	PII - LPII					
2037	PII - PIII					
2042	LPII - EPIII					
2043	PII - PIII					
2044	PIII					
2047	?					
2058	1070 - 1300					
2059	1000 - 1125					
2060	LPII - EPIII					
2061	LPII - PIII					
2062	1100 - 1200					
2063	PII-III					
2064	PII-III					
2065	PII-III					
2068	1100 - 1200 ?					
2069	PII					
2070	PII - III					
2071	PII					
2072	PII - III					
2088	PII					
2089	?					
2090	PII - III					
2095	?					
2097	PII - III					
2100	?					
2106	LPII - EPIII					
2112	1060-1160					
2122	1070 - 1125?					
2123	1070 - 1100					
2126	1100 - 1200					
2130	1050 - 1270					
2131	PIII					
2132	1050 - 1250					
2138	1120 - 1250					

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Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2139	PII - PIII					
2140	PII					
2141	1070 - 1150					
2147	PII - PIII					
2156	PII - III					
2158	PII - III					
2163	1070 - 1125					
2164	PIII					
2168	?					
2171	PII					
2172	PII					
2173	PII - III					
2175	PII - III					
2177	PII - III					
2180	?					
2182	11-1200					
2190	1050-1150					
2195	1080-1200					
2198	1100-1200					
2208	LPII ?					
2209	LPII - EPIII ?					
2211	PII - III					
2220	1070-1150 ?					
2230	PII - PIII					
2231	PII - III					
2236	PII - PIII					
2237	LPI - LPII					
2239	LPII - EPIII					
2241	PII - PIII					
2250	LPII - PIII					
2257	LPII - PIII					
2267	PII - PIII					
2268	PII - III					
2271	1050-1175					
2281	PII - PIII					
2314	LPII - PIII					
2318	LPII - PIII NAVAJO,					
2321	LPII - PIII					
2326	A.D. 1100-1200					
2332	A.D. 1100-1200					
2350	PII					
2351	PIII					
2354	PII - III					
2357	PIII					
2360	ANASAZI ANGLO, PIII ?					
2361	?					
2364	PIII					
2375	PII - PIII					

SQL> SPOOL OFF

Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2377	LPII - PIII, NAVAJO,					
2380	PII - III					
2383	PIII					
2384	PII - III					
2385	PII					
2387	?					
2398	PII - III					
2399	PII - III					
2404	PII - III					
2405	PIII					
2409	PIII					
2411	PIII					
2414	PII					
2425	LPII - PIII					
2427	PIII					
2432	LPII - PIII					
2433	PIII					
2442	PII - PIII					
2449	PII - PIII					
2450	EPII					
2452	PII					
2453	LPII					
2457	EPIII					
2463	UNKNOWN					
2464	PII					
2467	PII - PIII					
2468	PII					
2472	PII - PIII					
2477	PII - PIII					
2479	PII - PIII					
2480	PII - PIII					
2481	PII -EPIII					
2483	EARLY PII					
2485	PIII					
2486	PII					
2493	PII - PIII					
2495	PII - PIII					
2501	PII - EPIII					
2507	PII-PIII & HISTORIC					
2508						
2513	PII - PIII					
2514	LPII - EPIII					
2515	PII					
2521	UNKNOWN					
2532	PII - PIII					
2537	LPII - EPIII					
2541	PIII					
2549	EPIII					

SQL> SPOOL OFF

Table 1 (cont'd.)

SITE TYPE - SITES WITH MORE THAN 2 AND LESS THAN 6 ARCHITECTURAL SPACES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2558	UNKNOWN					
2563	PII - PIII?					
2564	LPII - EPIII					
2567	PII - PIII					
2575	PIII					
2583	PII - PIII					
2584	PII - PIII					
2587	UNKNOWN					
2591	LPII - EPIII					
2592	LPII - EPIII					
2595	PII - PIII					
2596	LPII -EPIII					
2600	PII -PIII					
2606	PII - PIII					
2609	LPII - PIII					
2610	LPII - EPIII					
2612	PII					
2613	LPII - EPIII					
2614	LPII - EPIII					
2618	PII - PIII					
2619	PII - PIII					
2624	PII - EPIII					
2626	PIII					
2629	LPII -EPIII					
2637	PII - PIII					
2638	PII - PIII					
2641	LPII - EPIII					
2643	PII -EPIII					
2644	PII -EPIII					
2646	PIII					
2662	PIII					
2663	LPII - EPIII					

SQL> SPOOL OFF

51
14
204
51
714
32
746

51 - HH I
48 - HH III
32

306
384
711 next 32
722 here

Table 1 (cont'd.)

SITE TYPE - ISOLATED PITHOUSES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
33	UNKNOWN		7	32		
87	NAVAJO/LPII EPIII		7	32		
110	UNKNOWN		32			
223	PII PIII		7			
464	PII PIII	7200	3	16		
562	PII	6000	3	13		
598	PII	3220	16	7		
620	PII PIII	2145	3	32		
677	PII PIII	1000	12	3		
791	UNKNOWN	9	7			
912	PII	88	3	16		
923	PII PIII	3000	32			
969	PII	30	41			
1030	PII HISTORIC	4125	4			
1152	LPII EPIII					
1176	PIII					
1197	PIII					
1223	PIII					
1257	PII PIII					
1270	PII PIII					
1300	UNKNOWN					
1332	PII EPIII					
1399	PIII?					
1592	PIII(?)					
1714	UNKNOWN					
1886	L.PII - E.PIII A.D.					
1893	E.PII-L.PIII					
2074	1050 - 1100					
2083	PII - III					
2086	PII - III					
2490	PII					
2494	PII					
2534	PII - PIII					
2576	PIII					

SQL> SPOOL OFF

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Table 1 (cont'd.)

SITE TYPE - MULTIPLE PITHOUSES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
130	HISTORIC NAVAJO OR P		7			
199	PII PIII		32			
439	PII PIII	19000	3			
491	PII PIII	16000	7	20	32	
533	PII PIII	57500	3			
919	PII PIII	11900	3			
1211	PIII					
1282	PII PIII					
1453	LPII - EPIII					
1475	LPII-EPIII					
1606	PII-PIII					
1719	PII-PIII					
2321	LPII - PIII					

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
8	LPII EPIII		32	20		
16	PREHISTORIC		41			
34	SINAGUA ?		41			
38	PII PIII		1			
39	P.I?		1			
42	UNKNOWN		1			
52	LP II		1	32		
68	PII		41			
69	PII PIII		1			
70	LPII EPIII		1			
72	LPII EPIII		32			
78	PII		1			
84	UNKNOWN/HISTORIC		7			
91	PII		32			
95	LPII EPIII		1			
96	LPII EPIII					
97	LPII EPIII					
102	PII PIII/HISTORIC					34
107	HISTORIC/PII PIII					
117	LP II-EP III					
118	LP II-EP III					
121	LP II-EP III					
123	LP II-EP III					
127	PII PIII					
128	PIII		8	9		
131	PIII?		41	20		
137	PII PIII		41			
139	PII PIII		8	32		
145	LPII EPIII		8			
149	LPII EPIII		8	32		
150	LPII EPIII		8	31		
154	PII PIII		8	32		
163	LPII EPIII		1	32		
166	PIII		1	32		
168	P.II PIII		1	32		
172	PII PIII		1	32		
174	LPII EPIII		1	7	32	
178	PII PIII		1	32		
179	PII		1	32	7	
180	PII		1			
181	PII PII		1	32		
184	PII PIII		41			
191	PII PIII		1	32		
194	PII		1			
195	PII PIII		1	32		
197	PII PIII		1	32		
202	UNKNOWN		1	32		
204	PII		1	15	32	
205	PII PIII		1	32		
206	PII PIII		1	32		
207	PII PIII		1	32		

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
209	PII PIII		1	32		
210	PII PIII		1	32	7	
215	UNKNOWN		1	32		
217	PII PIII		1			
219	PII PIII		15			
220	PII PIII		1	7	32	
221	PII PIII		1	32		
225	PII PIII		1	32		
226	PII PIII		1	32		
229	PII PIII		1	21	32	
230	PII PIII		1			
231	PII PIII		1	32		
232	PII PIII		1	32		
233	PII PIII		1			
235	PII PIII		1			
237	PII PIII		1	32		
238	PII PIII		1			
241	PII PIII		1	32		
242	PII		1	32		
243	LPII EPIII		1	32		
246	PII PIII		1			
247	UNKNOWN		13	32		
248	LPII EPIII		1	32		
250	PII	4288	1	32		
252	PII PIII	66250	1	32		
253	LPII EPIII		1	32		
255	PII PIII		1	32		
256	PII PIII		1	32		
257	PII PIII		1	32		
258	PII PIII		1	32		
259	PII PIII		1	28		
260	UNKNOWN		1	32		
262	UNKNOWN		1			
265	P II		1	32		
267	PII PIII	4288	1	32		
269	PIII	66250	41			
271	PII PIII	3000	41			
272	PII PIII	8000	1			
273	PII PIII	42775	41			
277	PII PIII	36500	1			
279	PII PIII	900	1			
284	PII PIII	40000	1			
286	PII PIII	6500	1			
288	UNKNOWN	7600	8			
289	PII PIII	6300	1			
297	PII PIII	300	41			
300	PII PIII	32500	41			
321	UNKNOWN	10000	1			
322	UNKNOWN	160000	7			
325	PIII	40000	1			
327	PII PIII	36	1			

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
331	PII PIII	7500	1			
332	PII PIII	150	1			
340	PIII	60	6			
342	UNKNOWN	600	1			
345	HISTORIC ANGLO	42	32			
350	PII	100	1			
351	PII PIII	49	1			
352	PII PIII	9750	1			
353	PII PIII	1500	1	13		
354	UNKNOWN	1250	40			
356	PII	6000	1			
358	PII PIII	720	1			
360	PII PIII	100	1			
362	PII PIII	5250	1			
364	HISTORIC	330	32			
366	PII PIII	26000	1			
367	PII PIII	490	1			
370	PII PIII	12	1			
371	UNKNOWN	45	1			
375	PII PIII	90	1			
376	PII	45	1			
377	PII -PIII	365	1			
378	PII	1080	1			
381	PI?	15000	1			
384	P II - P III	5000	1			
386	UNKNOWN	16	1			
392	PII	2250	6			
394	PII PIII	100	41			
399	UNKNOWN	800	1	32	12	
401	PIII	3900	1			
405	PII PIII	32	8			
407	UNKNOWN	38600	1			
408	PII	250	8			
409	PIII	450	6			
414	UNKNOWN	600	8			
416	UNKNOWN	9	13			
420	PII PIII	2975	1			
421	PII PIII	100	1			
424	UNKNOWN	100	1			
425	UNKNOWN	6300	8			
427	PIII	250	1			
429	UNKNOWN	550	1			
430	UNKNOWN	300	32			
432	PII PIII	35000	1			
438	PII	1750	8	32		
442	PII PIII	150	6			
444	PII PIII	19000	1			
448	PII PIII	4000	8			
449	PII PIII	1200	1			
450	PII	120	8			
451	PII PIII	484	12	1		

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Table 1 (cont'd.)
SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
454	PII	64	1			
456	PII PIII	7800	8			
460	PII PIII	80	1			
470	PII PIII	49	1	35		
474	PII PIII	20000	1			
477	PII PIII	20000	1			
479	PII PIII	4250	1			
481	PII PIII	25	1			
482	PII PIII	2650	1			
483	PII	10000	1	13		
484	PII PIII	1150	1			
485	PII PIII	6750	1			
490	PII	22920	1			
494	PII PIII	112	1			
495	PII	3600	1			
497	UNKNOWN	20400	32			
499	PII	1650	1			
504	PII PIII	85	1			
507	UNKNOWN	9600	1			
512	PII PIII	64	1			
515	PII PIII	8925	1			
517	PII PIII	13600	1			
520	PII PIII	5100	1			
525	PII PIII	660	1			
527	PII PIII	300	1			
530	PII PIII	2100	1			
534	PII PIII	24200	1			
535	UNKNOWN	825	1			
538	PII PIII	150	1			
539	PII	100	8			
542	UNKNOWN	600	1			
543	UNKNOWN	6000	8			
544	PII PIII	25	1			
545	UNKNOWN	44550	1			
547	PII PIII	30	1			
551	PII	88	1			
553	UNKNOWN	600	35			
556	PII PIII	30	1			
558	UNKNOWN	60000	1			
563	PII PIII	12000	1			
564	PII PIII	2800	1			
565	PII PIII	100	1			
567	PII PIII	4000	1			
572	PII PIII	14400	1			
573	PII PIII	2750	1			
579	PII PIII	712	1			
580	PIII	400	1			
581	PII PIII	18000	1	32		
583	PIII	100	1	13		
586	PII PIII	1536	1	13		
587	PII PIII	6750	1			

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ble 1 (cont'd.)
TE TYPE - ISOLATED MASONRY ROOMS

TE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
589	PII PIII	5400	1			
592	PII PIII	8250	1			
595	PII PIII	1800	41			
600	PII PIII	7500	1			
601	PII	1600	1			
602	PII PIII	700	1			
603	UNKNOWN	15000	1			
605	UNKNOWN	2500	35			
608	PII PIII	750	1			
611	UNKNOWN	14300	1			
612	UNKNOWN	35	1			
614	PII PIII	825	1			
619	PII PIII	5100	1			
622	P II	40	1			
625	PROTO-HOPI	18	35			
633	UNKNOWN	48	1			
634	PII PIII	4500	1			
635	UNKNOWN	16	8			
636	UNKNOWN	4	8			
637	UNKNOWN	105	8			
638	UNKNOWN	36000	1			
640	PII	6375	1			
641	PII PIII	508	1			
642	PII PIII	1350	3			
643	PIII	3400	1			
645	PII PIII	35	1			
646	UNKNOWN	15400	1	35		
649	PII PIII	3000	1			
650	PII PIII	11400	1			
651	PUEBLO III	5200	1			
655	PII PIII	204	1			
656	UNKNOWN	180	1			
657	PII PIII	4800	6	8		
659	PII	31950	6	16		
661	PROTO-HISTORIC HOPI	1320	8			
662	PII	25	1			
672	PII	600	1			
673	UNKNOWN	20	1			
674	PIII	600	1			
675	PII PIII	2100	1			
678	PII PIII	9	1			
679	PII PIII	50	13			
681	PII	6000	1			
685	UNKNOWN	6	8			
691	PII PIII	21375	1			
692	PII PIII	950	8			
694	PII PIII	900	6			
695	PII?	36	6			
696	PII PIII	48	8			
698	PII PIII	1200	8			
707	PII PIII	5130	8	32		
708	LPII EPIII	6075	1	32		

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Table 1 (cont'd.)
SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
711	PII PIII?	800	32			
714	PII-E. PIII	2400	8	32		
719	LPII	100	6			
723	PII	720	8	17	18	
725	PII PIII	7500	8	22	21	
726	UNKNOWN PREHISTORIC	13	1			
727	UNKNOWN	2100	8			
733	PII PIII	3000	1			
736	LPII?	57600	8			
737	UNKNOWN PREHISTORIC	31350	1			
738	UNKNOWN	25650	8			
739	PII PIII	25000	1	12		
749	PII PIII	9	20			
750	PII PIII	15625	1			
752	PII PIII & NAVAJO	12500	8			
755	UNKNOWN PREHISTORIC	39375	1			
756	UNKNOWN PREHISTORIC	10	1			
762	UNKNOWN PREHISTORIC	7500	8			
764	UNKNOWN	20	32			
765	UNKNOWN	100	8			
776	UNKNOWN PREHISTORIC	80	1	35		
779	UNKNOWN	1400	20			
781	PII PIII	836	32			
783	PII PIII	102	6	9		
790	UNKNOWN PREHISTORIC	5300				
792	UNKNOWN PREHISTORIC	45000	1			
794	LPIII?	8500	1			
795	PII PIII	11100	1			
796	UNKNOWN PREHISTORIC	340	1			
797	UNKNOWN PREHISTORIC	120000	1			
799	UNKNOWN PREHISTORIC	30	8			
800	UNKNOWN PREHISTORIC	93	8			
801	UNKNOWN PREHISTORIC	69000	8	32		
802	UNKNOWN	8	6			
804	PII PIII	8	41			
814	PIII	2600	8			
821	UNKNOWN	600	17			
823	UNKNOWN PREHISTORIC	144	1	32		
824	UNKNOWN PREHISTORIC	4400	32			
827	NAVAJO	26400	8			
832	UNKNOWN PREHISTORIC	117				
837	UNKNOWN PREHISTORIC	44	41			
848	UNKNOWN	220				
850	UNKNOWN PREHISTORIC	432	1			
852	PII PIII	1600	1			
853	PII PIII	8000	1			
854	PII PIII	21	1			
857	PII PIII	3440	1			
858	PII	14500	1			
859	LPII-PIII	3480	1			
861	PII	100	1			

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
862	PII PIII	39	41			
863	PII PIII	63	1			
864	PII PIII	1980	41			
865	LPII	31200	8			
866	PII PIII	42	1			
867	PII PIII	35	41			
868	PII PIII	24	1			
869	LPII PIII	1890	1			
871	UNKNOWN	24	8			
872	PII	48	1			
873	LPII	25	1			
876	LPII	14400	1			
877	LPII PIII	2825	1			
878	PII PIII	425	41			
888	UNKNOWN	8	1			
889	LPII	50	8			
893	PII PIII	3071	1			
894	PII PIII	12	1			
896	PII PIII	15400	8			
897	UNKNOWN PREHISTORIC	28	8			
900	UNKNOWN PREHISTORIC	51000	1			
901	PII PIII	120	32			
902	PII PIII	17500	1			
904	PII	27500	1			
908	PII PIII	6400	1			
909	LPII	13	1			
910	LPII	4				
911	PII PIII	7200	1			
916	LPIIPIII	3600	1			
917	PII PIII	80	1	13		
921	LPII	6500	41			
922	PII PIII	53460	1			
924	PII	15000	1			
927	PII PIII	13200	1			
929	PII PIII	5000	8			
931	PII	37500	1			
934	PII PIII	300	1			
935	PIII	56000				
936	PII PIII	196	32			
937	PII PIII	1944	41			
938	PII PIII	45	1			
939	PII PIII	100	1			
946	PII-PIII?	600	1			
950	PII PIII	450	8			
952	PII PIII	375	8			
955	UNKNOWN	3800	1			
956	LPII	3400	32			
959	PII PIII	96	1			
964	LP II	100	1			
967	PII PIII	100	1			
968	PII PIII	16	8			

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
970	PIII	100	8			
972	PII PIII	64	1			
974	LPII PIII	36	8			
977	LPII EPIII	225	1			
978	PII PIII	500	8			
979	LPII EPIII	225	1			
980	LPII PIII	35	1			
987	UNKNOWN	5700	8			
989	UNKNOWN	1500	8			
990	PII PIII	400	1			
991	PII PIII	40	1	15		
992	LPII EPIII	18	32			
996	UNKNOWN	364	41			
998	LPII	900	1			
1000	PII PIII	49	1			
1001	PII PIII	5	8			
1002	PII PIII	63	8	35		
1004	PII	600	1			
1005	PII PIII	14400	1			
1006	LPII PIII	48	1	13		
1008	LPII?	1000	8			
1009	PII	100	8			
1011	LPII	1200	8			
1012	LPII	150	8			
1013	PIII?	45	1			
1014	PII PIII	28	32			
1021	UNKNOWN	12100	8			
1025	PII	28500	1			
1026	LPII EPIII	924	1			
1034	PII PIII	195	6	16		
1037	UNKNOWN	25	1			
1046	LATE PII	60	1			
1052	PIII?	35	1	32		
1063	PII PIII	22	1			
1064	PIII	84	1			
1065	PIII	25	1			
1072	PIII	16	6	20		
1075	PIII	225	1			
1076	LPII EPIII	200	1			
1080	LPII EPIII	63000	1			
1083	LPII EPIII	5750	1			
1084	LPII	410	28			
1085	PIII	4000	2			
1086	PIII	1512	1			
1088	EPII EPIII	18900	1	32		
1091	PII PIII	10200	1	32		
1093	?	2618	1	32		
1095	LPII EPIII	5000	1	35	28	
1097	PII PIII	750	1			
1098	LPII EPIII	100	1			
1102	UNKNOWN	42	1			

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1103	PIII	36	1			
1104	PIII	10570	1	32		
1106	PIII	355	1			
1108	PIII	850	41			
1110	PIII	65	6			
1113	PII PIII	1200	1			
1114	PII PIII	100	1			
1115	PII PIII ?	36	1			
1116	PII PIII	48	1			
1118	UNKNOWN	5400	1	32		
1120	PIII	40000	1			
1121	PIII	17340	1	31		
1123	PIII	320	1			
1126	PIII					
1127	PIII					
1128	PII EPIII					
1129	PII PIII					
1130	PII PIII					
1133	LPII EPIII					
1134	PIII					
1135	PIII					
1136	LPII					
1138	PII PIII					
1139	PPIII					
1140	?					
1142	?					
1143	PII PIII					
1145	PIII					
1146	PII ?					
1147	PII					
1149	PII PIII					
1150	UNKNOWN					
1155	PIII					
1157	PIII					
1159	PII PIII					
1161	PIII					
1163	PII PIII					
1164	PIII					
1165	PIII					
1166	UNKNOWN					
1167	PII					
1170	PIII					
1171	PIII					
1172	PII-PIII					
1173	PII-PIII					
1180	PII PIII					
1181	UNKNOWN					
1182	PIII					

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1183	EPIII					
1184	UNKNOWN					
1186	UNKNOWN					
1187	PII PIII					
1189	PII PIII					
1195	LPII EPIII					
1196	UNKNOWN					
1198	PIII					
1199	PIII					
1204	PIII					
1216	LPII EPIII					
1217	PII PIII					
1219	PIII					
1220	PIII					
1221	PIII					
1224	PIII					
1227	UNKNOWN					
1228	PII PIII?					
1230	LPII EPIII					
1231	LPII EPIII					
1233	PII PIII					
1239	PIII					
1240	LPII					
1244	PIII					
1245	UNKNOWN					
1248	PIII					
1249	UNKNOWN					
1250	LPII EPIII					
1252	PII PIII					
1254	PII PIII					
1255	LPII EPIII					
1262	UNKNOWN					
1263	PIII					
1265	PIII					
1273	PII PIII					
1277	LPII EPIII					
1280	LPII					
1285	LPII EPIII					
1287	PIII					
1289	PIII					
1290	UNKNOWN					
1292	PIII					
1293	PIII					
1294	PIII					
1296	LPII EPIII					
1301	PIII					
1302	UNKNOWN					
1303	PIII					

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Table 1 (cont'd.)
SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1304	EPIII					
1308	UNKNOWN					
1311	PII PIII					
1312	EPIII					
1313	LPII EPIII					
1314	PII PIII					
1317	PII PIII					
1318	LPII EPIII					
1324	UNKNOWN					
1325	PII					
1329	PII PIII					
1330	PIII?					
1333	UNKNOWN					
1335	PIII					
1336	UNKNOWN					
1338	PIII					
1339	EPIII					
1341	PII PIII					
1345	LPII EPIII					
1349	PII PIII					
1350	UNKNOWN					
1353	PIII					
1367	UNKNOWN					
1369	UNKNOWN					
1375	LPII EPIII					
1379	PIII					
1382	PII PIII					
1387	PIII					
1397	PII PIII					
1401	LPII EPIII					
1402	PIII					
1403	LPII EPIII					
1404	LPII EPIII					
1405	LPII EPIII					
1407	PIII					
1409	PII PIII					
1413	PIII					
1415	UNKNOWN					
1416	PII PIII					
1419	PIII					
1434	PIII					
1435	PIII					
1436	PII PIII					
1438	PIII					
1442	PII PIII					
1446	LPII EPIII					
1447	PIII					
1448	PIII					

SQL> SPOOL OFF

Table 1 (cont'd.)
SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1449	PII PIII					
1452	PIII					
1457	PII PIII					
1458	PIII					
1459	LPII					
1460	PIII?					
1463	LPII-PIII					
1465	LPII					
1468	UNKNOWN					
1469	PII					
1471	LPII ?					
1473	UNKNOWN					
1474	LPII-EPIII					
1476	PII-PIII HISTORIC					
1477	UNCERTAIN					
1478	LPII					
1479	LPII					
1480	LPII-EPIII					
1481	PIII					
1486	PIII					
1491	LPII-EPIII					
1499	LPII-EPIII					
1501	LPII-EPIII					
1502	UNKNOWN					
1503	UNKNOWN					
1504	UNKNOWN					
1505	PII/HISTORIC					
1506	PII-PIII					
1508	LPII-EPIII					
1511	PIII					
1520	PIII?					
1521	PII-PIII					
1524	LPII-EPIII					
1527	PII-PIII					
1531	PII-PIII					
1532	LPII					
1533	LPII-EPIII					
1534	LPII-EPIII					
1536	LPII-EPIII					
1537	PIII & HISTORIC					
1538	UNKNOWN					
1539	PII-PIII					
1541	LPII-EPIII					
1543	PII-PIII					
1544	UNKNOWN					
1545	LPII-EPIII					
1547	LPII-EPIII					
1548	PII-PIII					

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Table 1 (cont'd.)
ITE TYPE - ISOLATED MASONRY ROOMS

ITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1549	LPII-EPIII					
1557	PII-PIII					
1561	PII-PIII					
1562	UNKNOWN					
1563	UNKNOWN					
1564	PIII					
1566	LPII-EPIII					
1568	PII-PIII					
1570	LPII-EPIII					
1576	LPII					
1577	LPII-EPIII					
1580	UNKNOWN					
1581	LPII					
1582	PII-PIII					
1584	LPII					
1591	UNKNOWN					
1593	UNKNOWN					
1598	UNKNOWN					
1599	UNKNOWN					
1600	UNKNOWN					
1602	HISTORIC/LPII					
1609	PII-PIII					
1610	UNKNOWN					
1612	PIII					
1617	UNKNOWN					
1621	UNKNOWN					
1622	LPII-PIII					
1623	UNKNOWN					
1624	PIII					
1625	UNKNOWN					
1626	LPII					
1627	UNKNOWN					
1632	LPII-EPIII					
1633	LPII-EPIII					
1642	PIII					
1643	PIII					
1644	LPII-EPIII					
1646	PIII					
1651	LPII					
1655	PII-PIII					
1662	1930'S + (?)					
1663	PIII					
1665	UNKNOWN					
1667	LPII-EPIII					
1668	PII-PIII					
1671	PIII					
1672	LPII-EPIII					
1676	LPII-EPIII					

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1681	LPII-PIII					
1682	PII-PIII					
1683	PIII?					
1686	UNKNOWN					
1687	PIII					
1693	UNKNOWN					
1698	UNKNOWN					
1701	LPII					
1702	PIII					
1708	UNKNOWN					
1711	UNKNOWN					
1712	PIII					
1713	UNKNOWN					
1715	PII-PIII					
1716	LPII-EPIII					
1721	LPII-EPIII					
1727	PIII					
1733	UNKNOWN					
1735	PIII					
1737	LPII-EPIII					
1741	PIII					
1745	UNKNOWN					
1751	UNKNOWN					
1753	UNKNOWN					
1754	UNKNOWN					
1755	UNKNOWN					
1757	PII-PIII					
1761	LPII-EPIII					
1764	LPII					
1765	LPII					
1768	LPII					
1772	PIII					
1773	UNKNOWN					
1779	UNKNOWN					
1782	UNKNOWN					
1785	LPII-PIII					
1790	UNKNOWN					
1791	UNKNOWN					
1792	PIII					
1798	UNKNOWN					
1799	LPII					
1804	LPII					
1809	UNKNOWN					
1810	LPII-PIII					
1811	UNKNOWN					
1818	UNKNOWN					
1821	UNKNOWN					
1822	UNKNOWN					

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Table 1 (cont'd.)
SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1825	UNKNOWN					
1838	UNKNOWN					
1840	UNKNOWN					
1841	UNKNOWN					
1846	LPII					
1850	L.PII					
1851	L.PII - E PIII					
1862	?					
1865	?					
1868	A.D. 1070-1150					
1869	?					
1870	?					
1874	?					
1878	LATE PII					
1880	PII-PIII A.D. 1070-1					
1881	?					
1887	L.PII - E.PIII A.D.					
1890	LATE PII					
1891	PII-PIII					
1898	UNKNOWN					
1899	PII - PIII					
1902	1070-1200					
1909	LPII - EPIII 1900-19					
1910	UNKNOWN					
1911	1070-1200					
1912	UNKNOWN					
1914	1070-1200					
1915	LPII - PIII					
1917	UNKNOWN					
1919	PIII					
1921	1070-1200					
1922	UNKNOWN					
1923	PII - PIII					
1930	PII - PIII					
1932	PII - PIII					
1933	11-1200 ?					
1939	PII - PIII					
1940	?					
1941	?					
1944	?					
1954	?					
1955	PII - PIII					
1956	1050-1200					
1957	11-1200					
1958	11-1200					
1959	11-1225					
1961	11-1200					
1963	LPII					

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Table 1 (cont'd.)
SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1964	PII - PIII					
1967	PII - PIII					
1968	?					
1969	PII - PIII					
1970	LPII - EPIII					
1971	?					
1972	PII - PIII					
1974	11-1200					
1975	PII - PIII					
1978	PII - PIII					
1979	11-1200 ?					
1983	1070-1150					
1984	1120-1200					
1985	1050-1150					
1987	PII - PIII					
1988	1100-1200					
1991	LPII - EPIII					
1993	PII - PIII					
1995	1000-1150					
1996	PII - PIII					
1997	PII - PIII					
1999	1100-1200					
2003	PII - PIII					
2006	LPII - EPIII					
2007	PREHIST. OR HISTORIC					
2010	PII - PIII					
2011	PII - PIII					
2012	1100 - 1200					
2015	1100 - 1200					
2017	PIII 1125-1200					
2020	PII - PII + ANGLO					
2021	LPII - EPIII					
2022	PII - PIII					
2024	1070-1200					
2025	PIII					
2026	LPII					
2027	1070 - 1150					
2029	1100 - 1200					
2033	PIII					
2035	PII - PIII					
2038	?					
2039	PII - PIII					
2040	1070 - 1200					
2041	LPII					
2046	?					
2048	PII - PIII					
2049	L 19TH - E 20TH CENT					
2052	?					

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Table 1 (cont'd.)
SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2054	PII					
2055	L 19TH - E 20TH CENT					
2057	11-1200					
2067	?					
2073	PII - III					
2075	?					
2076	PII					
2077	?					
2079	PII - III					
2082	PII - III					
2085	PII - III					
2087	?					
2091	?					
2092	?					
2094	PII - III					
2099	?					
2101	?					
2105	?					
2107	1050 - 1100?					
2108	PII - PII					
2109	?					
2113	1070-1150					
2115	?					
2116	?					
2117	?					
2124	L.PII?					
2125	1100 - 1150					
2129	1070 - 1150					
2134	1100 - 1200					
2136	1070 - 1150					
2137	?					
2144	11-1200					
2149	?					
2150	?					
2151	PII - PIII					
2152	PII - III					
2157	PII - III					
2159	PII					
2160	?					
2167	1100 - 1150 ?					
2169	PII - III					
2178	PII - III					
2183	1000-1100					
2184	PII - III					
2185	?					
2186	?					
2187	PII - III					
2191	1070-1150					

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2192	?					
2197	?					
2200	1070-1150, ?					
2202	?					
2203	PII - PIII					
2205	CA.1150					
2207	?					
2215	20TH C. ?					
2219	PII - III					
2221	PII - PIII					
2223	PII - III					
2227	1100-1200					
2228	?					
2233	?					
2234	950-1250					
2238	PII - PIII					
2240	LPII					
2242	?					
2243	PII - PIII					
2244	LPII - EPIII					
2247	?					
2251	1070-1125					
2252	1070-1125					
2254	LPII - EPIII					
2255	1000-1100					
2256	?					
2258	PII - III					
2259	PII - III					
2263	PII - III					
2264	?					
2265	1120-1250					
2266	700-1050 / 1150-1250					
2270	PII - III					
2273	PII - III					
2277	?					
2279	PII					
2280	PII - III					
2282	1070-1200					
2285	PII - PIII					
2292	PII - III					
2294	PII - III					
2295	?					
2297	?					
2301	UNKNOWN					
2310	PII - III					
2313	11-1200					
2316	LPII - PIII					
2323	LPII - PIII					

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Table 1 (cont'd.)
SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2324	?					
2325	LPII - PIII					
2328	A.D.1100-1200					
2329	A.D.1100-1200					
2330	LPII - PIII					
2334	PII - III					
2335	PII - III					
2336	PII - III					
2337	UNKNOWN					
2339	PIII					
2345	PIII					
2347	PIII					
2348	PII - III					
2352	PII - III					
2353	PII - III					
2358	?					
2359	PIII					
2363	?					
2365	?					
2366	PIII					
2367	UNKNOWN					
2370	UNKNOWN					
2372	UNKNOWN					
2373	LPII - EPIII					
2374	LPII					
2376	?					
2381	PII - III					
2382	PII - III					
2390	PIII					
2391	?					
2392	?					
2393	?					
2394	PII - III					
2395	?					
2396	PII - III					
2400	?					
2401	PII - III					
2402	PII - III					
2406	PII - III					
2407	PIII					
2408	?					
2412	PII - III					
2413	?					
2415	?					
2416	PIII					
2417	PII - III					
2418	PII - III					
2419	PII - III					

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2420	LPII - PIII					
2421	LPII - EPIII					
2422	PIII					
2426	?					
2435	?					
2438	?					
2439	EPIII					
2441	PII					
2443	PII					
2446	PII - PIII					
2447	PII - PIII					
2448	LPII - EPIII					
2451	LPII - EPIII					
2454	EPII					
2455	EPII					
2456	PII					
2458	PII - PIII					
2459	PII - PIII					
2462	PII					
2465	PII - PIII					
2466	PII - EPIII					
2471	PII - PIII					
2473	PII					
2474	LATE PII					
2475	PII - PIII					
2476	PII - PIII					
2478	PII					
2482	UNKNOWN					
2491	UNKNOWN					
2498	LPII - EPIII					
2499	PII - PIII					
2500	PII					
2502	PIII					
2503	UNKNOWN & HISTORIC					
2504	PII					
2506	UNKNOWN					
2510	LPII					
2512	PII					
2516	UNKNOWN					
2518	PII					
2519	PII - PIII					
2520	UNKNOWN					
2525	PII - PIII					
2528	LPII - EPIII					
2529	PII - PIII					
2530	PII					
2531	PII - PIII					
2533	PII					

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Table 1 (cont'd.)

ITE TYPE - ISOLATED MASONRY ROOMS

ITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2535	PII					
2538	UNKNOWN					
2539	PIII?					
2540	PII?					
2542	EPII - LPIII					
2543	PII					
2544	PII - PIII					
2545	EPIII					
2548	PII - PIII					
2550	PIII					
2551	PII-PIII & HISTORIC					
2555	PIII					
2557	UNKNOWN					
2559	PIII					
2562	UNKNOWN					
2565	PII					
2566	LPII - EPIII					
2569	LPII - EPIII					
2570	UNKNOWN					
2571	EPIII?					
2574	LPII - PIII					
2578	PII - PIII					
2579	LPII - EPIII?					
2581	PII - PIII					
2582	UNKNOWN					
2588	UNKNOWN					
2589	PII - PIII					
2590	LPII - EPIII					
2593	UNKNOWN					
2597	PII - PIII					
2598	LPII - EPIII					
2603	UNKNOWN					
2604	PII-PIII					
2605	UNKNOWN					
2608	PII - PIII					
2611	EPIII					
2615	PII -PIII					
2616	PIII					
2617	UNKNOWN					
2621	EPII - EPIII					
2625	LPII -EPIII					
2627	PII - PIII					
2628	LPII -EPIII					
2630	PII - PIII					
2631	PII - PIII?					
2632	LPII					
2634	LPII-EPIII/HISTORIC					
2635	PII - PIII					

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Table 1 (cont'd.)

SITE TYPE - ISOLATED MASONRY ROOMS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2636	LPII- EPIII					
2639	PII - PIII					
2642	LPII - EPIII					
2647	LPII - PIII					
2648	PIII					
2650	LPII - EPIII					
2652	PII - PIII					
2653	LPII - EPIII					
2654	PIII					
2656	PII - PIII					
2657	PII - PIII					
2658	LPII - EPIII					
2659	PII					

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Table 1 (cont'd.)

SITE TYPE - ENCLOSURES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
21	LATE PII		32			
24	UNKNOWN/PREHISTORIC		32			
28	UNKNOWN		8			
31	UNKNOWN		8			
35	LPII EPIII		41			
43	LP II		32	1		
67	UNKNOWN		1			
83	PII PIII		32			
114	PII PIII		32			
144	LPII EPIII		8			
159	LPII EPIII		8	9		
218	UNKNOWN		1	32		
278	PII PIII	13570	1			
283	PII PIII	80	1			
287	UNKNOWN	99000	1			
312	UNKNOWN	12800	31	32		
324	UNKNOWN	36	13			
333	UNKNOWN	14750	8			
335	UNKNOWN	3	41			
348	UNKNOWN	3000	35			
372	PII PIII	18900	1			
380	PII	900	6	9		
388	PII	2600	20			
395	UNKNOWN	22	32			
411	UNKNOWN	23000	6			
447	PII PIII	4800	1			
476	PII PIII	150	1			
496	PII	2750	1			
513	PII	8800	1			
516	PII PIII	1000	1			
532	PII	16	1			
548	PII PIII	250	1			
550	PII PIII	1500	32			
554	PIII	3000	1			
557	PII	6600	1			
561	PII	7500	1			
570	PII PIII	4500	32			
571	PIII	900	1			
577	PII	420	1			
584	PII PIII	850	1			
585	UNKNOWN	1200	1			
591	PII PIII	800	1			
594	PIII	400	1			
599	PII PIII	80	41			
606	PII PIII	9	8			
607	PII PIII	1000	1			
610	UNKNOWN	500	1			
621	PII PIII	75	3	15		
632	PII	3600	32			
647	UNKNOWN	600	1			
683	UNKNOWN	50	8			

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Table 1 (cont'd.)
SITE TYPE - ENCLOSURES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
712	PII PIII	1380	20	17		
715	UNKNOWN	50	1			
717	NAVAJO	315	35	32		
718	LPII	130	6			
721	UNKNOWN PREHISTORIC	5	35			
724	UNKNOWN PREHISTORIC	27000	32			
730	UNKNOWN PREHISTORIC	2058	32			
734	PII PIII	40	20			
742	PII PIII	30000	6			
753	UNKNOWN	805	20			
757	PIII	12				
786	PII PIII	50	6			
798	UNKNOWN	1125	8			
808	UNKNOWN PREHISTORIC	57000	32			
851	PII PIII	36	1			
879	PII	10350	8			
885	PII PIII	400	1			
899	LPII?	50	32			
928	PII PIII		1			
930	PII PIII	2060	1			
948	PII PIII	6	8			
981	UNKNOWN	7	8			
986	UNKNOWN PREHISTORIC	320	8			
993	UNKNOWN PREHISTORIC	750	8			
1032	PIII	20	20			
1041	PIII (?)	3150	32			
1047	UNKNOWN	450	32			
1051	UNKNOWN	1269	8			
1058	?	147900	32			
1060	?	3				
1062	?	3	13			
1074	PII PIII	40	6	8		
1077	?	9	1			
1078	LPII EPIII	50	41	21		
1079	LPII EPIII	8750	40			
1092	PII PIII	40000	32			
1100	?	104	1	8	32	
1105	LPII?	720	1	32		
1131	PII PIII					
1141	?					
1144	?					
1148	LPII EPIII					
1156	UNKNOWN					
1160	UNKNOWN					
1178	LPII					
1179	PII					
1188	LPII EPIII					
1191	UNKNOWN					
1192	PII PIII					
1202	PII					

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Table 1 (cont'd.)

ITE TYPE - ENCLOSURES

ITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1208	LPII EPIII?					
1212	PII PIII					
1215	PII					
1215	PII					
1218	PII					
1225	UNKNOWN					
1234	LPII EPIII					
1235	PII PIII					
1236	UNKNOWN					
1238	UNKNOWN					
1242	UNKNOWN					
1246	UNKNOWN					
1247	PIII					
1253	LPII EPIII					
1260	PII?					
1261	UNKNOWN					
1269	PIII					
1274	UNKNOWN					
1275	PII PIII					
1279	UNKNOWN					
1286	PII PIII					
1291	PIII					
1298	LPII EPIII					
1299	PII PIII					
1305	LPII EPIII					
1306	PII PIII					
1307	UNKNOWN					
1309	UNKNOWN					
1321	UNKNOWN					
1322	PIII					
1323	PIII					
1327	PIII					
1328	UNKNOWN					
1331	UNKNOWN					
1334	UNKNOWN					
1342	LPII EPIII					
1346	UNKNOWN					
1348	LPII EPIII					
1354	PIII					
1359	EPIII					
1362	UNKNOWN					
1363	UNKNOWN					
1365	PIII					
1376	PIII?					
1398	PII PIII					
1431	LPII EPIII					
1464	UNKNOWN					
1470	UNKNOWN					
1496	LPII-PIII					

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Table 1 (cont'd.)

SITE TYPE - ENCLOSURES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1510	LPII-EPIII					
1558	UNKNOWN					
1560	PII-PIII					
1615	UNKNOWN					
1616	UNKNOWN					
1648	PIII					
1669	UNKNOWN					
1674	LPII-EPIII					
1684	UNKNOWN					
1704	PII-PIII (?)					
1728	UNKNOWN					
1734	UNKNOWN					
1749	PIII					
1752	UNKNOWN					
1784	LPII-MID PIII					
1823	PII-PIII					
1831	UNKNOWN					
1833	UNKNOWN					
1855	?					
1859	AD 1100-1200					
1860	A.D. 1100-1200					
1861	PIII A.D. 1130-1200					
1873	?					
1903	PIII					
1913	PIII					
1924	UNKNOWN					
1928	11-1150					
1931	?					
1946	1070-1225					
1947	1050-1150					
1948	LPII ?					
1973	?					
2014	PII - PIII					
2028	PII - PIII					
2030	1050 - 1150					
2031	PII - PIII					
2050	1125 - 1200					
2053	?					
2081	PII - III					
2084	PII - III					
2093	?					
2098	PII					
2101	?					
2103	1070 - 1100					
2104	PII - PIII					
2111	PIII					
2120	?					
2128	?					

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Table 1 (cont'd.)
SITE TYPE - ENCLOSURES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2142	PII - III					
2145	1000 - 1100					
2146	1100 - 1200					
2148	?					
2153	?					
2154	PII - III					
2166	?					
2170	PII - III					
2193	1070-1250					
2194	?					
2196	?					
2206	?					
2210	PII ?					
2212	?					
2216	LPII					
2217	LPII					
2218	PII - PIII					
2222	?					
2226	1100-1200 ?					
2229	?					
2246	?					
2248	?					
2249	PII - PIII					
2253	?					
2287	UNKNOWN					
2288	LPII ?					
2289	?					
2296	PII - III NAVAJO					
2315	ANASAZI LPII ?					
2317	LPII - PIII					
2319	PII					
2327	LPII - PIII					
2338	UNKNOWN					
2340	PII - III					
2344	PII - III					
2346	PII - III					
2349	?					
2355	?					
2362	?					
2368	PIII					
2369	UNKNOWN					
2386	?					
2403	?					
2410	?					
2428	PII - III					
2436	?					
2444	PII - PIII					
2461	PII - PIII					

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able 1 (cont'd.)
ITE TYPE - ENCLOSURES

ITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2469	PII					
2470	LATE PII-EARLY PIII					
2484	PII					
2487	PII					
2488	PII					
2489	PII					
2496	UNKNOWN					
2497	PII - PIII					
2505	UNKNOWN & HISTORIC					
2509	PII-HISTORIC					
2511	PII					
2517	PII					
2523	UNKNOWN					
2524	UNKNOWN					
2526	UNKNOWN					
2527	LPII - EPIII					
2547	UNKNOWN					
2552	UNKNOWN					
2553	UNKNOWN					
2554	EPIII					
2556	UNKNOWN & HISTORIC?					
2560	UNKNOWN					
2561	UNKNOWN					
2572	PIII					
2573	PII - PIII					
2577	UNKNOWN					
2580	PII - PIII					
2585	PIII					
2586	UNKNOWN					
2594	LPII - EPIII					
2599	PII					
2601	PII - PIII					
2607	PII - PIII					
2620	PII					
2622	EPIII					
2623	EPIII					
2633	PII - PIII					
2645	LPII -EPIII					
2651	PII - EPIII					
2655	PII - PIII					
2660	PII					
2661	PII - PIII					

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Table 1 (cont'd.)
SITE TYPE - ARTIFACT SCATTERS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
2	LPII - EPIII		5			
3	LATE PII		15			
20	NAVAJO/PREHISTORIC		32			
25	PII-PIII		15			
26	LPII EPIII		15			
316	UNKNOWN	79016	14			
389	UNKNOWN	103684	29			
397	PII PIII	100	14			
663	PII PIII	4440	15			
1035	PII PIII	100	8			
1048	PI	120	6	16	32	
1428	PROTO-HOPI					
1451	PIII					
1482	MODERN/LPIII-EPIII					
1483	NAVAJO 20TH CENTURY					
1490	LPII-EPIII					
1523	LPII-EPIII					
1583	LPII					
1677	UNKNOWN					
1802	LPII-MID PIII					
1849	1000 BC-AD 400? CA.1					
1871	A.D. 1100-1200					
1872	A.D. 1075-1250; NAVA					
1892	PII-PIII					
1904	PII-III					
2269	1050-1200 NAVAJO					
2300	20TH CENTURY					
2306	BMIII ? PI					
2308	UNKNOWN					

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Table 1 (cont'd.)

SITE TYPE - AGRICULTURAL FIELDS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1	UNKNOWN		17	20		
14	UNKNOWN		32			
29	LPII EPIII		32			
30	UNKNOWN		32			
41	LP II - EP III		32			
74	LPII		32			
88	PII		32			
89	LPII EPIII		32			
90	UNKNOWN		32	15		
94	P II		32			
103	MODERN/PII		32	15		
109	LPII EPIII		32			
162	LPII EPIII		32			
185	LPII EPIII		32			
190	PII PIII		32			
193	PII PIII		32			
222	PII PIII		32			
282	UNKNOWN	21000	32			
319	UNKNOWN	49	32			
320	UNKNOWN	180	17			
658	HISTORIC NAVAJO	10800	20			
680	UNKNOWN	109525	12	32		
701	UNKNOWN PREHISTORIC	12000	32			
702	UNKNOWN PREHISTORIC	37400	32			
729	UNKNOWN PREHISTORIC	12000	32			
741	PII	3200	17			
809	UNKNOWN PREHISTORIC	5250	12			
810	UNKNOWN PREHISTORIC	7500	32			
845	UNKNOWN PREHISTORIC	1200	32			
846	UNKNOWN PREHISTORIC	150	32			
847	UNKNOWN PREHISTORIC	760	32			
881	UNKNOWN	10	32			
1054	PII PIII	840	32			
1056	-	36000	17			
1364	LPII EPIII					
1554	PII-PIII					
1555	PIII					
1559	PIII					
1588	UNKNOWN					
1596	UNKNOWN					
1607	LPII-EPIII					
1611	PIII					
1649	EPIII					
1656	UNKNOWN					
1707	PIII					
1738	LPII-EPIII					
1774	PII-PIII					
1777	UNKNOWN					
1778	PIII					
1794	UNKNOWN					
1817	UNKNOWN					

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17

68

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Table 1 (cont'd.)

SITE TYPE - AGRICULTURAL FIELDS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1820	UNKNOWN					
1824	UNKNOWN					
1827	UNKNOWN					
1832	UNKNOWN					
1844	LPII-MID PIII					
1852	?					
1867	?					
1875	PII-PIII					
1883	PII-PIII					
1884	A.D. 1050-1250					
2119	?					
2143	?					
2204	1070-1150					
2245	?					
2320	?					
2331	?					
2667	UNKNOWN					

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Table 1 (cont'd.)

SITE TYPE - RESERVOIR

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
165	PII PIII		19	18		
211	PII PIII		19	32		
224	PII PIII		19	18		
735	UNKNOWN	72	18			
1337	LPII EPIII					
1388	PIII & MODERN					
1522	UNKNOWN					
1535	UNKNOWN					
1575	UNKNOWN					
1699	UNKNOWN					
2162	PII - PIII					
2181	LPII					
2224	PII - PIII					
2379	PIII NAVAJO ?					
2664	UNKNOWN					

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Table 1 (cont'd.)
SITE TYPE - CISTS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
390	UNKNOWN	6	13			
396	UNKNOWN	1600	8	13		
639	PII	3000	8	32		
731	PREHISTORIC/MODERN	1700	41	34		
747	UNKNOWNC	9	20			
914	LPII PIII		41	13		
942	PII PIII	225	13			
1033	PI	500	13	16		
1214	LPII-EPIII					
1370	UNKNOWN					
1391	PII PIII/NAVAJO					
1392	LPII					
1426	UNKNOWN					
1509	PII-PIII					
1546	LPII-EPIII					
1847	UNKNOWN					
1877	PII-PIII A.D. 1070-1					
1937	?					
2127	1100 - 1150					
2302	UNKNOWN					
2307	UNKNOWN					
2333	UNKNOWN					
2388	?					
2389	?					
2429	?					
2546	PIII					
2602	UNKNOWN					
2640	PII					

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Table 1 (cont'd.)
SITE TYPE - BLDG. STONE QUARRY

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
192	PII PIII		28			
264	PII PIII		28	32		
295	HISTORIC	120	28			
309	HISTORIC NAVAJO	462	28			
402	UNKNOWN	25000	28			
1040	UNKNOWN	250	20			
1758	UNKNOWN					
1787	UNKNOWN					
1797	UNKNOWN					
1814	UNKNOWN					
1828	LPII					
1842	UNKNOWN					
1879	?					
2165	PII - III					
2188	?					
2666	NAVAJO					

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Table 1 (cont'd.)

SITE TYPE - SHRINE

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
299	UNKNOWN	75000	31	32		
1423	UNKNOWN					
1618	UNKNOWN					
1796	UNKNOWN					
1918	ANAS/HOPI UNKNOWN					
1950	14 - 15TH CENTURY					
2201	?					
2322	UNKNOWN					

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Table 1 (cont'd.)

SITE TYPE - ROCK ART - ISOLATED

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
161	UNKNOWN		9			
308	HISTORIC NAVAJO	29900	9	31		
660	UNKNOWN	150	9			
775	PREHISTORIC & NAVAJO	100	9			
785	UNKNOWN PREHISTORIC	6	9			
835	UNKNOWN PREHISTORIC	1700	9			
1678	UNKNOWN 20TH CENTURY					
1747	UNKNOWN					
1763	UNCERTAIN					
1767	UNKNOWN					
1803	UNKNOWN					
1815	NAVAJO-CA. 1920'S					
1834	UNC PREH, NAV CA1930					
1845	UNKNOWN					
2056	?					
2121	?					
2179	?					
2434	?					

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Table 1 (cont'd.)

SITE TYPE - BURIAL AREA

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
79	LPII EPIII		29			
961	PII PIII	816	13			
1495	EPIII					
1953	1050-1250					

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Table 1 (cont'd.)

SITE TYPE - ISOLATED ARTIFACTS OF SPECIAL SIGNIFICANCE

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1340	CLOIS					
1603	UNKNOWN					

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SITE TYPE - RESIDENTIAL

TABLE 2

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
298	HISTORIC NAVAJO	1600	4			
303	HISTORIC NAVAJO	3900	4	8	10	
306	NAVAJO	29452	5			
314	HISTORIC NAVAJO	30000	4	41		
745	NAVAJO	42500	4			
766	NAVAJO	6960	4			
767	NAVAJO	7320	35			
770	NAVAJO	18150	4			
773	NAVAJO	189	41	21		
774	NAVAJO	225	41			
789	NAVAJO	500	4			
815	NAVAJO	1300	4			
816	NAVAJO	3720	4			
825	NAVAJO	2280	4			
841	NAVAJO	8000	4			
1024	20 TH CENTURY	15600	4			
1028	UNKNOWN/HISTORIC	400	4			
1029	20TH CENTURY	1316	4			
1030	PII HISTORIC	4125	4			
1049	UNKNOWN	2500	4	36		
1394	NAVAJO-1930'S					
1412	NAVAJO-1930'S					
1489	HISTORIC					
1514	HISTORIC					
1515	HISTORIC					
1526	HISTORIC NAVAJO					
1586	EPII-EPIII					
1675	HISTORIC					
1678	UNKNOWN 20TH CENTURY					
1696	LATE 19/EARLY 20 CEN					
1710	NAVAJO, 1930'S					
1780	NAVAJO-PRE-W.W.I?					
1783	NAVAJO-CA. 1920-1930					
1789	NAVAJO-POST W.W.I					
1815	NAVAJO-CA. 1920'S					
1829	NAVAJO-CA. 1930'S					
1834	UNC PREH, NAV CA1930					
1837	NAVAJO-CA 1940-1950S					
1848	NAVAJO, 1920'S - 193					
1857	NAVAJO-POST 1870					
1858	NAVAJO-POST 1870					
2269	1050-1200 NAVAJO					
2290	?-PROB. NAVAJO					
2300	20TH CENTURY					
2303	1940'S - 1960'S					
2393	?					
2423	NAVAJO POST 1900					
2440	NAVAJO ?					

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Table 2 (cont'd.)

SITE TYPE - SWEATLODGES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
10	MODERN NAVAJO		11			
769	NAVAJO	1750	11			
822	NAVAJO	90	11			
1031	UNKNOWN HISTORIC	21	11			
1766	NAVAJO					
1781	NAVAJO-CA. 1930					

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Table 2 (cont'd.)

SITE TYPE - TEMPORARY CAMPS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
311	HISTORIC NAVAJO	644	4			
422	HISTORIC NAVAJO	980	4			
713	NAVAJO	3000	20	34	17	
1044	EARLY 1900'S	3600	5			

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Table 2 (cont'd.)

SITE TYPE - ISOLATED LIVESTOCK MANAGEMENT FACILITIES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
304	HISTORIC NAVAJO	2294	8	10		
307	NAVAJO	22100	5			
1070	PROBABLE NAVAJO	80	41			
1073	NAVAJO	30	20			
1483	NAVAJO 20TH CENTURY					
1608	HISTORIC NAVAHO					
1788	NAVAJO-CA 1920-1930?					
1826	NAVAJO					
1925	20TH CENTURY					
2045	L 19TH - E 20TH CENT					
2049	L 19TH - E 20TH CENT					
2051	1930'S ?					
2066	1930'S					
2341	NAVAJO 1940'S - ?					
2379	PIII NAVAJO ?					
2424	NAVAJO, ?					
2551	PII-PIII & HISTORIC					
2649	NAVAJO					

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Table 2 (cont'd.)

SITE TYPE - HISTORIC WATER CONTROL FACILITIES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
294	HISTORIC	650	9	17		
307	NAVAJO	22100	5			
658	HISTORIC NAVAJO	10800	20			
728	NAVAJO?	340	17			
842	NAVAJO	3872	41	19	18	
843	NAVAJO	18920	19			
1498	HISTORIC NPS?					
1725	1930'S					
2304	1940'S - 1960'S ?					
2305	NAVAJO 1940'S - 1960					

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Table 2 (cont'd.)

SITE TYPE - ISOLATED HISTORIC DUMPS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
1050	1930'S-1950'S	25	34			

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Table 2 (cont'd.)

SITE TYPE - HISTORIC PETROGLYPHS

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
308	HISTORIC NAVAJO	29900	9	31		
653	HISTORIC	230	9	31		
720	NAVAJO & MODERN	60000	21	9	17	
775	PREHISTORIC & NAVAJO	100	9			
834	PII PIII & NAVAJO	180000	9	8	20	
838	PREHISTORIC & NAVAJ	0	41	9		
1467	LPII-EPIII					
1747	UNKNOWN					
1769	LPII-MIDPIII/CA 1930					
2309	NAVAJO ?					
2342	NAVAJO - ?					

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Table 2 (cont'd.)

SITE TYPE - SITES ASSOCIATED WITH BLACK FALLS CROSSING

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
4	MODERN NAVAJO		5			
5	HISTORIC NAVAJO		5			
6	MODERN NAVAJO		5			
9	MODERN NAVAJO		4			
18	MODERN NAVAJO		35			
19	NAVAJO		7	32		
20	NAVAJO/PREHISTORIC		32			
22	HISTORIC NAVAJO		5			

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Table 2 (cont'd.)

SITE TYPE - SITES OF UNKNOWN FUNCTION

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
62	LPII HISTORIC NAVAJO		8	4		
129	HISTORIC NAVAJO		5			
130	HISTORIC NAVAJO OR P		7			
153	HISTORIC NAVAJO/PII		41	32	9	
290	HISTORIC NAVAJO	63	8			
296	HISTORIC NAVAJO	9	11			
310	HISTORIC	1750	40			
339	HISTORIC NAVAJO	16	41			
347	HISTORIC NAVAJO	2000	41	13		
379	HISTORIC NAVAJO	5160	41			
628	HISTORIC NAVAJO	12000	41			
629	HISTORIC NAVAJO	7000	33			
703	NAVAJO	644	23			
716	NAVAJO	2200	40	20	34	
752	PII PIII & NAVAJO	12500	8			
754	NAVAJO	2400	35			
768	NAVAJO	1750	8			
820	NAVAJO OR MODERN	2100	40			
826	NAVAJO	600	8			
827	NAVAJO	26400	8			
828	NAVAJO	18400	33			
916	LPIIPIII	3600	1			
1053	UNKNOWN LATE 1800'S?	12	4			
1055	1930?	1425	8			
1057	?	1500	4	8		
1222	NPS HISTORIC?					
1417	NAVAJO - MID- 20TH C					
1476	PII-PIII HISTORIC					
1482	MODERN/LPIII-EPIII					
1493	HISTORIC					
1537	PIII & HISTORIC					
1602	HISTORIC/LPII					
1631	LATE PII/HISTORIC					
1776	NAVAJO-PRE 1940'S					
1817	UNKNOWN					
1888	?					
2121	?					
2212	?					
2261	NAVAJO					
2262	NAVAJO					
2295	?					
2296	PII - III NAVAJO					
2299	20TH CENTURY					
2302	UNKNOWN					
2307	UNKNOWN					
2312	1920'S - 50'S ?					
2318	LPII - PIII NAVAJO,					
2343	NAVAJO - ?					
2377	LPII - PIII, NAVAJO,					
2431	POST 1940'S					
2437	NAVAJO, ?					

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Table 2 (cont'd.)

SITE TYPE - MISC. OTHER HISTORIC SITES

SITE#	PERIOD	SQ. METERS	FEAT1	FEAT2	FEAT3	FEAT4
309	HISTORIC NAVAJO	462	28			
368	HISTORIC NAVAJO	150	42	21		
403	HISTORIC NAVAJO	18000	42			
1505	PII/HISTORIC					
1812	UNKNOWN					
1918	ANAS/HOPI UNKNOWN					
2356	NAVAJO ?					

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TABLE 3: Previous Research in Wupatki National Monument

1851 Ruins in WNM described by Lorenzo Sitgreaves during a military expedition down the Little Colorado River.

1885 Ruins in WNM visited and described by Major John Wesley Powell as part of his study of the connection between prehistoric ruins and local tribes.

1900 Jesse Walter Fewkes photographed and mapped the larger ruins. He also conducted excavations, although the nature and extent of these is not known, however several graves were opened (Downum 1988:58).

1923 Samual A. Barrett, director of the Milwaukee Public Museum, surveyed, made collections, and excavated in a burial ground near the Citadel (Barrett 1927 - see Downum 1988).

1924 Wupatki National Monument is created through the efforts of Harold S. Colton, J.C. Clarke, and Samual A. Barrett.

1926-27 Rooms 35, 36, and 45 at Wupatki Pueblo are excavated by Andrew E. Douglass, Harold S. Colton and J.C. Clarke. The purpose of the excavations was to recover specimens for Douglass's study of archaeological tree-ring dates. No report of the expedition was ever produced.

1931 L.L. Hargrave of the Musuem of Northern Arizona excavated the Heiser Springs pithouses (NA1754). No report was produced, but record of the work is on file at the Museum of Northern Arizona (Hargrave 1931b:3, 1933v:55-67 - see Downum pp. 116-117).

1933 L.L. Hargrave and Harold Colton excavate at Wupatki Pueblo (Hargrave 1933:24-24). Fourteen rooms and the amphitheater were excavated. Work was completed by the Civil Works Administration, based on a proposal by Harold Colton (1933). Work continued into 1934, and 21 additional rooms were excavated. Notes of the CWA works are at the Museum of Northern Arizona.

A. Ten Broeck Williamson and James W. Brewer excavated two structures at NA2765 (A and B), just below Wupatki Pueblo (Williamson 1933). NA2765A was a pithouse, while NA2765B was later discovered to be an Anasazi kiva (Voll 1965).

Excavation of Nalakihu Pueblo began in December. The excavations were directed by Dale King (1949). The area around the Citadel was surveyed by Charlie Steen.

1936 Room 7 in Wupatki Pueblo was excavated by Erik K. Reed and James W. Brewer (Reed and Brewer 1937; Reed 1939). The room was to be used as an on-site display.

1937 The boundaries of Wupatki National Monument were expanded.

1940-41 Rooms 11 and 12 in Wupatki Pueblo were excavated by Ranger David L. Jones. No report of the excavation made and the field notes are missing.

1944 Ben H. Thompson, Chief of the Branch of Lands for the the National Park Service, and Philip F. Van Cleave, Custodian of Wupatki, surveyed the extension of the Monument boundary that had been made in 1937 (Thompson 1945).

1948 Watson Smith led an archaeological expedition for the Museum of Northern Arizona in the Big Hawk Valley on the western edge of the Monument (Smith 1952). The project surveyed 3 square miles, recording 59 sites. Three Anasazi Pueblo III sites were excavated: NA680, NA681, and NA682 (The House of Tragedy). Another Sinagua site, NA618 was also excavated. In addition, two talus slope structures, and two structures at Crack-in-the-Rock Pueblo (one a kiva) were also excavated.

1953 George Cattanach of the Museum of Northern Arizona excavated NA5701 and NA5702 near Wupatki Pueblo. Both were one-room field houses near arable land (Bradley 1959).

1957 Zorro Bradley excavated NA6301, a one-room field house, for the Museum of Northern Arizona (Bradley 1959).

1961 The Museum of Northern Arizona and the Rand Corporation jointly sponsored an investigation of the Wupatki blowhole system. Site NA7824, located near a blowhole, was excavated (Schley 1962). The project was trying to determine the relationship between the blowhole system and prehistoric sites.

1963 Michael B. Stanislawski completed an extensive study of the architecture and material culture of Wupatki Pueblo as a doctoral study for the University of Arizona (Stanlawski 1963).

1965 The Ball Court at Wupatki Pueblo was excavated by Alexander J. Lindsay and George J. Gummerman for the Musuem of Northern Arizona (Lindsay 1965). The kiva excavated in 1933, NA2765B, was reexcavated.

1968 National Park Service employees excavated NA2077, a one-room field house near Wupatki Pueblo (Ward 1976). It may be a pre-eruptive site.

1973 Dana Hartman and James Bradford excavated a burial at NA12512, a small alcove site near the Citadel (Hartman 1973).

1977 An archaeological assessment of Wupatki National Monument is produced by the Museum of Northern Arizona (Hartman and Wolf 1977).

1981-87 The National Park Service conducted a complete inventory survey of Wupatki National Monument under the direction of Bruce A. Anderson (Anderson 1990).

1989 Northern Arizona University excavated site WS 1437 as part of a field school (Brown 1989).

Events typified by sites within the monument include: 1) population movement; 2) prehistoric and historic cultural interaction; and 3) cultural and economic response to environmental change. Architecture at WNM represents several cultural styles, exhibits a number of unusual features, and includes the northernmost Sinagua sites. Some sites show a unique blending of architectural traits from several cultures. The cultural remains at WNM have physical, cultural, and stratigraphic integrity that permit the investigation of a number of archeologically important topics including: 1) the nature and magnitude of population movements; 2) the definition of cultural boundaries; 3) the nature of interactions between cultural groups forced together through immigration into the same area; 4) cultural response to environmental change; 5) functional differences between large and small sites; 6) methods of agricultural intensification in marginal environmental; 7) regional abandonment; and 8) nineteenth and early twentieth century Navajo use of the landscape.

HISTORIC CONTEXT: CULTURAL INTERACTION AT WNM

The Prehistoric Period: Population Movement, Cultural Borrowing, and Socioeconomic Adjustments

The eleventh through thirteenth centuries in the Flagstaff area and throughout the northern Southwest were times of dramatic population movement, cultural interaction, and changing environmental conditions. Wilcox (n.d.) suggests the eleventh century expansion of the Chacoan system caused peripheral groups, such as the Kayenta Anasazi, to become increasingly isolated. As a result, they expanded into previous "no man's lands" linking up with neighbors to the west and south. WNM is at the junction of the Sinagua, the Kayenta Anasazi, and the Cohonina culture areas and provides clear archeological evidence of the movement and interaction of these cultural groups. The eruption of Sunset Crater in the middle eleventh century drastically changed environmental conditions for the Flagstaff area in the following two centuries.

Before the eruption of Sunset Crater, the Kayenta occupied most of northeastern Arizona and apparently stayed primarily to the north of the Little Colorado River (Hartman and Wolf 1977:15). The Cohonina lived north and west of the San Francisco Peaks, while the Sinagua lived south and east of the Peaks. Changing social conditions caused by the expansion and decline of regional socioeconomic systems and the eruption of Sunset Crater in A.D. 1064 apparently erased traditional cultural boundaries, as marginal areas, such as WNM, became favorable for agriculture.

The prehistory of the Flagstaff region was defined primarily by Harold S. Colton, based partly on his work at sites in WNM. In 1946 Colton produced a volume that is still the definitive work on the archeology of the Flagstaff area. In this volume he defined the Sinagua as a group that once occupied the area covered by volcanic ash from Sunset Crater. He recognized that the post-eruptive sites in the ash fall area exhibit many traits representative of other cultural areas and suggests the immigration and interaction of cultural groups as a result of that eruption. Colton's (1946) synthesis provides the first comprehensive description of many of the sites in WNM, which is at the extreme northern end of the Flagstaff area. Colton found that the ceramics and architecture of WNM sites indicate Sinagua, Kayenta Anasazi, and Cohonina cultural affiliations. The presence of individuals from other cultures, such as the Hohokam and the Prescott, are suggested at some sites as well. His contributions, then, include development of a temporal and spatial framework for the region, recognition of the Sinagua and Cohonina as a distinct prehistoric cultural groups, delineation of the date of eruption of Sunset Crater, and the proposition that the eruption of Sunset Crater was the stimulus of culture change in the Flagstaff area. Colton's work was so intensive and wide-ranging, and his explanation of prehistoric events and processes was so well reasoned, that they have been re-examined only recently (Pilles 1979; Wilson 1969). Many of his theories still provide the best explanation of events in WNM.

The cultural sequence presented herein is based on that developed by Colton for the Sinagua, the cultural group that occupied much of the Flagstaff area, but also covers cultural developments in the Kayenta and Cohonina regions. In discussing the Kayenta Anasazi, special emphasis is placed on the cultural sequence of the Black Mesa area that has been suggested as the homeland of the WNM post-eruptive Kayenta population (Downum and Sullivan 1990:85) and is the most recently examined and best known Kayenta area. The abandonment of Black Mesa and the movement of Kayenta populations into WNM were part of widespread movements of Anasazi peoples throughout the northern Southwest in the twelfth and thirteenth centuries. The Cohonina are the most poorly known cultural group represented at WNM and are only included peripherally in the following discussion. Their presence is suggested primarily by the occurrence of San Francisco Gray Ware ceramics, which are not dominant at any large site in WNM (Hartman and Wolf 1977:17).

Colton's cultural sequence for the Sinagua begins with a little known aceramic period (pre-A.D. 500) and then is segmented by the eruption of Sunset Crater into pre-eruptive (A.D. 500-1064) and post-eruptive periods (A.D. 1064-1400). The aceramic and pre-eruptive periods are represented poorly in WNM. The post-eruptive period consists of five phases, some contemporaneous, and only one of which, the Elden Phase (A.D. 1120/30-1210/20), is well represented at WNM. In the Kayenta sequence, only the Pueblo III period (A.D. 1100-1300) is represented at WNM; it coincides with the Elden phase of the

Sinagua sequence. Nonetheless, the earlier Pueblo II and transitional Pueblo II/Pueblo III periods (A.D. 1050-1150) also are of interest for it was during these times that Kayenta peoples emigrated to WNM. The poorly known Cohonina sequence includes three "foci," only one of which, the Medicine Valley focus (A.D. 900-1120), is represented at WNM (Colton 1946).

The Aceramic Period

Crude chipped stone artifacts and debitage found on terraces above the Little Colorado River represent the remains of the "Tolchalco Complex" (Bartlett 1942, 1943, cited in Wilson 1969:11). The temporal and cultural associations of these artifacts are unknown. Wilson (1969:11) notes that these specimens could date anywhere from Paleoindian to historic times. Chipped stone scatters also have been recorded in other parts of the Flagstaff area. A partial Clovis projectile point from a collection near Winslow (Wilson 1969:12) indicates occupation of the area during the Paleoindian period (9500 - 6500 B.C.), a period characterized by the hunting of both large extinct and modern fauna forms (Cordell 1984). Other recognizable tool forms were found, including projectile points, scrapers, knives, and drills (Wilson 1969:12). These assemblages have been associated with a "Pinto-Chiricahua-Amargosa II" chipped stone industry (McNutt and Euler 1966:418, cited in Wilson 1969:12). Although the Chiricahua-Amargosa II phase is associated with the Archaic occupation of the Southwest (6500 B.C. to A.D. 1), it is otherwise poorly dated.

The Aceramic Period at WNM. Only three sites at WNM are chipped stone scatters without ceramics, although small numbers of lithic debitage, cores, and hammerstones are found widely distributed on the Colorado River terraces (Downum and Sullivan 1990:17). A single isolated Clovis projectile point (WS 1340) suggests Paleoindian use of the area between 9500 and 9000 B.C. (Haynes 1970, cited in Cordell 1984:131). Several projectile points recovered from WNM sites are Archaic in form, although they appear to have been scavenged and reused by later Pueblo populations (Anderson and McDonald 1990). The temporal and cultural association of the lithic scatters is unknown.

The Pre-eruptive Period

During the Pre-Eruptive period in the Flagstaff area, cultural developments outside the region set the stage for the major population movements and cultural interaction that characterized the post-eruptive period. Environmental conditions did not change dramatically as in the post-eruptive period, but pre-eruptive groups did respond to environmental fluctuation by shifting the location of their settlements within the region. The pre-eruptive period consists of three Sinagua tradition phases: the Cinder Park (A.D. 500-700), Sunset (A.D. 700-900), and Rio de Flag (A.D. 900-1064) (Pilles 1979:460). These three phases correlate with the Basketmaker III, Pueblo I, and early Pueblo II periods of the Kayenta Anasazi sequence. It was during the Pueblo II period (A.D. 900-1150) that the Chacoan System developed, expanded and declined in northwestern New Mexico, eventually causing population movement and unprecedented cultural interaction throughout the northern Southwest (Wilcox n.d.).

Pilles (1979:460-461) notes the similarity in ceramics, architectural styles, settlement plans, and subsistence strategies in the three Sinagua phases (Cinder Park, Sunset, and Rio de Flag). Pre-eruptive settlements in the Flagstaff area occur along the margins of large intercone basins or parks (Pilles 1979:463). The sites are in areas that are now transitional between ponderosa pine and piñon juniper forests, allowing inhabitants to exploit the resources of two environmental zones and use the parkland for agriculture. After A.D. 900, during the Rio de Flag phase, the climate became warmer and dryer, and settlement shifted to moister parks at higher elevations along the flanks of Mount Elden and the San Francisco Peaks where springs were located.

Parklands contain some of the best arable land in the region, and settlement around parks suggests that agriculture was an important part of the pre-eruptive subsistence base (Pilles 1979). Agricultural strategies in these areas could have included both dry farming in the center of the parks and floodwater farming at points along the edge where small washes enter. Masonry fieldhouses located away from parks, and sometimes associated with checkdams or irrigation ditches, indicate agriculture was pursued outside park areas as well (Pilles 1979:463).

Pre-eruptive domestic architecture consists of pit structures that show considerable variation in form and construction techniques (Pilles 1979:461). Typical forms are circular or sub-square with four or six-post roof supports and a lateral entry or antechamber. During the Rio de Flag phase, small masonry storage rooms occasionally are found associated with pit structures and often in isolation away from domestic structures where they apparently functioned as fieldhouses (Colton and Colton 1918:124-125, 1946:38-39; Pilles 1978, cited in Pilles 1979:461). The presence of these surface structures suggests influence from the Kayenta Anasazi area where surface structures developed earlier.

Ceramics associated with each of the three pre-eruptive phases consist of locally made Rio de Flag Brown Ware with admixtures of intrusive sherds from other areas. Almost all of the intrusive sherds are from the Kayenta Anasazi area, indicating connections with this area during the pre-eruptive period. Kayenta types included Kana'a Black-on-White, Deadman's Black-on-Red, Black Mesa Black-on-White, and Deadman's Black-on-White. Trade connections established between the Sinagua in the Flagstaff area and groups in the Kayenta area during the pre-eruptive period may have facilitated the movement of Kayenta populations into the area during the post-eruptive period.

The Pre-Eruptive Period at WNM. There is little evidence of a pre-eruptive occupation at WNM, and use of the area apparently was sporadic. During the recent inventory survey by NPS personnel (Anderson 1990), only two sites exhibit a combination of decorated or undecorated sherds that placed them securely in the pre-eruptive period (Downum and Sullivan 1990:82). For the entire monument, pre-eruptive sherd types constitute less than .2 percent of the total recorded sherds. Downum and Sullivan (1990:82) conclude that occupation and land use by prehistoric peoples during this period was rare. Ward (1976) identifies site NA2077, a one-room fieldhouse located near Wupatki Pueblo, as pre-eruptive. His temporal assignment is based on the position of a layer of volcanic ash and a single sherd of Rio de Flag Brown Ware located on the floor of the structure. Ward (1976:12) assigns the structure to the Rio de Flag Phase and dismisses almost 200 sherds found in the fill that are of types that postdate the eruption. Hartman and Wolf (1977:9) question Ward's temporal assignment, implying that the site is probably post-eruptive.

The Post-eruptive Period

During the late eleventh century and throughout much of the twelfth century, population increased in the Flagstaff area, which suggests population movement into the region from other areas (Colton 1946:260-266). Population increase in the Flagstaff area was tied to population movements throughout the northern Southwest, stimulated by the expansion and decline of the Chacoan and other socioeconomics regional systems and changing environmental conditions (Cordell 1984; Wilcox n.d.). Some areas, such as Chaco Canyon and Black Mesa, were abandoned while others, such as Mesa Verde and Flagstaff regions, received population. Population decline in the Flagstaff area during the late thirteenth and throughout the fourteenth centuries was part of a continuing trend toward population movement and aggregation into large sites (Wilson 1969). Similar patterns are evident throughout the Southwest (Cordell 1984).

Five phases have been defined for the post-eruptive Sinagua in the Flagstaff region: Winona-Angell (A.D. 1064 - 1100), Padre (A.D. 1100 - 1120), Elden (A.D. 1120/30 - 1200/10), Turkey Hill (A.D. 1210 - 1300), and Clear Creek (A.D. 1300 - 1400). Colton (1946:260-266) feels that population increased in the Flagstaff area during the initial three phases of the post-eruptive period as a result of a "land rush" after the beneficial agricultural properties of the Sunset Crater ash fall were discovered. Immigrants came from all directions "until a teeming population of over four thousand souls....occupied almost every well drained ridge or rise of ground..." (Colton 1937b, cited in Downum 1988:188). Colton feels immigrants to the area coexisted peacefully and profitably, mingling architectural, technological, and religious traits. Population in the Flagstaff area apparently decreased rapidly after the Elden phase, and Colton explains the decline primarily as the result of overcultivation and erosion of the ash and cinders (Colton 1932f:45, cited in Downum 1988:192).

The Winona-Angell phase originally was defined as two separate, but contemporaneous, phases with indistinguishable ceramic associations (Colton 1946:270). The distinction between the two consists entirely of architectural details. Because these two types of pit structures could not be separated temporally, and even occur in the same settlement, they have been combined by recent scholars (Wilson 1969:19). Winona-Angell phase sites are found almost exclusively in an area about 24 km (15 miles) east of Flagstaff.

Pottery types associated with Winona-Angell phase sites consist of several newly developed local brown wares, including Winona Brown, several minor brown ware varieties (Wilson 1969:20), and Sunset Red (tempered with cinders from the Sunset volcanic eruption). The influence or presence of other cultures is apparent both in locally made pottery and intrusive sherds. Indigenous pottery shows several Hohokam traits, including the characteristic Gila shoulder. Apparently, Hohokam Red-on-Buff ceramics were even manufactured in the Winona area for a short time. Ceramics types characteristic of the Anasazi include Black Mesa Black-on-White, while Cohonina ceramics include Deadmans Black-on-Grey (Anderson 1969:20).

A number of other nonceramic features introduced during the Winona-Angell phase suggest Hohokam influence, but the kind and degree of that influence has been questioned by Southwestern archeologists. Hohokam traits found in the Sinagua area included small, Casa Grande style ball courts that apparently were in use between A.D. 1070 and 1150, at a time when ballcourts in the Hohokam core area to the south were falling into disuse (Wilson 1969:20). Cremations, shell artifacts, paint palettes, and other artifacts are suggestive of Hohokam connections. Originally, it was assumed these traits

indicated migration of Hohokam peoples into the Flagstaff area (Downum 1988:174; Wilson 1969:21), but some scholars have questioned this assumption (Fish et al. 1980).

Padre phase sites occur in a limited area near where Winona-Angell phase sites are recorded. Padre phase sites consist of pit structures and surface masonry pueblos. Pit structures are a direct development of the deep timber pithouses of the Rio de Flag phase; they are deep, and have masonry walls, ventilators, and a roof supported by a single ridge pole (Colton 1946:270). Colton (1946:270) believes that Padre phase pit structures show a mingling of traits from several cultures: masonry from the Anasazi, depth and ventilator from the Sinagua, and roof construction from the Hohokam. In some cases, pit structures seemingly predate the surface structures (Wilson 1969:22).

The predominant ceramics associated with Padre phase pit structures are the locally made Sunset Red, while the most common imported ceramic in the assemblages is Black Mesa Black-on-White, a Kayenta Anasazi type (Wilson 1969:22). Other imported Anasazi types include Holbrook, Sosi, and Dogoszhi black-on-whites. Tusayan Black-on-Red and some early polychrome types (including Citadel Polychrome) also are found. Padre phase burials include both cremations and flexed inhumations. Ornamental shell and stone work is less common in Padre phase sites than in previous periods.

In the Kayenta region, cultural developments contemporary with the Winona/Angell and Padre phases are of interest because they may represent populations that eventually settled WNM during the subsequent Elden phase (Downum and Sullivan 1990:85). On Black Mesa during the Pueblo I and Pueblo II-III transition periods (A.D. 1050-1150), many sites exhibit a very formalized layout with masonry storage roomblocks, jacal surface dwellings, one or more kivas, and a midden area aligned on a northwest-southeast axis (Nichols and Smiley 1985:75). Specialized mealing rooms (either subterranean or aboveground structures) also are often present. Similar formalized sites are found in the Tsegi area of the Kayenta region (Dean 1970:148). Other sites of this period are less formalized. Ceramics associated with Pueblo II and Pueblo II-III transition sites include Black Mesa Black-on-white, Dogoszhi Black-on-white, Sosi Black-on-white, and Tusayan Corrugated. Many of these ceramic types are found at sites of this period in the Flagstaff area. After A.D. 1150 the Black Mesa area was abandoned, and population shifted to much larger sites in other parts of the Kayenta area such as Tsegi Canyon. Some later sites in WNM exhibit Kayenta-style architectural traits, although forms are not identical.

The Medicine Valley focus of the Cohonina sequence is contemporary with the Winona/Angell and Padre phases of the Sinagua sequence. Medicine Valley is the only Cohonina manifestation found in WNM (Colton 1946:17). Medicine Valley sites consist of shallow, irregular pit structures or deep masonry structures. Rectangular forts also have been found. San Francisco Mountain Gray Wares (Deadmans Gray, Deadman's Fugitive Red, and Deadman's Black-on-gray) are diagnostic ceramics of the Medicine Valley focus.

Population in the Flagstaff area peaked during the Elden phase (Colton 1949, 1960:104, cited in Wilson 1969:23), and sites show traits from several cultures. The multiroom masonry pueblo was the most common Sinagua architectural form (Colton 1946:271). Apparently, some provision for defense is indicated by the location of Elden phase pueblos. Although they are found on valley floors, or plains, they also occur on easily defended mesas or hilltops, or in caves or rockshelters as in the Walnut Canyon area. Outside rooms often show loopholes. Pueblos were built accretionally into a compact mass with no apparent predetermined layout (Wilson 1969:23; see also Burchett 1990). Sites range in size from a single room to more than 70 groundfloor rooms. Masonry varied in quality from carefully fitted sandstone blocks to rubble and basalt cobbles.

Many pueblos have two "wing" walls or plaza walls, which project from the main structure and may have functioned as windbreaks (Colton 1946:273). The patio-like area enclosed by these walls usually opens toward the east. Within the pueblo, T-shaped doorways are common, perhaps designed to let smoke escape from rooms while retaining heat. In addition, some rooms have ventilators, others have smoke vents near the ceiling line. Roof construction is similar to that in Padre phase pit structures: a single large beam across the short axis of the room with smaller beams resting on it, covered by layers of shakes, grass, and clay.

Sunset Red is still the predominant ceramic type on Elden phase sites and a new type, Turkey Hill Red, also appears (Wilson 1969:25). Ceramics from the Anasazi area are common in assemblages, including Sosi Black-on-white, Flagstaff Black-on-white, and Walnut Black-on-white. Other types found are Citadel Polychrome and Tusayan Black-on-Red. Cohonina ceramics are uncommon in Elden phase ceramic assemblages. Burials primarily are extended inhumations, although cremations occur (Wilson 1969:25).

In the Kayenta area, the Pueblo III period is characterized by the abandonment of some areas (including Black Mesa) and the construction of large pueblos in others, such as Tsegi Canyon (Cordell 1984:105). This was part of a similar pattern of population movement and aggregation into large sites that occurred throughout the Southwest after the twelfth century collapse of the Chacoan system. While the remains of Pueblo II villages in the Kayenta area contain two to six surface rooms and a few pit structures, the remains of Pueblo III villages range from 10 to 40 rooms, up to sites with 200 rooms (Martin and Plog 1973). Common village patterns consist of masonry rooms arranged around a courtyard or open plaza. Sometimes exterior walls contain loopholes, possibly for defense (Martin and Plog 1973:134). Pit structures were still constructed for habitation, although in other parts of the Anasazi area, they are assumed to have been used only for ceremonial purposes. Kivas are circular, masonry lined, and sometimes keyhole shaped.

Population in the Flagstaff area began to decline rapidly at the end of the Elden phase, after A.D. 1200, as population aggregated into a few large sites (Wilson 1969:25). Only a few sites have been found dating to the Turkey Hill phase, and no sites of the following Clear Creek phase (Wilson 1969) have been found. Turkey Hill sites include only Old Caves Pueblo (NA 72) and Turkey Hill Pueblo (NA 660), although occupation at Elden Pueblo (NA142) and Wupatki Pueblo (NA 405) may have continued into the beginning years of the Turkey Hill phase. These sites are all relatively large (compared with earlier sites) masonry pueblos with between 20 and 80 ground floor rooms. In contrast to the Elden phase, during the Turkey Hill phase, populations seemingly aggregated into a few large pueblos, with the area of occupation shifting toward the southeast (Wilson 1969:26). Outside the Flagstaff area to the southeast, several large sites were occupied: Chavez Pass North (NA658), Kinnikinnick Pueblo (NA 1629), and the Pollock Site (NA 4317). Although little is known of Turkey Hill phase sites, apparently they were constructed similarly to those of the Elden phase and consisted of multiple, linear tiers of rooms (Wilson 1969:26). Kivas definitely occur at several sites, some resembling kivas from the Hopi country and east-central Arizona. Apparently, ballcourts were no longer in use, however.

Alameda Brown Ware pottery is found in Turkey Hill phase sites, and a variety of types are found in different parts of the region, including Sunset Red, Turkey Hill Red, Grapevine Brown, Kinnikinnick Brown, and Chavez Brown (Colton 1955a, 1956b, cited in Wilson 1969:26). Anasazi pottery is primarily of Pueblo III styles, including Wupatki, Kayenta, and Walnut black-on-whites. Other types from the Kayenta and middle-upper Little Colorado area include Tusayan, Kayenta, Kiet Siel, and St. John's polychromes, Jeddito Black-on-Orange, and Tuwiuca Black-on-Orange (Wilson 1969:27).

The Post-Eruptive Period at WNM. Trends in WNM mirror those identified above for the Flagstaff region. Additionally, archaeological sites in WNM support Colton's theories of the influence of the Sunset Crater eruption on prehistoric populations. The post-eruptive period in WNM saw an abrupt and dramatic population influx by peoples of several cultural traditions who were responding to the environmental changes caused by the Sunset Crater eruption. Virtually all dated prehistoric sites recorded in the monument are assigned to the post-eruptive period, and the majority apparently were occupied after A.D. 1100 (Downum and Sullivan 1990:82). Of the 16 excavated sites, two date in the late eleventh century, but most others date after A.D. 1130. Population in WNM apparently rose sharply after A.D. 1100, and maximum population was reached in the following 100 years.

Sites in WNM serve as an important illustration of cultural response to environmental change. The eruption of Sunset Crater apparently improved agricultural conditions and encouraged populations to move into Wupatki Basin. The large number and variety of agricultural field systems recorded in the Monument (Anderson 1990) indicate that the area still required an enormous effort to make it viable for people reliant on cultivated crops.

Recorded and excavated sites in WNM suggest cultural dominance by Kayenta Anasazi groups during the Pueblo III period (A.D. 1100-1300) and by the Sinagua of the Elden Focus (A.D. 1120/30 - 1200/10). The interaction in WNM of these two cultures seems indisputable; the presence of individuals from the Cohonina culture in WNM seems likely. After A.D. 1220, population in the Monument declined rapidly, and there is no evidence of prehistoric occupation after A.D. 1275 (Downum and Sullivan 1990:82). Population movement into WNM and the later abandonment of that same area reflect a general pattern of population movement and aggregation into large sites that occurred in the Anasazi region during the twelfth and thirteenth centuries.

Only two excavated sites in WNM suggest occupation before A.D. 1100. At Heiser Springs (NA 1754) two of the three pit structures excavated date between A.D. 1070 and 1100/1125 (Colton 1946:128). Interestingly, ceramics associated with these structures suggest occupation by two different cultural groups: one pit structure by Cohonina peoples of the Medicine Valley Focus, and the other by Sinagua peoples of the Padre Focus. The other excavated site, possibly occupied before A.D. 1100, is NA2077, a small fieldhouse located near Wupatki Pueblo. Although Ward (1976) identifies NA2077 as pre-eruptive, his assignment is based on a single floor sherd. Almost 200 other sherds associated with the site suggest a Sinagua occupation between A.D. 1075 and 1150.

The remaining 14 excavated sites date after A.D. 1100 and show a remarkable mix of cultural affiliations. They can be divided into three cultural groups: Kayenta sites of the Pueblo III period; Sinagua sites of the Elden phase; and sites of mixed or undetermined cultural affiliation. Sites with Kayenta affiliations include Crack-in-Rock Ruin (Smith 1952); a later component of the Heiser Springs site (NA 1754), consisting of a pueblo and associated pit structure (Colton 1946:128-131); three small pueblos in the Big Hawk Valley, NA 680, NA 681, and NA 682 (Smith 1952); and two small fieldhouses located near Wupatki Ruin (NA 5701 and NA 5702 [Bradley 1959]). Sites of Sinagua affiliation include Wupatki Pueblo (Colton 1946: 55-63; Stanislawski 1963) and a small fieldhouse located about four miles northwest of that pueblo (Bradley 1959). Sites of mixed cultural affiliation include: Nalakihu (King 1949), which contains ceramic and architectural features characteristic of the Kayenta Anasazi, the Sinagua, the Prescott, and Winslow cultures; Three Courts Pueblo (NA 618 [Smith 1952]), which exhibits Sinagua architecture and has Cohonina pottery; and a burial (NA 12512) with associated Sinagua and Kayenta pottery in an alcove near the Citadel. Two sites lack information on cultural affiliation; NA 7824 (Schley 1962), located near a blowhole, and WS 142, located near Citadel Ruin.

Post-eruptive population increase and cultural interaction in WNM, first suggested by Colton (1946), was supported partially by the recent survey that permitted a broad view of the cultural and temporal affiliations of a large number of sites. Downum and Sullivan (1990), in a sophisticated analysis of ceramics from the survey, document a dramatic, but circumscribed, population explosion in WNM. They dispense with the traditional phase designations and suggest six temporal periods for prehistoric sites in the monument: Period 1, pre-A.D. 1064, the pre-eruptive phase; Period 2, 1064-1130; Period 3, 1130-1160; Period 4, 1160-1220; Period 5, 1220-1275; and Period 6, post-1275. Of the 2,397 prehistoric sites recorded in WNM, 977 belong to one or a combination of these periods. Downum and Sullivan (1990:12-13) found only two sites in Period 1, but then an enormous jump in the numbers of sites in Periods 2, 3, and 4 (n=723 sites, with 67 sites overlapping Periods 4 and 5). They document a sharp decline in sites during Period 5 (n=26, with 174 sites overlapping with other periods), and complete abandonment of WNM before Period 6 (n=0 sites).

Ceramics on sites recorded during the survey (see Anderson 1990) are dominated by Tusayan Gray Ware (59.1%), a type traditionally associated with occupation by Kayenta Anasazi populations. Downum and Sullivan (1990:84) state "Whether this fact indicates that settlement of the monument was primarily by 'Anasazi' populations or that Tusayan Gray Ware was simply the preferred trade ware at the northern periphery of the Flagstaff area is difficult to ascertain." Nonetheless, Downum and Sullivan suggest that a comparison of WNM ceramic frequencies with those from Walnut Canyon National Monument, less than 50 km to the south, suggests a cultural boundary. A recent survey of Walnut Canyon (Baldwin and Bremer 1986) indicates that 93 percent of the canyon's ceramic are Alameda Brown Ware, a type associated with the Sinagua. Downum and Sullivan (1990:85) suggest that Walnut Canyon was settled by people from the immediate Flagstaff area, while WNM may have been settled largely by Kayenta Anasazi populations. They note that Black Mesa, in the heart of the Kayenta Anasazi area, was depopulated after A.D. 1130 and was perhaps a source for population in WNM.

Downum and Sullivan (1990:85) also found ceramics representative of cultures other than the Kayenta. "Sinagua" sites with Alameda Brownware dominant concentrate around Wupatki Pueblo and along the southern boundary of the monument. The center of the Sinagua culture area is south of WNM, and Wupatki Pueblo traditionally has been considered the northernmost Sinagua site. "Cohonina" sites with San Francisco Mountain Grey Ware dominate concentrate in the far western portion of WNM, in the direction of the center of Cohonina culture.

The Historic Period: Navajo-Anglo Interactions

The Athapaskans, of which the Navajo are a part, migrated to the Southwest from Canada between A.D. 1000 and 1500 (Brugge 1983:489). Early Spanish accounts describe them as a populous tribe that practiced some maize agriculture. These groups participated in the Pueblo Revolt of 1680 and sheltered fugitive Pueblo Indians during the Reconquest. Their contacts with Puebloan groups had important and permanent affects on their culture, including the introduction of sheep and goat herding (Bailey and Bailey 1986:16). Until this time, Navajo subsistence apparently had revolved around farming, hunting, and the gathering of wild plants (Bailey and Bailey 1986:13).

The Navajo, unlike the Puebloan groups in the Rio Grande Valley, did not submit to Spanish authority after the Reconquest and, in fact, in 1774 they succeeded in driving the Spanish out of the eastern portion of their territory. By the end of the eighteenth century, the Navajo had become increasingly dependent upon herding, possibly because constant warfare with the Utes and the Comanche made herding a safer subsistence practice than farming (Bailey and Bailey 1986:17). During the late eighteenth and early nineteenth centuries, the Navajo frequently raided Spanish settlements in New Mexico, and at the same time, became even more frequently the target of Spanish-American slave raids; warfare between Navajo and Spanish populations was almost constant.

As the Navajo economy turned toward herding, settlement patterns changed (Bailey and Bailey 1986:21). Where once a single, permanent camp near agricultural fields had been used, now separate winter and summer camps were occupied where stock could obtain water and forage. Raiding of Spanish-American settlements was a source of stock for the Navajo, thus both herding and raiding were part of the Navajo economic system. The Navajo were apparently successful during the first part of the nineteenth century; their population doubled or even tripled, and their herds of sheep and goats increased dramatically (Bailey and Bailey 1986:19). Nonetheless, they were still dependent to some degree on intensive farming, hunting, and gathering.

The Mexican-American War and the Treaty of Guadualupe-Hidalgo in 1848 brought Navajo territory under the United States government, and a new element was introduced into the relations between the Navajos and the Spanish (Brugge 1983:496). When the U.S. Army arrived in New Mexico Territory in 1846, personnel tried to be evenhanded but often sided with the Spanish New Mexicans. Although three treaties were signed between the U.S. and the Navajo Tribe by 1850, warfare continued between the Navajo and the Spanish New Mexicans.

Beginning in the late 1840s, relations between Navajos and Anglo Americans were marked by decades of discord and misunderstanding that extended into the twentieth century. In 1849 Navajo chief Narbona was shot in the back by men under the command of Col. John Washington after a dispute over a horse (Roessel 1983:506). This act set the tone for relations between the two groups for the next two decades. Numerous clashes occurred between Navajo and Anglos groups, with the Navajo generally the losers. Incidents include the Fort Fauntleroy massacre of 1861 in which 12 Navajo women and children were shot during a trip to the fort for rations (Roessel 1983:506-7). In 1858, after the black servant of a U.S. Army Captain was shot by a Navajo, the Army issued a formal declaration of war on the Navajo.

Spanish New Mexicans were accustomed to raiding the Navajo and using captives, especially women and children, as slaves (Roessel 1983:507). After the U. S. government became established in the territories, the New Mexicans had a vested interest in maintaining warfare between the government and the Navajo because it allowed them to continue the slave trade. Instead of calling on government troops to deal with Indian problems, volunteer companies were formed that apparently were less interested in putting down insurrections than in capturing slaves. Some of the difficulties between the Navajo and the Anglo can be attributed to the disruptive influence of the Spanish New Mexicans.

The most significant event in Navajo history was the Long Walk in the winter of 1864. The Navajo people were removed forcibly from their homeland in the Four-Corners area and re-established at Bosque Redondo near Fort Sumner in eastern New Mexico, more than 300 miles away (Roessel 1983). Bosque Redondo had poor water, no wood, and was subject to flooding (Roessel 1983:511); it proved to be a disastrous experiment. Drought and other natural catastrophes prevented the Navajo from raising crops, and disease among the Indian population was rampant. Finally, in July 1868, the Navajo were permitted to return to their homeland where a reservation was established for them. Their first reservation contained only a tiny portion of their original territory but was expanded significantly over the next 60 years.

The Navajo returned to their homeland destitute and for a number of years were dependent on rations (both food and livestock) dispensed by the U.S. Government and on hunting and gathering (Bailey and Bailey 1986). Nonetheless, their economic recovery was remarkably rapid. They quickly built up herds of livestock and re-established themselves in their homeland. The Navajo had learned more effective farming techniques while at Bosque Redondo, but still only farmed sporadically, depending on climatic condition (Bailey and Bailey 1986:47). Their population continued to increase, doubling to 18,000 between 1868 and 1892 (Bailey and Bailey 1986:73). Because the Navajo relied so heavily on their herds, they had to trade for other goods, which resulted in trade becoming an important part of their economy.

The southern transcontinental railroad was completed south of the Navajo reservation in 1881. The U.S. government granted the railroad a 50-mile-wide strip of land on either side of the tracks in all odd numbered sections of Arizona and New Mexico. As cattle ranchers arrived in the wake of railroad construction, railroad companies sold or bartered large tracts of this land to them. These sales frequently transferred land held by off-reservation Navajo into Anglo hands, leading to conflicts between the two groups. Furthermore, aggressive cattle ranchers competed with Navajo sheep herders for the use of public domain land (Bailey and Bailey 1986). The completion of the railroad also opened the area for traders, and the Navajo traded blankets and jewelry as well as animal products to trading posts.

After a disastrous drought between 1893 and 1900, and economic collapse throughout the U.S., the Navajo began to reorient their economy in the first decades of the twentieth century. Herding became a commercial rather than a subsistence activity, and weaving and silversmithing were oriented toward market production. Wage labor became more common. As a result of these changes, and the fact that the Navajo were becoming increasingly dependent on

manufactured goods, they soon came under the control of local Anglo traders. Many Navajo became indebted to the traders, a condition that existed until the 1970s (Aberle 1983:642). The U.S. government began to exert control over other aspects of Navajo life. For example, the government tried to force the Navajo to educate their children in Anglo schools, a move they resisted because, in part, it meant placement of children in distant boarding schools (Roessel 1983:520-522).

By the 1920s, both Navajo and Anglo populations had increased dramatically in the Four-Corners area, and competition for land intensified. Navajo herds grew to more than one million head. The Great Depression of the 1930s severely damaged Navajo economy, as the price of wool dropped. In the mid-1930s, the U.S. government instituted a program of livestock reduction on the Navajo Reservation to cope with problems of overgrazing.

The livestock reduction program is one of the most disturbing events in Navajo life since the Long Walk (Aberle 1983:643). The government placed arbitrary limits on the number of stock that could be held by each owner; excess stock was purchased at low prices by the government, and sometimes, if a buyer could not be found, the animals were destroyed on the spot (Aberle 1983:642). Many Navajo families were left impoverished by the livestock reduction program. Although some attempt was made to offer public works employment to those who lost livestock, this effort proved ineffective (Aberle 1983:643). Furthermore, the Navajo are a matrilineal society in which women own the family livestock and the government, ignoring native cultural practices, issued livestock permits to male "heads of households". This action proved disruptive to traditional Navajo social dynamics. The livestock reduction program created long-term economic problems for the Navajo and engendered bitter resentment against the U.S. government.

In a study of Navajo land use practices, Kelley (1986) found that between 1881 and 1930 population increase and orientation to the national market economy caused a decline in communal use of land by a number of households in favor of land use by individual households. She also found that as population grew, the number of tracts of land held by Navajos increased, but the size of each parcel shrank. Although they were still seasonally mobile, Navajo families moved less frequently across the landscape as the range was filled and subdivided. As a result, the size of residential settlements increased as residents occupied them for longer periods. The market economy also caused changes in domestic technology. The traditional forked-stick hogan, common in the nineteenth century, was almost entirely replaced by 1920 with the many-sided (cribbed-log) hogan or the rectangular house. The change apparently reflected a need for more space, both for an increasing number of possessions (especially manufactured goods), and for craft production (Kelley 1986:82).

The Navajo at Wupatki National Monument

After centuries of sporadic use or abandonment, WNM was reoccupied in the late 1860s by members of a Navajo family headed by Peshlakai Etsidi (1851-1939). The experiences of this long-lived man and his descendants provide a microcosmic view of the major events and trends in Navajo history. Peshlakai Etsidi participated in the Long Walk, the economic recovery of the late nineteenth century, and the conflicts with cattle owners over land during the railroad era. He and his family came to rely increasingly on local traders, especially those at Black Falls Crossing, and finally, Peshlakai was still alive when the livestock reduction program of the 1930s devastated the Navajo economy.

As Roberts (1990) notes, no aspect of Navajo history in WNM can be considered independent of their relations with the Anglo population with whom they share the area. Their economy, land use, and material culture were and are shaped by the dominant Anglo presence. The history of the Wupatki Navajo is known completely from ethnographic, archeological, and documentary sources (Euler 1949; Roberts 1990). Peshlakai Etsidi lived until 1939 and provided interviews; his descendants, some still living in WNM, have served as informants in ethnographic interviews. Anglo residents of WNM provided information on the Navajo population as well. Archeological sites produced by Peshlakai Etsidi and his family have been examined and land use patterns tracked. Extensive archival research has produced information on the Wupatki Navajo from sources as disparate as government files and personal correspondence. The following discussion of the history of the Wupatki Navajo is drawn from Roberts (1990).

Peshlakai Etsidi and his family escaped the first years of Bosque Redondo, but in 1867, finally made the "Long Walk" (Roberts 1990:10). Settlement of the Wupatki Basin began when Peshlakai Etsidi returned from Fort Sumner shortly after 1868. He married Baa' and her daughter by a previous marriage about 1880 and moved with them to Black Point, about 4 miles north of WNM, where Baa's family lived. During the next two decades, they established a large holding of livestock and had more than 10 acres of agricultural land under cultivation. The family became very prominent in the Little Colorado River area. A number of residential sites in WNM were used by Peshlakai Etsidi and members of his family during this period, presumably on a seasonal basis (Roberts 1990:Table 6.3).

In the early twentieth century, the agricultural land owned by Peshlakai Etsidi and his family at Black Point was taken over by the railroad. Peshlakai Etsidi applied for title to land on the Little Colorado River so that he might still have some arable land for agricultural use. He also applied for title to land on Antelope Prairie where his sons had constructed a rain-catchment reservoir. He and his family built hogans on the Antelope Prairie land, and farmed the land on the Little Colorado.

Unfortunately, the Little Colorado land was destroyed during a flood, and local Anglo cattle ranchers drove Peshlakai Etsidi and his family off the Antelope Prairie land.

Eventually, Peshlakai Etsidi and his family were reduced to occupation only in the barren and inhospitable Wupatki Basin. This group included four extended families who moved seasonally between established residences. Their economy was based on the sale of wool and lambs to traders at the Black Falls Trading Post and at other trading posts along Highway 89 (Hartman and Wolf 1977:22). In the winter, they lived in hogans near supplies of firewood, while summer residences were in shades or ramadas in the grazing areas.

These Wupatki Navajo were impoverished further by the Federal Stock Reduction Program of the mid-1930s. Both their livestock herds and agricultural fields were small and meager and rampant tuberculosis caused additional hardship. The creation of Wupatki National Monument brought the plight of the Wupatki Navajo to the attention of Harold S. Colton and the monument custodians. Colton, assisted by Phillip Johnson, son of a local missionary, began attempts to regain the Navajos traditional grazing lands. Although promises were made, the Black Point lands have not yet been returned to Navajo hands.

Anglo-Navajo relations during the 1920s and 1930s were not all acrimonious. During the 1930s, a series of Christmas parties held at WNM were attended by local Navajos fostering a spirit of goodwill between monument personnel and the Navajo. In 1936 the Navajo Craftsman Exhibition was held by the National Park Service with the co-operation of Harold S. Colton of the Museum of Northern Arizona. The monument exhibited Navajo crafts to Anglos who came from miles around and encouraged the revival of traditional Navajo craftwork. This event presaged the Navajo Show still held each year by the Museum of Northern Arizona.

Beginning about 1940, the National Park Service began to question the appropriateness of Navajo use of Wupatki National Monument. In the following decades, Navajo presence on the monument became an administrative problem for the National Park Service (NPS), and allegations that NPS personnel were pressuring the Navajo to leave the monument. The NPS refused to acknowledge the traditional claims on WNM by the Navajo who had used the area for almost a century. Eventually, an agreement was effected that permitted one family, that of the granddaughter of Peshlakai Etsidi, to remain on the monument. The agreement terminates with the death of the "head of household" and is not transferable to other family members.

Supporting Data For Significance Criteria

Criterion a)

Regional Migration. In the twelfth and thirteenth centuries, the Flagstaff region and other parts of the northern Southwest experienced major population movements. In the Flagstaff region, especially in WNM, the eruption of Sunset Crater created improved agricultural conditions that resulted in the movement of cultural groups into the area. Also contributing to area population movement was the early twelfth century collapse of the Chacoan system, which caused repercussions throughout the Southwest (Wilcox n.d.). These population movements are significant because they rearranged cultural groups, changed social interactions, and ultimately led to a major shift in settlement form and size, resulting in the large aggregated village of the Pueblo IV and historic periods.

Both of these events resulted in population decline in some areas and population increase in others. Throughout the Sinagua area, population increased during the early twelfth century, although the magnitude of that increase has been questioned (Colton 1946, Pilles 1979). During the same time period in the Kayenta region, Black Mesa was abandoned, but large, aggregated sites appeared in Tsegi Canyon.

Clearly, regional migrations are exemplified in WNM at this time. The pre-eruptive population in WNM was exceedingly sparse or non-existent, and the 2000-plus prehistoric sites recorded there (Table 1) date within a period of about 200 years, between A.D. 1064 and A.D. 1275. Most sites probably fall into a far more restricted range of 100 years between A.D. 1100 and 1200 (Downum and Sullivan 1990:82). Obviously there was a rapid influx of people into the area during the twelfth century. In all likelihood, the beneficial effect of the Sunset Crater ash was the determining factor in the settlement of WNM. Furthermore, many of the immigrants, particularly those from the Kayenta area, may have been responding to deteriorating social or environmental conditions in that region related to the Chacoan collapse.

After A.D. 1200, population movement throughout the northern Southwest became even more pronounced. Population aggregation into a few large sites has been documented for many areas of the Southwest (Cordell 1984) and has been reported for the southern part of the Sinagua area (Wilson 1969). Archeologists seem to agree that population declined rapidly in the Flagstaff area after A.D. 1200, although occupation of a few large sites continued in the southern part of the area until A.D. 1300. Colton explained the exodus as a result of the Sunset Crater ash layer, reasoning that aeolian processes and overcultivation would have removed the ash layer and leached out its vital minerals, leaving the area in very poor condition for agriculture. More recently, it has become apparent that the same social processes that caused population aggregation throughout the Southwest to begin with were also a factor in the movement of people out of the Flagstaff region. Wilcox (n.d.) suggests that an eventual effect of the collapse of the Chacoan system was the coalescence of population and stimulated cultural change that produced the modern Hopi.

The dramatic population decline observed in the Flagstaff region is mirrored in trends in WNM. Very few sites in WNM date after A.D. 1200. Apparently, populations that had existed in WNM for more than a century began retreating, perhaps as a result of declining agricultural productivity and/or because of changes in the balance of regional social relations. Former residents of WNM may have left to join groups aggregated into large sites elsewhere.

Cultural Interaction, Prehistoric. During the twelfth and thirteenth centuries, population movements in the northern Southwest caused dramatic changes in the frequency and nature of intercultural interactions. Populations who moved into the Flagstaff region apparently were members of different cultural groups, although whether distant cultural groups, such as the Chaco and Hohokam, migrated to the Flagstaff region or simply traded with or "influenced" local populations is debated (Colton 1946, Pilles 1979). The significance of changes in the nature of cultural interaction in the northern Southwest was that they seemingly broke down centuries-old cultural boundaries and permitted the formation of the new, larger, and more dynamic cultural groupings evident during the Pueblo IV and later periods.

The mingling of cultures at WNM may be the clearest archeological example of the sort of cultural interaction that was occurring not only in the Flagstaff region but throughout the northern Southwest at this time. The Sinagua are associated with Alameda Brown Ware ceramics, the Kayenta Anasazi with Tusayan Gray Ware ceramics, and the Cohonina with San Francisco Gray Ware ceramics. Most sites in WNM contain sherds of all three types, and individual cultural assignments for sites are based on the "dominant" type. Interestingly, some sites show comparable frequencies for all three types (King 1949).

Architectural traits also suggest cultural interaction among the populations occupying WNM. The Sinagua and Cohonina lived in pithouses until after the Sunset Crater eruption, but the Anasazi had long since begun building above ground structures. The assumption has been that the Sinagua and the Cohonina adopted the use of aboveground structures from the Kayenta Anasazi (Hartman and Wolf 1977), but many aboveground structures in WNM are attributed to actual Kayenta immigrants. In fact, all the large sites in the Monument seem to be of Kayenta Anasazi affiliation, except the Sinagua site of Wupatki Pueblo (Hartman and Wolf 1977:17). Anasazi style pit structures and Hohokam ballcourts also have been reported at WNM.

Clearly, groups representative of more than one culture used WNM in the 100 to 200 years after the eruption of Sunset Crater. The depth and nature of intercultural interaction at WNM are illustrative of similar interactions occurring in the Flagstaff area and throughout the northern Southwest.

Cultural Interactions, Navajo-Anglo. Navajo-Anglo interactions throughout the northern Southwest during the last part of the nineteenth century and the first half of the twentieth century were often antagonistic. Two events stand out as illustrations of this general theme: the Long Walk of the early 1860s, and the livestock reduction program of the 1930. These two events are significant because they had a dramatic, devastating and permanent effect on Navajo culture. The Wupatki Navajo participated in and were directly affected by both events and their subordinate position in dealings with Anglos represent those of Navajos throughout the northern Southwest during this period.

The association of the Wupatki Navajo with the important events of Navajo history are illustrated in the life of Peshlakai Etsidi, the first Navajo resident of WNM. He went on the Long Walk as a young boy (Roberts 1990). Like other Navajo, he and his family lost all their possessions during their incarceration and when they returned home in 1868, had to begin all over again. Peshlakai Etsidi and his wife Baa' eventually became very well-established in the WNM area building up large herds of livestock and keeping a large acreage in crops. However, as with Navajo in all parts of the northern Southwest, Peshlakai Etsidi and his family were increasingly pushed onto marginal land by surrounding Anglo populations, until the barren WNM, which had once formed only part of their large use area, became their primary grazing area. Peshlakai Etsidi was still alive during the livestock reductions of the 1930s, and this program resulted in a dramatic decline in economic position for his family.

Socio-Economic Response to Environmental Change. Prehistoric agricultural populations in the northern Southwest were faced with a marginal environment in which conditions changed frequently. The way in which they adapted to changing environmental conditions is one of the most significant aspects of the cultures of the Prehistoric Southwest. In the Flagstaff region, the eruption of Sunset Crater caused a dramatic change in regional environmental conditions. WNM shows the adaptation of agricultural populations to the most marginal portion of the Flagstaff area, and it provides evidence of the socio-economic response to the eruption. The eruption resulted in the distribution of volcanic ash and cinders over a wide area. Colton (1932e, cited in Downum 1988:180) was the first to suggest that the ash layer could have dramatically improved potential for prehistoric agriculture. In WNM, as many as three cultural groups may have responded to the altered environmental conditions produced by the eruption.

WNM provides abundant data on the nature of the socio-economic response to local environmental conditions. The recent survey of the monument recorded an enormous number of agricultural features, demonstrating beyond doubt the importance of agriculture to the post-eruptive immigrants to WNM. Travis (1990) identified 7 different types of agricultural field systems, including rock piles, simple field systems, bordered fields, bordered gardens, composite fields, terraced gardens, and terraced fields. Most of these field systems made elaborate use of the abundant volcanic rock in the area to create windbreaks, prevent erosion, delimit garden plots, or create field shelters. Furthermore, the most frequent site type in WNM is the single room, masonry structure (Downum and Sullivan 1990), most likely a field house. These feature show the numerous ways in which residents responded to environmental change by developing new methods of improving agricultural yield.

Criterion c)

Prehistoric sites at Wupatki National Monument have been recognized as possessing traits characteristic of the architectural styles of four cultural groups: the Sinagua, the Kayenta Anasazi, the Cohonina, and the Navajo. Significance also derives from the number of architectural styles represented in a relatively small area, a situation unique in the prehistoric Southwest. Also unique is the apparent mixing of those styles at some sites, indicating either contemporaneous or sequential occupation by more than one cultural group. The physical characteristics of sites reflect the wider trend of population movement throughout the Flagstaff region, a trend that was particularly important during the prehistoric period.

Wupatki Pueblo, the largest site in WNM, typifies the Sinagua architectural style. The pueblo has been called the northernmost Sinagua site in the Flagstaff region, representing the extension of Sinagua culture into the farthest reaches of the Flagstaff area. Concern for defense is a hallmark of many Sinagua sites, and Wupatki Pueblo illustrates this concern. The masonry structure is situated on an outcrop of red sandstone. Accretional construction of rectangular rooms into a compact mass is typical of Sinagua aboveground construction; two such roomblocks occur at Wupatki Pueblo. Unlike Anasazi sites of the period, the roomblocks at Wupatki Pueblo are not built around a plaza; to the west are wing walls that enclose plaza space, a common Sinagua architectural trait.

Characteristics signifying the cultural mixing that occurred in the Flagstaff region during this period can be observed at Wupatki Pueblo. A large, circular, masonry "dance plaza" is located east of the pueblo. Stanislawski (1963:518-521) suggests this structure was derived from the Chaco style Great Kivas, although there is no evidence the structure was roofed, nor was there evidence of the floor features associated with Great Kivas. More definite in cultural affiliation is a Hohokam style ballcourt located north of the roomblocks. Pilles (1979) and Fish and others (1980) link northern ballcourts to acceptance of a MesoAmerican ceremonial complex.

Sites in WNM also exhibit architecture representative of early Sinagua pit structures which are found throughout the Flagstaff region. These pit structures signify the coalescence of the Sinagua as a cultural group. One pit structure at the Heiser Springs site is representative of Padre phase construction (Colton 1946:128). The structure is large and rectangular, and has a masonry lining and a clay floor with a central firepit. In certain contexts, Padre phase pit

structures may have functioned as ceremonial structures, but the Heiser Springs pit structure does not fall into this category. Other Sinagua style pit structures excavated in WNM include two at site NA 618 (Three Courts Pueblo) in the Big Hawk Valley (Smith 1952), although the site also may have been occupied later by Kayenta Anasazi peoples.

A number of structures at WNM show architectural traits typical of Kayenta construction and signify the movement of Kayenta populations out of their traditional homelands into the Flagstaff area. One of the few excavated large Kayenta sites is Crack-in-Rock Pueblo, the northernmost site in the Flagstaff area. Two rooms were excavated at Crack-in-Rock (Smith 1952), one of which was determined to be a kiva with Kayenta-style floor features. The presence of a ceremonial room is indicative of Anasazi associations, as very few Sinagua ceremonial rooms have been identified. Small sites also show Kayenta style architectural traits. The earliest aboveground structure in WNM is a small pueblo and associated kiva built at Heiser Springs, presumably after Sinagua and Cohonina pit structures had been abandoned at the site (Colton 1946:128). Kayenta architectural features include the deep circular masonry-lined construction of the kiva. Presumably, the aboveground pueblo is Kayenta, because contemporaneous Sinagua structures are primarily pit structures.

A unique and highly significant feature of the architectural forms at WNM is that some sites show architectural traits of more than one culture, a characteristic extremely rare in the Southwest. One of these sites is Nalakihu, a small masonry pueblo located near the Citadel (King 1949). Although the architecture could be either Sinagua or Kayenta, the construction of a kiva late in the occupation of the site suggests an early occupation by Sinagua (who apparently did not construct special ceremonial rooms) and later occupation by the Kayenta, where kivas were a common architectural form.

The only excavated structure in the Monument that is clearly associated with Cohonina architectural styles is another of the Heiser Springs pit structures. The presence of this structure signals expansion of Cohonina populations into areas they had not occupied previously. Nonetheless, the absence of other Cohonina architecture here indicates a smaller population movement than suggested by the number of Kayenta or Sinagua sites. The Cohonina pit structure at Heiser Springs is shallow (3 ft. deep) and rectangular, with roof and walls of wood and brush, all traits associated with Cohonina structures (McGregor 1951). Colton places it with the Medicine Valley focus of the Cohonina sequence.

Navajo structures in WNM are recognized as possessing traits characteristic of Navajo architecture throughout the region (Jett and Spencer 1981). At Wupatki, additional significance is achieved because most structures can be traced directly to their original owners and builders (Roberts 1990). The numbers and types of structures recorded at WNM reflect the herding and farming land use patterns that developed after the Navajo returned from Fort Sumner; but they also reflect the restricted movements imposed on Navajos by the surrounding Anglo ranchers. Habitation structures recorded include forked-stick hogans, cribbed-log hogans, masonry hogans, and a stone house (see Jett and Spencer 1981 for description of these types). One Navajo hogan was unique (WS 1412); a ceremonial forked-stick hogan built for the first Navajo Craftsman Exhibition in 1936. The structure was extremely large and well constructed (18 ft. diameter, 14 ft. high) and remained standing into the 1950s when it was dismantled for firewood. Other structures representative of Navajo architectural styles and ceremonial activities include sweatlodges that are small structures used for taking purifying sweatbaths.

Criterion d)

The potential for scientific investigation and interpretation is determined primarily by the condition of the cultural resources within a particular area. The condition of cultural resources at WNM is excellent and the potential for scientific investigation and interpretation is enormous. Although pothunting occurred at some sites before the area attained status as a National Monument and surface material has been removed or disturbed in the years since, substantial subsurface materials remain undisturbed. Very few sites at WNM have been excavated, a total of less than 1% of the sites recorded during the recent survey, but those that have been excavated provided a wealth of information about the prehistoric occupation of the area. Excavations have confirmed the presence of artifactual and botanical remains, chronometric data, faunal assemblages, mortuary remains, and stratified deposits in rooms and extramural areas. Because they have been protected for almost 70 years, unexcavated sites in the monument retain excellent structural integrity implying comparable scientific materials will be discovered. A wide variety of site types, ranging from small field houses to large habitation sites, occur at WNM (Table 1), but excavated sites are in no way representative of the full spectrum of these site types. The research potential of sites in WNM has only begun to be tapped.

Numerous research issues can be addressed with the information that has been and could be derived from sites within WNM. Archeological materials from both future excavations and analyses of collections currently held could serve as a basis for a complete evaluation of Flagstaff area archeology, an endeavor which is long overdue. Work at most of the excavated sites was accomplished 40 or 50 years ago, and new techniques and methods of analysis would significantly increase archeological understanding of the area. Because WNM falls between several prehistoric cultures and clearly served as a zone of

cultural interaction, a new understanding of the surrounding areas, developed over the past few decades, would provide a basis for interpreting excavated sites and/or reanalyzing previous collections.

The most pressing research issues that can be addressed with materials from sites in WNM are presented below. These derive directly from the historical overview presented earlier in this section.

1. **The Nature and Magnitude of Population Movements.** The nature and magnitude of population movements in the Flagstaff area has recently been evaluated by some Flagstaff area archaeologists. Colton (1932) was the first to suggest that the Sunset Crater eruption had significantly improved conditions for prehistoric agriculture in the Flagstaff area and had caused a rush of people into the area of the "Black Sand" (Colton 1960). Colton (1937b, cited in Downum 1988:188) describes the cultural response to the ash fall as a "land rush," with people from different cultures moving into the area from all directions. Colton's surveys documented a dramatic increase in the number of sites in the Flagstaff area in the post-eruptive period, and these sites show traits of several cultural groups.

Pilles (1979:468-469) has criticized several aspects of Colton's model. First, Pilles feels that movement into the ash fall zone was not the result of the beneficial effects of the ash but of increased precipitation unrelated to volcanic activity, which caused population movement to lower elevations (where the ash lay) throughout the Flagstaff area. Second, he does not see a major population increase in the ash fall area in the post-eruptive period. He feels Colton had detected an increased use of fieldhouses as people moved to lower elevations. Pilles (1979:478) found that fieldhouses constitute nearly 25 percent of pre-eruptive sites, but 60 to 80 percent of post-eruptive sites. Pilles suggests that Colton counted fieldhouses as equivalent to habitation sites, resulting in inflated population estimates.

Sites in WNM could shed significant light on this controversy. Although a post-eruptive increase in population at WNM is indisputable (virtually no sites date to the pre-eruptive period, and more than 2,000 date after the eruption), almost half of the sites recorded at WNM are one-room structures assumed to be fieldhouses. Detailed study of patterns of land use at WNM could provide significant information on the size and nature of the post-eruptive population increase, and on changes in land use patterns after the eruption (see below).

2. **The Definition of Cultural Boundaries.** Perhaps more than any other topic, the definition and nature of cultural boundaries holds the most research potential for sites in the Monument. The interpretation of ceramic type distributions has been and continue to be used to define cultural boundaries. Colton's ceramic typology remains the basis for distinguishing cultural groups in the Flagstaff area, yet the cultural meaning attached to ceramic types is being seriously re-examined in the Southwest. Virtually all sites in WNM show a mix of ceramic types thought to be diagnostic of different cultures. Based on a very small amount of evidence, there are indications that some ceramic types are not locally made. Are vessels being traded into WNM from peoples in bordering territories? Are those people using WNM part-time and making their vessels elsewhere? Did people from bordering territories move permanently to WNM but retain trading relationship with relatives back home? Or, will additional evidence show that most ceramics, regardless of stylistic affiliation, are made locally? The answers to these questions lie in the sites at WNM; these sites can make contributions to our understanding of ceramic distributions throughout the Southwest, and ultimately to the nature of cultural boundaries.

3. **The Nature of Cultural Interaction.** Sites in WNM are uniquely suited for the investigation of cultural interaction among prehistoric populations because the area was at the juncture of three distinct cultural territories, and apparently all three groups made use of the area. Furthermore, sites at WNM show the influence of other more distant cultures, such as the Hohokam and Chaco. The ethnic and cultural affiliations of prehistoric groups, the manner in which material cultural reflects those affiliations, and intergroup interactions are all subjects of current archeological interest. Prehistoric sites at WNM are well suited for the investigation of these questions.

Interactions between the Navajo and the U.S. Government have been punctuated by events disastrous to the Navajo, such as the Long Walk and the 1930s livestock reduction program. Beginning in the late 1800s, Anglo settlers began to encroach on Navajo territory, the Navajo were pushed further and further into marginal lands. After the Navajo Reservation was established in 1868, Navajo people whose ancestral land holdings were located off the Reservation were subject to the whims of local businesses, surrounding land holders, and local authorities. During the late nineteenth and early twentieth centuries, the Navajo of the Wupatki Basin were evicted from their traditional lands and from lands to which they held legal title as a result of conflicts with the surrounding cattle ranchers (Roberts 1990). The well-documented experiences of the WNM Navajo are representative of the experiences of many Navajo of the period. A detailed study of Navajo-Anglo relations in the WNM area during the past 120 years would exemplify the cultural interactions between these

two groups for much of the northern Southwest.

4. **Cultural Response to Environmental Change.** Did the eruption of Sunset Crater cause a "land rush" in the Flagstaff area, or in WNM, or were both area influenced by wider social processes going on throughout the Southwest? Colton's (1946) theory is being evaluated for much of the Flagstaff area (Pilles 1979), and prehistoric events in the area are being placed in a pan-regional context. Prehistoric populations were forced to adjust constantly to changing environmental conditions. An understanding of the ways in which this was accomplished is key to understanding prehistoric Southwest culture.

Post-eruption population increase and cultural mixing cannot be denied for WNM. Yet the connection between the eruption and events at WNM have not yet been fully explored. Certainly the groups who coexisted in the monument had to adjust not only to the environment but to each other. How this was accomplished is a key question that should have implications for many other areas of the Southwest. The Sunset Crater eruption is one of the few prehistoric events of its type known in North America. In terms of understanding its effects, we are still using interpretive frameworks developed in the 1930s. Far more information on the cultural response to the Sunset Crater eruption can be derived from the sites in WNM, and is essential to understanding this prehistoric event and to exploring responses to environmental change throughout the prehistoric Southwest.

5. **Functional Differences Between Large and Small Sites.** More than half of the sites recorded in WNM are one-room masonry structures identified as "fieldhouses." The assumption is that these structures were associated with short-term agricultural pursuits (Downum and Sullivan 1990:63). Very few of these sites have been excavated in the Flagstaff area, and only three (decades ago) in WNM. Pilles (1979) has countered Colton's theories of post-eruptive population increase in the Flagstaff area by suggesting that many of the post-eruptive sites Colton recorded were actually fieldhouses rather than habitations, and couldn't be used to demonstrate population increase. Yet, we know very little about how "fieldhouses" functioned. If one-room sites are field houses, should we assume that sites with two or more rooms were always used for year-round habitation? The identification of site function is a difficult but vital problem in archeological interpretation for the Flagstaff area, as well as the northern Southwest. The well-preserved sites in WNM have enormous potential for exploring this important question.

6. **Agricultural Intensification in a Marginal Environment.** By any standards, the Wupatki Basin was a marginal place for prehistoric peoples, yet for a short period of time, they apparently lived there in large numbers and made elaborate provisions for growing crops. WNM has preserved agricultural features in numbers rarely found in the Southwest. These agricultural features can provide abundant information on the methods used by the prehistoric residents of WNM to interact with a marginal environment. Prehistoric methods and techniques discovered at WNM may serve as models for agricultural systems used in other parts of the prehistoric Southwest.

7. **Explanations for Regional Abandonment.** The decrease in population in the Flagstaff area after A.D. 1200 was, according to Colton, due to leaching of soil fertility after a century or more of intensive agriculture and to the prevailing winds that stripped the ash from the ground surface. Further, the aggregation of large groups of people in multiroom pueblos that began in the 1100s in the Flagstaff area created ideal conditions for the transmission of disease that also may have contributed to the ultimate abandonment of the area.

Colton's arguments for the causes of regional abandonment do not incorporate recent evidence for widespread population movement and aggregation into large sites during the thirteenth and fourteenth centuries. These events caused significant regional abandonments in the Flagstaff area and throughout the Southwest (Wilson 1969; Cordell 1984). Wilcox (n.d.) links population movement and aggregation to the collapse of the Chacoan system. He feels this event sparked the coalescence of population and cultural change that produced the modern Hopi.

Sites in WNM hold great potential for exploring thirteenth and fourteenth century regional abandonments. After A.D. 1200, populations that had existed in WNM for a century began retreating. Whether abandonment of the area related to the effects of declining agricultural productivity as Colton originally suggested or to changes in the balance of regional social relations is unknown. Sites in WNM can provide information on these questions that ultimately will help in the interpretation of regional abandonments.

8. **Late Nineteenth and Early Twentieth Century Navajo Land Use Practices.** Navajo land use practices have been significantly altered during the past 150 years by changes in subsistence practices and by interaction with the surrounding Anglo culture. WNM constitutes an almost ideal laboratory for examining these changes because historic sites are so fully documented (Roberts 1990). Virtually all historic sites at WNM were created by a single man and his descendants, and the individuals who used these sites are known. In many cases, exact patterns of seasonal movement can be reconstructed through

historic documents and ethnographic interviews. The late nineteenth and early twentieth centuries were dynamic times for Navajo people and an examination of their land use patterns would provide a remarkable study in cultural evolution and adaptation. Traditional Navajo subsistence practices were violently disrupted by events such as the Long Walk and the 1930s stock reduction programs, yet the tribe survived and prospered. How were they able to adapt to these disruptive processes?

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

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ATTACHMENT 1

Contributing Sites
2,209 prehistoric sites with architecture
188 prehistoric sites without architecture
54 historic sites with architecture
110 historic sites without architecture

All NPS Noncontributing Sites/Facilities:

1. Monument Headquarters which includes the visitor center and offices, maintenance shop, housing area with seven buildings, parking area, sewer lagoon, roads, trails and signs;

2. new Heiser housing area which includes residences (N=10), maintenance yard, sewer lagoon, garage, roads and signs;

3. old Heiser area which includes spring house and storage quanset hut;

4. the radio shack and water tanks on Woodhouse Mesa;

5. picnic areas; and

6. all other way-sides, roads, signs, electric and telephone lines, and fences.

Additional sites include:

WS-23	road dumps (from highway construction)
WS-40	road dumps (from highway construction)
WS-44	road dumps (from highway construction)
WS-48	road dumps (from highway construction)
WS-49	road dumps (from highway construction)
WS-50	road dumps (from highway construction)
WS-53	road dumps (from highway construction)
WS-56	road dumps (from highway construction)
WS-64	road dumps (from highway construction)
WS-73	road dumps (from highway construction)
WS-212	road dumps (from highway construction)
WS-214	road dumps (from highway construction)
WS-361	road dumps (from highway construction)
WS-417	road dumps (from highway construction)
WS-624	road dumps (from highway construction)
WS-627	road dumps (from highway construction)
WS-631	road dumps (from highway construction)
WS-666	road dumps (from highway construction)
WS-669	road dumps (from highway construction)
WS-710	road dumps (from highway construction)
WS-744	road dumps (from highway construction)
WS-2096	road dumps (from highway construction)
WS-2155	road dumps (from highway construction)
WS-2174	road dumps (from highway construction)
WS-2213	road dumps (from highway construction)
WS-2214	road dumps (from highway construction)
WS-2235	road dumps (from highway construction)
WS-2311	road dumps (from highway construction)
WS-1222	barrow pit with a rock dump area
WS-1372	rock dump and an old roadbed
WS-1450	rock alignments along the road (road construction)
WS-2225	modern barrow pit

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Navajo Sites after 1941--These sites include, corrals, campsites, woodcutting areas, foundations, hogans, ramadas, earthen tanks, ash dumps, trash dumps, lambing pens and pumphouses. Note: All Navajo sites thought to date 1940s or before are not included in this list. Question marks indicate not sure when they were first constructed.

WS-7
WS-57
WS-60
WS-292
WS-313
WS-330
WS-343
WS-368
WS-373
WS-383
WS-403
WS-664
WS-667
WS-670
WS-684
WS-686
WS-687
WS-688
WS-689?
WS-740
WS-849
WS-875?
WS-944
WS-947?
WS-963?
WS-1015
WS-1016
WS-1019
WS-1229
WS-1420?
WS-1425
WS-1429
WS-1461
WS-1462
WS-1498?
WS-1526?
WS-1793
WS-1795
WS-1813?
WS-1835
WS-1836
WS-1839
WS-1843
WS-1845
WS-1863
WS-1872
WS-1876
WS-1889
WS-1908
WS-1925
WS-2080
WS-2114
WS-2191
WS-2214
WS-2275
WS-2283
WS-2284
WS-2293
WS-2298
WS-2303
WS-2503
WS-2505
WS-2507
WS-2509
WS-2668

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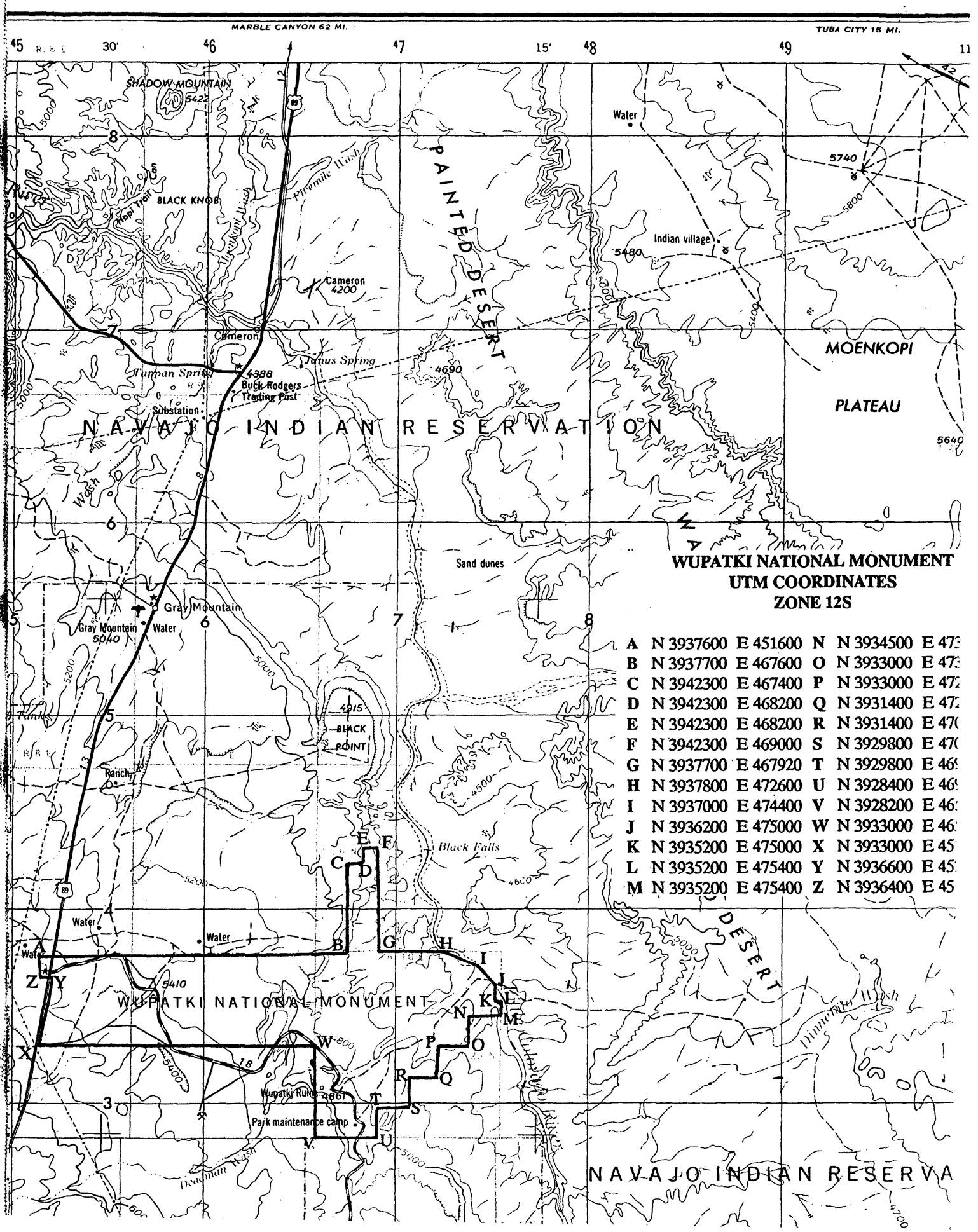
UTM COORDINATES
ZONE 12S

A	E 451600	N 3937600	N	E 473800	N 3934500
B	E 467600	N 3937700	O	E 473800	N 3933000
C	E 467400	N 3942300	P	E 472200	N 3933000
D	E 468200	N 3942300	Q	E 472200	N 3931400
E	E 468200	N 3942300	R	E 470800	N 3931400
F	E 469000	N 3942300	S	E 470800	N 3929800
G	E 467920	N 3937700	T	E 469000	N 3929800
H	E 472600	N 3937800	U	E 469000	N 3928400
I	E 474400	N 3937000	V	E 465800	N 3928200
J	E 475000	N 3936200	W	E 465800	N 3933000
K	E 475000	N 3935200	X	E 451400	N 3933000
L	E 475400	N 3935200	Y	E 452100	N 3936600
M	E 475400	N 3935200	Z	E 451600	N 3936400

FIGURE 1

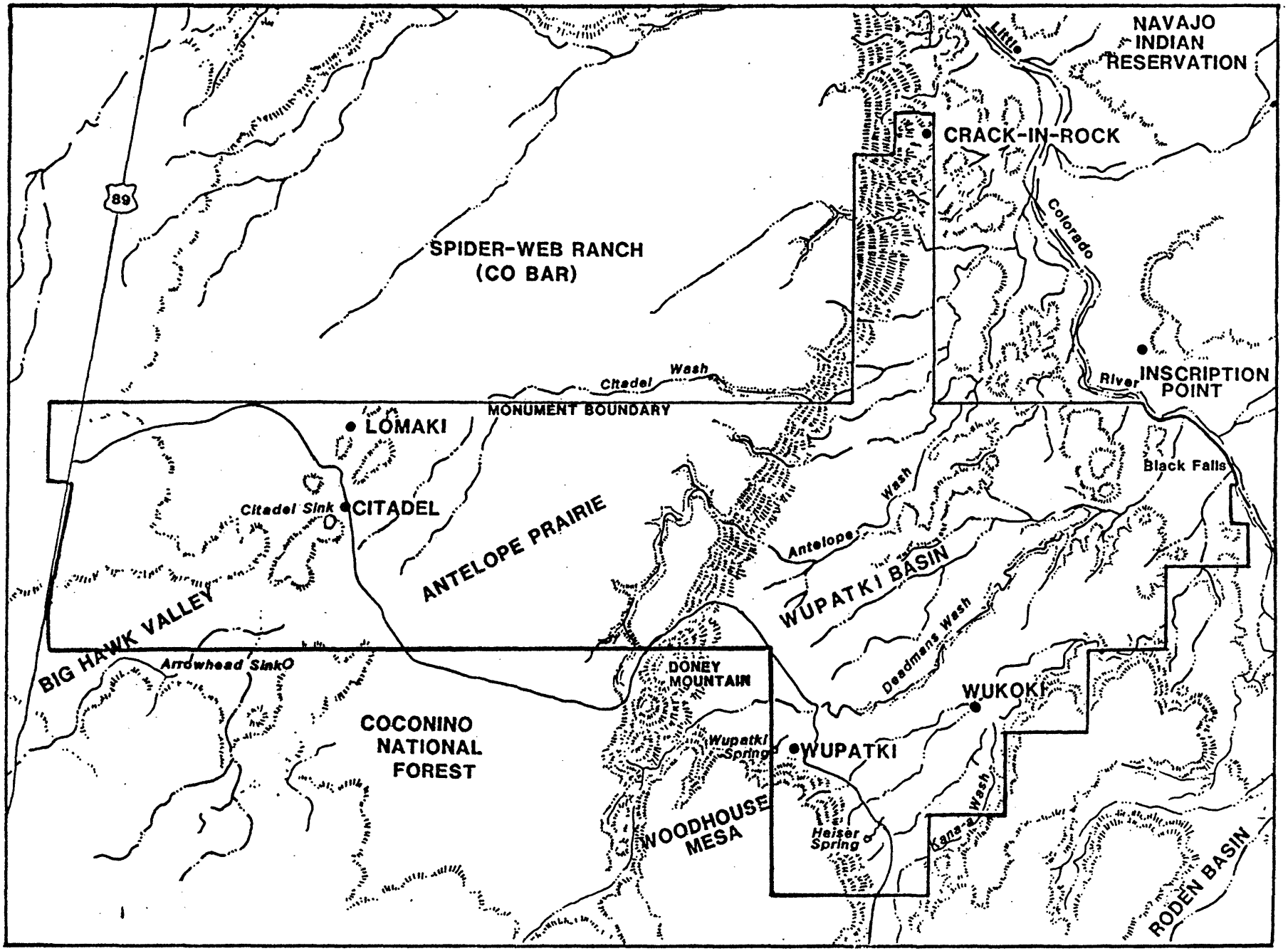

MARBLE CANYON 62 MI.
TUBA CITY 15 MI.
SHADOW MOUNTAIN
5422
BLACK KNOB
Hopi Trail
Piromle Wash
PAINTED DESERT
Water
5740
Indian village
5480
Cameron
4200
Cameron
Tuman Spring
4388
Buck Rodgers Trading Post
Substation
Jonus Spring
4690
MOENKOPI
PLATEAU
5640
NAVAJO INDIAN RESERVATION
Wash
Sand dunes
Gray Mountain
Gray Mountain Water
5040
4915
BLACK POINT
Ranch
Black Falls
Water
Water
Water
5410
WUPATKI NATIONAL MONUMENT
Wupatki Ruins
Park maintenance camp
DESERT
NAVAJO INDIAN RESERVA
WUPATKI NATIONAL MONUMENT
UTM COORDINATES
ZONE 12S
A N 3937600 E 451600
B N 3937700 E 467600
C N 3942300 E 467400
D N 3942300 E 468200
E N 3942300 E 468200
F N 3942300 E 469000
G N 3937700 E 467920
H N 3937800 E 472600
I N 3937000 E 474400
J N 3936200 E 475000
K N 3935200 E 475000
L N 3935200 E 475400
M N 3935200 E 475400
N N 3934500 E 473
O N 3933000 E 473
P N 3933000 E 472
Q N 3931400 E 472
R N 3931400 E 470
S N 3929800 E 470
T N 3929800 E 469
U N 3928400 E 469
V N 3928200 E 46
W N 3933000 E 46
X N 3933000 E 45
Y N 3936600 E 45
Z N 3936400 E 45

Wupatki National Monument - National Register Nomination - Figure Captions

Figure	Description
1	Wupatki National Monument location with UTM coordinates. Map adapted from U.S.G.S. Flagstaff, Arizona (1954, revised 1970). Scale 1:250,000.
2	Map of WNM with major geographical features and major sites indicated.
3	Entrance to Earthcrack, site WS1603. Photo taken 6/28/85; photographer unknown; negative on file, N.P.S., Southwest Regional Office.
4	Kiva, site NA2756A (WS1434). Photo taken early 1980's; photographer unknown; negative on file, N.P.S., Southwest Regional Office.
5	Wupatki Pueblo (NA405) after stabilization, from the Southeast. Photo taken 4/9/53; photographer Natt N. Dodge and Fred Brueck; negative on file, Wupatki National Monument.
6	Wupatki Pueblo (NA405), plan view. From Stanislawski 1963.
7	Wupatki Pueblo (NA405) showing dance plaza. Photo date unknown; photographer Zorro Bradley; negative on file, Wupatki National Monument.
8	Wupatki Pueblo (NA405) showing ballcourt. Photo taken 1965; photographer unknown; negative on file, Wupatki National Monument.
9	Crack-in-Rock Pueblo (NA537), plan view. From Smith 1952.
10	Kiva at Crack-in-Rock Pueblo (NA537). From Smith 1952.
11	Nalakihu Ruin (NA358) in foreground, Citadel Ruin (NA355) in the background. Photo date unknown; photographer unknown; negative on file, Wupatki National Monument.
12	The Citadel (NA355), plan view.
13	Ground plan of Nalakihu Ruin, Wupatki National Monument, Arizona.
14	Kaibab House Ruin (NA342). From Adams 1982.
15	Plan view, site NA681. From Smith 1952.
16	Plan view, site NA682. From Smith 1952.
17	Heiser Springs pithouse site (NA1754), plan view. Adapted from Colton, 1946.
18	Field house on Antelope Prairie, site WS522A. Photo taken early 1980s; photographer unknown; negative on file, N.P.S., Southwest Regional Office.
19	Site NA5701, plan view. From Bradley, 1959.
20	Site NA5702, plan view. From Bradley, 1959.
21	Site NA6301, plan view. From Bradley, 1959.
22	Enclosure adjacent to fieldhouse, site WS886. From Anderson 1990.
23	Bordered field. From Travis, 1990.
24	Bordered garden. From Travis, 1990.

Wupatki National Monument - National Register Nomination - Figure Captions

Figure	Description
25	Composite field. From Travis, 1990.
26	Terrace garden. From Travis, 1990.
27	Terrace field. From Travis, 1990.
28	Dam and reservoir, plan view, site WS 165. From Anderson, 1990.
29	Sandstone slab quarry, site WS1787. Photo taken 8/14/85; photographer unknown; negative on file, N.P.S., Southwest Regional Office.
30	Prehistoric shrine, site WS1489. Photo taken mid-1980s; photographer unknown; negative on file, N.P.S., Southwest Regional Office.
31	Prehistoric rock art panel.
32	Prehistoric rock art showing zoomorph. Photo taken mid-1980s; photographer unknown; negative on file, N.P.S., Southwest Regional Office.
33	Navajo residential site, site WS1848. From Anderson 1990.
34	Many-legs hogan, site WS2303. Photo taken mid-1980s; photographer unknown; negative on file, N.P.S., Southwest Regional Office.
35	Navajo sweat lodge, site 1526. Photo taken mid-1980s; photographer unknown; negative on file, N.P.S., Southwest Regional Office.
36	Navajo temporary camp, site 1429. Photo taken mid-1980s; photographer unknown; negative on file, N.P.S., Southwest Regional Office.
37	Navajo corral. From Anderson 1990.
38	Historic petroglyph. Photo taken mid-1980s; photographer unknown; negative on file, N.S.S., Southwest Regional Office.



● MAJOR SITES

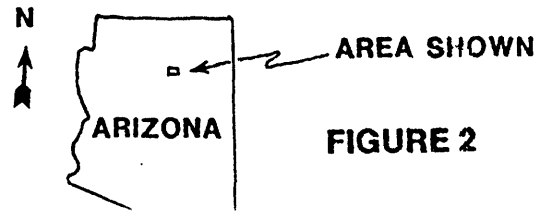


FIGURE 2

TITLE WUPATKI FIGURE 1.1 PAGE 1-2
AUTHOR ANDERSON PLATE ____ SIZE 4120
TABLE ____

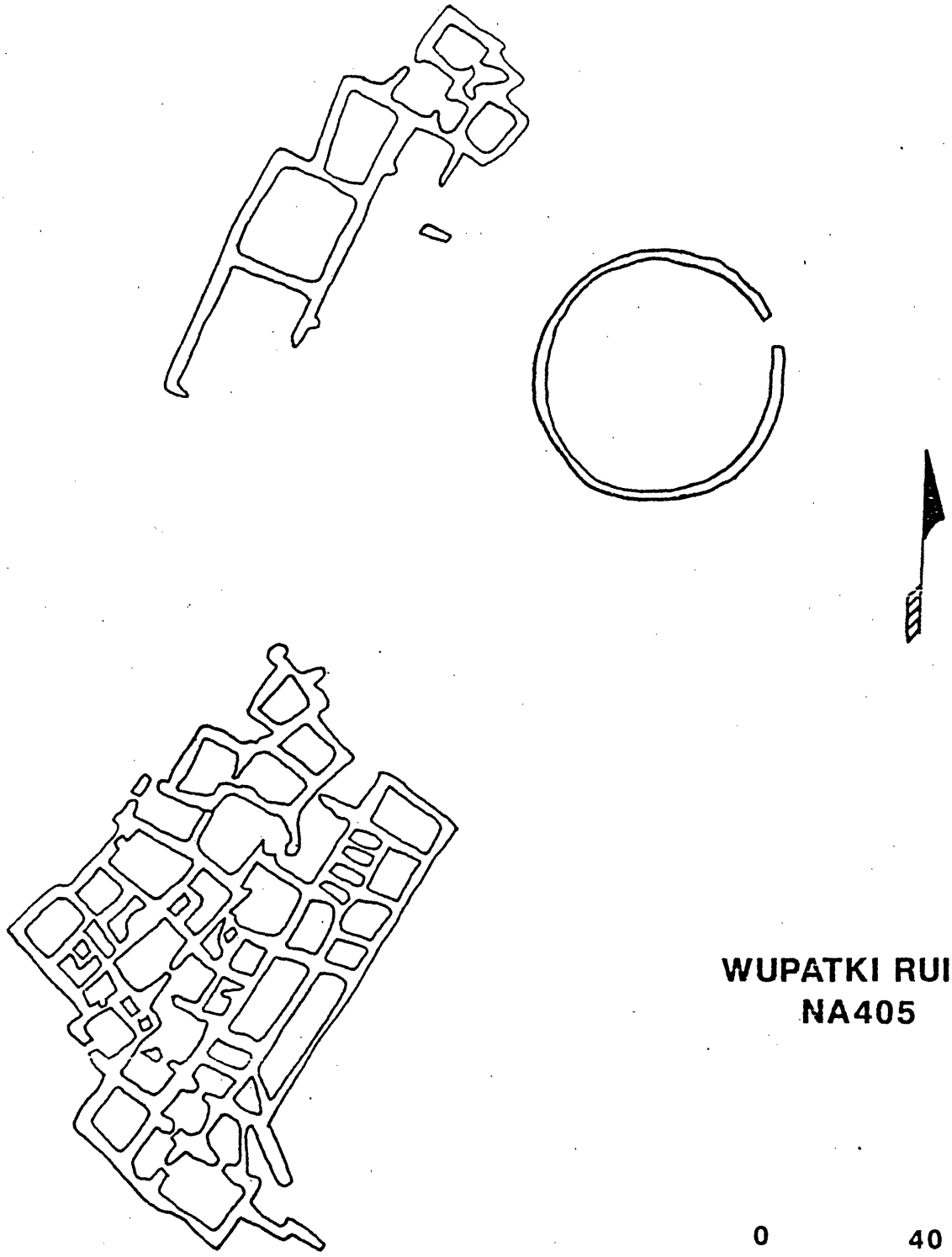


Figure 6

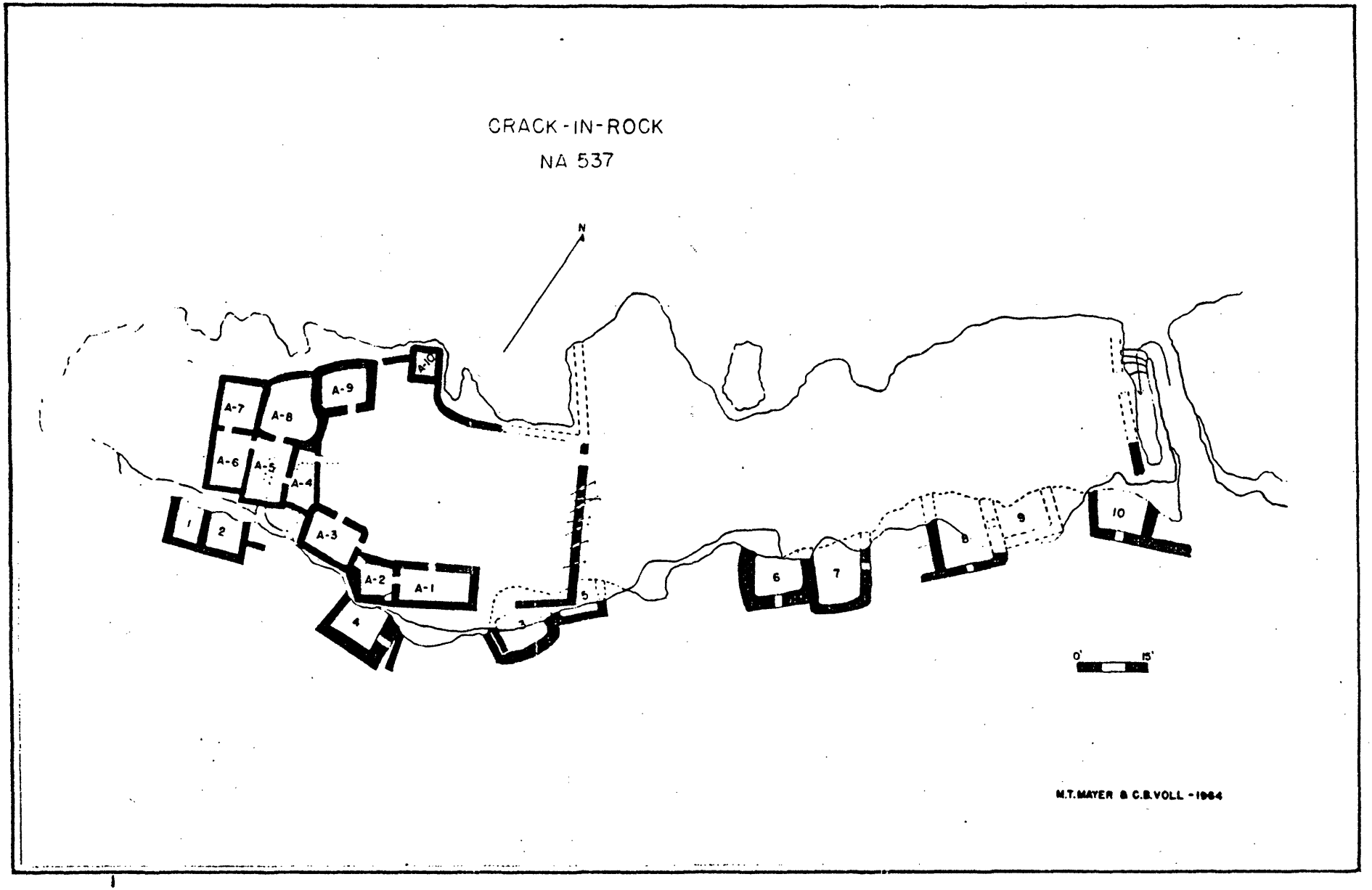


FIGURE 9: Crack-in-Rock Pueblo (NA537), plan view. Map adapted from Smith 1952).

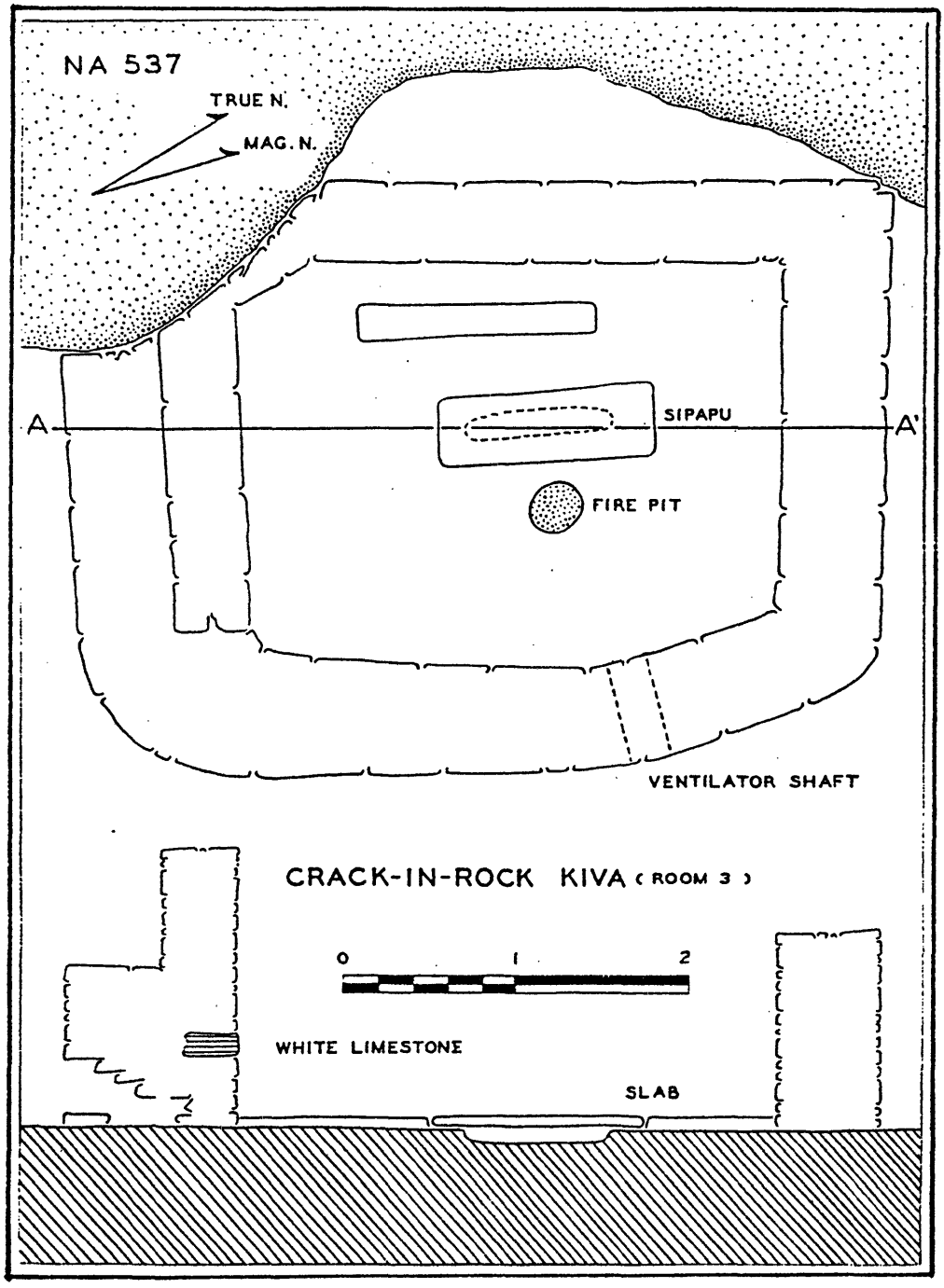


FIGURE 10: Ground plan and profile of Kiva, Room 3, Crack-in-Rock (NA537), showing firepit and the two slabs recessed into the floor. The dotted lines through the eastern wall indicate the position of the ventilator tunnel, and the shaded block in the profile of the left wall shows the position of a decorative course of white limestone.

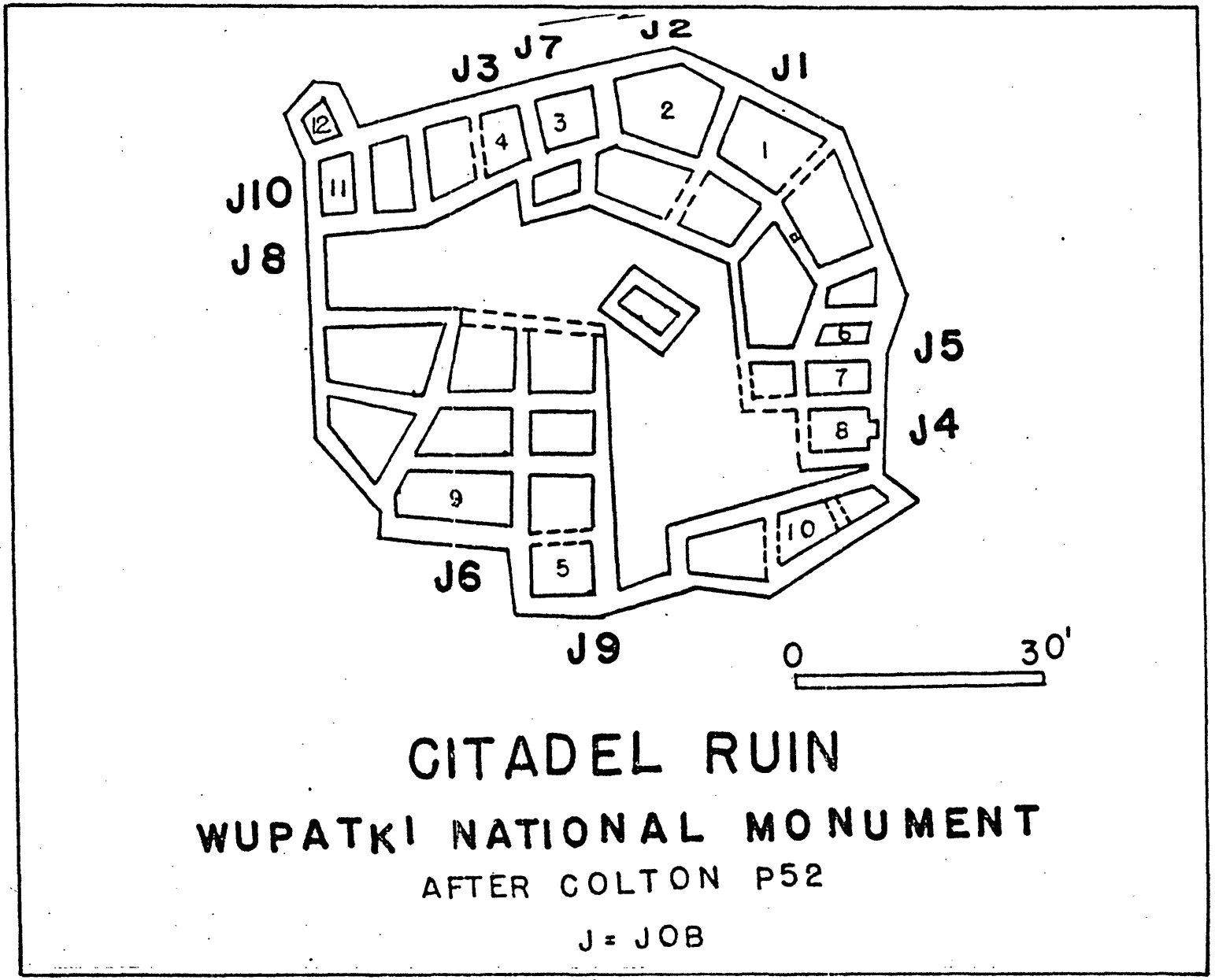


FIGURE 12: The Citadel (NA355), plan view.

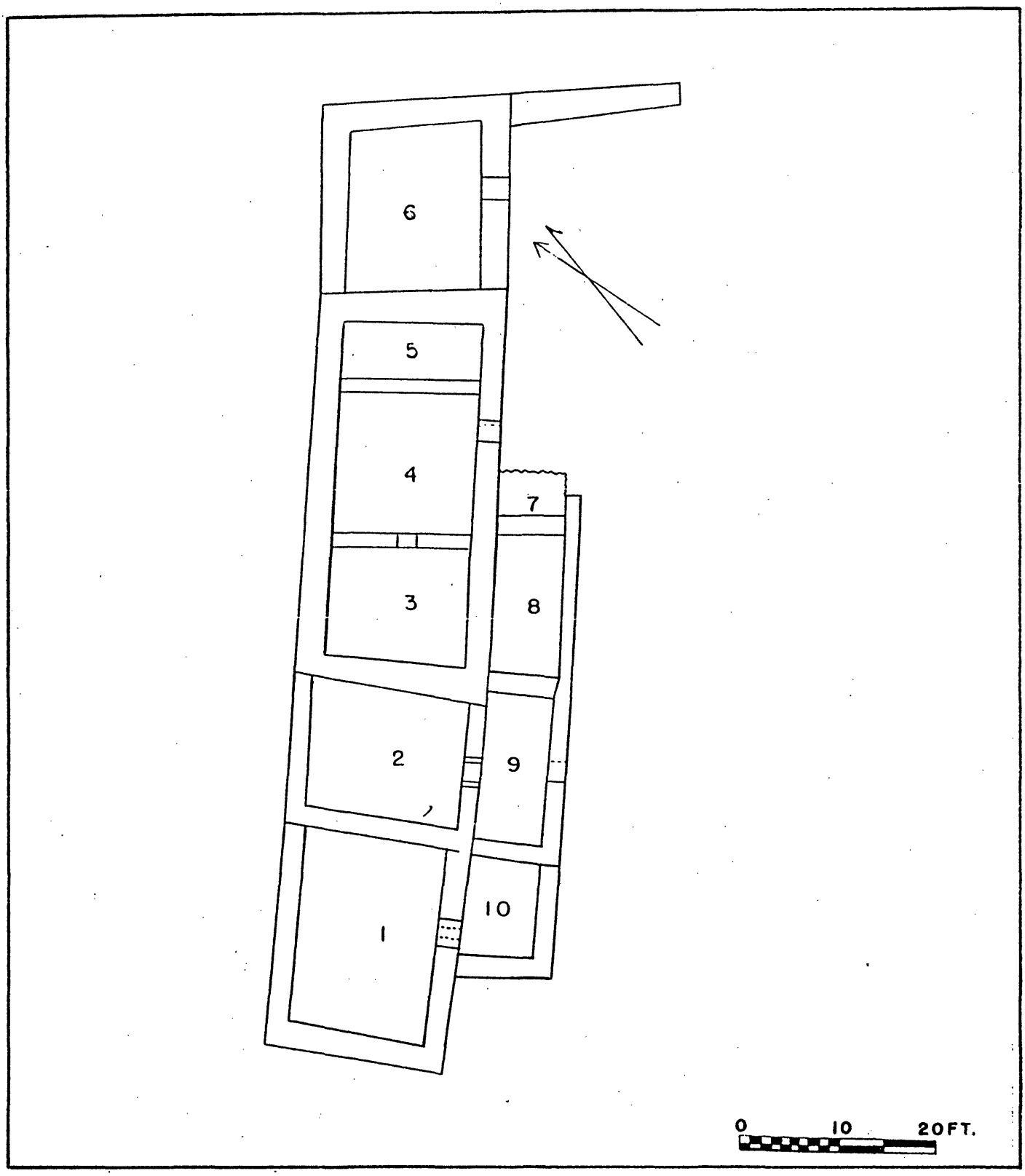
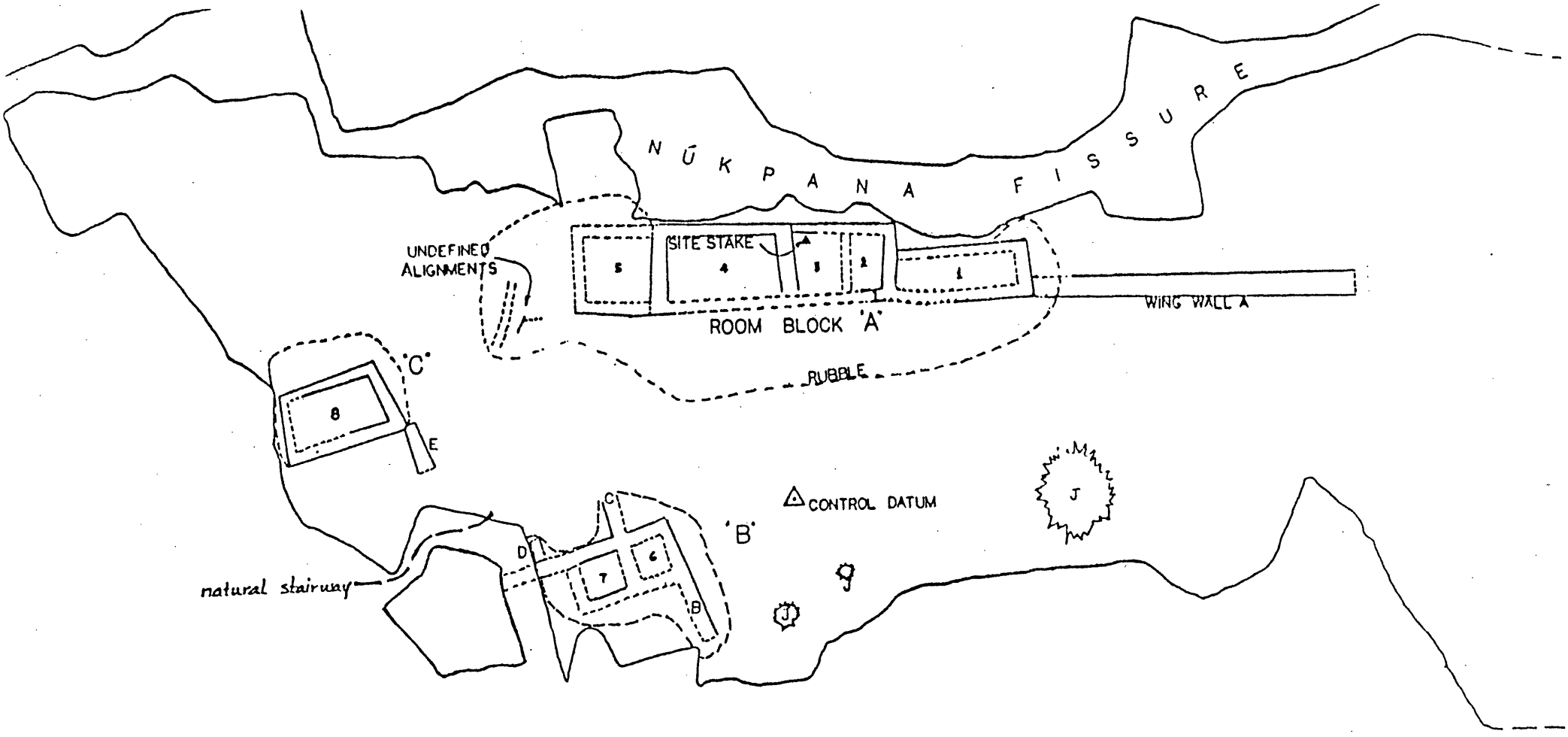


FIGURE 13: Ground plan of Nalakihu Ruin, Wupatki National Monument, Arizona (after King).



WUPATKI NA342 (WS-136)

KAIBAB HOUSE

FIGURE 14

0 1 2 3 4
METERS
(1:125)

PLANE TABLE MAP
SE ADAMS
SK CINNAMON
MG HEALY
3 & 4 NOV 82

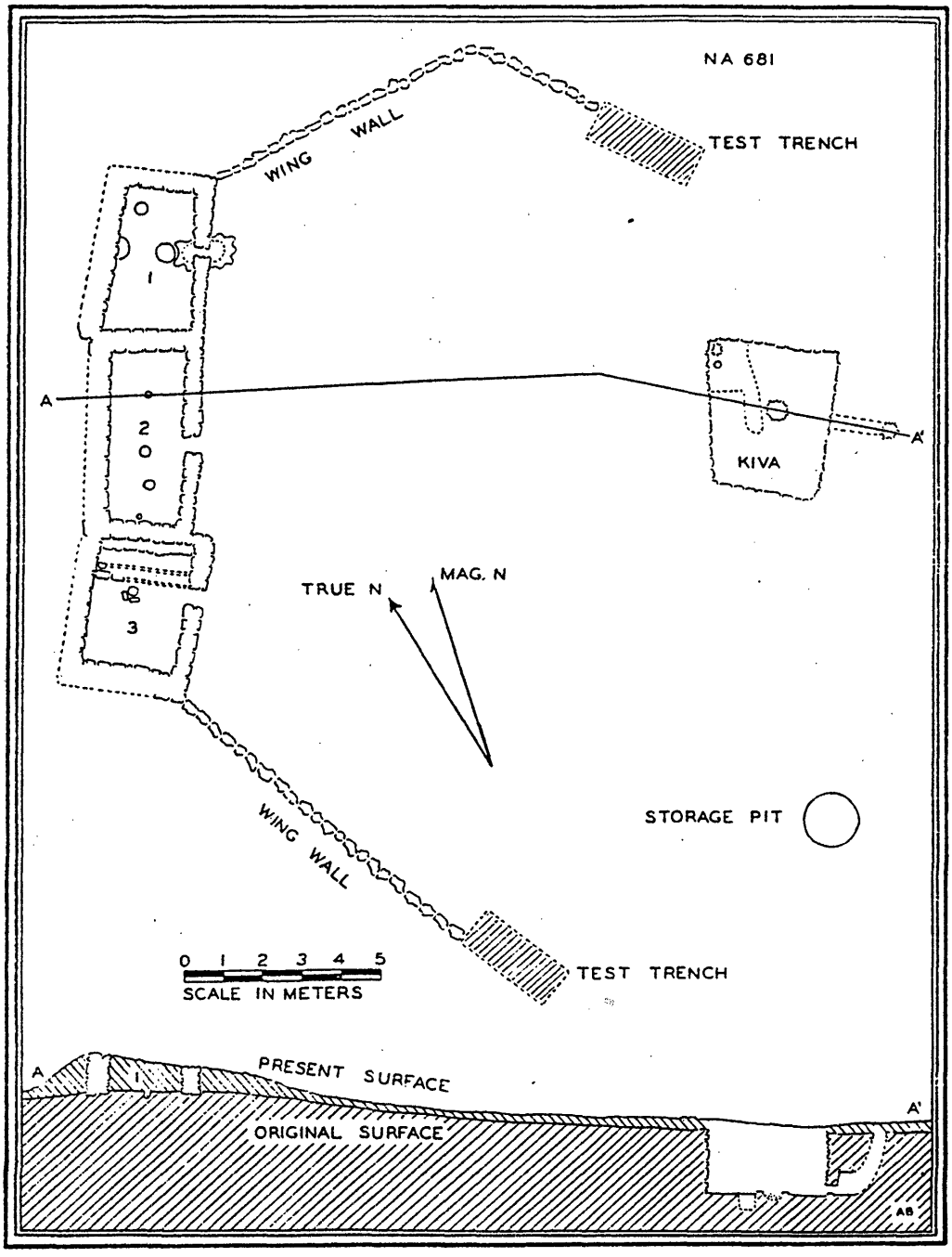


FIGURE 15: Ground plan and profile of NA681, a Kayenta Branch site of the Klethla Focus, composed of a small surface pueblo with wing-walls, a pithouse or possible kiva, and a circular storage pit.

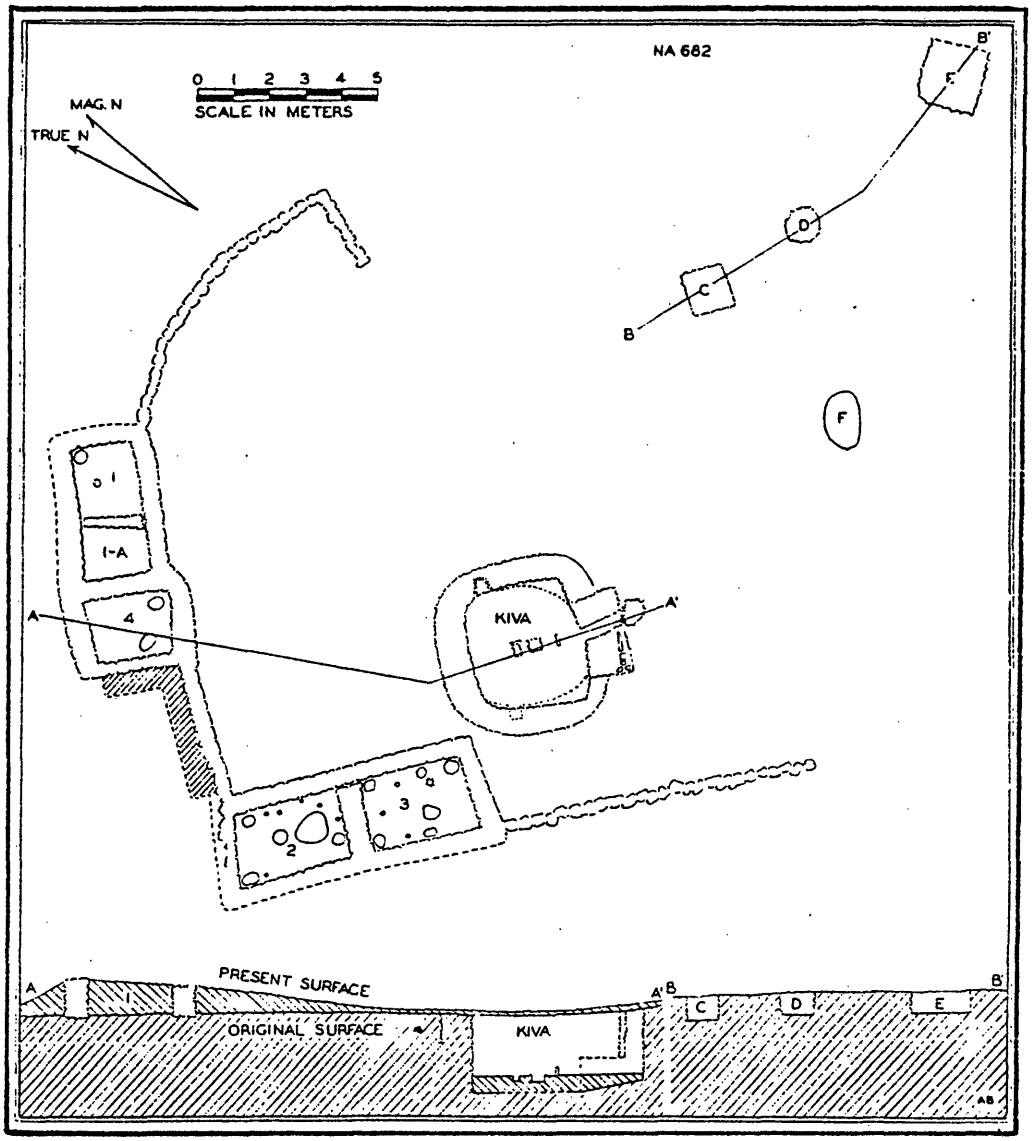
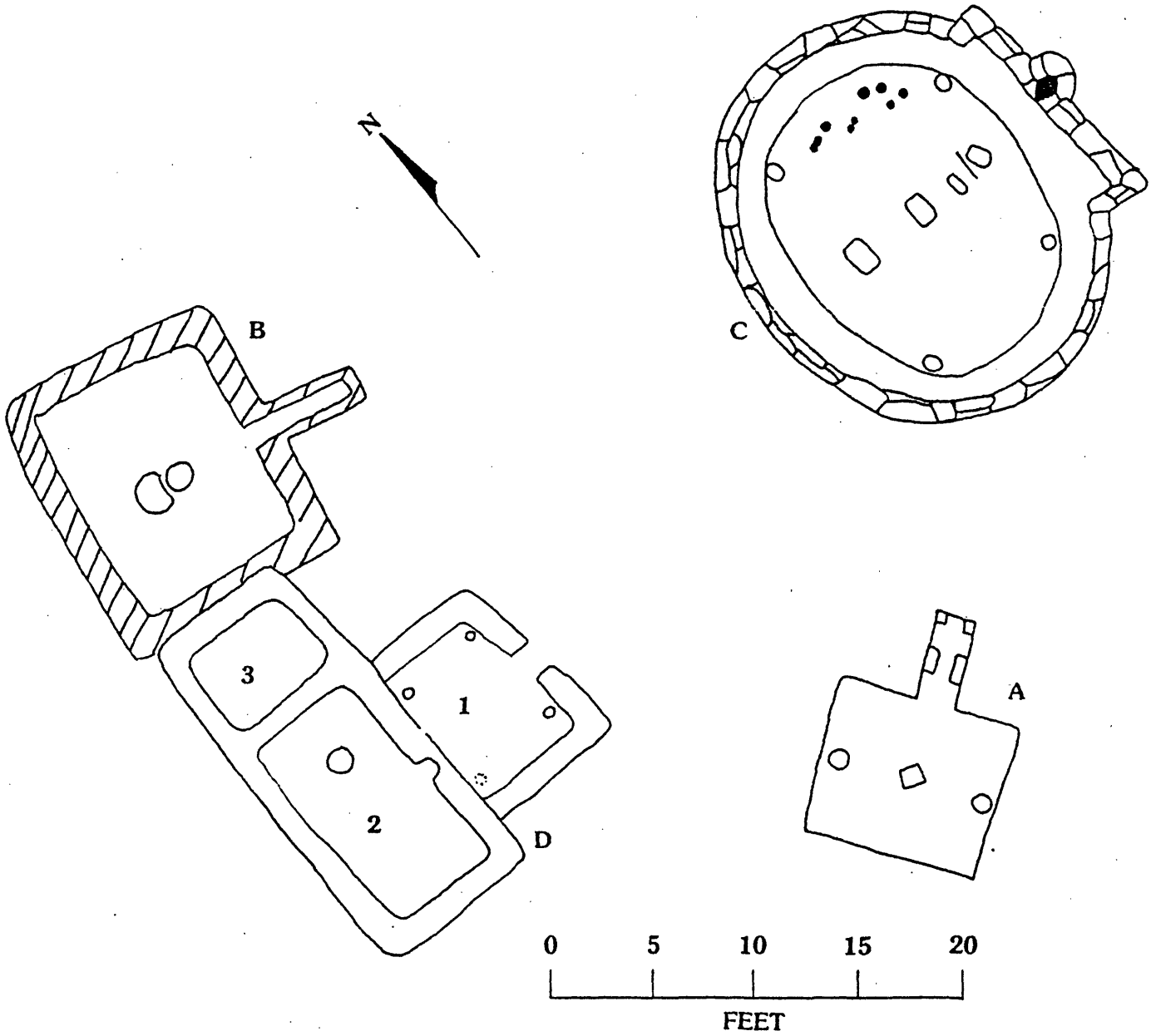


FIGURE 16: Ground plan and profile of NA682, a Kayenta Branch site of the Klethla Focus, comprising a surface pueblo, a subterranean kiva and numerous storage pits.



Heiser Spring Pithouses
NA1754, WS-623

FIGURE 17

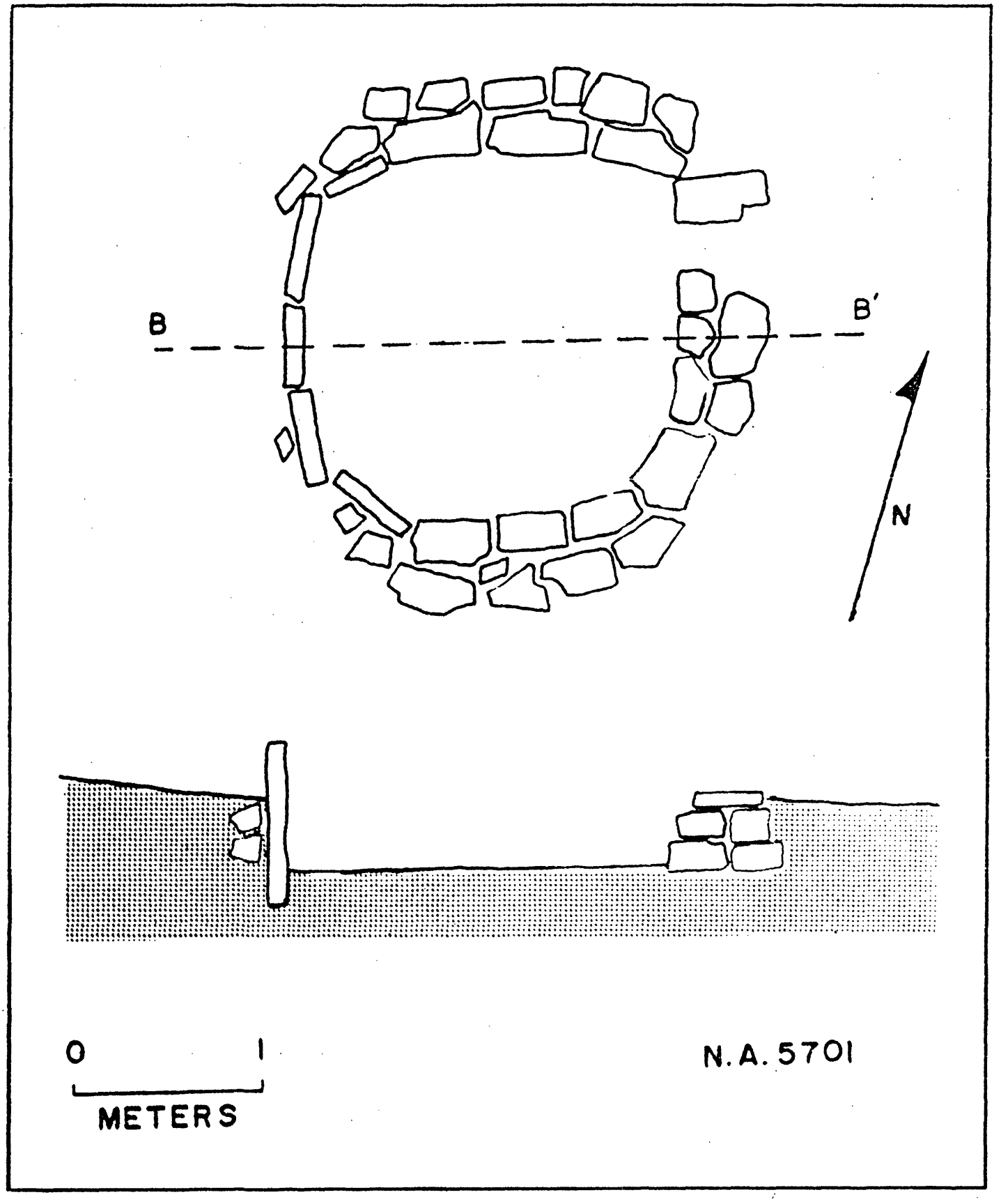


FIGURE 19: Site NA5701, plan view. Adapted from Bradley (1959).

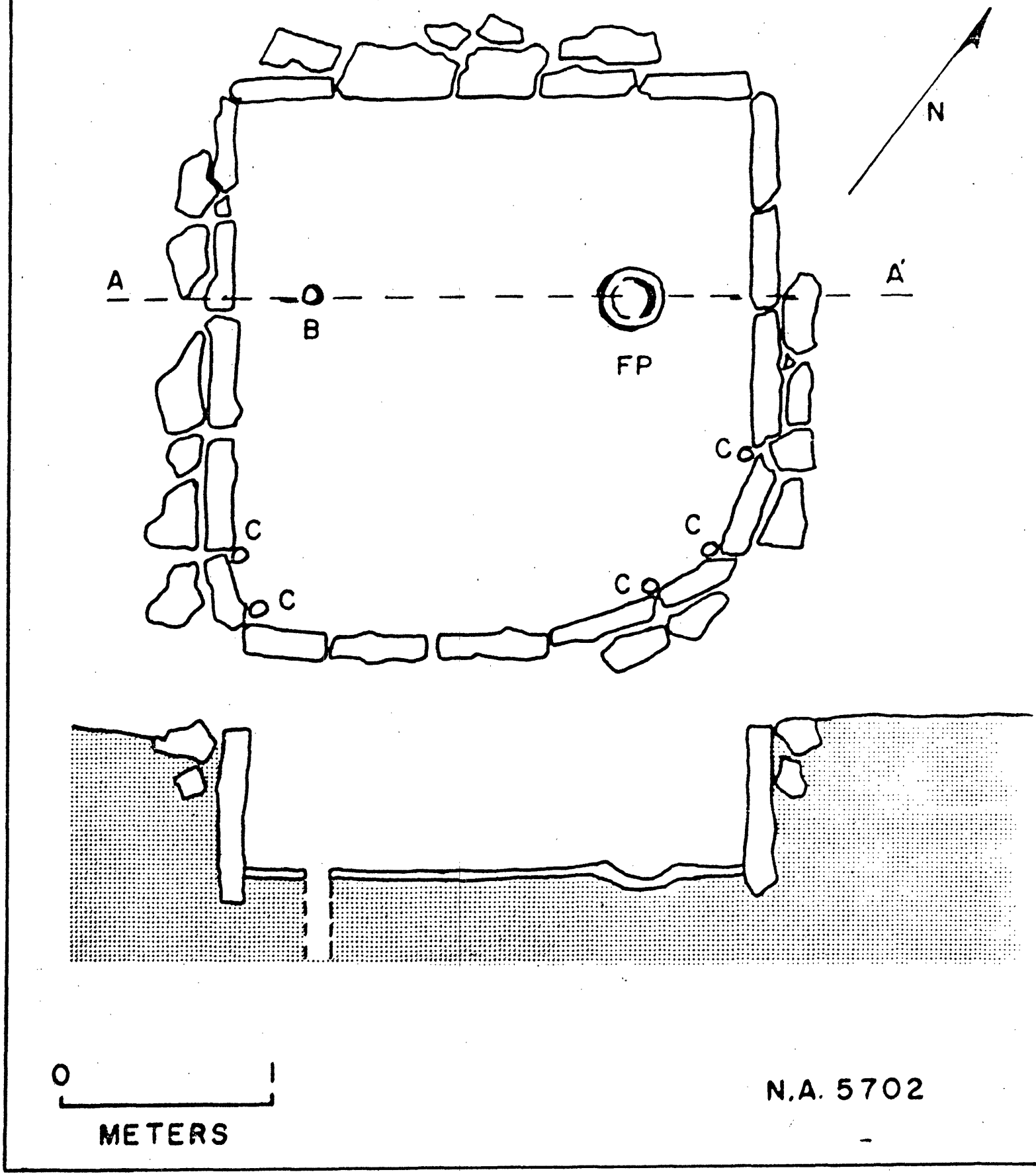


FIGURE 20: Site NA5702, plan view. Adapted from Bradley (1959).

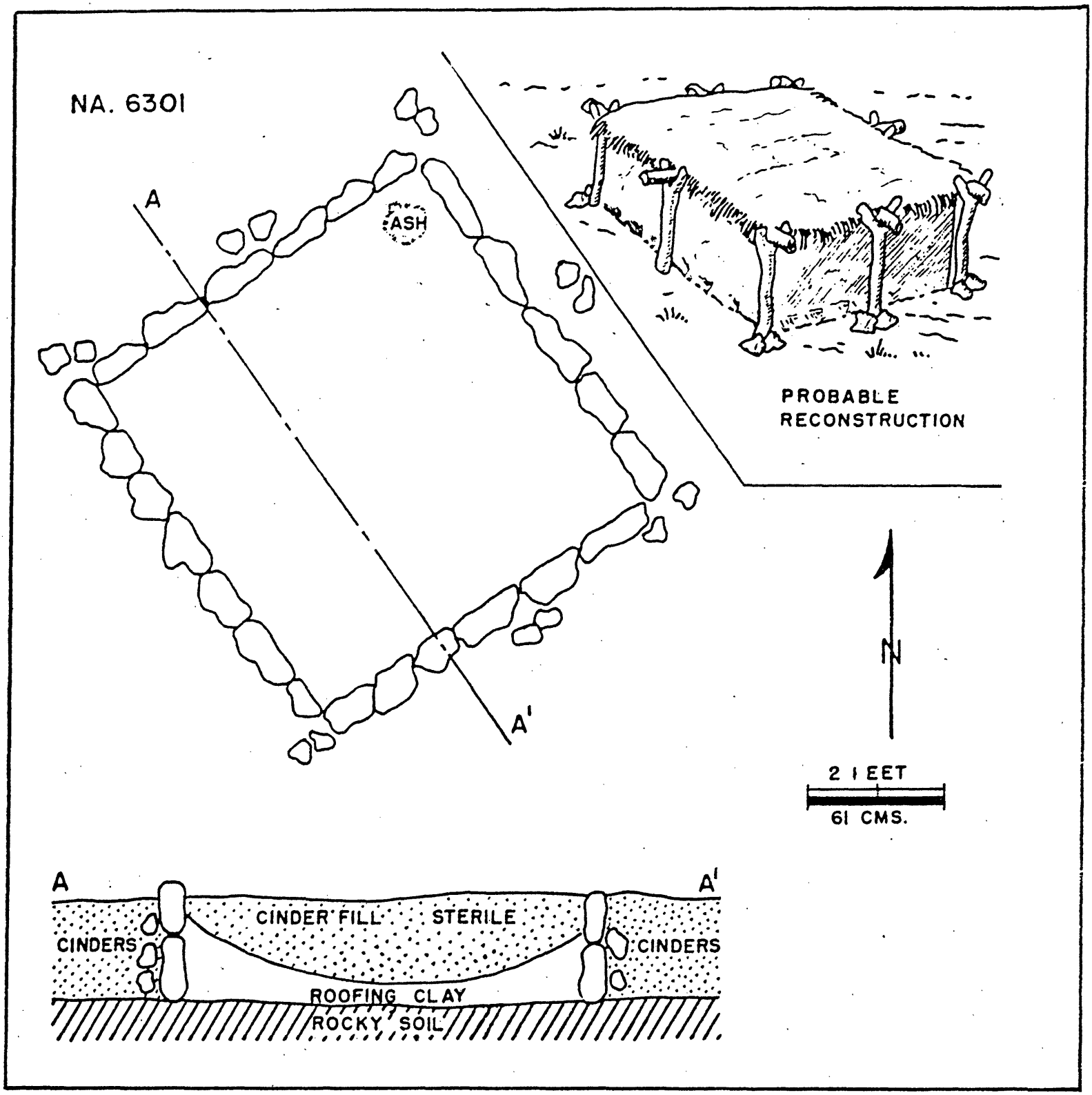


FIGURE 21: Site NA6301, plan view. Adapted from Bradley (1959).

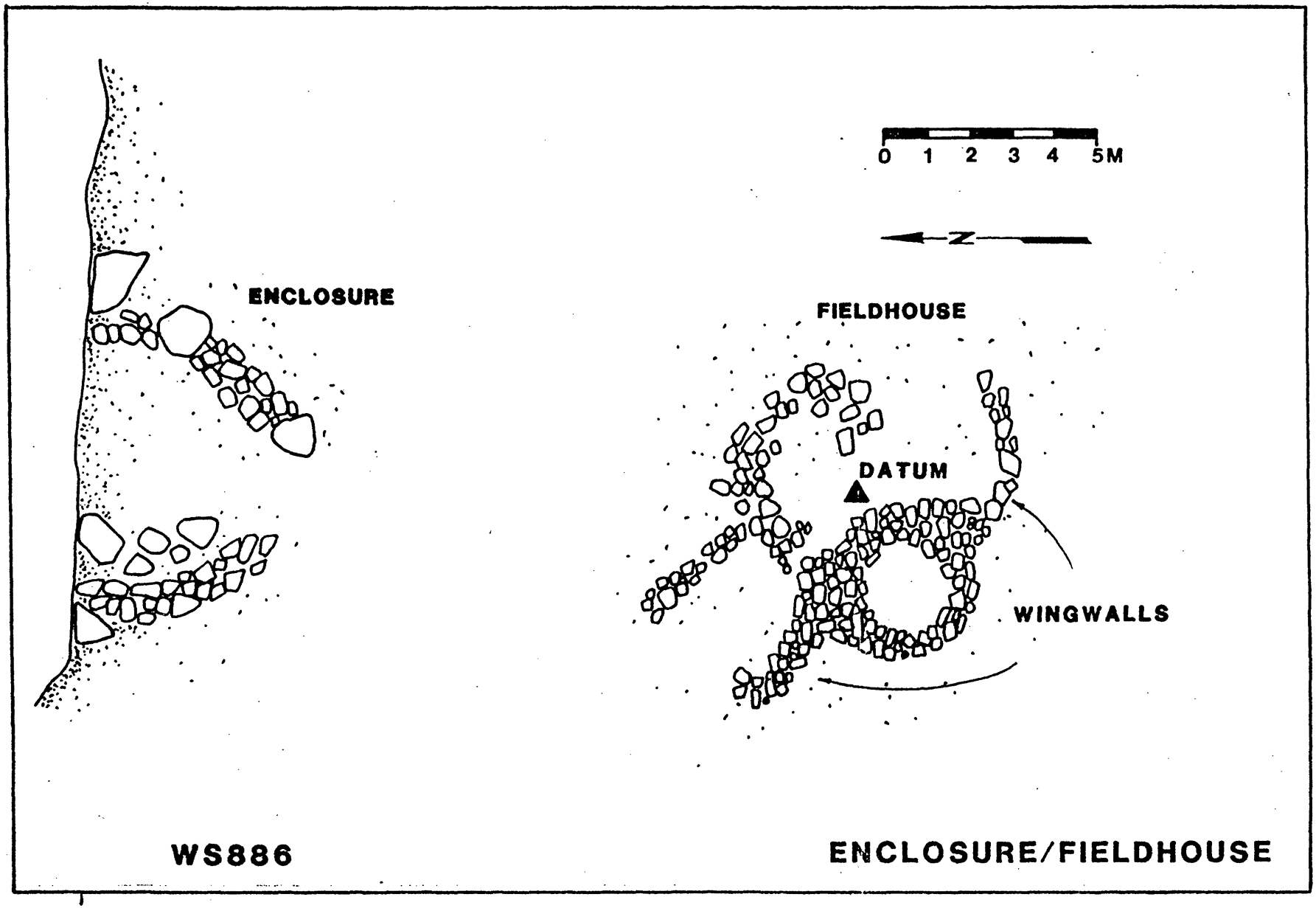


FIGURE 22: Enclosure adjacent to fieldhouse, site WS886. Adapted from Anderson (1990).

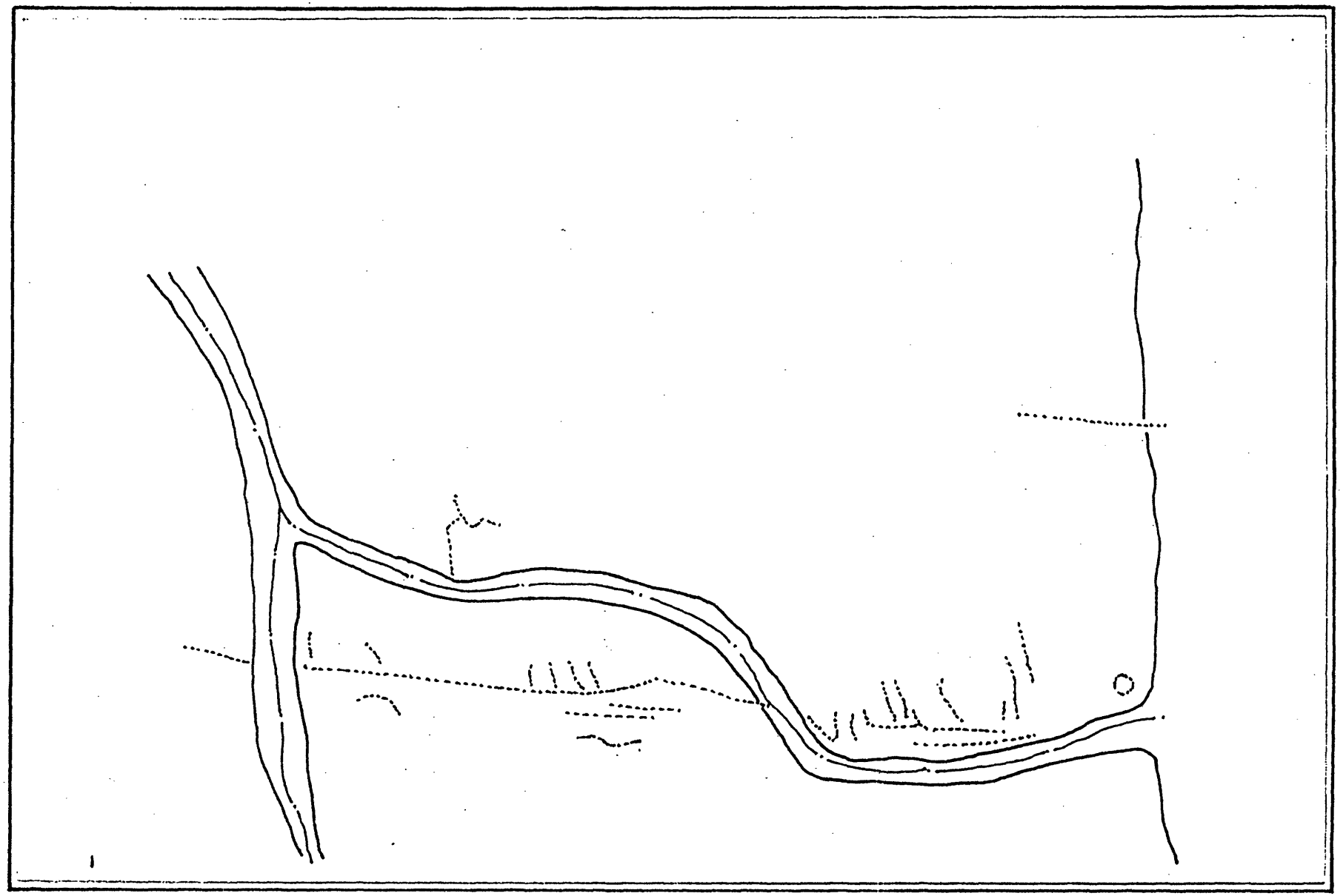


FIGURE 23: Bordered field. Adapted from Travis (1990).

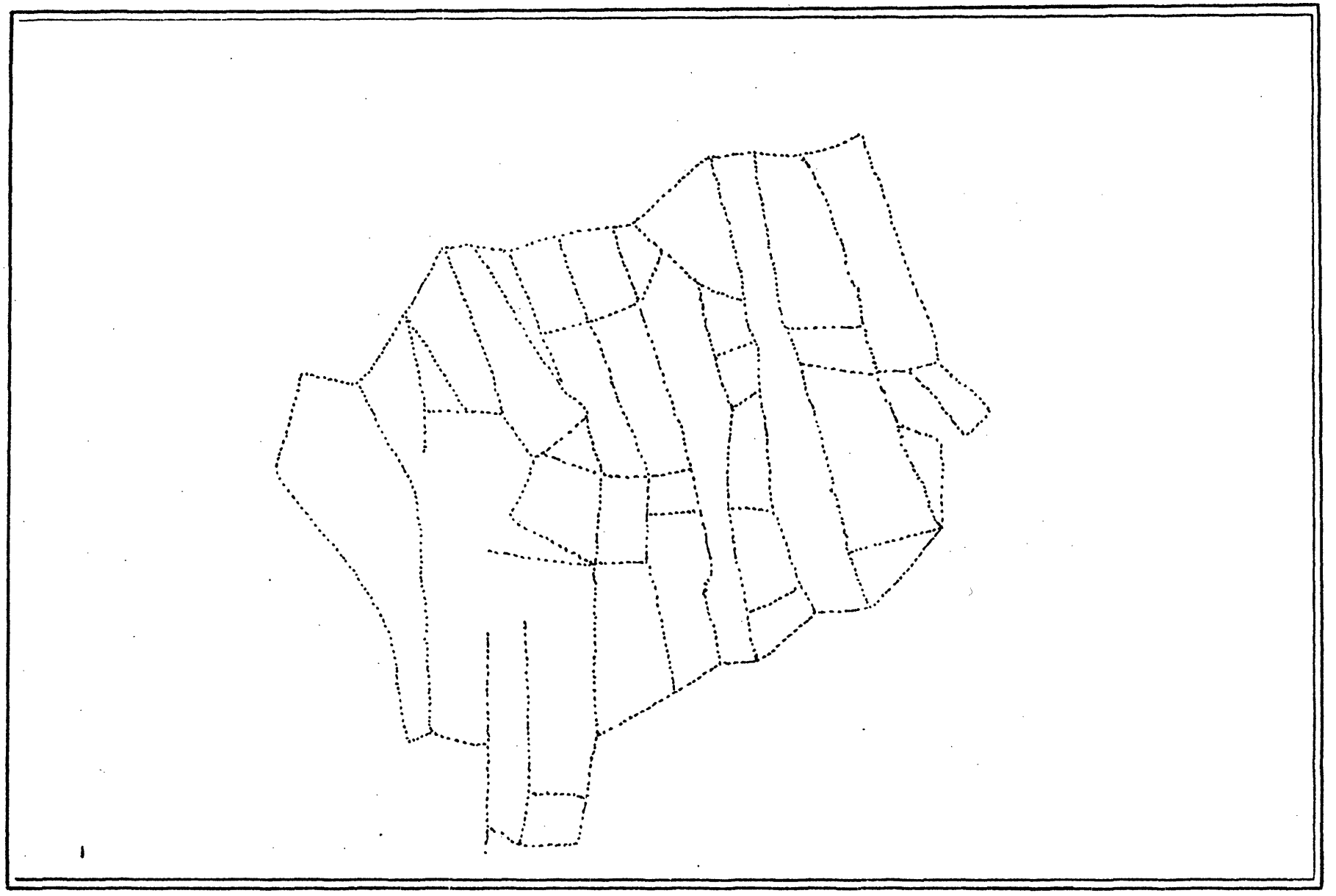


FIGURE 24: Bordered garden. Adapted from Travis (1990).

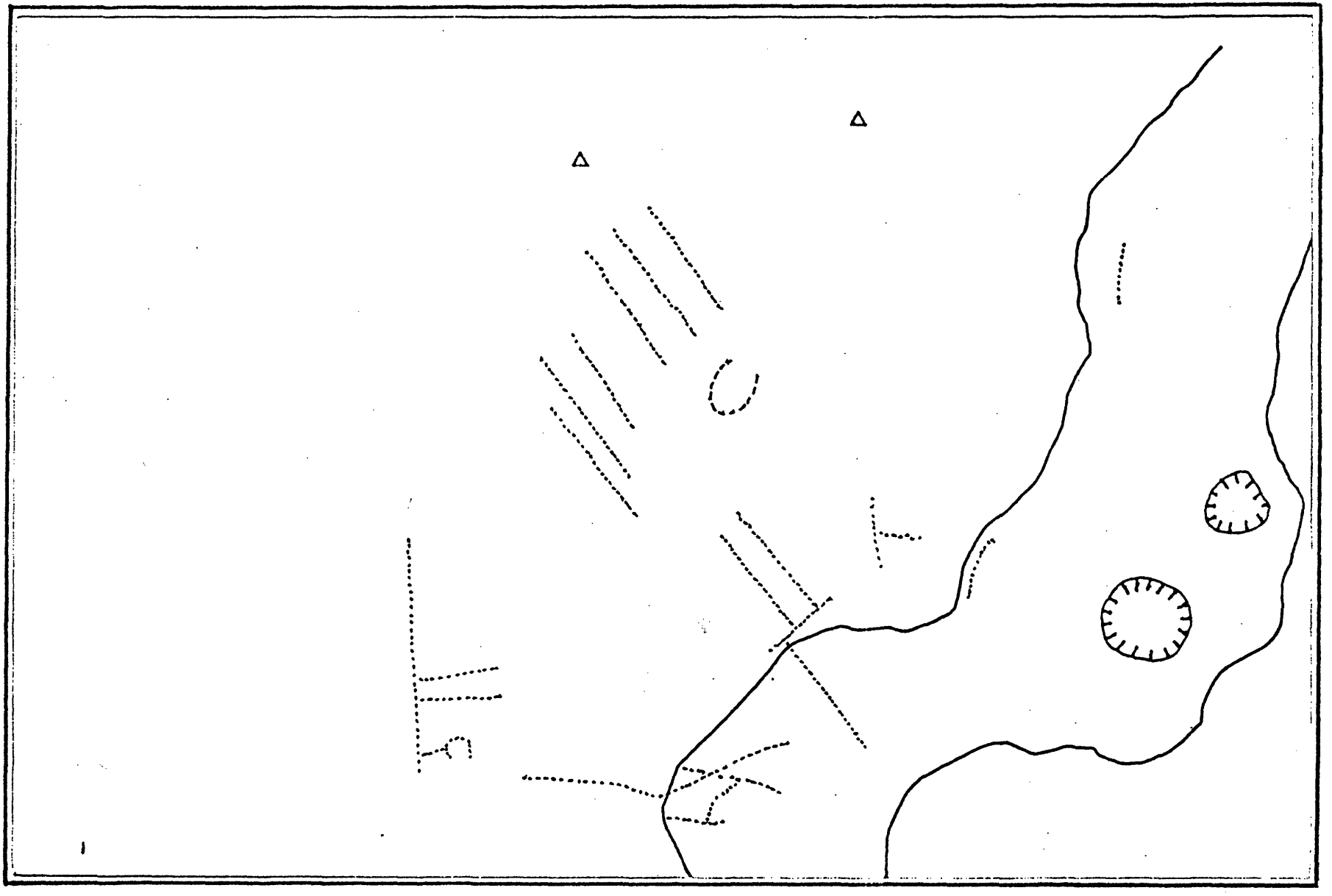


FIGURE 25: Composite field. Adapted from Travis (1990).

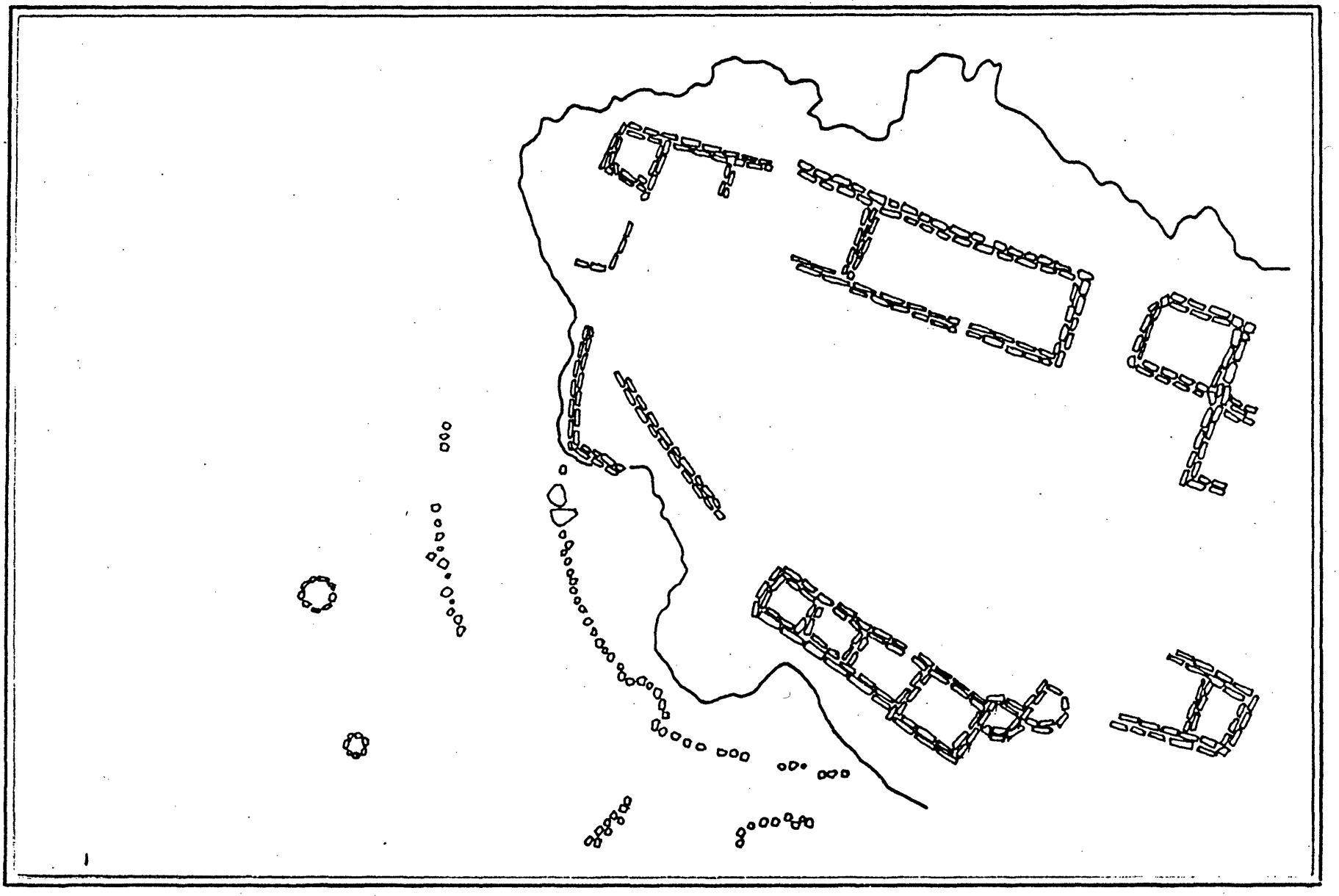


FIGURE 26: Terrace garden. Adapted from Travis (1990).

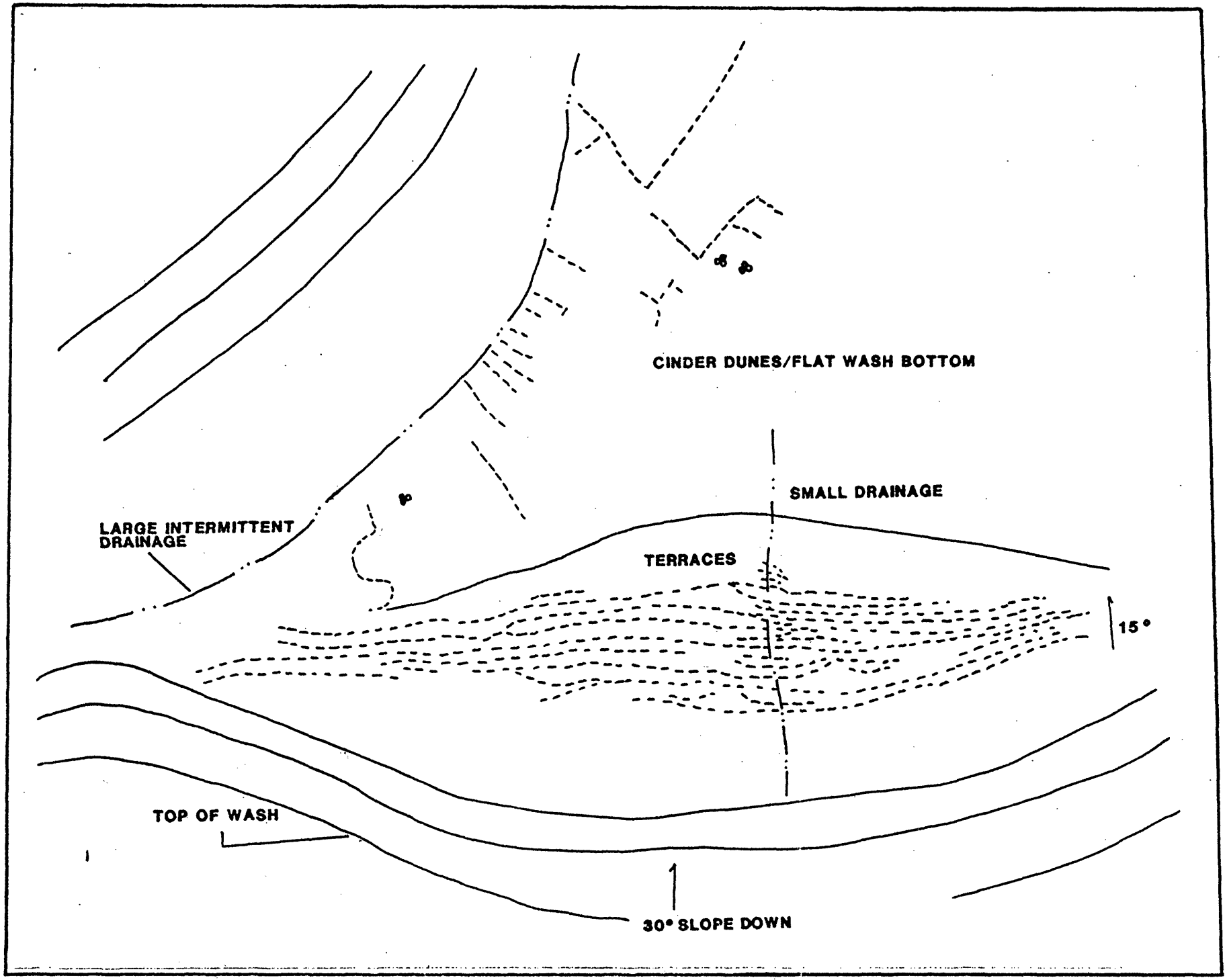


FIGURE 27: Terrace field. Adapted from Travis (1990).

WS165

DAM/RESERVOIR

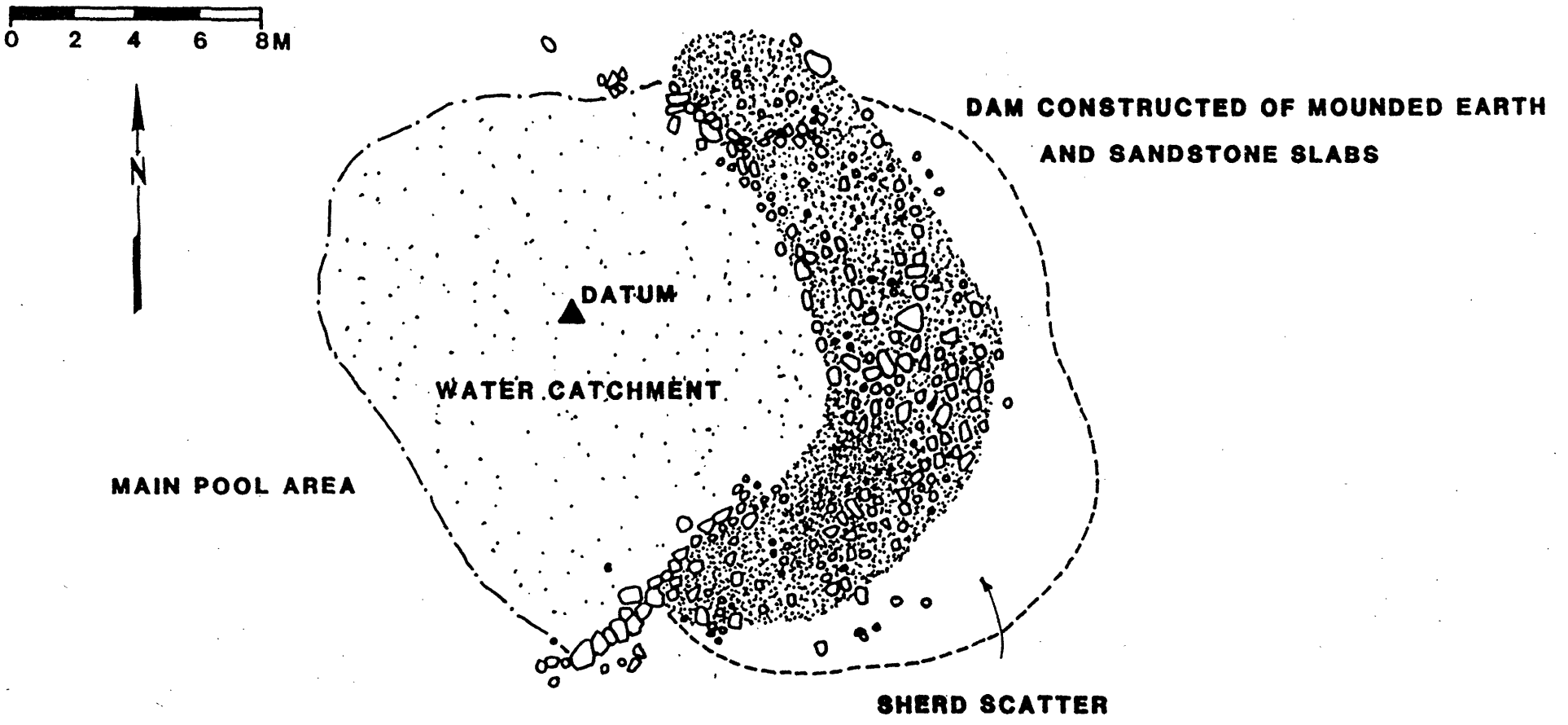


FIGURE 28

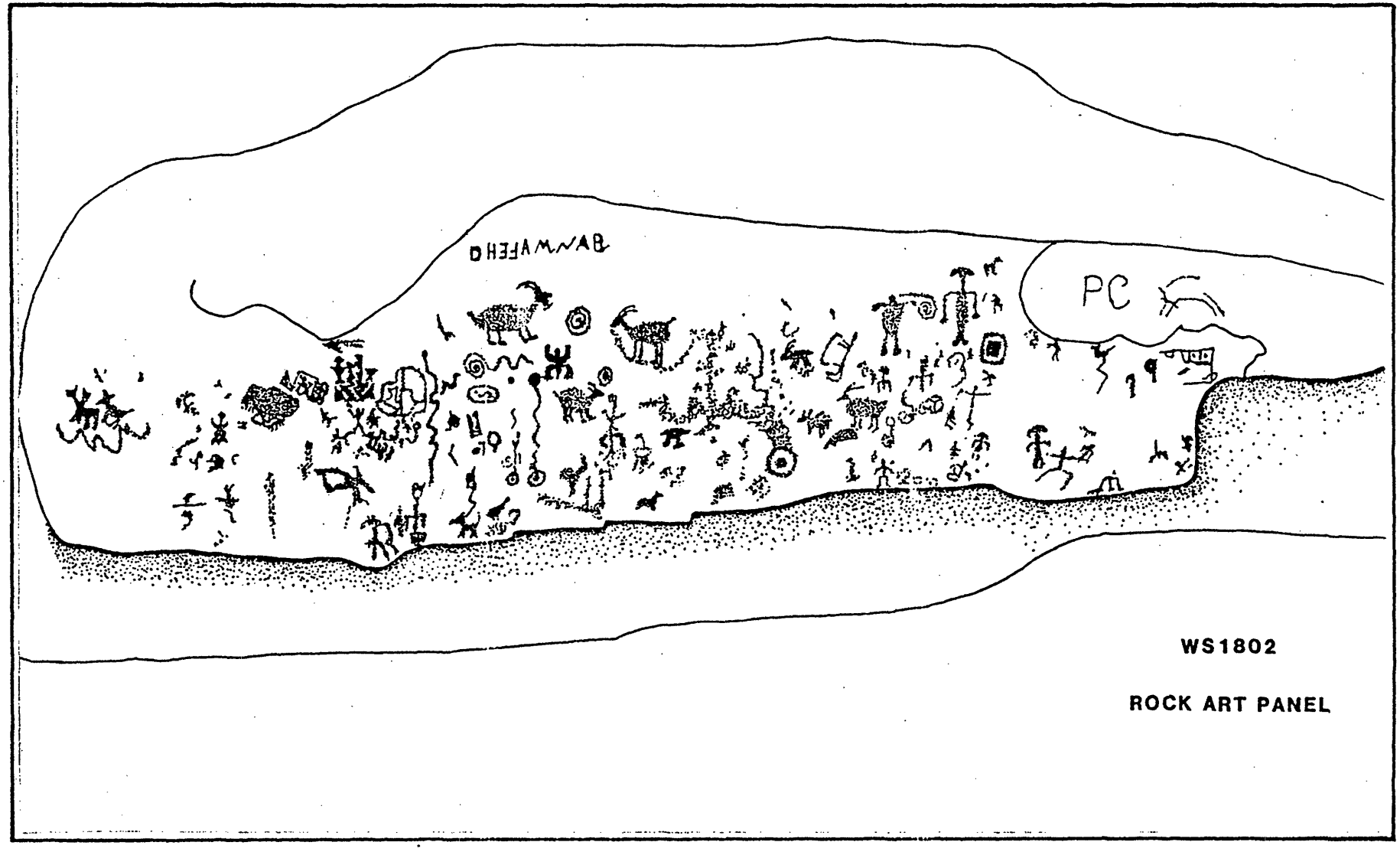
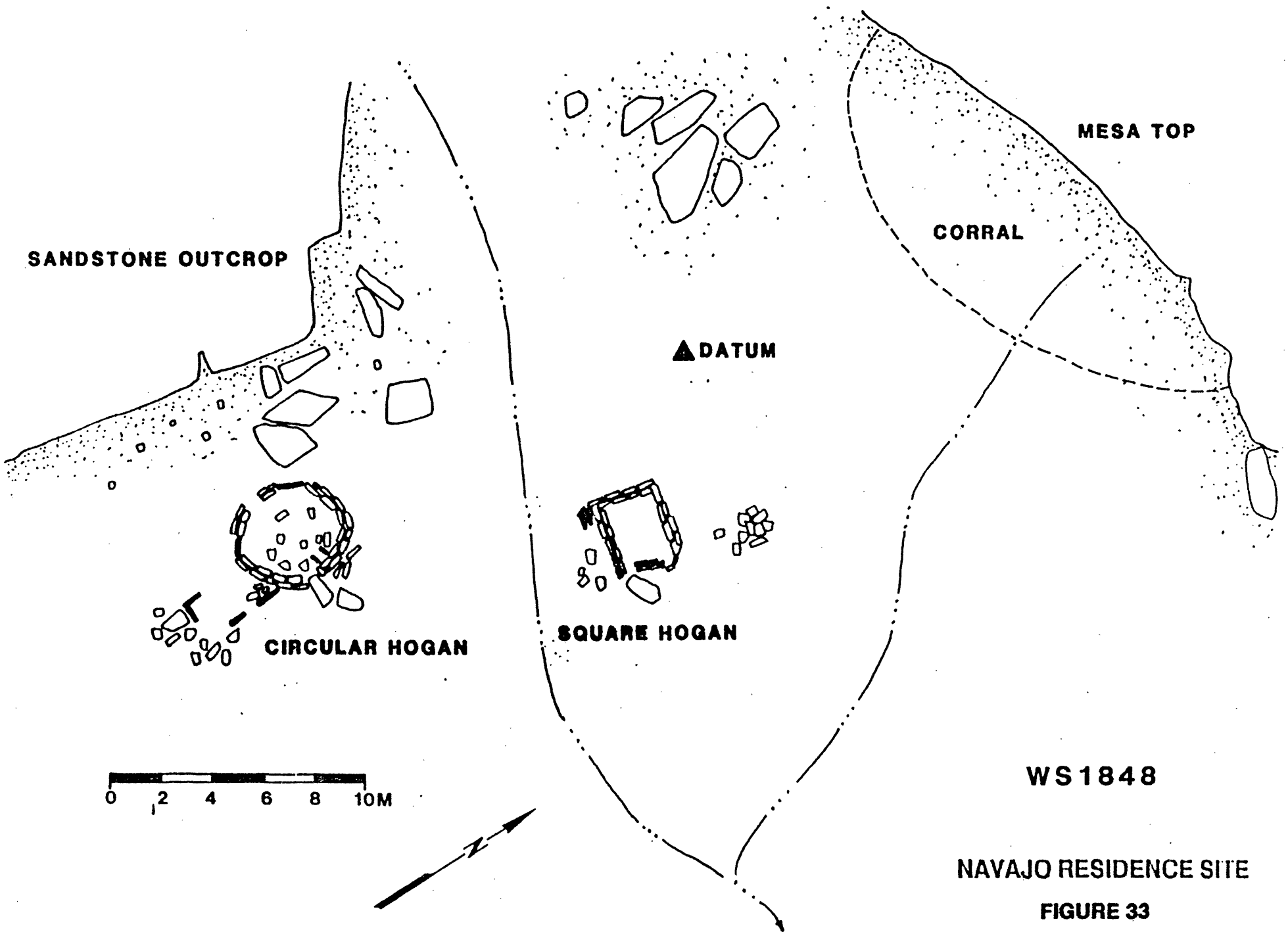


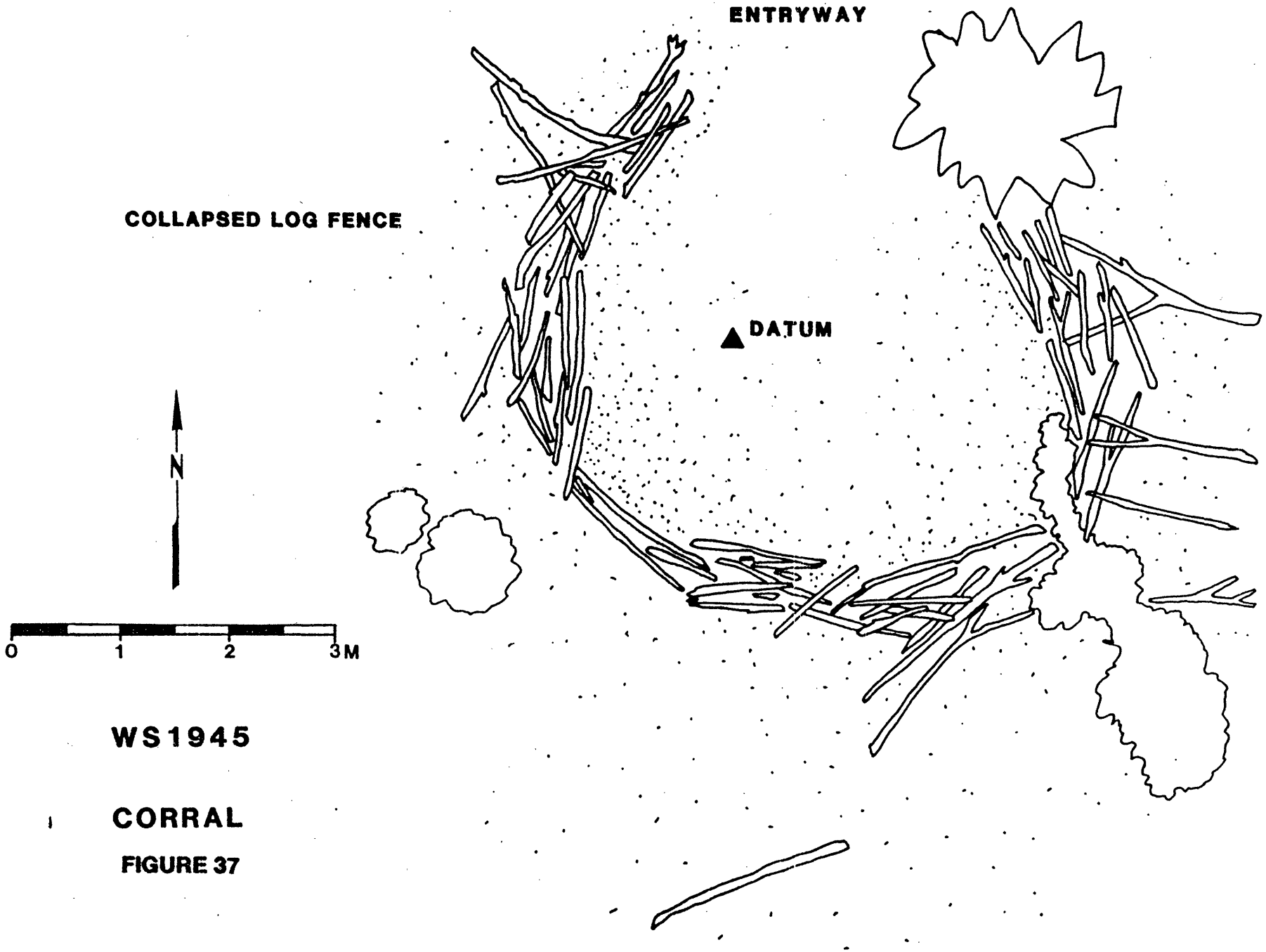
FIGURE 31: *Prehistoric rock art panel.*



WS1848

NAVAJO RESIDENCE SITE

FIGURE 33



WS1945

CORRAL

FIGURE 37