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**The Pueblitos of Palluche Canyon: An Examination of the Ethnic Affiliation of the Pueblito Inhabitants and Results of Archaeological Survey at LA 9073, LA 10732 and LA 86895, New Mexico**

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THE PUEBLITOS OF PALLUCHE CANYON:  
AN EXAMINATION OF THE ETHNIC AFFILIATION  
OF THE PUEBLITO INHABITANTS AND  
RESULTS OF ARCHAEOLOGICAL SURVEY  
AT LA 9073, LA 10732 AND LA 86895,  
NEW MEXICO

by

Leslie-lynn Sinkey

A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for a  
Master of Arts

Department of Anthropology  
Brigham Young University

March 2004

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BRIGHAM YOUNG UNIVERSITY

GRADUATE COMMITTEE APPROVAL

of a thesis submitted by

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This thesis has been read by each member of the graduate committee  
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## ABSTRACT

THE PUEBLITOS OF PALLUCHE CANYON:  
AN EXAMINATION OF THE ETHNIC AFFILIATION  
OF THE PUEBLITO INHABITANTS  
AND RESULTS OF ARCHAEOLOGICAL SURVEY  
AT LA 9073, LA 10732 AND LA 86895,  
NEW MEXICO

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Department of Anthropology

Master of Arts

The small, above-ground masonry structures of northwestern New Mexico called “pueblitos” first came to the attention of anthropologists in over a century ago. In 1920, the noted archaeologist A.V. Kidder hypothesized that these masonry structures might have been built by Puebloan refugees fleeing Spanish reprisals in the wake of the Spanish reconquest of New Mexico after the Pueblo Revolt, and he proposed that this hypothesis be tested. Over the next several decades, however, the hypothesis remained untested, but it became both accepted as

established fact and the basis for most anthropological, archaeological, and historical reconstructions of Navajo history and cultural development.

This thesis attempts to validate or disprove Kidder's hypothesis, based on the archeological remains at the sites, and based on ethnographic evidence recorded for both the Navajo and Puebloan groups. The evidence presented by the ceramic wares (utility wares in particular), the architecture and construction techniques at the sites, and the settlement and community organization evident at and surrounding the sites were all considered. Theoretical models were developed, reflecting the sites as they would appear if they were constructed and occupied solely by Navajo, solely by Puebloans, or by a co-resident population consisting of both groups. The archaeological evidence from twelve pueblito sites and their surrounding complexes is then compared against expectations in the models.

In order to provide a larger database upon which to base conclusions, three pueblito sites (LA 9073, LA 10732, and LA 86895) and their surrounding complexes were surveyed and documented in the fall of 2002. The results are included herein.

The ceramic, architectural, settlement and ethnographic data all serve to disprove Kidder's eighty-year-old hypothesis, to establish that the builders of the sites were, in fact, Navajo. This provides further

impetus for the formulation of new hypotheses in the realm of Navajo archaeology.



## ACKNOWLEDGMENTS

I wish to express my deep appreciation to my graduate committee, Drs. Joel C. Janetski, Ronald H. Towner, and John E. Clark. I am especially indebted to Dr. Towner for initially sparking my interest in the pueblito question, and for invaluable support, both technical and moral, and for his unflagging interest and encouragement prior to, and throughout this project.

I also wish to express my appreciation to James M. Copeland of the Bureau of Land Management Farmington District, for providing me with my first “boots on the ground” introduction to Navajo archaeology—he managed to convey a vast amount of valuable information in a very short period of time. Thanks go, too, to Richard K. Talbot of the Office of Public Archaeology for providing necessary gear for the fieldwork. Funding for this project was received through a Graduate Research Fellowship from Brigham Young University.

Most of all I wish to thank my parents. Without them none of this would have been possible.



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## 1 Introduction

The so-called “Pueblito Phenomenon” (Towner 1996:149) of northwestern New Mexico is one that has engaged the attention of archaeologists and anthropologists for more than nine decades. In spite of the attention paid to their existence and supposed origins, however, surprisingly little archaeological research has been conducted on the structures themselves.

Pueblitos are small, above-ground structures generally constructed in defensible positions, such as the tops of small mesas or large boulders (Towner 1996:149) (Figure 1.1). Some 130 such structures are known. Due to their contiguous rooms and stone walls, they bear a striking resemblance to the architecture of the Puebloan groups of the American Southwest (thus the name “pueblitos”, meaning “little pueblos”). However, these sites also exhibit considerable evidence of occupation by Navajo groups, particularly in the form of wooden structures, often now collapsed, interpreted to be the remains of forked-pole hogans, a form of traditional Navajo dwelling (Jett and Spencer 1991; Mindeleff 1898).

In the early part of the twentieth century and on the basis of extremely limited excavation and a quotation from anthropologist and historian Adolf Bandelier (1892:216), the noted archaeologist A.V. Kidder proposed that these sites were constructed and occupied by Pueblos seeking refuge in Navajo territory from Spanish reprisals in the wake of

the Pueblo Revolt of 1680 (Kidder 1920:327-328). Over time his hypothesis has been promulgated in the archaeological literature until it attained the status of generally accepted fact (Bailey and Bailey 1986:15; Brugge 1968: 16; Hester 1962:4, 5; Hogan 1991:3).



Figure 1.1 Frances Canyon Pueblito.

For a period of some seventy years Kidder's untested "refugee hypothesis" formed the basis for the archaeological, anthropological, historical, and biological understanding of the Navajo culture (and people) as it exists today (Bailey and Bailey 1986:15; Hogan 1991:7). In recent years, however, the "refugee hypothesis," and its implications, have begun to be questioned by a number of researchers.

Patrick Hogan (1991) has argued forcefully and convincingly, on the basis of historical documents, that the number of Puebloan refugees was in reality considerably lower than previously believed. He suggests that most of those who fled the Rio Grande pueblos can be accounted for by refugee populations which settled at Zuni and Hopi, as well as others who remained in hiding in the mountains surrounding their original pueblos.

Ronald Towner (1992, 1996) provided the first archaeological approach to the re-analysis of the refugee question, by conducting extensive dendrochronological dating of the pueblito structures and surrounding hogans. His work has demonstrated that the vast majority of pueblitos were, in fact, constructed well after the Pueblo Revolt and subsequent reconquest, during a time of comparative peace with the Spaniards.

Whereas Towner and Hogan have attempted to address the question of ethnic co-residence at pueblito sites, they have approached it from dendrochronological and historic standpoints, respectively, rather than through the archaeological remains at the sites themselves. Although dendrochronology does rely upon material remains, it can only tell the “when” of the sites, and not the “who.”

Other researchers have recently applied other lines of archaeological evidence such as ceramics and rock art to demonstrate long-standing, pre-Revolt interaction between the Navajo and Puebloan

groups (e.g. Copeland and Rogers 1996; Reed and Reed 1992; Reed and Reed 1996). These long-standing relationships may help in part to explain noted similarities between Navajo and Puebloan cultures, but they do not, in and of themselves, address the question of whether ethnic co-residence did or did not occur at pueblito sites. The only means by which this question may be resolved is by a closer examination of the archaeological evidence at the pueblitos themselves.

The necessity of exploration of this question from an *archaeological* standpoint has been acknowledged by a number of researchers. Gary Brown (1996:47,52) has recently observed:

Rather than rely on historical documents and ethnohistory... archaeological and ethnoarchaeological data are critical for elucidating both the historic and protohistoric periods...Chronometric data may be sufficient to place a site component into an archaeological chronology, *but additional information about who occupied the site is necessary.* (emphasis added)

Charles Wheeler, Scott Wilcox, and David Ayers (1996:232) have also noted that:

Whether the [Navajo] interaction with the Pueblos occurred as a result of Pueblo Indians living with the Navajo after the Revolt, as a result of interaction during alliance formation...or in a relationship similar to the Pueblo/Plains macroeconomy...remains an

important question. Only when the chronology is clear can the cultural dynamics be studied. There is an important difference between the kinds of social interactions and cultural processes that occur between groups living together and groups interacting socially and/or economically. Reviews and interpretations of the historical data are instructive, but archaeological data are equally important to the definition and analysis of the interaction.

David Brugge (1996:256) has likewise concluded:

The significant question, in my mind, is not whether there has been Puebloan introgression, but when it took place, the rate of incorporation, and the conditions under which it took place.

In spite of this consensus among archaeologists of the need for direct archaeological evidence to clarify the extent and nature of Navajo-Puebloan interaction during the Gobernador phase (c. 1680-1750), and by extension our understanding of Southwestern protohistory, such research has not been undertaken. Although there can be no doubt that the Navajo *did* interact with the residents of the pueblos—history, oral history, and archaeological evidence all bear record of both raiding and trading (see Marshall 1995; Matthews 1994; Reed and Reed 1992; Reeve 1958; Schaafsma 2002)—the question remains unresolved whether or not the range of inter-ethnic interaction included Navajo and Puebloan co-residence at pueblito sites. That, then, is the focus of this thesis.

### ***Theoretical Orientation***

The question of ethnic identity is a notoriously difficult one to address, even for anthropologists working with living groups. A single individual, for instance, may variously identify himself as a Lutheran, an African-American, a Minnesotan, or an American, depending upon the circumstances. The problem of assigning ethnic identity becomes even more complex when dealing with the archaeological record, with the material culture of individuals who can no longer be consulted regarding their own perceptions of their ethnic identity, whom they consider “self,” or part of their own group, and who they consider “other,” or outsiders.

Limited as they are by the nature of their database, archaeologists must search for material evidence which they then, in turn, presume to reflect distinctions between ethnic groups. This material evidence can take numerous forms: ceramics, basketry, architecture, clothing, hairstyles, cranial deformation practices, and a host of others. The defining characteristics used in differentiating variations in this material evidence are generally referred to as “style.” “Style” can be most simply defined as “a way of doing something,” (Hegmon 1995:1). This can include “decoration,” or conscious style—such as the choice of a pottery motif—or sub-conscious style—such as the technique used in forming a pot, whether by coiling, molding, or paddle-and-anvil. This latter, sub-



conscious style has variously been described as “isochrestic style” (Sackett 1990) or “technological style” (Stark 1995).

Many of the most heated arguments among archaeologists regard the relationship between style and ethnicity—whether variations in the former are the hallmark of variation in the latter. In truth, ethnic identity is a fluid concept (Stark 1995:331, 362), one which may be variously delineated (as with the Lutheran African-American Minnesotan) in differing contexts, as well as variously manifested in the archaeological record. In some instances, such manifestations may cross-cut linguistic and other lines which might otherwise be used to define “ethnicity” (Stark 1995:344). Archaeologically and ethnohistorically, such a phenomenon can be seen in the kachina cult of the American Southwest, or in the contemporary example cited above, membership in the Lutheran church. In other instances, stylistic variations may signal membership in a sub-set of individuals within a society (African-Americans, or Minnesotans) and intimate membership in a particular moiety, clan, or village. The problem most commonly confronting archaeologists, then, is determining both *whether* stylistic variation is indicative of ethnic variation, and if so, *what type* of ethnic variation is indicated.

A distinct advantage held by archaeologists working in the historic and proto-historic periods is that in many instances an understanding of the definitions of ethnic categories is available to them—not as

*archaeologists* would define those categories, but as *the group members themselves* would define them (with the recognition that those definitions may still be fluid, with the “out” group being variously members of other moieties, villages, or linguistic groups). From this perspective, then, it is possible to select a level of ethnic identity (moiety, village, tribe, language family), and proceed to establish the material culture correlates, or archaeological markers, which identify that ethnic group. These markers are generally perceived as variations in artifact style.

For the purposes of this research, the ethnic groups in question are defined at a relatively large scale—Navajo vs. Puebloan. Historical records and oral history make it quite clear that these were ethnic distinctions—based on linguistic, subsistence, settlement, religious, and material cultural differences—which were recognized by the people themselves, living at that time. Historic accounts, in concert with archaeological research provide a “direct historical” approach to the definition of the archaeological indices of membership in each of these ethnic groups.

This project focuses on three major categories of archaeological data: ceramics, architecture, and settlement patterns. These three prove effective guides to ethnicity in this instance, as they are durable, ubiquitous, and distinctly different between the two groups. Thus the immigration of Puebloan refugees into Navajo territory, as postulated by Kidder, should be abundantly evident in the introduction of new artifact,

architectural, and settlement styles into the archaeological record of the Dinétah region.

The presence of small quantities of Puebloan ceramics has long been noted at pueblito sites, but the focus of this study will be on the presence, or absence, of Navajo and Puebloan utility wares. Utility wares are less apt to be present on a site as a consequence of trade and are more accurate indices of the actual presence of members of an ethnic group at the site (Stark 1995:333, 336). Therefore, it is postulated here that the presence of utility wares belonging to a particular ethnic group at pueblito sites is evidence of the presence of members of that particular ethnic group—Dinétah Gray of the presence of Navajos, and Puebloan utility wares of the presence of Pueblos, and that their absence signifies the absence of members of that particular ethnic group (see Chapter 11 for a further discussion).

Architectural styles are a key index of ethnicity, as they often reflect both a community's social organization and its perception of the organization of the cosmos (Bell 2000:116-117; Hegmon 1989:5-10; Jett and Spencer 1981:22-23, 239; Ortiz 1969:18-24.) As a form of "isochrestic" or "technological" style, it is less subject to modification than are decorative styles. An even more significant consideration is construction technique: for instance, numerous different masonry and adobe construction styles have been employed in the American Southwest over the centuries, but once they have been plastered over

with adobe—as was universally the case—there is little on the exterior to distinguish between the core-and-veneer walls of Chaco Canyon, the rough masonry walls built by the Towa, and the all-adobe construction utilized by the Tewa. Therefore, such variations represent solely a community’s conception of the “right way of doing things,” rather than being used to signal ethnic affiliation to visitors to the pueblo. If, as Kidder proposed, the pueblitos were built and inhabited by Puebloan refugees among the Navajo, the construction techniques and overall architecture of the structures should reflect that, and even indicate which ethnic group, or suite of ethnic groups with similar practices, the refugees hailed from. If the pueblitos were an indigenous Navajo adaptation, that, too, should be reflected in the architecture and construction of the structures (see Chapter 12 for a further discussion).

Like architecture, community settlement patterns are a reflection of the social mores of a group, and in the case of the Navajo and Puebloans, they are widely variant. The hunter-gatherer/agriculturalist, incipient pastoralist lifeways of the Navajo were well suited to their dispersal on the landscape, and stands in stark contrast to the highly-aggregated settlements of the Puebloans. Both of these patterns were well-adapted to the defensive techniques of each group—an important consideration in light of the evident role of the pueblitos as defensive structures. The widely-variant settlement patterns of the Navajo and the Puebloans are also reflective of their ceremonial and religious practices,

with the Navajo religion being largely individualistic and shamanistic, whereas the Puebloan kiva religion was highly regimented and played a major role in social incorporation, regulation, and cohesion.

As with ceramics and architecture, the differences in settlement patterns should be evident both at individual pueblito sites, and in the patterning of pueblitos across the landscape, with aggregation being indicative of Puebloans as the builders and inhabitants of the sites, and dispersion characteristic of Navajo construction (see Chapter 13 for a further discussion).

### ***Thesis Overview***

In order to provide an overview of the historical framework in which the pueblitos were constructed, a brief overview of Navajo prehistory and history follows (see Chapter 2), based on current archaeological research and contemporary Spanish documents. This summary includes the period from the presumed first arrival of Athapaskan groups in the American southwest to the 1805 massacre of Navajos in Canyon de Chelly by Spanish forces, at which time the Navajo had largely abandoned the Dinétah region, and pueblito construction in the area had ended. This is followed by a brief overview of the Pueblo Revolt (see Chapter 3) and a detailed review of the history of pueblito research, beginning in the 1880s (see Chapter 4).

Details of the survey methodology are presented in Chapter 5. The subsequent four chapters address Palluche Canyon and its pueblitos—the first, Chapter 6, provides an overview of the canyon proper, its topography, climate, vegetation, wildlife, and archaeology. The next three chapters provide data on the results of survey conducted at and around three pueblito sites in the fall of 2002.

Archaeological research and Spanish archives are by no means the only record of the history and interactions of Navajo and Spanish groups. Kidder's original hypothesis regarding the residents of the pueblitos was based on his interpretation of Towa oral tradition, as recorded by Adolf Bandelier (Kidder 1920:327-328). Thus, a review of pertinent portions of the oral histories of Navajo migration and clan origins, as well as Towa and Tewa oral histories regarding the 1680 Pueblo Revolt and its aftermath, are included in Chapter 10. These histories were drawn from published sources—no attempt was made to conduct interviews with informants.

This is followed by the formulation of three theoretical models, postulating the anticipated ceramic remains (Chapter 11), architectural styles and construction techniques (Chapter 12), and the patterning of community organization and settlement patterns (Chapter 13). The models reflect three scenarios: the characteristics expected of a community built and inhabited by Navajos, those of a community built and inhabited by Puebloans, or the postulated character of an ethnically

mixed community of Navajos and Puebloans. It is these models against which the data gleaned from eleven pueblito sites were compared (three found in Palluche Canyon, and results from a similar 1990 survey of eight pueblitos by Michael Marshall [1991, 1995]). The survey results in the three categories (ceramics, architecture, and settlement) are considered individually, each in the appropriate chapter.

Tapacito Ruin (LA 2298) stands as a unique structure among the pueblitos of the Dinétah region, and in keeping with Towner's suggestion that it "be viewed as a separate entity" (1996:166), it receives independent consideration in Chapter 14. Again, the models previously developed are invoked to attempt to determine the nature of this unusual case.

The final chapter includes a summary of the evidence arguing for the pueblitos as solely Navajo phenomena. This is followed by a consideration of the implications for the current understanding of Navajo archaeology, and some directions for future research.

## **2 Overview of Navajo History to 1805**

### ***Arrival in the Southwest***

To the Navajo, their beginnings, as outlined in their origin stories (Fishler 1953; Klah 1942; Matthews 1994; O'Bryan 1956) are quite clear. From the western archaeological and historical perspective, however, Navajo origins are far more enigmatic. The following presents a brief overview of what is known, and what is believed to be known, about the Navajo sojourn in the American southwest until the end of the eighteenth century, by which time pueblito construction—the major focus of this thesis—had ceased, and the Dinétah region had been largely abandoned as a habitation area (Towner 1997:331).

The Navajo, like various Apache groups, speak an Athapaskan language (Hoiyer 1938:75). The term Athapaskan derives from the name of a northern Canadian lake which straddles the Alberta-Saskatchewan border. Like their namesake, most Athapaskan-speaking groups are found in the northern boreal forest of Canada and Alaska, and indeed comprise the bulk of the languages of this region, with a limited number of Athapaskan-speakers stretching south along the northwest coast of North America (Hoiyer 1938:75). The Navajo and Apache are the only Southwestern representatives of the language family, and indications are



that they represent a southward movement of Athapaskan speakers, rather than a remnant left from a northward migration (Hoijer 1938).

While linguistics indicate that the Navajo and Apache are relatively recent arrivals in the American southwest—glottochronology suggests 500-1000 years—(Hoijer 1956:232), there is little or no indication of the route that they followed to reach it. Two schools of thought have developed over the years, which Towner (1997:391) has characterized as the “Early Entry-Mountain Route” and the “Late Entry-High Plains” models respectively (see also Wilcox 1981:215). A third proposed route to the southwest, via intermountain valleys to the Great Basin and thence southward to the American Southwest, has also been proposed (Steward 1936:62; Wilcox 1981:215). More recent research, however, has largely discredited Steward’s model (Wilcox 1981:217-218).

The salient aspects of the Early Entry-Mountain Route hypothesis involves an Athapaskan group—which later differentiated into Apache and Navajo—making its way southward from northern Canada via intermountain valleys and passes, to arrive in the southwest prior to AD 1500, and possibly early enough to overlap with the Anasazi occupation of the San Juan region. Subsequent to the Anasazi abandonment of the area in approximately AD 1300 (Gerow and Hogan 2000:11), the Navajo became the only permanent indigenous residents of the area, while other Apachean groups settled to the south and east.

In contrast, the Late Entry-High Plains model envisions bison-hunting Athapaskan-speakers drifting southward from the Black Hills, subsisting on bison, until they reached the southwest approximately 1525 AD, where they began trading with the western pueblos shortly before the arrival of the Spaniards (Hester 1962:5). This group gradually dispersed to form the various Apache tribes, with the Navajo moving west, adopting corn agriculture from the Puebloans (Wilcox 1981), and settling in the Piedra Lumbre valley in the mid-seventeen century (Schaafsma 2002:306-309). Increased conflict with the Spaniards, including involvement with the Pueblo Revolt and subsequent reprisals, then forced the Navajo farther west (Schaafsma 2002:303) into the region now known as Dinétah—the Navajo homeland.

Although these are the two primary models of Athapaskan arrival in the southwest, each suffers from significant shortfalls in supporting data. The Late Entry-High Plains model is based primarily on ambiguous historic Spanish accounts, particularly that of the initial Coronado expedition of 1541, in which they record encountering a group of bison-hunting dog-nomads on the plains east of Pecos, and whom they dubbed “Querechos” (Gunnerson 1956:346; Wilcox 1981:219). Although there is no clear evidence that these Indians were Navajo, or even Athapaskan-speaking, it is commonly accepted in the archaeological literature that they were (Towner and Dean 1996: 4; Wilcox 1981:220; but see Hodge 1895:253). Although later Spanish accounts appear to be

quite clear about the presence of Navajo groups (often specifically so named) in the Chama River drainage in the mid-1600s (Schaafsma 2002:237-241; Reeve 1956:295), the archaeological evidence of Navajo occupation of the Piedra Lumbre area is inconclusive at best, and most archaeologists believe the “Piedra Lumbre phase” (Schaafsma 1979) to be the remains of Tewa sheep-herding camps, rather than of Navajo homesteads (Carrillo 1992:323-325, Kemerer 1992:101-102; Wozniak 1992a:329; Wozniak 1992b:4-5).

The Early Entry-Mountain Route model, while devoid of historic documentation, rests on a firmer archaeological and oral historical foundation. Navajo sacred geography and oral history is firmly centered in the northwest corner of New Mexico (Hester 1962:85; Matthews 1994; Klah 1942; O’Byran 1956; Fishler 1953), and the earliest unambiguous archaeological evidence of Navajo occupation occurs in the San Juan region during the Dinéyah phase, c. 1500-1650 (Gerow and Hogan 2000:12; Brown1996:57). At this time the people were manufacturing Dinéyah Gray pottery, using grooved shaft abraders, and constructing earth-covered, forked-pole hogans in shallow excavated pits—all traits which would carry on into the later Gobernador phase (1650-1775, see Brown 1996:57) of the Navajo occupation. Structure and community layouts were already formalized, and again correspond with those known from later, definitively Navajo sites (Brown 1996:62-63).

### ***Early Historic Accounts***

The Navajo first incontrovertibly appear in Spanish records in Fray Zarate de Salmeron's 1626 reference to the "Apache de Nabaju" (Hester 1962:21), which suggests that they were engaged in agriculture along the Chama River drainage. From this period on, Spanish historic records provide the best—although at times sporadic and ambiguous—indication of the sweep of events affecting the Navajo during the next two centuries.

Although Zarate Salmeron's observations are the first contemporary mention of the Navajo, it is likely not the first interaction between the Spaniards and their Navajo neighbors. Robert Roessel (1983:54), citing an unnamed Spanish chronicler, indicates that the Navajo may have caused the AD1610 abandonment of the New Mexican capital of San Gabriel, established 11 years previous:

San Gabriel was for some years the provincial capital, later, perhaps because...it was then the open border of the Navajo Apaches, it was abandoned and moved to where it now stands with the name Santa Fe. (Author's translation)

Internal evidence in this quote, however, suggests that this account was written some time after the actual abandonment, although given the absence of Roessel's specification of his source, it is impossible to know how many years later.

It was likely during the period 1630-1680 that the Navajo first acquired the horse (Hester 1962:21). The additional range of travel permitted by this adoption likely contributed to their greater contact—and at times conflict—with the Spaniards.

In 1650, additional horses were turned over to the Navajo by Puebloan leaders, in anticipation of a planned revolt. The plot was discovered before it could be consummated, however, and the Puebloan insurgents were hanged (Hester 1962:21).

During the period between the abortive and the later successful revolt, the Navajo appear to have alternately raided and traded with the pueblos (McNitt 1972:11). Raids extended into, as well as originated from, Navajo territory. Although slavery was illegal in New Mexico, the law was not enforced, and slavery flourished, with an Apachean (including Navajo) slave being equal to the value of four oxen, or three to five horses (Kessell 1979:364; McNitt 1972:12).

### ***The Pueblo Revolt and Its Aftermath***

Resentment against the austerity and brutality of Spanish rule continued to simmer, and in 1680, the Puebloans, spearheaded by the Tewa and Towa and aided by the Navajo, Colorado River Apache, and other pueblo tribes, united to drive the Spanish settlers out of New Mexico. In spite of an abortive attempt at reconquest the year after the

revolt and two additional brutal campaigns against the pueblos (Preucel 2002:3), the Spaniards remained exiled from New Mexico until don Diego de Vargas led a return expedition in 1692 (Hester 1962:22). The resulting twelve-year hiatus also results in a gap in the Spanish historical records for the area. At the time de Vargas returned, he found many of the people of Jemez living in the mountains, ostensibly for protection from the Navajo (McNitt 1972:19), suggesting that the anti-Spanish alliance was short-lived after the expulsion of the Spaniards. Schaafsma, however, suggests that the alliance was still in effect, since Don Luis Picuri, an indigenous Puebloan leader, met first with the Navajo before journeying to Santa Fe to meet with de Vargas (2002:260).

The Puebloans were still resistant to Spanish domination, and many fled to the mountains or to distant pueblos less subject to Spanish reprisals. It is during this four-year period from 1692-1696, that numerous Puebloan refugees have long been believed by historians and archaeologists to have fled to live among the Navajo (but see Hogan 1991; Towner 1997:400-401) The years 1693-1694 saw conflict between the advancing Spaniards and the Puebloans, who found allies among the Colorado River Apache and the Navajo. By 1695, most of the Rio Grande pueblos were again under Spanish control, although Acoma, Zuni, Hopi, and the Athapaskan groups remained unconquered (Hester 1962:22). The last abortive attempt to throw off the Spanish yoke occurred in 1696, as the Navajo, Keres, Tewa, and Towa conspired to eliminate the Spanish

colonists. Naranjo, an Indian of Santa Clara, informed Diego Xenome (Dieguillo), the *cacique* of Nambe, that the “Apaches...had agreed to advise them what they decided and determine about what they must do and carry out” (Schaafsma 2002:282). The primary goal of the Navajo involvement in the second revolt may have been the acquisition of additional horses (Schaafsma 2002:282-283).

In spite of the failure of the attempted 1696 revolt, the Navajo continued their depredations against Spanish interests (Schaafsma 2002:297). In 1704, the Navajo, Utes, and Tewa planned attacks against the Spanish, but the Navajo were roundly defeated northwest of Abiquiu (Hester 1962:22). As a consequence of this, and stock raids against Tewa pueblos (Hester 1962:22, McNitt 1972:19), in 1705 Roque de Madrid led a punitive expedition against the Navajo living in Dinétah. In his journal of the expedition, Madrid records encountering two women—one Navajo, the other from Jemez but married to a Navajo, whom he tortured to death (Hendricks and Wilson 1996:20). This reference has been construed as additional evidence of a significant Jemez presence among the Navajo, although it reflects the fate of only one unfortunate transplanted Puebloan.

Additional punitive expeditions were mounted against the Navajo by the Spaniards in the period 1708-1716 (Hester 1962:22), including six more under the captaincy of Roque de Madrid in 1709 (Hendricks and Wilson 1996). It was evidence given by Spaniards involved in the

reprisals that provided the material for the Rabal Document (Hill 1940), which covered various Spanish encounters with the Navajo in the period 1706-1743. The witnesses to the Rabal document make repeated reference to the Navajo trading baskets, buckskin, and woolen fabric with the Spanish settlers and Pueblo villages (Hill 1940:400-413). During this period raiding, primarily for livestock, may also have been a significant part of the Navajo economy (Hester 1962:27) By 1720 the Navajo and the Spaniards established an uneasy truce which endured until the 1770s (Hester 1962:22).

### ***Spanish Peace, Ute Tensions***

The Spaniards were not the only ones with whom the Navajo had to contend. Shortly after 1709, the Navajo began to come under increasing pressure from the Ute and Comanche in the north, an alliance that lasted until the 1750s (McNitt 1972:23). Ute and Comanche incursions may have had considerable impact on the Navajo-Spanish peace during this period, with the Navajo unwilling to engage a war on two fronts (McNitt 1972:23).

By 1744, the Franciscan Friars estimated the Navajo population at between four and five thousand (Roessel 1983:59). It was in October of that year that the Rabal Document was deposited before Sargent Major Don Joachin Codallos y Rabal for the Viceroy of New Spain (Hill



1940:395). In 1748, a large number of Navajo moved south to the Cebolleta region, and the following year they requested Spanish protection against the Ute (Reeve 1959:24). Three years later Ute aggressions again forced the Navajo southward and westward, and by 1753-1754, numerous Navajo had taken refuge in the Canyon de Chelly area, west of Dinétah (Fall 1981:35; Hester 1962:23, James 1976:14). Issuance of Spanish land grants in the Dinétah region between 1753 and 1772 were also a contributing factor in the Navajo westward migration (McNitt 1972:29). This period of exodus, combined with ceramic changes, mark the transition from the Gobernador archaeological phase to the subsequent Cabezon phase (Brown 1996:56).

The latter half of the century was marked by a series of shifting alliances. In 1772, the Navajo formed an alliance with other Apachean groups against the Comanche (McNitt 1972:29). In 1785, the Spanish governor Jan Bautista de Anza broke the alliance by offering the Navajo a bounty, and forbidding trading between the Navajo and Apache. The following year the Navajo met with de Anza to form an alliance against the Apache. Two Comanches were present and threatened the Navajo with “extermination” if they did not carry through. De Anza responded with a promise to protect the Navajo from the Ute and Comanche in exchange for Navajo cooperation (McNitt 1972:29-32).

Six years later, in 1792, the Navajo and Ute joined forces against the Comanche, and in 1796 the Navajo arranged a truce with the Apache, which lasted eleven years (McNitt 1972:35).

With threat of incursion by other Native American groups reduced, in 1796 the Navajo again began raiding Spanish settlements. These raids, however, did little to curb Spanish expansion, and 30 new land grants were issued to Spanish settlers in the Cebolleta region at the turn of the eighteenth century. Although the Navajo petitioned the Spanish governor at Santa Fe for return of their lands, and when refused attacked and forced the abandonment of the Cebolleta settlement, their efforts failed to stem the Spanish advance. The Spaniards retaliated in 1805, massacring 115 Navajos in Canyon de Chelly, which forced the establishment of a lasting peace between the Spaniards and the Navajo (McNitt 1972:37-45) that continued until the Spanish crown lost control of the region sixteen years later.

### **3 A Brief History of the Pueblo Revolt**

#### ***The Entrada***

The history of the Navajo people is not the only history with bearing on the question of the cultural affiliation of the pueblito complexes. The history of Puebloan groups, with particular reference to the period of the Pueblo Revolt, is also intimately tied to the issue. As a consequence, a brief overview of the historical events of the period follows, with particular emphasis on the roles of and effects upon Towa and northern Tewa groups, as these have been determined to have been the most likely source for a postulated influx of refugees among the Navajo (Barrett 2002:91-114; Hogan 1991:21; Reed and Reed 1992:102).

The first direct contact between the Spaniards and Puebloan groups occurred with Coronado's 1540 reconnaissance mission to the Rio Grande and western Plains, but it was another 48 years before Juan de Oñate arrived at the head of the first group of colonists (Espinoza 1988:4-5.) By 1680, however, the Spanish colonists and missionaries—though never numerous—had had a profound impact on the population and culture of Rio Grande pueblos (Barrett 2002:67-80; Espinoza 1988:4-32:). Several abortive attempts had been made by individual pueblo groups to free themselves from Spanish oppression, but each of

these had been swiftly and ruthlessly crushed (Elliott 2002:46; Espinosa 1988:30; Haskell 1975:55; Wozniak 1992:10).

### ***The Revolt***

By the summer of 1680, however, resentment simmered in the southwestern heat, and prominent leaders from several of the eastern pueblos had concluded that a concerted, united effort was necessary if the pueblos were to be free of Spanish dominion. Plans were made and couriers sent out to the respective pueblos, each bearing a knotted cord. One knot of the cord was to be untied each day, until the last knot was untied the day of the rebellion: August 11<sup>th</sup> (Espinosa 1988:34; Sando 1992:63). Before the plans could be put into effect, however, two of the couriers were captured, and the plans were revealed just two days before the revolt was to start. Fearing that the revolt could be thwarted altogether if the Spaniards were given time to prepare, the decision was made to begin the revolt effective immediately and hostilities erupted August 10<sup>th</sup> (Espinosa 1988:34; Preucel 2002:3; Sando 1992:65). By the time the conflict ended, more than 400 Spanish missionaries and colonists were dead, and the roughly 2500 survivors, joined by Piro Indians who had supported the revolt, fled south to El Paso (Barrett 2002:91; Terrell 1973:297, 303).

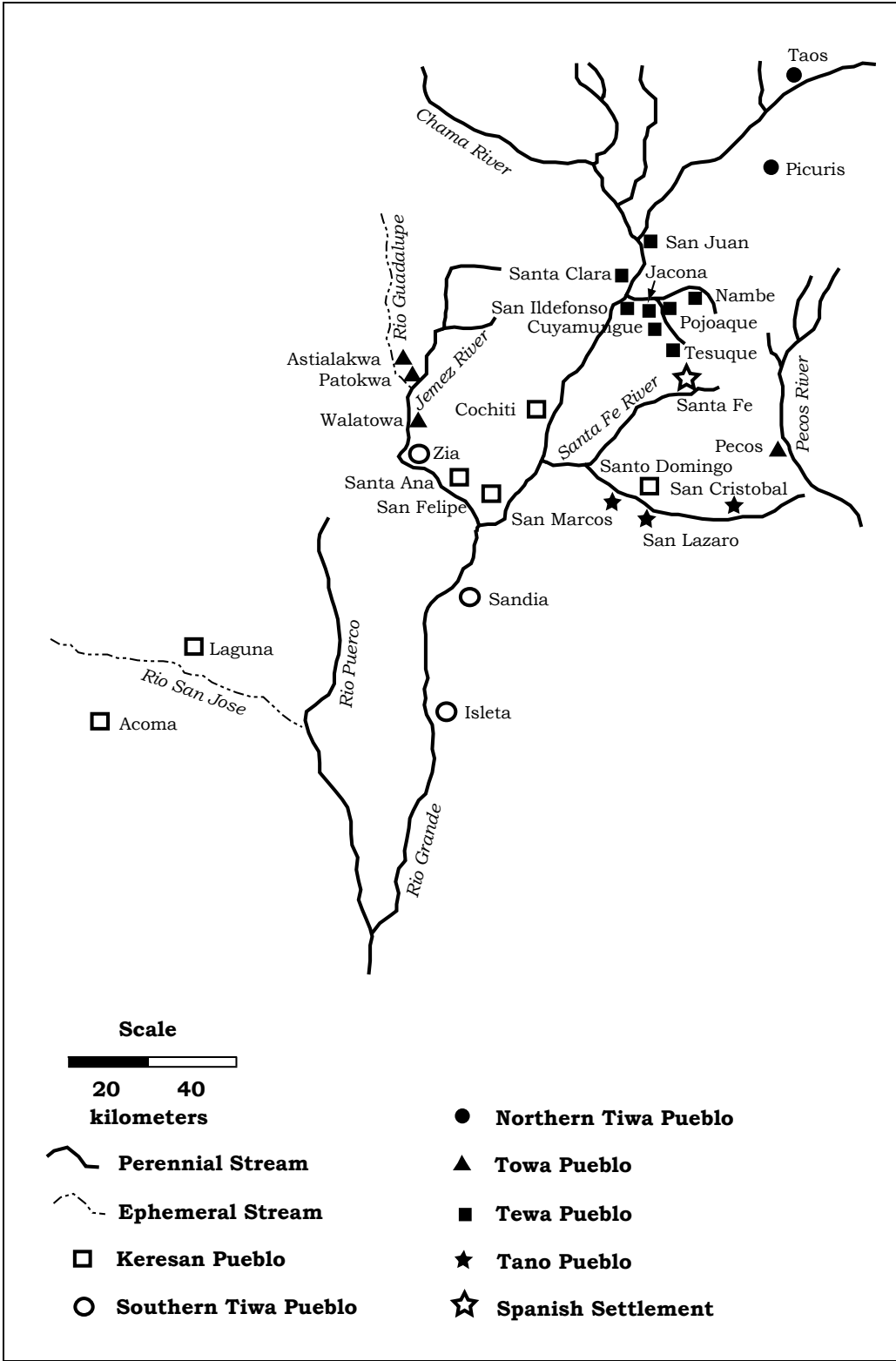


Figure 3.1 Locations of Pueblo Villages and Spanish Settlements.

The Spaniards were determined not to be vanquished, and in November of the following year, Antonio de Otermin returned at the head of 300 men to attempt to retake the area (Kessell 1979:240; Terrell 1973:305). Most of the pueblo villages were found abandoned (Kessell 1979:240; Terrell 1973:306). Sandia Pueblo, one of the few still occupied, (Figure 3.1 for pueblo locations) was set ablaze, and its inhabitants were forced to flee to Hopi, where they remained for the next six decades at the village of Hano (Sando 1992:65-67). The harsh weather, absence of Puebloan stores to be plundered for supplies, and Puebloan resistance forced Otermin's retreat to El Paso in January of 1682 (Terrell 1973:307-309).

In 1693, without returning again to New Mexico, Otermin resigned (Terrell 1973:309). Prior to Otermin's resignation, in 1688, his ultimate replacement, Pedro Reneros de Posada ventured into New Mexico and attacked and destroyed several villages, including Santa Ana (Espinoza 1988:37; Sando 1992:67). The following year, Domingo Jironza Petris Cruzate led an expedition of approximately 130 men back to New Mexico, and burned the pueblo of Zia, killing several hundred Indians, with the survivors fleeing to a location west of present-day Jemez Pueblo (Sando 1992:67; Terrell 1973:312), while Cruzate and his men returned again to El Paso.

### ***The Reconquest***

In 1691, Cruzate was replaced by don Diego José de Vargas Zapata Luján Ponce de León y Contreras, whose determination to recapture the province of New Mexico was spurred on by Spanish concerns regarding French victories in the Mississippi area and potential French expansion westward (Kessell 1979:243; Terrell 1973:313, 319). Consequently, Vargas set out from El Paso in August of 1692 with a force of 200, comprised predominantly of Indian auxiliaries, but they found the pueblos largely deserted. He reached Santa Fe in mid-September of the same year, and the town quickly surrendered. There he was informed that the inhabitants of Pecos and Taos had fled to the mountains (Kessell 1979:267; Terrell 1973:323). After a brief expedition to deserted Pecos, Vargas returned to Santa Fe (Terrell 1973:323). Vargas's next foray was to the newly-established Keres pueblo located near burned Zia (Terrell 1973:323). Likely mindful of the recent fate of Zia, the inhabitants bowed to Vargas's demands of obeisance to the Spanish King and the Christian God. They were followed in quick succession by the inhabitants of Santa Ana, Jemez, Sandia, San Felipe, Santo Domingo, Cochiti, San Ildefonso, Pojoaque, and San Juan (Terrell 1973:323). Vargas next ventured north to Taos and received the allegiance of the people there. From thence he traveled on to Acoma and Zuni (Terrell 1973:323-325). Vargas made no attempt to negotiate with the Navajo,

but he continued on to Hopi where he was faced with the task of dissuading the Hopi from believing stories of Spanish atrocities promulgated by the Navajo (Terrell 1973:325-326). Having achieved the “reconquest” of New Mexico without bloodshed, Vargas and his men returned to El Paso in late December of 1692.

The following October Vargas again set out for New Mexico, this time accompanied by some 100 soldiers and their families, 18 padres, 80 families of settlers, and a motley assortment of convicted thieves, swindlers, lawyers, shopkeepers, masons and carpenters, totaling some 800 people (Terrell 1973:329). In spite of only a year having passed since his “reconquest,” Vargas found that only Pecos and the Keres pueblos of Santa Ana, Zia, and San Felipe were willing to ally themselves with the Spaniards (Espinoza 1988:41; Terrell 1973:330). The governor of Pecos warned Vargas that the Tewa, Tano, Picuris, Towa, Hopi, and the pueblos of Acoma and Taos were prepared to do battle (Espinoza 1988:41).

Vargas camped outside the walls of Santa Fe for two weeks, before a pitched battle erupted on the 30<sup>th</sup> of December (Espinoza 1988:42; Terrell 1973:332). Soon afterward the Jemez, Santo Domingo, Keres, Tano, and Tewa retreated to the mesa tops, while the Picuris and Taos, more distant from the fighting, remained in their pueblos (Espinoza 1988:44).

In late February of 1694, Vargas set out for Black Mesa, a volcanic extrusion located north of San Ildefonso Pueblo, but he was immediately



bogged down by heavy snowfall (Barrett 2002:87; Hendricks 2002:184,186). Vargas laid siege to the mesa, which was held by some one thousand defenders from a variety of Tewa and Tano (southern Tewa) pueblos, for more than two weeks, at which point he lifted the siege, returning to Santa Fe (Espinoza 1988:44; Hendricks 2002:186-188).

Soon thereafter Roque de Madrid, under orders from Vargas, led some 190 Spanish and Keres warriors to Horn Mesa (Potrero Viejo) about 11 kilometers northwest of Cochiti, where members of Cochiti and San Marcos pueblos had taken refuge at the pueblo of Kotyiti (Hendricks 2002:188-189). A three-pronged attack on the mesa on 17 April 1694 quickly overwhelmed the defenses and 8 warriors were killed and 355 prisoners taken (Hendricks 2002:190).

Vargas's attention turned next to the Jemez redoubt of Astialakwa on Guadalupe Mesa, arriving there at the end of July, and attacking with a force of some 190 soldiers and Indian auxiliaries from San Felipe, Santa Ana, and Zia. There he faced opposition from approximately 430 defenders from the Towa pueblos, and their allies from Acoma, Zuni, Hopi, Cochiti, and the Navajo province (Barrett 2002:98; Hendricks 2002:190-191).

Vargas stormed the mesa on 24 July killing 84 and capturing 361, among whom were an Apache and a war captain from Santo Domingo (Hendricks 2002:191-192; Sando 1992:72). The prisoners were taken to Santa Fe, and when Towa leaders approached Vargas to appeal for their

release, they were told that the prisoners would be freed provided the Towa participated in Vargas's planned second attack on Black Mesa, and then be returned to their pueblo at Patokwa (Sando 1992:72). With this demand acceded to, Vargas and his augmented forces laid siege to Black Mesa on the 4<sup>th</sup> of September of 1694 (Hendricks 2002:192).

By this time Black Mesa served as a refuge for members of seven Tewa pueblos (Tesuque, Cuyamunge, Nambe, Pojoaque, Jacona, San Ildefonso, and Santa Clara), as well as refugees from two Tano (southern Tewa) pueblos, San Lázaro and San Cristóbal. By this time the mesa may have served as a refuge for some 2000 people, including several hundred warriors (Hendricks 2002:192). In spite of their overwhelming numbers, however, the mesa surrendered on the eighth of September (Espinoza 1988:46). Soon afterwards the Puebloans at Embudo also sued for peace (Barrett 2002:110).

The following year the Spaniards continued their policy of reduction (concentration of Indians in a few key villages to facilitate military control and religious indoctrination). The Towa were induced to come down from the mountains to resettle the pueblo at Walatowa (present-day Jemez) (Dodge 1982:22; Sando 1992:74). The Cochiti (and possibly the San Marcans) returned to Cochiti, and the Santo Domingans to their pueblo, although some appear to have remained on San Juan Mesa with a remnant of Towa groups (Barrett 2002:102-103). The Tanos of San Lázaro and San Cristóbal initially returned to their own pueblos,

but were soon ousted by Vargas in favor of Spanish colonists, and were ordered to move to Chimayó in the Santa Cruz valley. They objected and apparently fled to the sierra, where they likely took part in the instigation of the 1696 rebellion (Barrett 2002:104-106). The Tewa survivors of Black Mesa gradually returned to their pueblos, as did the Tewa from San Juan, Tesuque and Nambe who had taken refuge at Embudo, in company with some Tanos from San Lázaro and San Cristóbal (Barrett 2002:109). The people of Taos and Picuris, who had fled to nearby mountains when Vargas had moved northward, likewise returned to their own pueblos (Barrett 2002:112).

This year of relative peace permitted the Puebloans to regroup and resupply. The winter of 1695-1696 was particularly harsh, and by spring the Puebloans determined that the Spanish settlers were in sufficiently dire straits that the Indians might again be successful in driving them out of New Mexico (Barrett 2002:88-89; Espinoza 1988:47). Accordingly, on the fourth of June of 1696 another revolt was launched, with Pecos, San Felipe, Santa Ana, and Zia remaining loyal to the Spaniards, this time joined by the Tewa pueblo of Tesuque (Espinoza 1988:50). Tesuque, perhaps wary of its geographical position and proximity to Santa Fe and Spanish reprisals, warned the Spanish of the impending uprising, and participated in campaigns against Puebloan rebel groups (Barrett 1998:110).

The Puebloans again retreated to the mountains and mesa tops with Cochiti on Horn Mesa and the Tewa of Nambe, Cuyamunge, Pojoaque and Jacona joining the Tano in the mountains north of Chimayó (Barrett 2002:110; Espinoza 1988:51). San Ildefonsans and Santa Clarans retreated to the mountains. The Towa (with the exception of Pecos, which had remained loyal to the Spaniards throughout) retreated again to their mesa tops, where they were joined by allies from Acoma, Zuni, Hopi, Cochiti, and the Navajo (Barrett 2002:98; Sando 1992:74). The Towa may have also occupied numerous small sites in the Jemez mountains (Elliott 2002:48). The Zia and Santa Ana fled to a mesa-top site on Cerro Colorado (Barrett 2002:95).

The revolt of 1696 was short-lived and ended with a battle at El Embudo on the 23<sup>rd</sup> of July. Significant contributing factors included a severe drought, which reduced Rio Grande tributaries to a mere trickle, making access to water difficult for besieged defenders on the mesas (Barrett 2002:90). The drought also affected crops, a situation exacerbated by Vargas adoption of a policy of the destruction of fields of rebel groups, creating a severe shortage of food (Barrett 2002:89). With the end of the second revolt, the final major population dislocations to affect the Rio Grande area began.

### ***Population Movements***

After the defeat of the Towa near Patokwa and Walatowa at the end of June, both of these pueblos were abandoned, and indeed the entire Jemez region appears to have been virtually vacated for a time (Barrett 2002:98-99). Some retreated to Acoma, others to Zuni and Hopi (Barrett 2002:99). Joe S. Sando (1992:75), a historian from Jemez, notes that while some Jemez went to Hopi:

Some of the Jemez returned to their ancestral homeland in the northwest, in Canyon Largo and Stone Canyon (Gy'a-wahmu). Others went to An-yu-kwi-nu (Lion Standing Place), to the west of Jemez in the Navajo country. These people lived among the Navajos for a considerable number of years.

By 1706, however, three hundred Towa had returned to Walatowa, and more were trickling in, although what percentage of the total population this represented is unclear (Barrett 2002:99).

Acoma served as a refuge for several groups. Vargas was evidently aware of this, as he led an expedition there in August of 1696, after the end of the revolt (Barrett 2002:100), perhaps to forestall further rebellion. At that time, in addition to Acomans, the "sky city" hosted Towa, Keres from Santo Domingo, Cochiti, La Cieneguilla, and San Marcos, Tanos, and Santa Clarans, although some of these groups soon

moved on to Zuni. Some discord apparently resulted from this polyglot group living in close quarters, for by the following year a new settlement, La Laguna, was established by the Towa, Keres, and some Acomans (Barrett 2002:100).

Although some Keres participated in the founding of La Laguna, others remained in the Santo Domingo Basin, returning to repopulate two of the original pueblos: Cochiti and Santo Domingo (Barrett 2002:103).

Many Tano migrated westward to Acoma, Zuni, and Hopi. Some were reported headed into the mountains to the west of Santa Clara (Barrett 2002:106). Others joined some Tewa and the people of Picuris in an eastward flight toward the Great Plains (Barrett 2002:106). This exodus was intercepted, however, by Vargas, who took numerous prisoners, although others continued on to Cuartalejo in western Kansas (Barrett 2002: 106; Sando 1992:75).

The remnant of the Tanos from San Lázaro and San Cristóbal could not be returned to their pueblos, which had been taken over by Spanish colonists. Instead, Vargas resettled them at Galisteo, an experiment which proved short-lived, and they soon migrated to Hopi. It was these refugees who formed the Tewa community of Hano, still extant on First Mesa at Hopi (Barrett 2002:106; Dozier 1996:3).

The Tewa of Nambe, Cuyamunge, Pojoaque, and Jacona initially joined the Tano in the mountains near Chimayó, but were pursued

unsuccessfully by Vargas. A prisoner from Cuyamunge reported that his people, with a few from Nambe, had fled to Taos. The majority of the people of Nambe remained in the Sierra de Chimayó, while those from Jacona “left to join the Navajo” (Barrett 2002:110). The people of Pojoaque, likewise, had left, but the prisoner did not specify their destination (Barrett 2002:110).

The Tewa of San Ildefonso, as with those of Santa Clara, had fled to the mountains west of their pueblos, although in August of 1696 some were reportedly with the Hopi, and others with the Navajo (Barrett 2002:110-111). “The Navajos mentioned may have been the band living in the area called Los Pedernales, possibly the one to which the people of Jacona had also retreated.” (Barrett 2002:111). Although the precise location of Los Pedernales is unknown, it may be located in the vicinity of Cerro Pedernal (Pedernal Peak), south or west of the Rio Chama, near Abiquiu (Barrett 2002:111; Schaafsma 2002:292). However, due to continued pressure from Vargas, the Santa Clarans (and perhaps the Jaconans) abandoned this area and by the fall attempted to join the Tanos and Picuris in their flight to the plains (Barrett 2002:111). The people of San Juan returned to Embudo, where they had taken refuge during the revolt, although a few of them fled north to Taos. However, Vargas’ expedition to Taos led the Tewa there to join the eastward exodus to the Great Plains (Barrett 2002:111). Some were successful in reaching Cuartalejo, but others were intercepted by Vargas, and further scattered

among Acoma, Zuni, Hopi, the Apaches in the Embudo area and the Navajo of the Sierra de Pedernales (Barrett 2002:111). By November twenty-nine people had returned to Jacona, but they soon moved on to other Tewa pueblos, while many of the people of Cuyamunge moved to Tesuque (Barrett 2002:111).

The Tiwa pueblo of Taos was temporarily abandoned when Vargas mounted an expedition north in the early fall of 1696, in a continued attempt to assert Spanish dominance, but the residents soon returned from the nearby mountains to repopulate the pueblo (Barrett 2002:113). Many of the Picuris were among those who fled to the Plains, and in the early winter of 1696 only eight families remained at the pueblo. Their numbers were augmented ten years later, when an expedition was mounted by the Spanish to Cuartalejo, and many of the Puebloans living there were returned to their pueblos (Barrett 2002:113).

By the end of the seventeenth century, most of the major population movements in the Rio Grande area had already occurred, although in some cases refugees, such as the Towa and Picuris, continued to return in small numbers to their pueblos through the first half of the eighteenth century.

Thus, although considerable population dislocations *did* occur during the course of the Pueblo Revolt and its aftermath, it appears from contemporary Spanish historical records that the majority of the pueblos affected either stayed in the Rio Grande area, or fled to the Western



Pueblos of Zuni and Hopi. There is very little evidence for Puebloan immigration to the Navajos (see also Chapter 10 for an examination of oral history in this regard).

## 4 Overview of Pueblito Studies

### *Early Work*

The existence of pueblito structures was first brought to the attention of archaeologists by Victor Mindeleff, who visited Kinnazinde (Kin Náázíní—Lone Towering House) in 1883. Mindeleff, however, interpreted the structure as a field house of nearby Kin Tiel, a Chacoan outlier (Gilpin 1996:179, Mindeleff 1891:92-93). Although seven years later Victor's brother, Cosmos, dedicated an extensive article to Navajo architecture (Mindeleff 1898), no reference to pueblitos was made.

It was not until early in the second decade of the twentieth century that additional archaeological consideration was given to pueblito sites. In 1912, the noted archaeologist Alfred V. Kidder visited what would later come to be known as Three Corn Ruin (LA1871), Old Fort Ruin (LA1869) and another, unidentified pueblito (Powers and Johnson 1987:5). He was followed in quick succession by Earl Morris in 1915, and Nels Nelson, who in Kidder's words, "incidentally traversed" the region in 1916 (Kidder 1920:329).

Although Kidder first presented his findings in a brief report at the general meeting of the Archaeological Institute at the close of 1912 (Kidder 1913), it was Kidder's (1920) seven-page exposition "Ruins of the Historic Period in the Upper San Juan Valley" which appeared in

*American Anthropologist* eight years later that shaped archaeological and historic interpretations of the pueblitos and the entire protohistoric period of the area for another seventy years. Kidder's interpretation was influenced by the statement by Adolf Bandelier (1892:216) regarding Southwestern history to the effect that:

[In June 1696] the last important insurrection of the Pueblos broke out...A fierce conflict took place,...in which the Jemez and their allies were routed. This defeat broke up the confederacy with Acoma and Zuni, and caused the Jemez to flee to the Navajo country...For several years the Jemez remained among the Navajos, until they finally returned to their old range, establishing themselves at or near the site of their present village.

Kidder speculated that the pueblito structures might represent structures built by the refugees from Jemez, and proposed that his hypothesis be tested via ceramic analysis of pottery from the pueblito sites and comparison with contemporary ceramics from abandoned Jemez villages (Hogan 1991:1; Kidder 1920:328). Such a comparison, however, was never made.

As early as 1932, Kidder's "refugee hypothesis" was being cited not as a hypothesis, but as fact. Hogan notes that, "Kidder's suggestion that the Gobernador sites *might* have been built by the Jemez refugees became an assumption that the sites *were* built by refugees from several Rio Grande pueblos" (Hogan 1991:3; emphasis in original).

The results of Earl Morris's extensive excavation and survey at pueblito sites, which might have helped cast light on the issue, were not published until half a century after they took place. In the interim, Pueblito research, though sporadic, did not languish.

In the latter part of the 1920s, Stanley Stubbs was dispatched by the School of American Research to explore Blanco, La Jara, Frances and Gobernador Canyons, where he noted the presence of house ruins located high on boulders and mesas (Roessel 1983:9). In 1934 C.O. Erwin and M.W. Kelly surveyed portions of Frances and Gobernador Canyons, where numerous pueblitos are located (Carlson 1965:1), and in 1937, Elizabeth Murphy of the School of American Research undertook the excavation of a tower pueblito, the results of which, unfortunately, were not published (Keur 1941:44). Harry P. Mera surveyed of the Largo area in 1938, and he took several tree-ring samples for dating. He also noted the presence of a new type of pottery at the sites—later to be called Gobernador Polychrome—and attributed its appearance to the influence of an influx of Pueblo potters to the region, in keeping with the “refugee hypothesis” already in vogue (Mera 1938:237).

### ***The Florescence of Navajo Archaeology***

In 1941, Dorothy L. Keur published the first monograph on Navajo archaeology based on her 1939 research on Big Bead Mesa on the

southern fringes of Dinétah. Although Big Bead Mesa is not noted for the presence of pueblitos, it does feature a massive 3.7 meter high masonry wall extending for a distance of some 8 meters, which cut off the northern spur of the mesa from the remainder of the mesa top. Her interpretation of this wall as a defensive structure was strengthened by the presence of boulders strategically placed above access routes to the mesa, where they could be rolled down upon approaching attackers, and other defensive measures (Keur 1941:40-43). Keur's work is also significant for the magnitude of the undertaking, which included the excavation of 95 hogans as well as numerous lean-tos, sweatlodges, and caches (Keur 1941:69) making it by far the most ambitious examination of Navajo archaeology until that time. In 1957, Lee H. Marmon and George C. Pearl returned to Big Bead Mesa to further examine the fortifications there (Marmon and Pearl 1958).

The year 1941 also saw a visit to Tapacito Ruin (LA2298) by Edward T. Hall, Jr., and W.S. Stallings in order to obtain dendrochronological samples. The results of their expedition remained unpublished until 1974, when they were combined with work by John Wilson and Helene Warren (Wilson and Warren 1974:8, 10).

Malcolm Farmer authored a 1942 article in *American Antiquity* based on a 1938 survey of some 250 square miles of the Dinétah area (Farmer 1942:67), and appears to be the only archaeologist of the time to swim against the tide. Citing a 1788 letter from Ugarte y Loyola which

referred to the Navajo construction of “ten rock towers within their encampment,” Farmer (1942:70) suggested that perhaps the Navajo had “taken over” what he termed the “tower-building complex” (Figure 4.1). He also emphasized that the “complex” was previously widespread over areas of Utah, Colorado, and New Mexico (Farmer 1942:70). Farmer, however, leaves somewhat open the question of whether or not the tower-building complex was adopted from Pueblo refugees at the time of the Spanish re-conquest, or if it was an adaptation of earlier Anasazi sites in the area (Farmer 1942: 70).



Figure 4.1 Frances Canyon Pueblito.

Three years after the publication of the Big Bead Mesa excavation report, Dorothy Keur published a brief article in *American Antiquity* summarizing the results of a 1940 survey of approximately 50 sites in the Upper San Juan drainage. Two pueblitos and 19 hogans were excavated during the course of that project (Keur 1944:84-85). In keeping with Kidder's refugee hypothesis, Keur concluded that the pueblitos represented "a rather concentrated and fairly brief Pueblo overlay on a Navajo pattern" (1944:86) in a "refuge area" (1944:85). In 1940, Deric O'Bryan returned to some of the sites investigated by Keur to collect tree-ring samples (Carlson 1965:1)

The 1950s witnessed an explosion of research into Navajo archaeology spearheaded by the Navajo Land Claim (NLC) project, which still remains the largest single exploration of Navajo prehistory to date. The NLC survey was the first systematic survey of Navajo sites over a considerable range of territory (Towner and Dean 1996:8) and covered 35 million acres, resulting in the recording of some 2300 sites and the collection of 3647 tree-ring samples (Roessel 1983:31), including those from numerous pueblitos. Unfortunately, much of the information gleaned by the NLC project remains inaccessible to the archaeological community due to legal restrictions (Towner and Dean 1996:8).

One product of the vast scale of the NLC survey was the determination that pueblito construction was not a phenomenon limited to the confines of Dinétah (Gilpin 1996:181-182) but that pueblitos

could be found as far west as Black Mesa in Arizona (Towner 1996:164). The westerly pueblitos all date to the post-1750 period, suggesting the continuation of a defensive strategy as the Navajo encountered potential hostility from their new neighbors, the Hopi, as well as continuing conflict with the Ute (Towner 1996:166).

The expansion of oil and gas exploitation in New Mexico in the 1950s proved both a boon and a bane to Navajo archaeology. The construction of access roads to pipelines and well-heads made it possible for such groups as the San Juan Archaeological Society to visit and record many of the newly-accessible pueblitos (Powers and Johnson 1987:6). This same accessibility has greatly accelerated the loss of information and structures to casual visitors as well as to vandalism (Powers and Johnson 1987:135).

The late 1950s saw another large-scale survey and mitigation project connected with the construction of the Navajo Reservoir, including the excavation of both hogan and masonry-walled sites (Hester and Shiner 1963). It also led to the definition of a pre-Revolt, pre-pueblito Navajo occupation of the area, termed the Diné'tah phase (Dittert et al. 1961). The definition of this phase, however, rested on the absence of traits such as pueblitos and Gobernador Polychrome ceramics, rather than on their presence (Brown 1996:51; Schaafsma 1996:25; Towner and Dean 1996:9), and it was not for another two decades that additional research supported the validity of the Diné'tah phase.



The Navajo Reservoir project also served as the basis for James Hester's doctoral dissertation (Roessel 1983:23). Hester used these data to define a series of Navajo archaeological phases. He deemed the 1690s a critical period in the establishment of the Gobernador phase and its successors, indicating that:

After 1700, the period of intense acculturation began to draw to a close...In the space of a few years the Navajo adopted the Puebloan styles of architecture, manufacturing techniques, and religious paraphernalia, plus many elements of non-material culture such as clans, matrilineal descent, matrilineal residence, origin myth and ritual. (Hester 1962:91)

In spite of the extremely short temporal window this left for such radical cultural changes (a period of approximately eight years between 1692 and 1700), Hester clearly considered all of these aspects of Navajo culture to be directly attributable to the influence of Puebloan refugees.

R. Gwinn Vivian (1960) examined Navajo sites on Chacra Mesa, including several pueblitos, and enumerated the architectural and artifactual traits he encountered (Vivian 1960, cited in Roessel 1983:21). Vivian also took several tree-ring samples from both hogans and pueblitos (Towner 1996b:161).

In 1962, Roy Carlson returned to the sites examined by Earl Morris in 1915. Combining Morris's field notes with his own observations, Carlson (1965) produced the first monograph dedicated to

pueblitos. Carlson, however, appears torn between the weight of the archaeological evidence that he himself presents and the force of forty years of archaeological writing on the subject. He notes:

The problem encountered in accepting Kidder's hypothesis completely is that data now available, particularly tree-ring dates and ceramic associations, indicate that the large masonry sites were not built and occupied until some 20 years after the revolt of 1696. This information does not invalidate Kidder's interpretation...but simply indicates that we must look elsewhere for a slightly earlier occupation by a mixed Pueblo and Navajo group. (Carlson 1965:98)

Carlson maintained this position in spite of observing the “decidedly non-Puebloan” layouts of the pueblito communities, the absence of kivas on the sites, and the lack of Puebloan oral traditions regarding the return of refugees from the Navajo country (Carlson 1965:103-104), in addition to the chronological discrepancy noted above. A valuable contribution of Carlson's work—in addition to providing information now lost to vandals or to time—was his suggestion that, in view of the early-to-mid eighteenth century tree-ring dates for the pueblito sites, the pueblitos may have been constructed as a defense against Ute and Comanche raiding (Carlson 1965:100). This was the first intimation that the pueblitos may be indicative of inter-tribal aggression, rather than having been built as protection against the Spaniards with whom the Navajo enjoyed a tenuous peace during the period 1720-1770.

David Brugge's 1968 article, "Pueblo Influence on Navajo Architecture," concluded that pueblitos were constructed by Puebloans, and the surrounding hogans by their Navajo hosts. The article went still further, to conclude that the hogans themselves provided numerous examples of Puebloan influence in the manner of their construction and use.

David Stahle (1973) authored a still-unpublished paper on Navajo tree-ring dates, and re-analyzed many of the dates that suggested Tapacito Ruin (LA2298) represented the earliest Navajo site to be found in the Southwest (Stahle 1973, cited in Roessel 1983:26).

Tapacito Ruin was again visited and remapped by John Wilson and Helene Warren, who collected dendrochronological specimens. The results of their research were combined with those of Hall and Stallings from 1941, concluding that the structure dated to 1694—precisely coinciding with de Vargas's re-conquest after the Pueblo revolt. In spite of these dates, however, Wilson and Warren's article represents the first serious challenge to the assumption that pueblito structures were built by Puebloan refugees. They acknowledge the unique nature of Tapacito Ruin (LA2298) among pueblitos, and note that historical documents indicate the Navajo were also associated with the building and occupation of pueblitos. Whereas Kidder proposed that the pueblitos represented an influx of Puebloan refugees—specifically from Jemez—Wilson and Warren point out that the destruction of the pueblo of Jemez

did not take place until 1696—two years after Tapacito Ruin was constructed. Instead, they proposed that refugees from the Keresan villages of Zia and Santa Ana, who had already felt the shattering impact of the Spaniard's wrath, could have been responsible for the construction of Tapacito Ruin (Wilson and Warren 1974:20). They also note the complete absence of Jemez Black-on-white sherds at the site, in contrast to the ceramic assemblages of numerous other pueblitos, however, Keresan sherds are present (Wilson and Warren 1974:22). They conclude that although it is likely that Tapacito may be a genuine refugee structure, they do not rule out the possibility of it—and the other pueblitos— being an indigenous Navajo development (Wilson and Warren 1974:24). In spite of their assertions, the refugee hypothesis remained the dominant pueblito paradigm (Towner 1996b:153)

Between the years 1973 to 1975, the United States Bureau of Land Management initiated stabilization measures at eight of the more notable and popular pueblitos. This was in an attempt to mitigate the impact of increased tourist visitation.

In 1975, J. Loring Haskell (1975) excavated Adolfo Canyon pueblito (LA 5665) and mapped three more. He also excavated eight pueblito-associated hogans in an attempt to trace continuities in Navajo social structure from the Gobernador phase and the ethnographic present.

### ***Focus on Pueblitos***

A ten-year hiatus in pueblito studies followed Haskell's work, with the exception of their occasional appearance in oil and gas survey reports (Powers and Johnson 1987:6). In 1985, Margaret Powers and Byron Johnson undertook a year-long field research project that involved visiting 76 pueblito sites, intensively recording 49 of them, and nominating 48 to the National Register of Historic Places (Powers and Johnson 1987:6-7). They also discovered several previously-unknown sites. They classified pueblito sites into five "types," based on both architecture and location, in the first attempt to analyze pueblitos as more than discrete sites. Type One featured rectangular structures with square corners on wide benches and canyon bottoms that were not easily defended, Type Two were rectangular structures with rounded corners built on the edges of mesas, upper benches, or the tops of boulders and Type Three were similar to Type Two, but with round or irregular outlines. The last two types cannot properly be considered "pueblitos," but rather "defensive sites." Type Four consisted of irregular walls along the fronts of rock shelters, and Type Five of wall segments strategically placed to block access to mesa tops. Some of the Type Five walls are associated with "small, poorly constructed rooms" (Powers and Johnson 1987:125-127,131). Powers and Johnson suggested that these types represented both an evolution through time and a reflection of the intensity of Puebloan influence at a given site (Powers and Johnson

1987:125-126); as well as variation in the level of threat of Spanish incursions. Development and testing of their hypothesis, however, was hindered by a paucity of dendrochronological data; only 17 of the 48 nominated sites had been dated, and in some cases the proveniences of the samples is somewhat unclear (Powers and Johnson 1987:127). Perhaps the greatest contribution made by Powers and Johnson's work, however, is the wealth of data they provide in the form of descriptions and detailed maps of the structures, the ceramics found on the sites, and their settings.

The decade of the 1990s witnessed a virtual explosion in pueblito research. In 1990, Towner and Dean returned to Tapacito Pueblito to collect more tree-ring data and compared their results to the previous work done by Hall and Stallings (1941) and later by Wilson and Warren (1974). They concluded that the pueblito itself was constructed in late summer or autumn of 1694 (Towner and Dean 1992:322). Such a date correlates intriguingly with Spanish incursions into the Rio Grande area, which resulted in the destruction of the Keres pueblo of Old Kotyiti in April, and of the Jemez pueblo of Astialakwa on 24 July of that year (Sando 1979:420; Wilson and Warren 1974:18; Elliot 2002:47). Towner and Dean further conclude that the unprovenienced timbers collected by Hall and Stallings, which date to June or July of 1690, probably originated from one or more of the forked-pole hogans at the site. The hogans, unfortunately, no longer contain any dateable specimens

(Towner and Dean 1992:321,327). They suggest that a small group of Puebloan refugees arrived in the Dinétah and joined an established Navajo settlement at the site (Towner and Dean 1992:327).

A multi-year co-operative project between the Bureau of Land Management and the Laboratory for Tree Ring Research at the University of Arizona was undertaken in 1990 to establish a database of tree-ring dates for the pueblitos (Towner 1992:58). The “Dinétah Dating Project” resulted in a database of some 808 tree-ring dates (including those collected by earlier researchers) (Towner 1996b:155); of these, 374 were cutting dates (Towner 1996b:157.) They established that, with the exception of Tapacito Ruin, all of the Dinétah pueblitos were constructed between 1709 and approximately 1760, and most were constructed between 1720 and 1755, during the “Navajo-Spanish Peace” (Towner 1996b:162-163).

The 1991 publication of the Bureau of Land Management’s Cultural Resource volume entitled *Rethinking Navajo Pueblitos*, with contributions by Patrick Hogan and Michael Marshall, was a critical contribution to pueblito research. In a brief article, Hogan (1991) argued forcefully against the refugee hypothesis on the basis of historical records, indicating the paucity of historical documentation that large numbers of pueblo refugees sought asylum with the Navajo. He proposed

instead that the vast majority of Puebloans fled the Rio Grande for Hopi, Zuni, or other distant pueblos (Hogan 1991).

Marshall's (1991) more lengthy contribution built upon the prodigious work by Powers and Johnson (1987). He revisited nine of the sites they recorded and demonstrated that the pueblitos, rather than being rather isolated structures, were parts of extensive "site complexes" consisting of hogans, middens, sweatlodges, hearths, ramadas, rock shelters, petroglyph panels, and extramural slab-lined boxes, extending over a roughly half-kilometer square area (Marshall 1991).

Lori and Paul Reed re-examined the assumption that the production of polychrome pottery among the Navajo resulted from the influence of and introduction of technology by Puebloan Refugees. They noted that the advent of Gobernador Polychrome in the archaeological record appears to pre-date the Pueblo Revolt by at least several decades (Reed and Reed 1992:99,102). They also indicate that Gobernador Polychrome represents a combination of techniques and motifs from Hopi ceramics and Rio Grande glazewares. In either case, they point out the unlikelihood that Tewa refugees—which the majority are assumed to have been—with a strong black-on-white ceramic tradition would suddenly switch to the production of polychrome vessels and teach their Navajo protégés likewise (Reed and Reed 1992:102). Reed and Reed (1992:98) also noted that the percentage of Rio Grande Pueblo ceramics



at 63 pueblito sites is roughly equal to the percentage of western Puebloan ceramics, in spite of the fact that the postulated refugees would have been entirely from the eastern pueblos. Despite these observations, however, they still advocate the Refugee Hypothesis, indicating that the pre-Revolt existence of Gobernador Polychrome provided evidence of the strong social ties between the Navajo and Pueblo that encouraged later Puebloan refugees to seek safe haven amongst the Navajo, which they might not have otherwise done (Reed and Reed 1992:103).

The “Great Pueblito Flareup” (Jacobson et al. 1992) also took place in 1992, which tested proposed line-of-sight communications between pueblitos that would have provided advance warning of enemy approach. The study’s authors concluded that individual pueblitos were linked in complex visual communication networks. The longest tested line of sight (using smoke signals), between Three Corn Pueblito and Cabresto Mesa, was a distance of some twelve miles (Jacobson et al. 1992:125). They also noted architectural and location variation between pueblitos that appeared to be correlated with the number of other pueblitos visible from a particular site (Jacobson et al. 1992:112-113,124). Jacobsen et al. (1992:110) also argue cogently that the pueblitos were constructed in response to Ute hit-and-run attack tactics rather than the more prolonged siege and scorched-earth practices of the Spaniards.

In 1995, the Office of Contract Archaeology (OCA) at the University of New Mexico published the results of the 1992-1993 Pueblito Data Recovery Project (Marshall 1995) conducted under the auspices of the Bureau of Land Management. The project examined the ceramic, lithic, faunal, botanical and historic artifacts from surface collections from seven pueblito sites, and from excavation of middens at Split Rock Ruin (LA5664), a hearth near Shaft House (LA71580), and a bell-shaped pit near Crow Canyon Pueblito (LA 77871). The project attempted to address issues of chronology, subsistence, and cultural interaction with other groups. In terms of chronology, Marshall suggests that pueblito structures were constructed near extant forked-pole hogan communities. Attempts were also made to correlate obsidian hydration thicknesses with the dendrochronological dates from the pueblito sites, so that the information might be applied to other Navajo sites lacking suitable dating sources. Marshall (1995) also proposed a three-stage ceramic assemblage sequence, again with the aim of establishing of a sequence useful in cross-dating non-pueblito Navajo sites in the Dinétah area (Marshall 1995:206). Attempts were also made to estimate the duration of occupation of the pueblito sites, based on the volume of midden accumulated (Marshall 1995:211-212).

The results of the Pueblito Data Recovery Project bore out the previously-accepted picture of the Gobernador-phase Navajo as a culture practicing a mixed subsistence strategy combining horticulture,

pastoralism, and hunting and gathering. Pinyon, maize, and beans were exploited, as were animals attracted to the cultivated fields (notably deer and lagomorphs) (Marshall 1995) in what has been termed the “garden hunting model” (Brown and Brown 1995:190). Churro sheep (*Ovis aries*) were eaten, and evidence of the consumption of *Equus sp.* (horse and/or burro) was also encountered (Marshall 1995).

Numerous types of European trade goods were recovered from pueblito sites, including ornaments, horse tack, metal tools, portions of firearms, glass mirrors, and one fragment of Chinese porcelain. Puebloan ceramics from Jemez, Puname, Acoma, and Tewa groups, as well as small amounts of Zuni and Hopi wares have been recorded. Lithic materials from the Jemez Mountains, the Farmington area, and the Chuska mountains also indicate wide-ranging trading and/or raiding relationships (Marshall 1995:222-224).

A year after Marshall’s work, the landmark volume *The Archaeology of Navajo Origins* (Towner 1996a) was published. It was the first synthesis of the “state of the field” (Towner, 1996c:xii) of research in Navajo archaeology since Hester’s (1962) work. Although only one of the contributions (Towner 1996b) addressed pueblitos directly, many of them address issues—such as ceramics, lithics, rock art, and other aspects of material culture—that are integral to the broader understanding of the artifactual remains encountered at pueblito sites.

In 1997, *The Dendrochronology of the Navajo Pueblitos of Dinétah* (Towner) presented a synthesis of all of the 827 tree-ring dates obtained from 62 pueblito sites and utilized the data to elicit numerous conclusions regarding the nature and extent of pueblito occupations, some of which were at odds with the accepted canon of pueblito theory. Towner inferred that the pueblitos were neither continuously nor simultaneously occupied but were generally used for a period of up to ten years, although in some instances they were repaired and reoccupied after initial abandonment. He suggested that this pattern may be similar to the intersite mobility documented ethnographically among the Navajo (Towner 1997:345, 406-407.) Towner did, however, conclude that although the pueblitos were not all contemporary, a given pueblito and its surrounding hogans generally were occupied at the same time (Towner 1997:407). This contemporaneity contradicts the pattern expected if groups of Puebloan refugees had joined previously-established Navajo communities. Towner's conclusions also ran contrary to the conclusions postulated by Marshall in this regard, just two years previously (Marshall 1995).

Towner established that only two masonry structures were constructed in the Dinétah region prior to 1709—the Buffalo Mask site (a rockshelter structure built in 1680) and Tapacito Ruin (1694). Pueblito construction “spurts” occurred between 1710-14, during the 1720s, and again in the 1740s and 1750s. Rather than being correlated with the

Pueblito revolt, these increases in construction appear to have been precipitated by increased Ute raiding (Towner 1997:331-335, 352, 390).

Early pueblitos (built 1709-1720) appear to have been large sites, loosely linked in a widely-spaced network. Subsequent pueblitos appear to have formed smaller, local “communities,” again perhaps related to a transhumant lifestyle (Towner 1997:366-367).

Towner also noted a distinct preference for pinyon for the *vigas* (roof primaries) of the pueblitos, with some use of ponderosa pine, Douglas fir, and cottonwood, where available. Juniper was used almost exclusively for *latillas* (roof secondaries), for shelf poles and lintels (Towner 1997:303).

A significant conclusion from Towner’s work is the assertion that by the late 1500s, Navajo culture constituted, “a well-developed culture, distinct from that of other Athapaskans”—nearly a century prior to the Pueblo Revolt. Although Towner does not discount the probability of the integration of some Puebloans into the Navajo over time, he rejects the likelihood that large numbers of individuals were involved, or that such immigration was the result of a single, dramatic historical event (Towner 1997:410-413). The bulk of Towner’s dissertation was later published as *Defending the Dinétah* (Towner 2003).

A year after the publication of Towner's dissertation, Towner and Johnson (1998) published the results of a 100 percent pedestrian survey of a section of San Rafael Canyon. The first survey of its type, it revealed that the three known pueblitos in the area were likely part of a network of independent hogan/pueblito complexes, in addition to those located within direct proximity to the pueblitos. Many of these more distant hogan complexes were within line-of-sight of one or more pueblitos, perhaps allowing their residents to be warned in time to retreat to the comparative safety of the masonry structures in the event of a threat. Towner and Johnson's research also suggested that Navajo construction of water-control features was more common than previously believed (1998:144). They also raise the possibility that large pueblitos were inhabited for a relatively short period of time, and that smaller pueblitos may not have been habitations at all, but short-term refuges from raiders (Towner and Johnson 1998:175). Finally, they propose that the temporal shift to smaller, more numerous structures may have reflected a shift in the perceived threat (Towner and Johnson 1998:173).

Dendrochronological analysis of four pueblito sites in and around Palluche Canyon was carried out by Ababneh et al. (2000). They concluded that Palluche Canyon may have seen initial occupation in the 1720s, followed by a hiatus of some 15 years spanning the 1730s, and then reoccupation in the mid-to-late 1740s. They proposed that this may reflect the abandonment of the area due to drought and its

reoccupation by the same extended kin group, or “Navajo outfit,” at a later time (Ababneh et al. 2000:285).

Work at McKean Pueblito (LA112641), overlooking Largo Canyon, indicates that it was constructed in two episodes, with the addition of one room five years after the initial construction (Towner et al. 2001:83). More interesting, however, is the analysis Towner et al. (2001) provide of McKean Pueblito within the context of surrounding sites, including the pueblitos in and around Palluche Canyon. They note that the majority of the mesa-top pueblitos overlooking Largo Canyon were built between 1708 and 1715, possibly to monitor the likely route of large, slow-moving Spanish military forces intent on reprisals. With the advent of a truce between the Navajo and the Spaniards in the late 1710s, however, the threat shifted to smaller, swifter mounted raiding parties of Utes. After 1720 the majority of pueblitos in the area were built on boulder tops in the valley bottoms or overlooking a tributary canyon. Although such boulder-top pueblitos appear less ideal defensively than their highland counterparts, such boulders were completely inaccessible by a mounted force, thus evening the odds between opponent groups, because attackers would have to dismount (Towner et al. 2001:85-86). Placement of the structures in the horticulturally suited valley bottoms also allowed for more rapid retreat from a swifter attack.

This analysis by Towner et al. builds upon previous work by Ron Towner, Hugh Rogers, and James Copeland presented at a 1998 symposium, but not published until 2001, in which the authors identify three different periods in pueblito construction, based on the architecture of the sites. The earliest sites (pre-1720) are either large, intervisible structures of more than twenty rooms, or small fortified rock shelters in remote canyons. Towner, Rogers and Copeland suggest that these represent two different responses to Spanish aggression—retreat from a large, slow-moving army into nucleated, defensible sites, or retreat by small family groups into hiding (2001:120-122). Between 1720 and 1745, the Navajo were at peace with the Spaniards, but came under pressure from small Ute raiding parties, likely in quest of slaves for sale to the Spaniards. With little or no warning of impending attack, the Navajo did not have time to congregate at the larger pueblitos, and pueblitos built during this period tended to be small (one to five rooms) located on the tops of monoliths or at mesa rims, and all are surrounded by evidence of Navajo habitation in the form of forked-pole hogans and other domestic features. Most of these sites are not visible from other pueblitos (Towner, Rogers and Copeland 2001:122-123). The final period of pueblito construction, just before the Navajo abandonment of Dinétah, sees greater variation in architecture, but share a common location factor: they all provide extensive visibility in one or more directions. This may have been a result of the escalation of Navajo-Ute aggressions,



from slave raids to what Towner, Rogers, and Copeland term, “total war”—attempts to exterminate the enemy group (2002:124-125).

Towner, Rogers, and Copeland also compared the dates of pueblito construction to the dendrochronological record of local climate, and conclude that the years of greatest pueblito construction were correlated with periods of higher rainfall. They propose that this is attributable to two factors—in the pre-1720 period of Spanish military expeditions, the Spaniards, with their forces of several hundred men and numerous pack animals, would have been hesitant to venture into the Dinétah in years when they knew water sources would be meager. Later, when Ute slave raids were a threat, the Ute would have been more likely to engage in raids when their subsistence base was sufficient to support, not only time lost in raiding, but also the additional nutritional requirements of any slaves they obtained (Towner, Rogers and Copeland 2001:125-127). The final, brief period of pueblito construction prior to the abandonment of Dinétah appears not to have been conditioned by rainfall (Towner, Copeland and Rogers 2001:128), and it is possible that the Ute threat which ultimately led to the vacating of the area was sufficiently severe to prompt pueblito construction even in years when attack was not necessarily imminent.

The publication of a condensed version of Towner’s (1997) dissertation as “Defending the Dinétah” (Towner 2003), will doubtless

spur more research into the pueblitos of Diné'tah. In spite of over eight decades of publications on the subject, however, the question of the *identity* of the pueblito builders has never been directly addressed using the archaeological remains at the sites themselves—until now.

## 5 Survey Methodology

In order to gather data to provide the basis for analysis, four weeks of intensive surface survey were devoted to three pueblito sites during September and October of 2002, the extended period of time necessitated by adverse weather conditions. Two of these pueblitos—Foothold Ruin and 42 Pueblito—are located within Palluche Canyon, Rio Arriba County, New Mexico. The third—the Overlook Site—is located on the south rim of Palluche Canyon. These pueblitos were selected for a number of reasons: they have all been dendrochronologically dated (Ababneh et al 2001); neither the structures themselves nor their surrounding site complexes have previously been systematically surveyed; and they are located within the heart of the pueblito system, which reduces the likelihood of their being anomalous outliers.

The survey encompassed the pueblitos and their immediate surroundings, in order to clarify the ethnic identity of their inhabitants. It involved the systematic and detailed mapping of the entire site complex, both to determine the site layout and to provide a base-line for evaluation and future monitoring of deterioration and destruction by natural and/or human forces.

A one-hundred percent pedestrian survey was conducted of the area surrounding the pueblito structures themselves, in order to locate such extramural features as hogans, sweatlodges, ash pits, garbage

middens, and lithic and ceramic scatters. This was carried out for a radius of approximately 250 meters around the structures, a distance which previous research has indicated encompassed most of the components of the site complex (Marshall 1991:1). The survey was accomplished by two researchers walking pedestrian transects some 5-10 meters in width, depending upon the topography and vegetation. Tissue paper was used to flag finished transects, a technique found useful by past researchers in this rugged and often densely-vegetated terrain (Marshall 1991:4; James Copeland, personal communication 2001). Areas requiring technical climbing equipment for access were not included in the survey. All structures and features within the survey boundaries were mapped and are described herein. Distances were measured with either a metal tape or via GPS, depending upon the distance involved.

Each of the pueblitos was subjected to architectural analysis in order to determine the masonry techniques employed in its construction. Detailed maps of the Overlook Site and Foothold Ruin pueblitos have already been generated by Powers and Johnson (1987:62, 64), and these maps were employed in the final analyses of the sites. No detailed map of 42 Pueblito structure existed, and therefore one was created during the fieldwork.

Due to the generally light artifact scatters at pueblito sites, and at the request of the Bureau of Land Management Archaeologist (James

Copeland, personal communication 2001), all of the surface ceramics and other artifacts in middens and other features were recorded. No excavation or collection was undertaken.

The purpose of this survey was to systematically map and record all of the artifacts, features, and structures within the complexes surrounding the pueblitos, as well as to examine the pueblito structures themselves. This was done in order to provide data for further analysis, and to determine whether the pueblito communities were composed strictly of Navajos, of Puebloan refugees, or of a mixed group of Navajos and Puebloans.

Three primary factors were given consideration in this analysis: architecture, site layout, and artifact assemblages, especially ceramics.

Architectural analysis included an examination of the floor-plans of both the pueblitos and non-masonry structures, as well as a careful evaluation of the construction techniques used in both, where possible. Special attention was given to masonry techniques at the pueblitos, as such aspects as wall construction and coursing techniques vary both temporally and culturally. Structure types, particularly ritual structures such as kivas or sweatlodges, present at a site are also cultural indicators. The architectural attributes determined to exist at the pueblito sites were then compared with those evident at Dinéyah phase and non-pueblito Gobernador phase sites, as well as with Pueblo V sites along the Rio Grande, where the postulated Puebloan refugees are

believed to have originated (Barrett 2002:97, 110; Marshall 1991:21) (see Chapter 12).

Community spatial organization, as evident in the site layout, is another important cultural indicator, and the patterning of structures and features within the site, as determined by the survey, was an important aspect in the analysis of these sites. Given the considerable difference in the traditional organization of community space between the two groups (Navajo living in closely-related family groups dispersed upon the landscape, and Pueblos living in close proximity around a central public area), community organization was deemed a significant cultural indicator. As with architecture, the community and spatial organization patterns evident at the pueblito sites were then compared with contemporary Navajo and Pueblo sites (see Chapter 13).

The artifact assemblages within the pueblito complexes were also carefully examined. Although considerable archaeological attention has been paid to ceramics at pueblito sites (e.g. Marshall 1995; Reed and Reed 1992; Reed and Reed 1996), such attention has focused on Pueblo decorated wares and Gobernador Polychrome, a Navajo ceramic type. Little attention has been focused upon the type(s) of utility wares at the sites. However, more illumination can be cast on the question of Navajo-Pueblo co-residency through an examination of utility wares than of decorated wares. Painted wares and glaze wares are common trade goods, and their presence on a site is not indicative of the presence of the

people who produced them. In addition, many pueblito sites have been subjected to both authorized and unauthorized collection over the years. Both types of collections have focused on the highly decorated wares found on the sites, thus skewing the sample to an unknown degree. However, all groups at this time produced their own utility wares, and these prove a more sensitive index of what group or groups actually occupied the sites. Therefore, while consideration was given to the presence and types of trade wares, greater emphasis was placed upon utilitarian wares (see Chapter 11).

Unlike ceramics, lithic artifacts from this period are generally non-diagnostic. This is partly true due to the gradual introduction of European metal goods, and due to the tendency of the Navajo to “recycle” lithic and groundstone artifacts from abandoned sites, including those of the Puebloans and Anasazi (Kearns 1996:135). Therefore, the presence of such artifacts at pueblito sites cannot be considered indicative of the presence of Puebloan groups. Likewise, the occurrence of obsidian and Pedernal chert, both from the Jemez mountains (Kearns 1996:123), cannot be considered definitive, because these materials were easily and commonly traded.

Data from the Palluche Canyon surveys were then combined with data from a similar one-hundred percent surface survey of nine pueblitos conducted by Michael Marshall in 1989 and 1990 (Marshall 1991; 1995), and plan maps of the same pueblitos produced by Powers and Johnson

(1987), in order to increase the sample size. However, neither Powers and Johnson nor Marshall recorded details of the architecture and construction of the pueblitos. Where possible, detailed photographs, as well as maps, were used to determine construction technique. Marshall's artifact samples from middens and ceramic scatters (Marshall 1995) were also employed to increase the sample size.

Data from Tapacito Ruin, however, were not combined with those of the other pueblitos, due to its uniqueness, both chronologically and archaeologically. This is in keeping with Towner and Dean's observation that, "several lines of evidence indicate that the Tapacito pueblito is a unique structure in post-Revolt Dinétah," (1992:326) and Towner's caveat that, "Tapacito Ruin is not related to the other pueblitos and should be viewed as a separate entity," (1996:166). Analysis of Tapacito ruin, and its implications, are considered in a separate chapter.

Fieldwork was preceded by considerable research into the nature of both eighteenth-century Navajo and Pueblo sites and the archaeological remains typical of such sites. Theoretical models were then constructed comprising three categories of data: ceramics, architecture and construction techniques, and settlement and community organization. In each case, models were constructed reflecting the anticipated nature of the site had it been constructed and inhabited entirely by Navajos; a second reflecting an entirely Puebloan



occupation; and the third projecting the attributes of a site constructed and simultaneously occupied by members of both groups.

The results of the Palluche Canyon survey appear in Chapters 7 through 9. These, along with those of eight pueblito complexes surveyed by Marshall were then compared against the models which had been formulated, and conclusions drawn (see Chapters 11 through 13). The separate consideration of Tapacito Ruin appears in Chapter 14.

## 6 Palluche Canyon

### *Environmental Setting*

The project area is located in Palluche Canyon, in northwestern New Mexico. The canyon extends southwestward from Largo Canyon between Superior Mesa on the south and Smouse Mesa on the north (Figure 6.1). Both Palluche and Largo Canyons harbor ephemeral washes that flow northward into the San Juan River.

The floor of the 16 kilometer long canyon is typically level, and is approximately 3 kilometers wide at its widest point. The soil is loose and sandy, and canyon-floor vegetation consists largely of big sagebrush (*Artemisia tridentata*), saltbrush (*Atriplex canescens*) and greasewood (*Sarcobatus vermiculatus*), interspersed with abundant blue grama grass (*Bouteloua gracilis*) and purslane (*Portulaca oleracea*). Rabbitbrush (*Chrysothamnus nauseosus*) is found in dense stands along Palluche Wash and its numerous small tributaries. Prickly pear and cholla cactus (*Opuntia sp.*), Rocky Mountain bee plant (*Cleome serrulata*), birdcage primrose (*Oenothera deltoides*), alkali sacaton (*Sporobolus airoides*), desert paintbrush (*Castilleja angustifolia chromosa*) and tansy aster (*Machaeranthera tanacetifolia*) may also be found.

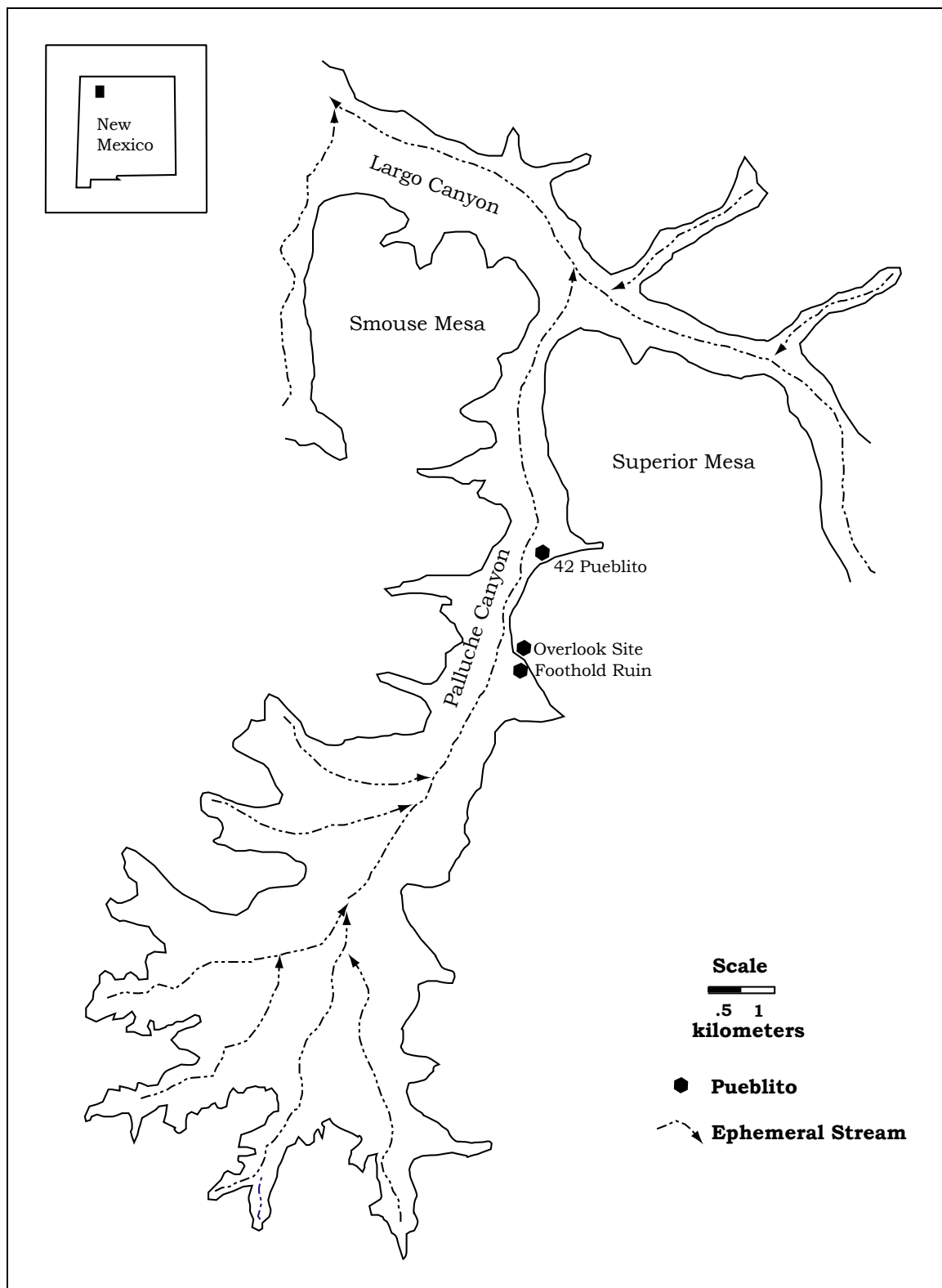


Figure 6.1 Map of Palluche Canyon showing Pueblito Locations. Inset: Project area location.

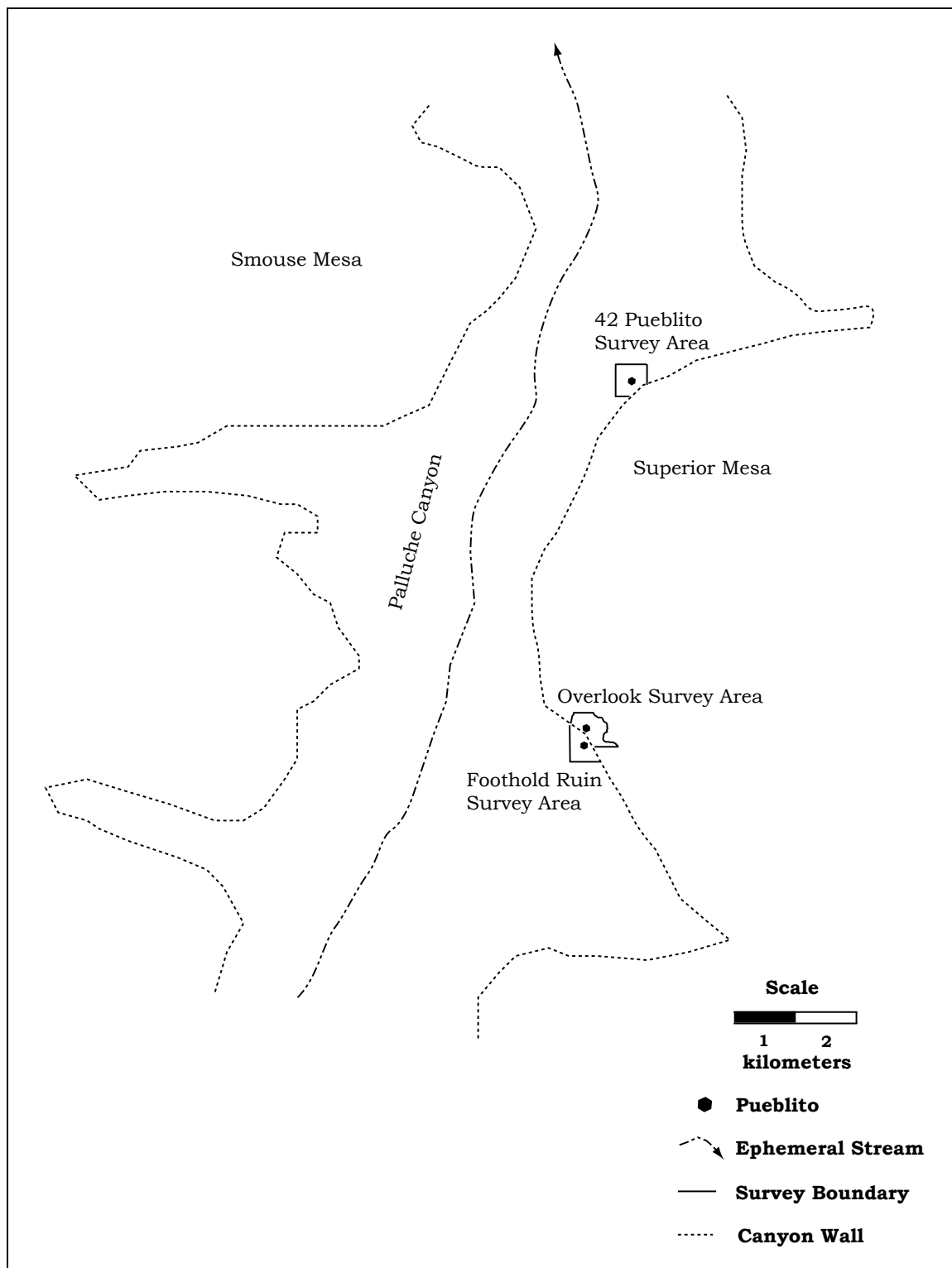


Figure 6.2 Locations of survey areas within Palluche Canyon.

Palluche Canyon has dissected the surrounding sandstone mesas to a depth of up to 600 feet (200 meters). The canyon is flanked by talus slopes marked by occasional outcrops of gray clay along the base of the steep mesa sides, which are covered in dense stands of Colorado pinyon (*Pinus edulis*) and juniper (*Juniperus sp.*), with a sparse understory of blue grama grass. Yucca (*Yucca glauca*), big sagebrush, scarlet gilia (*Ipomopsis aggregata*), and beehive cactus (*Escobaria vivipara*) are also scattered through the understory.

The mesa-top vegetation consists largely of somewhat more stunted examples of big sagebrush and greasewood, interspersed with blue grama grass. Areas nearer the mesa edge and on the benches framing the mesa top, however, are more densely vegetated, with scattered stands of pinyon and the occasional juniper. Large open areas on the more sizeable benches exhibit stands of big sagebrush and greasewood, which is somewhat less stunted than that found on the mesa tops. Blue grama grass appears in the understory of both the pinyon-juniper and brushy areas, and yucca (both *Yucca filamentosa* and *Yucca glauca*), prickly pear (*Opuntia sp.*), Mormon tea (*Ephedra viridis*) and beehive cactus are common.

Both elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*) are common, with elk being particularly numerous. Large predators consist of coyotes (*Canis latrans*) and mountain lion (*Felis concolor*). Most

smaller desert mammals are nocturnal, but evidence of lagomorphs—likely jackrabbits (*Lepus sp.*)—and woodrats (*Neotoma sp.*), was noted, as well as the tracks of many smaller rodents. Reptiles are numerous, with short-horned lizards (*Phrynosoma douglassi*), gopher snakes, (*Pituophis catenifer*), western rattlesnakes (*Crotalus viridis*), eastern fence lizards (*Sceloporus undulatus*), and sagebrush lizards (*Sceloporus graciosus*) identified in the field. Bird species consist of a variety of buteos (due to the wide variety of color phases, no attempt was made to identify these as to species), northern flickers (*Colaptes auratus*), western scrub jays (*Aphelocoma californica*), American crows (*Corvus brachyrhynchos*), and dark-eyed juncos (*Junco hyemalis*—gray-headed race).

### **Archaeological Setting**

No intensive systematic archaeological survey of Palluche Canyon has been conducted, although the area was included in the Navajo Land Claims project, and has seen sporadic surveys associated with the construction of various oil and gas development projects. In spite of this, the area has proved rich in archaeological resources of a variety of types (New Mexico Cultural Resources Information System, 2002).

Although the bulk of the archaeological resources recorded in the canyon are Navajo, there is also evidence of Anasazi use of the area.

Archaic and Paleo-Indian groups may well also have made use of the canyon's resources, but no evidence of their activities has been recorded. Anasazi sites, although uncommon in the canyon, consist of pithouses, middens, petroglyphs, and at least one roasting pit (New Mexico Cultural Resources Information System, 2002).

Navajo sites, in contrast, are quite common. Forked-pole hogans, stone circles (likely the only remains of now-vanished forked-pole structures), sweatlodges, a lithic quarry, and both pictographs and petroglyphs have been identified in the canyon (New Mexico Cultural Resources Information System, 2002).

Most prominent among the archaeological resources in Palluche Canyon are the three known pueblitos found on the canyon floor: 42 Pueblito, Foothold Ruin, and Twine House (LA 86895, LA 9073 and LA127737, respectively) (New Mexico Cultural Resources Information System, 2002). All three are located on the east side of the canyon, and the likelihood is high that additional exploration would reveal undiscovered pueblitos nestled in the rincons (small side-canyons) on the west side of the canyon, especially given that the existence of Twine House remained unknown to archaeologists until 1998 (Ababneh et al. 2000:273).

The mesas which overlook the canyon also feature a considerable number of pueblitos. The Pork Chop Pass site (LA 5661) is located on

Smouse Mesa, to the north, and the Overlook Site (LA 10732), Compressor Station Ruin (LA 5858), Largo School Pueblito (LA 5657), and Hooded Fireplace Ruin (LA 5662) all located on Superior Mesa (New Mexico Cultural Resources Information System, 2002).

Also notable among the Navajo sites in Palluche Canyon are the large number of Navajo rock art panels. Copeland and Rogers (1996:224) indicate the presence of five humpbacked ye'i figures, 19 unidentified ye'i, one queue (the "hour-glass" symbol indicating the Hero Twin Born-for-Water), and one corn plant, although they indicate that this list is not exhaustive. They observe the *absence* of the following themes in Palluche Canyon: fringe-mouth ye'i, twin ye'i, triangular horned ye'i, hunting people, snakes, shield figures, bats, or the bow symbol that indicates the other Hero Twin, Monster Slayer. Navajo rock art is generally located away from pueblitos and is unassociated with habitation sites, although it may co-occur with Anasazi petroglyphs (Copeland and Rogers 1996:219), as occurs at one site near the mouth of Palluche Canyon (LA 80995) (New Mexico Cultural Resources Information System, 2002).

The presence of the Born-for-Water queue, and the as-yet-apparent absence of the symbol for the other Twin, Monster Slayer, as well as the comparatively large number of humpback ye'i figures may provide insight into the ways in which the Navajo used Palluche Canyon. Copeland and



Rogers state that, “variation [in the frequency of various images between canyons] may reflect some as yet not completely understood significance the specific places held in the ceremonial structure of Dinétah...the differences between canyons may reflect different types of ritual performed at those places” (1996:225). They observe that the humpbacked ye’i is a major character in the Nightway chant, and that there is a continuity between rock art themes and sand paintings (Copeland and Rogers 1996:225,227).

Perhaps the most significant archaeological discovery in Palluche Canyon to date is a remarkably complete and well-preserved ceremonial cache discovered by an El Paso Natural Gas employee in 1967. The 96 pieces were found in a small rock shelter approximately 30 feet up from the lower bench in small rincon on the left side of the main canyon (Roessel 1983:135). Many of the items are similar to those still in use in Navajo ceremonials, including basketry head dresses, gourd rattles, beaks for masks, and circles made of twigs (Roessel 1983:135, 157). Numerous tablitas, or dance paddles, were also included in the cache (Roessel 1983:137, 140-141, 150-154). Although such tablitas are no longer in use among the Navajo (Roessel 1983:135), Navajo rock art does portray figures holding what appear to be dance paddles (Copeland and Rogers, 1996:219).

Although the departure of the Navajo from Palluche Canyon likely marked the end of its intensive use for habitation, the area did not remain completely deserted. At least one instance of Hispanic graffiti has been recorded in association with Anasazi and Navajo petroglyphs, and the remains of two Hispanic or Anglo-American stone residential structures can be seen on the floor of the main canyon. At present, the canyon proper remains uninhabited and is primarily used for grazing, although a working ranch is located at the mouth of the canyon.

## 7 42 Pueblito Survey Area

The 42 Pueblito Survey Area is centered on 42 Pueblito (LA 86895), a considerably eroded masonry structure topping a large boulder at the base of a talus slope (Figure 7.1). The pueblito is located on the east side of Palluche Canyon, at the mouth of a rincon. The survey area encompassed portions of both the canyon and the southwest edge of the rincon.



Figure 7.1 42 Pueblito.

A single ephemeral stream drains the rincon, although several ephemeral washes channel drainage down the talus slope. The area varies in altitude from 6200 feet above sea level to 6400 feet above sea

level. A large portion of the survey area encompassed relatively flat, sandy canyon bottom populated with sagebrush, greasewood, and rabbitbrush, with an understory of blue grama grass and purslane. The remainder of the survey area consisted of steep north- and west-facing sandstone talus slopes with up to a 40 percent grade. A large sandstone cliff dominates the site, and dictated the boundaries of the survey area on portions of the south and east sides. Typical of the canyon as a whole, the talus slopes are cloaked in mixed pinyon-juniper forest, with an understory of grasses, with scattered narrow-leaf yucca and other herbaceous annuals and perennials.

The pueblito was re-recorded and mapped as part of the project. The survey of the area around the pueblito resulted in the recording of one new archaeological site (LA 137967), (Figure 7.2) and ten isolated occurrences (Table 7.1).

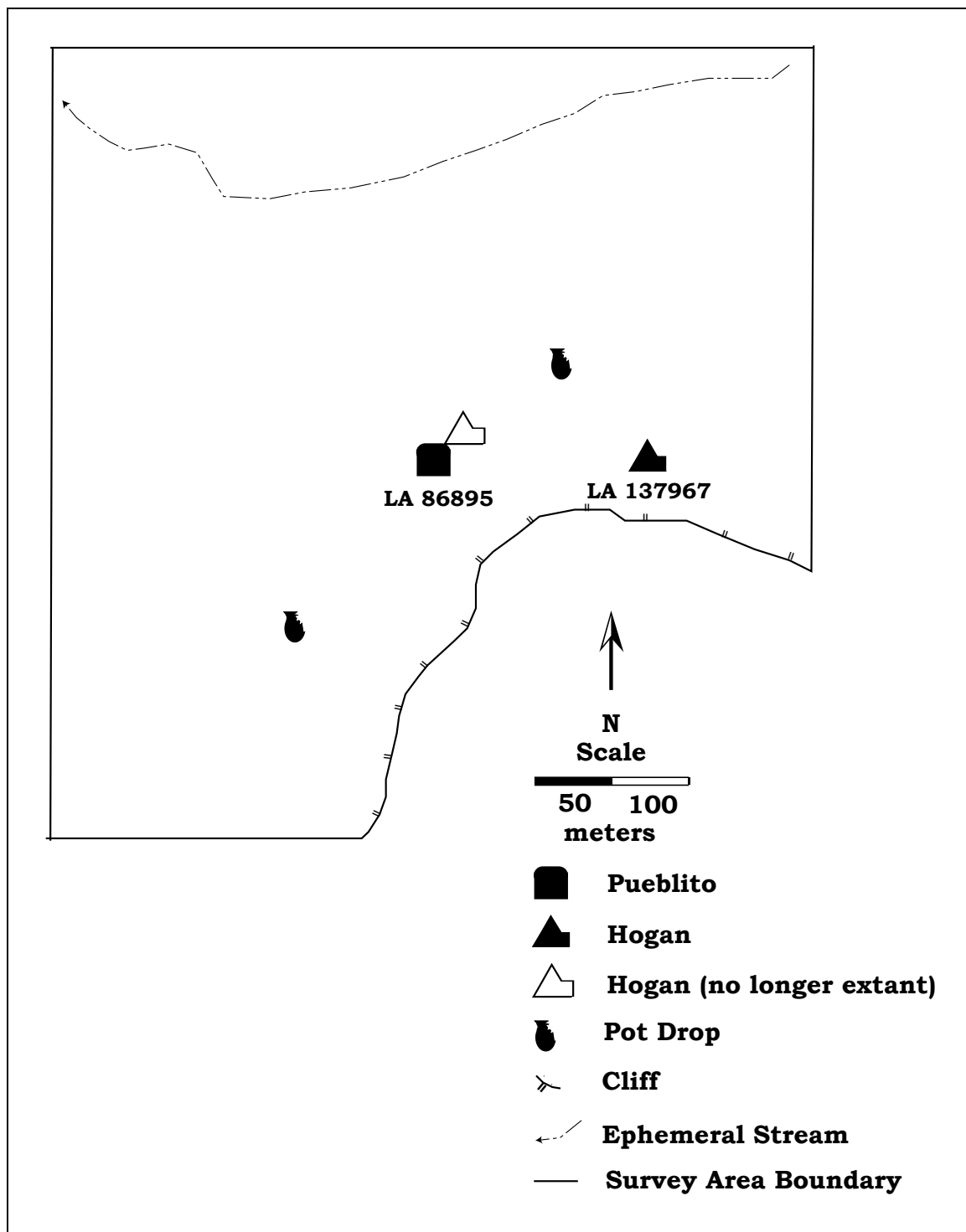


Figure 7.2 42 Pueblito survey area.

## **42 Pueblito: LA 86895**

Originally recorded by Navajo Land Claims archaeologists in the 1950s (Ababneh et al. 2000:278), 42 Pueblito was reviewed again by Bureau of Land Management researchers in 1989 (New Mexico Cultural Resource Information System, 2002). In the 1950s the pueblito included two rooms with a sealed door between them, a notched pole ladder and an associated hogan (Ababneh et al. 2000:278-279), but by 1989 the site had been badly degraded by erosion, illegal excavation and vandalism, and only a few courses of the walls remained. Likewise, by 1989 the hogan was no longer detectable (New Mexico Cultural Resource Information System, 2002). However, there were sufficient intact beams at the pueblito for the University of Arizona Tree Ring Laboratory to date the original construction of the site to the late 1720s and a repair episode during or after 1741 (Ababneh et al. 2000:282).

The map of the site originally produced by the Navajo Land Claims researchers is no longer available (Ababneh et al. 2000:278), and only a rough sketch map was produced of the site in 1989. In order to provide a more accurate record, and to aid in architectural analysis, the site was re-mapped in 2002 using a metal tape and a compass (Figure 7.3).

The original 1959 description of the site is as follows (from Ababneh et al. 2000:278-279, spelling and typographical errors corrected. After Correll and Brugge 1959):

Fortified Crag #1: Atop a sandstone formation averaging 10' in height and about 25' E-W x 10' N-S are the remains of a fortified crag consisting of two one-storey rooms. There is little evidence of a second storey to the structure. Room 1: A room 11' E-W x 6-5' N-S. The base rock has a slight tapering at the middle where wall between rooms is located (see sketch) [not available]. Walls of Room #1 stand 5' high from present fill. Four rafters in place at east end of room—no other portions of roof remain. Three lookout holes #1—3" diameter at northeast corner 1.5' above fill, #2—3" diameter at fill level, #3—1.5' above fill about 1/3 way from wall between room to northeast corner, #4 is 6" wide, 4" high. Door is in east wall next to south wall. A rock wall extends along rock rim from south wall in a northeast curve around ramp up sandstone formation to entrance. In the west wall between the two rooms is a sealed door. Two lintels are in wall above sealed door. Split poles form sides of entrance to Room 1. Some plaster on walls. A stone wall 6' long, now 1.5' high extends from south wall Room 1 around the rim of rock along ramp. Room 2: An irregularly-shaped room (see sketch) [not available] with a diameter of 11' x 8'. A drain hole (?) 5" and 6" is in northwest corner at fill level. A lookout hole is in south wall 1.5' above fill and 2' from southeast corner, 3" high, 5" wide. Walls of Room 2 stand 3' to 6' high in northwest corner above fill. There is no evidence of rafters having been in this 6' wall. Fill is estimated to be 1.5' deep. No firepit located. Notched pole ladder 4.5' long with three steps at southwest base of crag. Masonry is of sandstone slabs with mud and small stone chinking.

Hogan #2. 40' NE of crag are the remains of a forked-pole (?) hogan. Only a few small juniper and pinyon timbers remain as evidence of the structure, all of the large timbers are missing. These timbers are scattered but sufficient remain in wheel-spoke pattern to indicate a forked pole structure. Circular floor depression measures 7.5' in diameter. Entrance not determinable. Firepit or door slabs not located. Ash dump not located—probably washed down slope to Palluche Wash. Ash dump southwest of structure 15'. Another notched pole ladder 6.5' long with four steps lying at northwest base of crag.

Pottery:

Dinéyah Utility 420 sherds

Refugee Utility 4 sherds

Gobernador Polychrome 47 sherds

Zia 6 sherds

Tewa Polychrome 4 sherds

Zuni-Acoma 4 sherds

Hopi 1 sherd



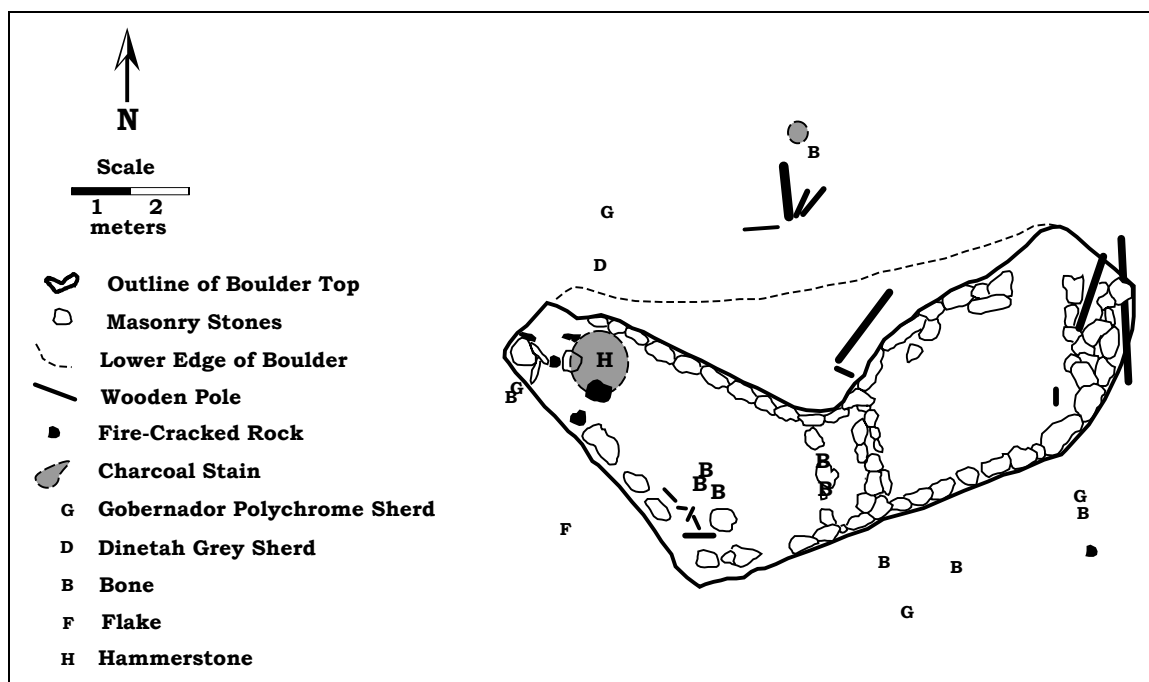


Figure 7.3 Map of 42 Pueblito (LA 86895).

### **LA 137967**

**Site Type:** Burned forked stick hogan and associated artifact scatter

**Cultural-Temporal Affinity:** Navajo, Gobernador Phase

**Location:** LA 137967 is located on a small bench approximately 30 meters above the canyon floor at the mouth of a small rincon on the east side of Palluche Canyon, and approximately 150 meters east of 42 Pueblito. The site exposure is northward, and provides a view of the rincon and portions of Palluche Canyon to the east and north. Mixed pinyon and juniper, with an understory of blue grama grass, big sagebrush, and yucca surround the site.

**Description:** This site consists of a charcoal stain and a few burned stubs of timbers, and represents the remains of a burned forked-pole hogan. Two small unburned, axe-cut timbers are located nearby. A large, diffuse ash stain to the north-east appears to result from the burning of the hogan. A scatter of Gobernador Polychrome and Dinétah Gray sherds, as well as a few flakes, are scattered over the site.

**Interpretation:** LA 137967 is a single-component protohistoric site consisting of a burned, forked-pole hogan and an associated artifact scatter. It has been dated to the Navajo Gobernador Phase on the basis of Gobernador Polychrome ceramics present on the site. This fairly typical habitation site appears to be related to the nearby pueblito and may represent seasonal exploitation of canyon-bottom fields, with the pueblito providing refuge from Ute attacks for the hogan's inhabitants. Tree-ring dating may be possible at the site, and would establish contemporaneity, or lack thereof, with the pueblito.

**Maps:** See Figure 7.4.

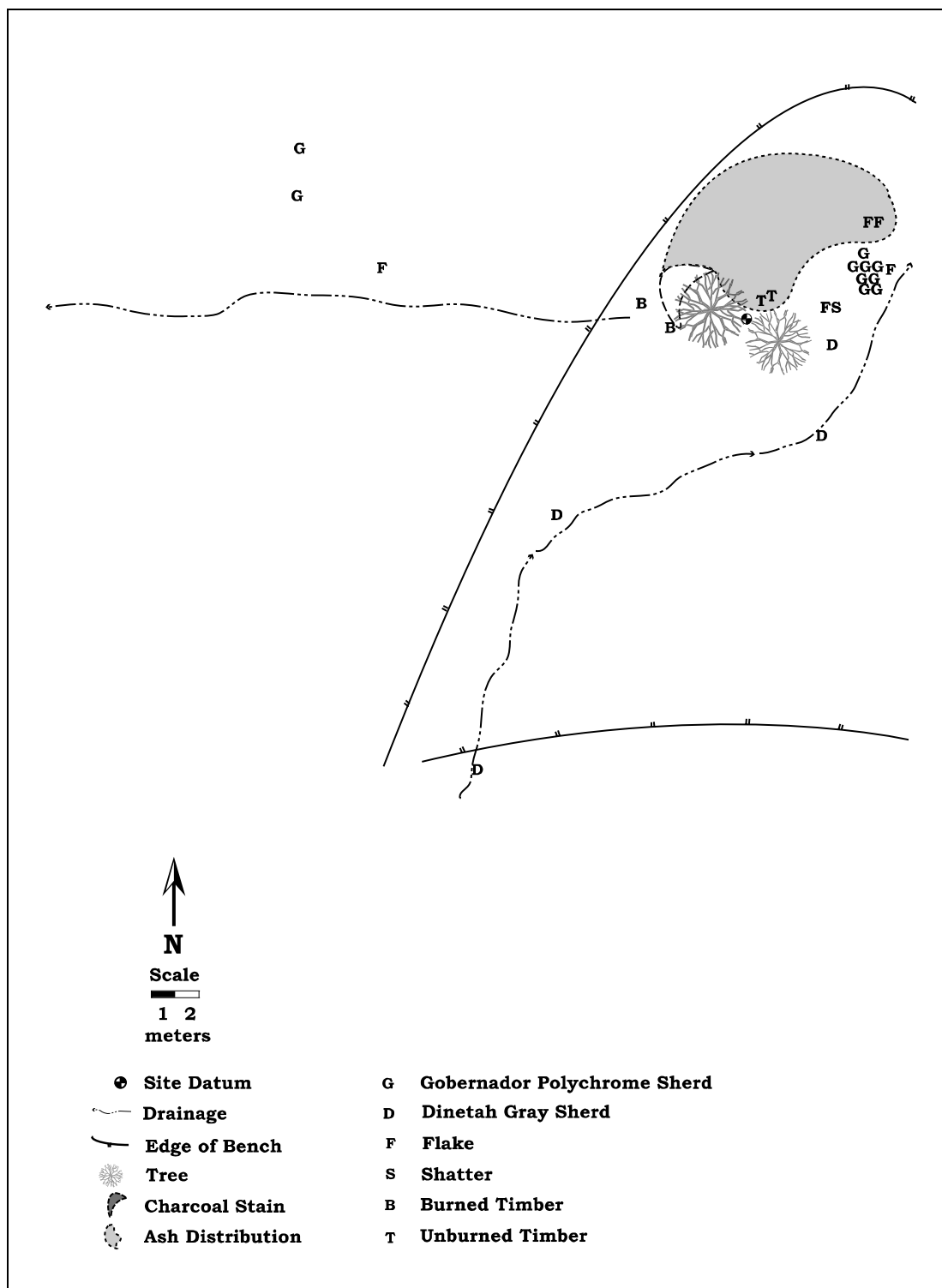


Figure 7.4 Map of LA 137967.

### **42 Pueblito Survey Area Isolated Occurrences**

Isolated occurrences encountered in the 42 Pueblito Survey area are presented in Table 7.1.

**Table 7.1 Isolated Occurrences in the 42 Pueblito Survey Area.**

<b>Isolated Occurrence #:</b>	<b>Description:</b>
42-IO-1	1 Gobernador Polychrome sherd and 1 tertiary grey chert flake
42-IO-2	Gobernador Polychrome sherd
42-IO-3	Gobernador Polychrome sherd
42-IO-4	2 Gobernador Polychrome sherds
42-IO-5	4 Gobernador Polychrome sherds and 1 Dinétah Gray sherd over 7 x 2 meter area
42-IO-6	Probable Gobernador Polychrome pot drop—8 sherds, all appearing to belong to same vessel
42-IO-7	Tertiary white chert flake
42-IO-8	Gobernador Polychrome sherd
42-IO-9	Dinétah Gray pot drop c. 40 sherds (probably restorable)
42-IO-10	Gobernador Polychrome sherd

## **Discussion**

The complex surrounding 42 Pueblito appears to have been very limited in extent and likely only consisted of a single nuclear family, or at the most two related families, living at the site during the duration of the pueblito's use. This limitation of extent may be illusory, however, and more reflective of preservation and depositional conditions at the site, rather than of habitation patterns.

Few grounds for comparison of the size and composition of the 42 Pueblito complex exist, as Marshall's (1991) survey only encompassed one canyon-bottom pueblito (Simon Canyon Pueblito—LA 5047), Towner and Johnson's (1998) survey was all upper-elevation, and the current project evaluated only one other (Foothold Ruin—LA 9073). The size of these canyon-bottom pueblito complexes, however, stands in sharp contrast to those of found at higher elevations.

The 42 Pueblito complex has two hogans, the Foothold Ruin Complex three, and the Simon Canyon complex none (Marshall 1991:132). In contrast, only one of the higher-elevation pueblito complexes, Shaft House (LA 5660), which is built on the face of a high cliff, is lacking in hogans, and the other higher-elevation complexes have an average of five hogans, with quantities ranging from two to ten (Marshall 1991).

Number of hogans is not the sole indicator of complex size, however. If the number of elements comprising the complexes is considered, it further illustrates the pattern. For the purpose of this examination, a complex element was taken to mean a feature, such as a hogan, hearth, sweatlodge, or rock art panel. Certain features—middens, artifact scatters, isolated occurrences, pueblitos or masonry rooms, undated features and those pre- and post-dating the Navajo occupations such as Anasazi and Euro-American or Hispanic components—were excluded from the total. Pueblitos were excluded because, by definition, each of the complexes houses a pueblito, and the number of rooms in the pueblito may not be reflective of the total size of the surrounding complex. Taking the specified elements into consideration, the canyon-bottom sites average just three per complex, whereas the higher-elevation sites consisted of ten to nineteen elements, with an average of fifteen (Marshall 1991). Such a discrepancy between canyon-bottom and higher-elevation sites cannot be attributed solely to differential preservation, or the potential burial of sites under alluvium.

The limited extent of the complex surrounding 42 Pueblito—and by extension, the other lower-elevation complexes—may, however, be indicative of the season in which they were used. The deteriorated condition of the hogans in the 42 Pueblito survey area preclude seasonality determinations based on orientation of the structure entrance—hogan entrances were oriented toward the location of the first

appearance of the rising sun *at the time of construction* in order to permit the performance of certain critical morning rituals (Jett and Spencer 1981:17). Thus a northeast-oriented doorway would suggest summer construction, whereas a southeast-oriented doorway would suggest winter construction. In spite of the lack of data of this nature, however, archaeological and ethnographic evidence suggest that the 42 Pueblito complex was occupied during the summer months.

Jett and Spencer indicate, based on ethnographic patterns, that most Navajo “outfits” (extended family groups consisting of a living matriarch and her daughters and granddaughters and their husbands) had two camps where they built permanent structures—one used in summer and the other in winter, with some or all of the family migrating between the two sites. In outfits for whom agriculture was the primary means of subsistence, the summer camp was located near farmland, and winter sites located at higher elevations, where firewood was available. Those outfits whose primary reliance was on pastoral resources, however, would spend the summer in mountain meadows and the winter in pastures at lower altitudes (Jett and Spencer 1981:10).

This pattern appears to have been borne out in earlier times through data from the Canyon del Muerto survey. That survey indicated that the Navajo made limited, seasonal use of the canyon bottoms, and more extensive, year-round use of the canyon rim (James 1976:1). In spring and summer, habitations were located near arable land in the

canyons, with hogans in adjacent cliff, talus, and rim locations, whereas in winter the habitations were moved to treed areas on the plateaus, where wood, pasture, and camouflage were abundant (Magers 1981:228).

The 42 Pueblito complex would have been well-suited for use as an agricultural area, given the deep layer of fine alluvium and the proximity both of the ephemeral stream in the rincon and the larger Palluche Wash located immediately west of the survey area. The pueblito and the two hogans are ideally situated to provide advance warning of the approach of hostile parties up Palluche Canyon from Largo Canyon, allowing complex residents tending the fields near the mouth of the rincon or working at activity areas near the hogan sufficient time to retreat to the safety of the pueblito before attackers reached the settlement. The hogan adjacent to the pueblito, however, would have been somewhat exposed to winter winds gusting down the canyon, and cold-air drainage from the mesa above would have made both hogan sites uncomfortable locations for habitation in mid-winter.

Only one date was obtained from the hogan adjacent to the pueblito by the Navajo Land Claims researchers, a non-cutting date (1699vv) (Ababneh et al. 2000:279). Thus, even if the newly-discovered hogan at LA 137967 can be successfully dated, the question of potential contemporaneity of the two hogans would remain open. It is worthy of note that the average use-life of a hogan, based on archaeological and ethnographic data, is generally on the order of ten years (Towner and



Johnson 1998:153). It is possible that both hogans may have been used during the use-life of the pueblito, which Ababneh et al. (2002:282) estimate was originally constructed in the late 1720s, and remodeled in the early 1740s.

Causes for abandonment of a structure include a death occurring within the structure, lightning strike, a bear rubbing against the hogan, insect infestation, or bad luck or the quarreling of the occupants (Jett and Spencer 1981:28). In the case of a death in the hogan, a new hogan must be constructed at least 150 feet from the “death hogan,” and other hogans may be moved as much as a half a mile away. Even under normal circumstances of simultaneously, rather than consecutively, occupied structures, however, hogans are located some distance apart and out of line-of-sight of one another, providing each nuclear family with a degree of privacy (Jett and Spencer 1981:7, 9). The relative locations of the two hogans, therefore, do not provide clarification of the matter, and the question of their chronological relationship to one another, and to 42 Pueblito, remains unresolved.

## 8 Overlook Survey Area

The Overlook Survey Area is centered on the pueblito at the Overlook Site (LA 10732) (Figure 8.1), a five-room masonry structure located on a slickrock projection at the edge of Superior Mesa. It overlooks much of the bench that was included in the Overlook Survey Area as well as Foothold Ruin 500 feet below. The pueblito originally had five ground-floor rooms, and at least two on the upper storey.



Figure 8.1 Overlook Site pueblito, north wall. Arrow indicates “loophole.”

The Overlook Survey Area is located on a west-facing bench on the mesa rim above Palluche Canyon, on the east side of the canyon. One

ephemeral stream drains the area, creating a tortuous channel through the slickrock that drains the rim of the mesa to the canyon floor almost 500 feet below. The bench varies in altitude, from 6820' asl in the bedrock channel of the stream to 6880' where the bench intersects with the cliff dividing it from the mesa top some 40 feet above. Slope varies considerably over the survey area, with large, relatively level (4 percent grade) expanses, and up to a 20 percent grade in the vicinity of the ephemeral stream. The area is predominantly pinyon-juniper forest, with some open areas of mixed desert scrub, and patches of exposed bedrock near the mesa rim. The vegetation community is much the same as that noted in the canyon below, with an increased prevalence of cacti and a reduction in the overall size of scrub plants such as big sagebrush.

The area surrounding the Overlook Site was re-recorded and mapped as part of the project, although due to the extensive mapping of the structure itself done by Powers and Johnson (1987) for the National Register nomination, mapping of the pueblito structure proper was not undertaken. The survey of the area around the pueblito resulted in the recording of nine new archaeological sites (LA 137968 to LA 137975 and LA 139975), including three forked-pole hogans, five sweatlodges, two petroglyph panels (Figure 8.2) and five isolated occurrences (Table 8.1).

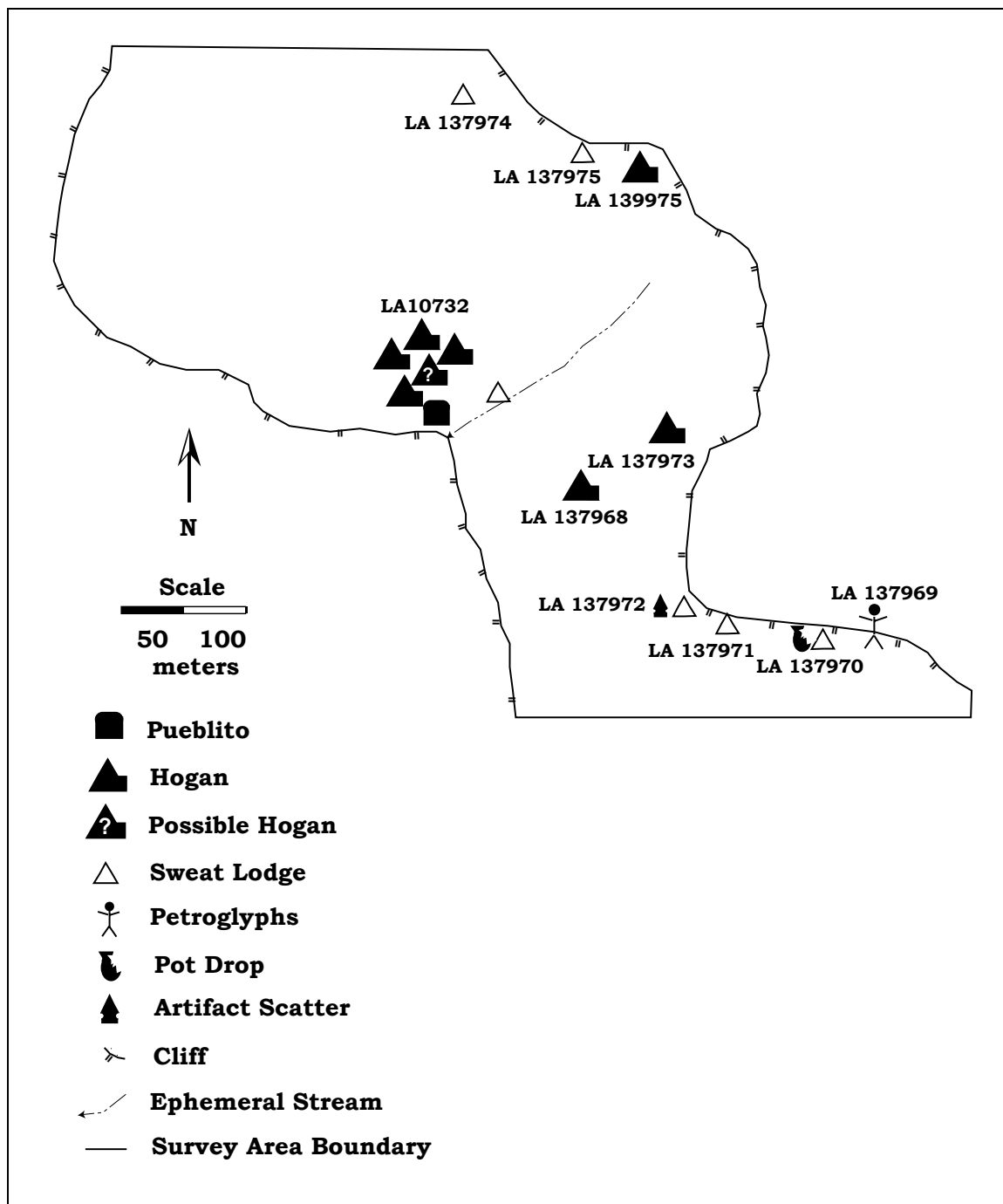


Figure 8.2 Map of Overlook survey area.

**Overlook Site: LA10732**

The Overlook Site was initially recorded by Navajo Land Claims researchers in 1957, and was documented by Margaret Powers and Byron Johnson for inclusion in the National Register of Historic Places in 1985-86 (Powers and Johnson 1987:63). Tree-ring samples were collected by the Navajo Land Claims researchers and again by Ronald Towner of the University of Arizona. Towner concluded that the suite of dates, in conjunction with architectural analysis, indicated the pueblito was built in at least three separate construction episodes, beginning in 1727 (Towner 1997:242-245).

The Overlook Site pueblito consists of five ground-floor rooms, two of which appear originally to have had a second storey. A rock alignment near the pueblito suggests that initial work may have begun on another free-standing room.

Four collapsed hogans and a stone circle, possibly representing the remains of a fifth hogan, were recorded at the site (Figures 8.3 and 8.8), along with a large sweatlodge discard pile in the wash below and some distance from the pueblito, and a possible windbreak structure (Powers and Johnson 1987:63). Neither Powers and Johnson (New Mexico Cultural Resource Information System), nor the 2002 survey crew were able to relocate the windbreak. The rock alignment near the pueblito was originally recorded as a stone circle, and interpreted as the base to a

now-vanished D-shaped hogan (New Mexico Cultural Resource Information System, 2002). Powers and Johnson, however, provide the first map of the site, and interpret the rock alignment next as the beginning of another possible pueblito room (New Mexico Cultural Resource Information System), a postulation concurred with by the 2002 survey team. A small, loosely-defined circle of stones located in close proximity to the other hogans, which Powers and Johnson (1987:64) interpret as “wall fall,” although there is no wall in the vicinity, and no apparent reason for a short section of wall to have been constructed at that location on the site. Nor is there any indication of adobe mortar, as would be expected with a wall section, and this circle may in fact represent the base of a now-vanished forked-pole hogan.

The 2002 team re-mapped the site (with the exception of the pueblito itself, which was fully recorded for the National Register nomination), including detailed mapping of each of the hogans and the stone circle (Figure 8.3 and Figure 8.8). The sweatlodge discard pile included in the site is located some distance from the pueblito and surrounding structures, and was re-located in the field and appears Figure 8.2 but is not included on Figure 8.3 due to scale. Three tools: a shaft straightener (Figure 8.4), a sharpening stone (Figure 8.5), and a hammerstone (Figure 8.6) were encountered in the course of the mapping project, in addition to a large anomalous groundstone object (Figure 8.7). Sherd and lithic counts were taken of the three middens (four were

recorded by Powers and Johnson on the site form in 1985, but erosion has led to the junction of the two middens they recorded on either side of Hogan 1) (New Mexico Cultural Resource Information System, 2002).

**Maps:** See Figure 8.3 for general site overview, and Figure 8.8 for hogan and stone circle layouts.

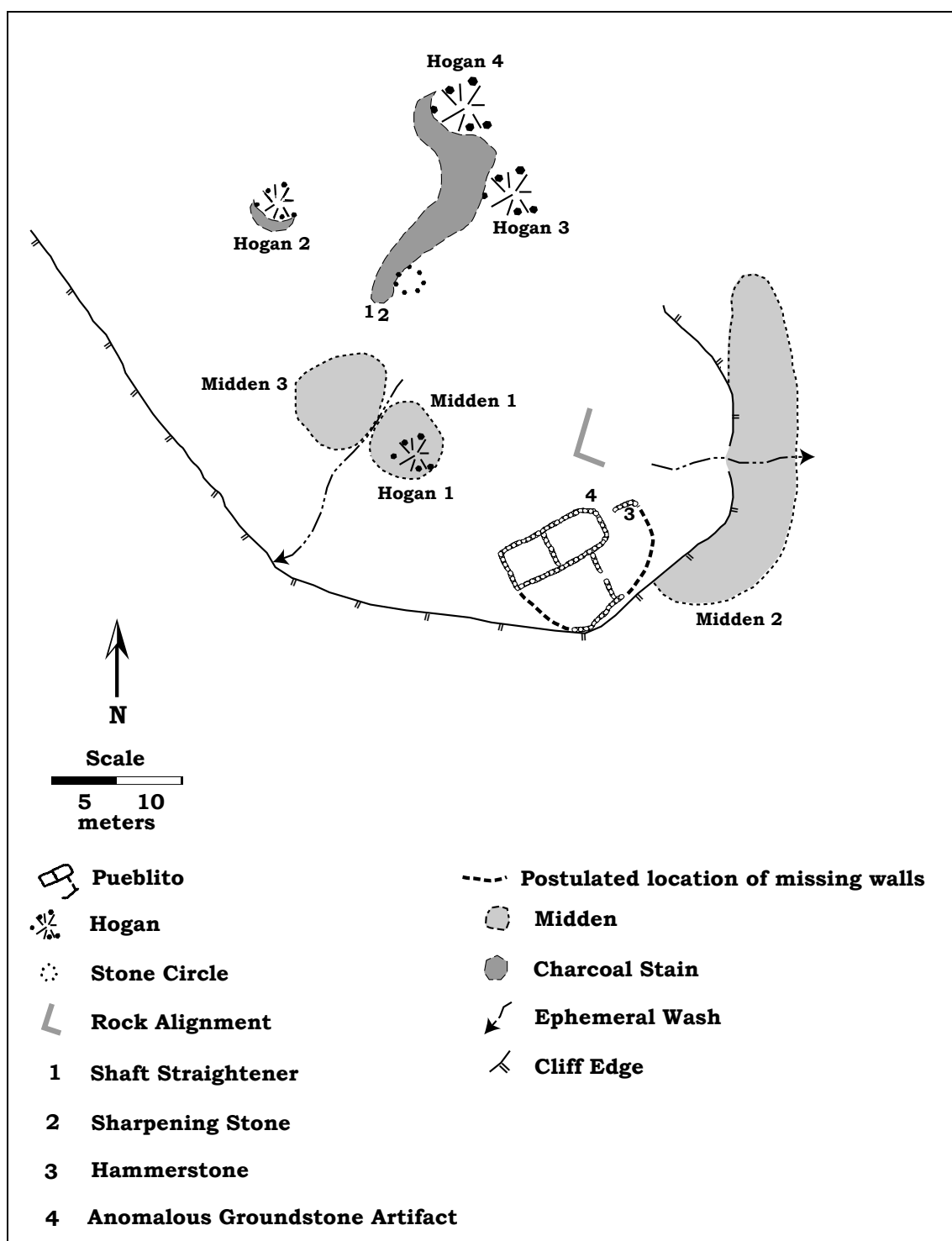


Figure 8.3 Map of Overlook Pueblito site (LA 10732).



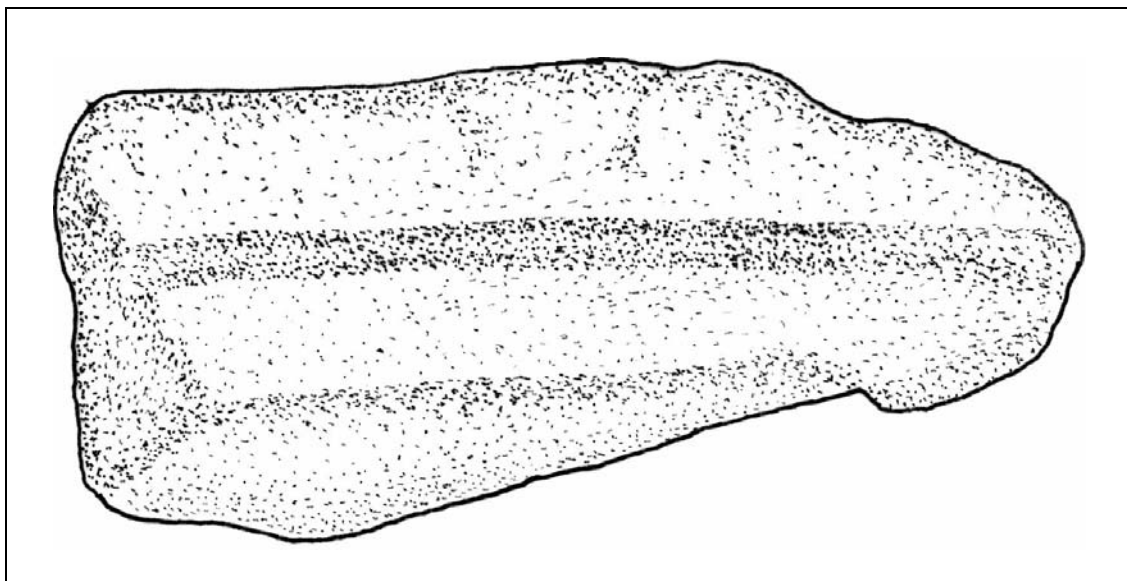


Figure 8.4 Shaft straightener at LA 10732. Actual size: 19.8 cm x 12 x 6.5 cm.

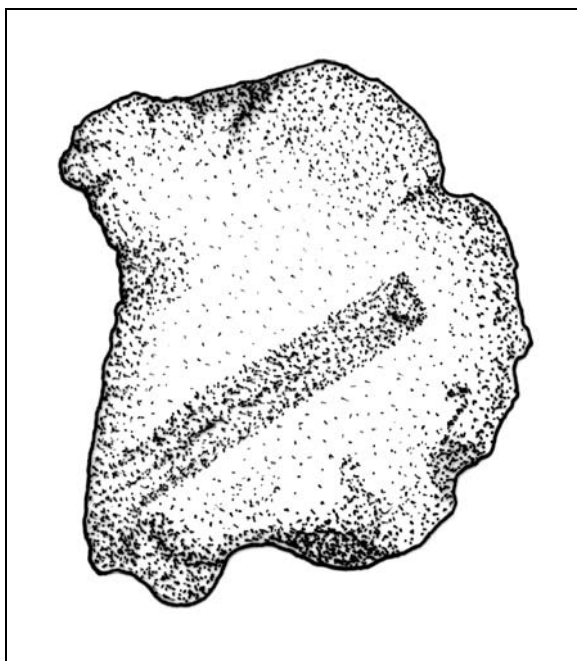


Figure 8.5 Sharpening tool at LA 10732. Actual size: 17.0 x 16.0 x 3.3 cm.

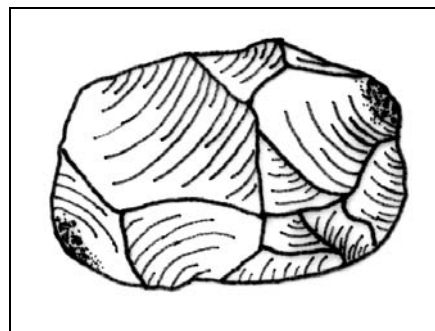


Figure 8.6 Hammerstone at LA 10732. Actual size: 2.6 x 1.8 x 0.7 cm.

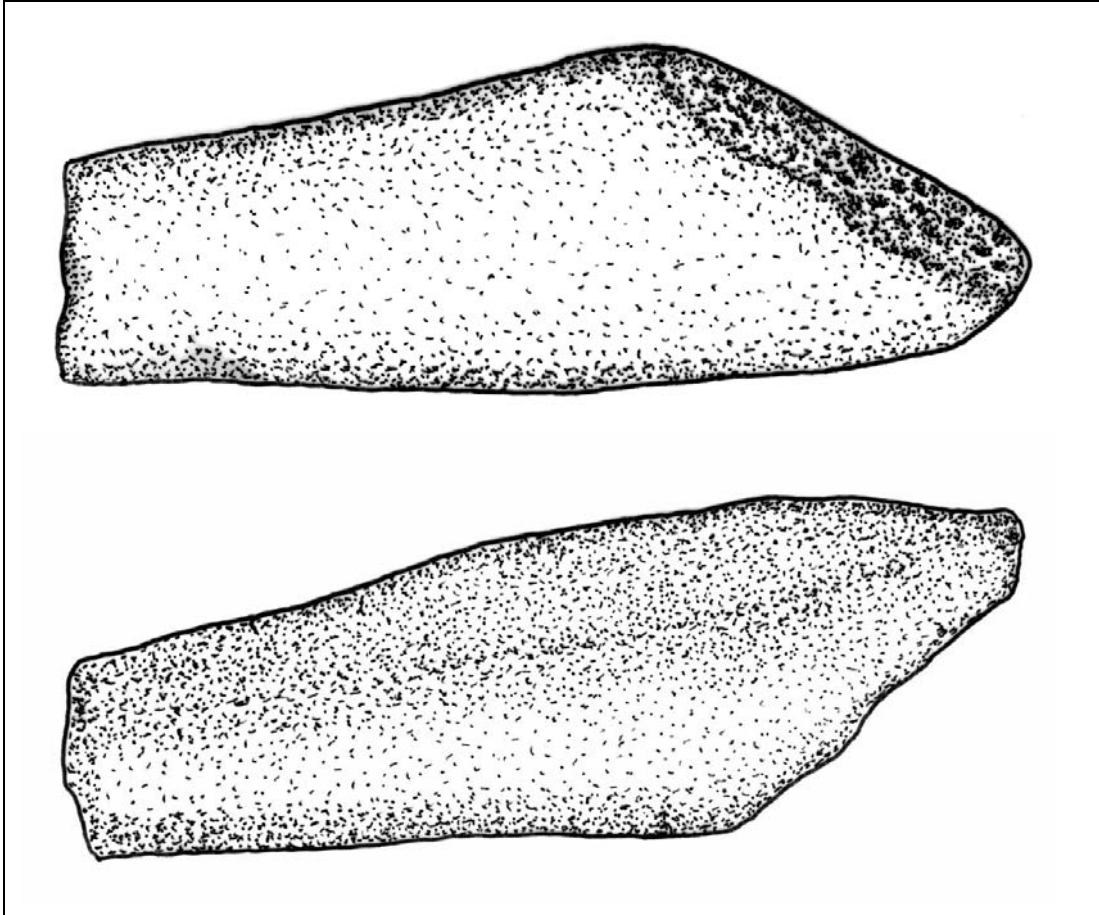


Figure 8.7 Anomalous groundstone artifact at LA 10732.  
Actual size: 50 x 17 x 15 cm.

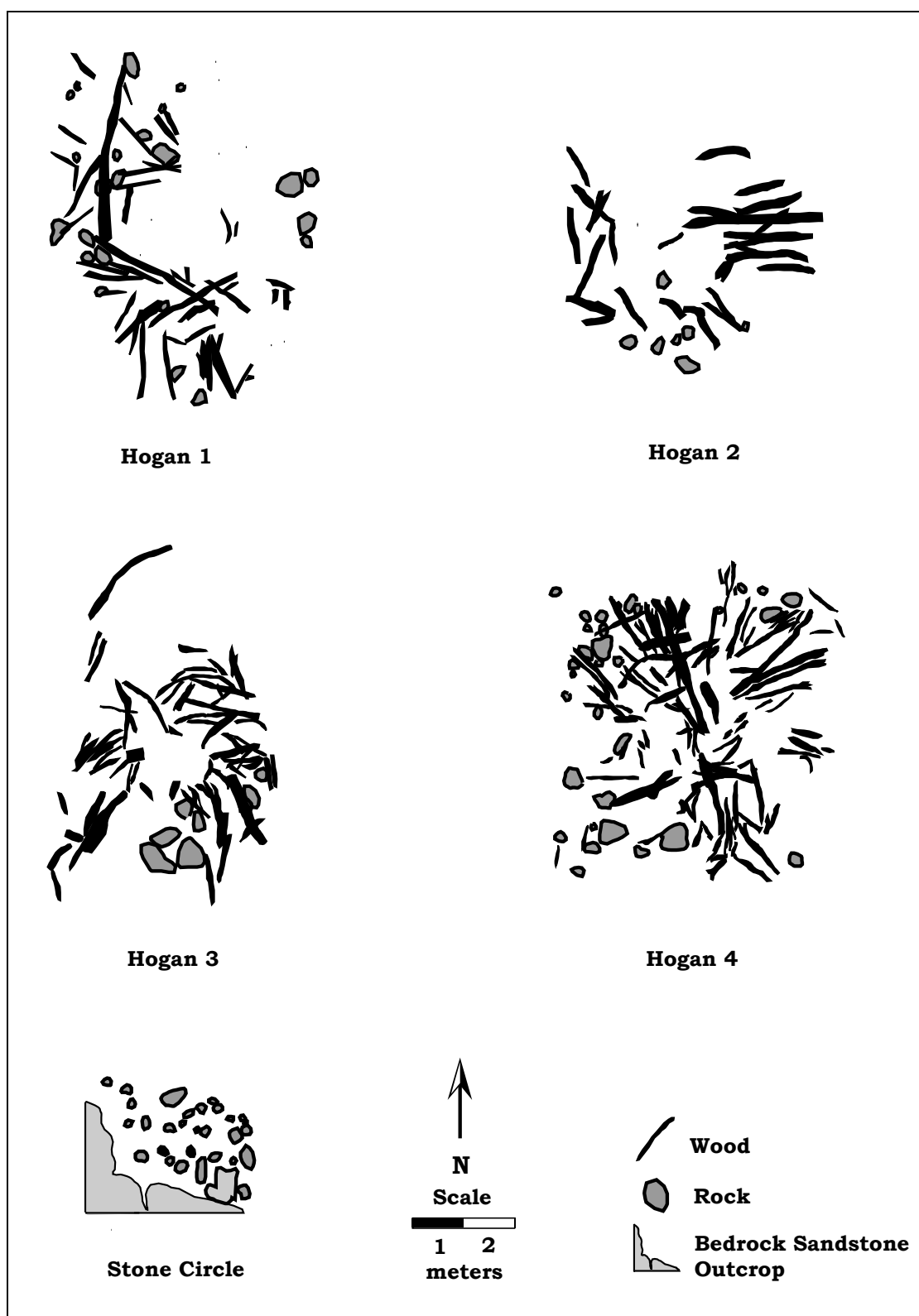


Figure 8.8 Hogan and stone circle layouts at LA 10732.

**LA 137968**

**Site Type:** Burned forked-pole hogan

**Cultural-Temporal Affinity:** Navajo, Gobernador Phase

**Location:** LA 137968 is located in the middle of a wide bench on Superior Mesa, some 150 meters above the floor of Palluche Canyon, and approximately 150 meters from the Overlook Site pueblito. The area is sparsely vegetated with juniper and pinyon, and an understory of sagebrush, blue grama grass, ephedra, and opuntia.

**Description:** The site consists of a partial stone circle, a large charcoal stain, two unburned timbers, and a light scatter of lithics, debitage and ceramics, which are largely confined within the boundaries of the circle. Artifacts consisted of two lithic tools: a projectile point of white chert (Figure 8.10) and a partial gray chert tool (probably a bifacial scraper fragment—Figure 8.11), three flakes, three Gobernador Polychrome sherds, one Dinétah Gray sherd, and one white-slipped tradeware sherd. No trace of decoration, other than traces of a heavy, crazed white slip remained on the sherd-tempered gray paste tradeware.

**Interpretation:** LA 137968 is a single-component protohistoric habitation site consisting of a stone circle and a few collapsed timbers from a forked-pole hogan. The site has been dated to the Navajo Dinétah or Gobernador Phase on the basis of Dinétah Gray ceramics on the site,

but the timbers appear to be too eroded to provide more accurate dating. The site is likely associated with the nearby pueblito, and may represent one of the hogans occupied by the “outfit” (extended matrilineal group) that made use of the pueblito as a refuge from Ute raiders.

**Maps:** See Figure 8.9.

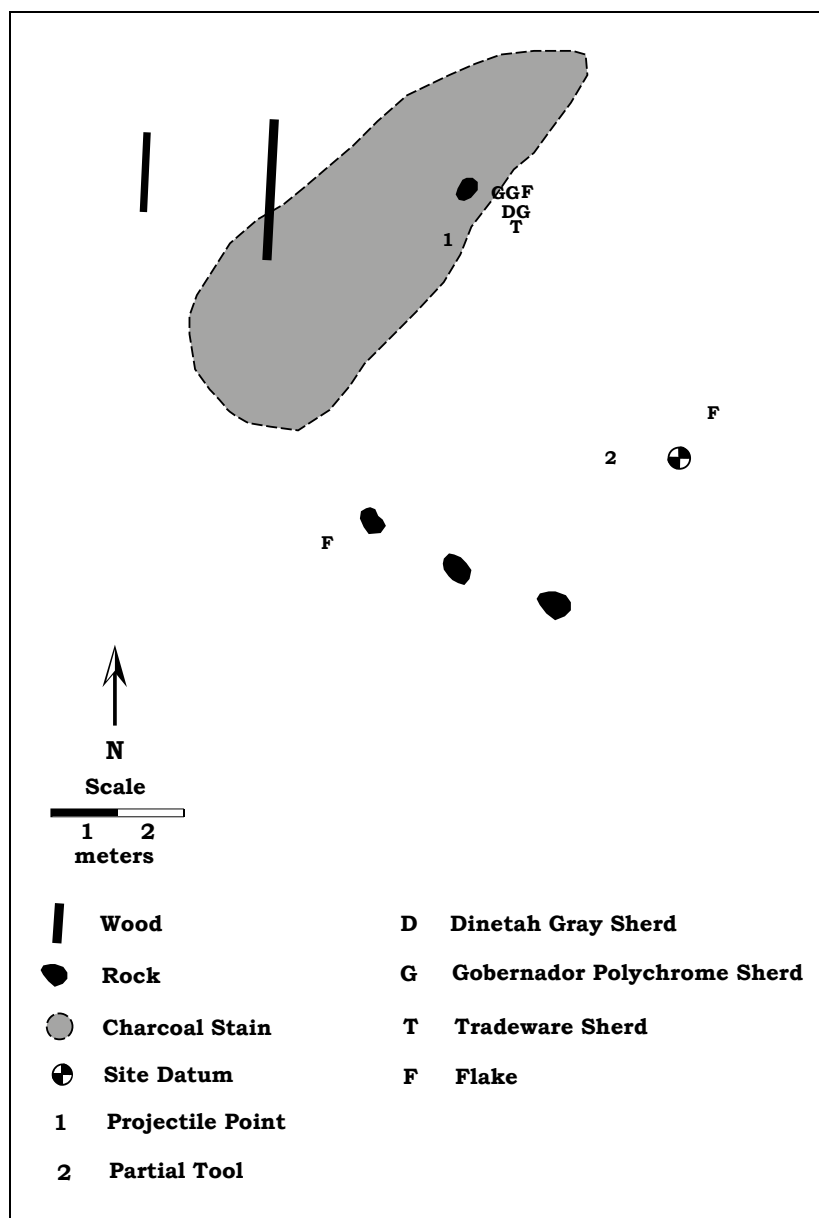


Figure 8.9 Map of LA 137968.

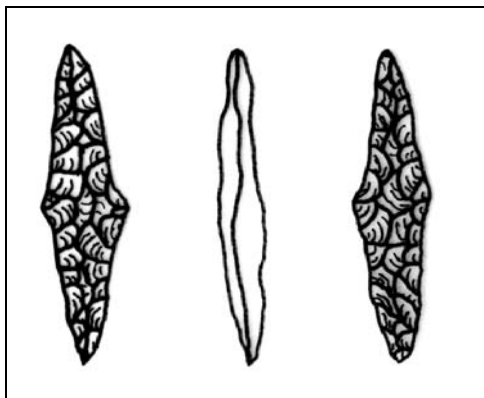


Figure 8.10 Projectile point at LA 137968. Actual size: 3.5 x 0.8 x 0.5 centimeters.

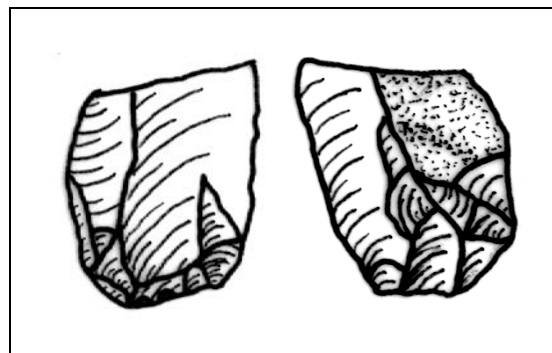


Figure 8.11 Partial tool at LA 137968. Actual size: 2.7 x 1.8 x 0.7 centimeters.

### **LA 137969**

**Site Type:** Petroglyph panels

**Cultural-Temporal Affinity:** Navajo, Diné'tah or Gobernador Phase

**Location:** LA 137969 is located among a jumble of large boulders at the base of a talus slope adjoining the top of Superior Mesa, and is on the same bench as the Overlook Site pueblito. The site is approximately 350 meters from the pueblito and is located at one of the two areas in the vicinity where access from the mesa top to the bench is relatively easy. It is located in close proximity to three sweatlodge sites, which are also located along the base of the talus slope. Panel 1 faces roughly east, and the adjacent Panel 2 faces roughly southeast. The panels are located

adjacent to a sparse pinyon and juniper woodland at the base of the talus slope, with an understory of sagebrush and blue grama grass.

**Description:** Each pecked panel contains similar elements: one standing anthropomorph and one mounted rider on horseback (Figures 10.13, 10.14 and 10.15). Panel 1 features a stick-figure anthropomorph with raised arms bent at the elbows, and a two pecked dots to the right of and slightly above the head. The mounted figure in Panel 1 likewise has its arms raised, and bent at the elbow. This figure features an elaborate head-dress or hairstyle. A number of pecked dots are located to the right of the rider. Panel 2 is very similar, with the anthropomorph located to the left, rather than the right of the mounted figure. The arms are raised, the elbows are bent, and a line appears to the left, near the hand. The mounted figure holds what appears to be the horse's rein in one raised hand, the other hand may or may not be meant to be holding a line symbol which appears above it. An additional line extends back from the riders body, the significance of which is unclear.

**Interpretation:** LA 137968 is a single-component petroglyph site, consisting of two panels, each featuring an anthropomorph and a rider mounted on horseback. The site has been assigned to the proto-historic or historic period based on the portrayal of equines, and is believed to be Navajo on the basis of stylistic attributes. The virtual abandonment of the Dinétah area at the close of the Gobernador period allows the site to

be dated to the Dinéyah or Gobernador Phases. The site is not remarkable in itself, but may be part of a larger ceremonial complex which includes LA 137970, LA 137971, and LA 137972. The location of this site, in conjunction with the other three sites, may be significant, as it is located at one of the two areas in the vicinity of the Overlook Site that allow relatively easy access down from the mesa top, and may reflect the performance of ritual purification ceremonies after returning from hunts or combat (Jett and Spencer 1981:196), before returning to the habitation area. The nature of the portrayals of head-dresses or hair-styles on the mounted figures should be given further consideration in this context, as they are not consistent with those worn by the Navajo, and may instead represent those worn by Ute raiders, and be connected with attempted, and possibly repulsed, raids on Navajo settlements in the area.

**Maps:** See Figure 8.12.



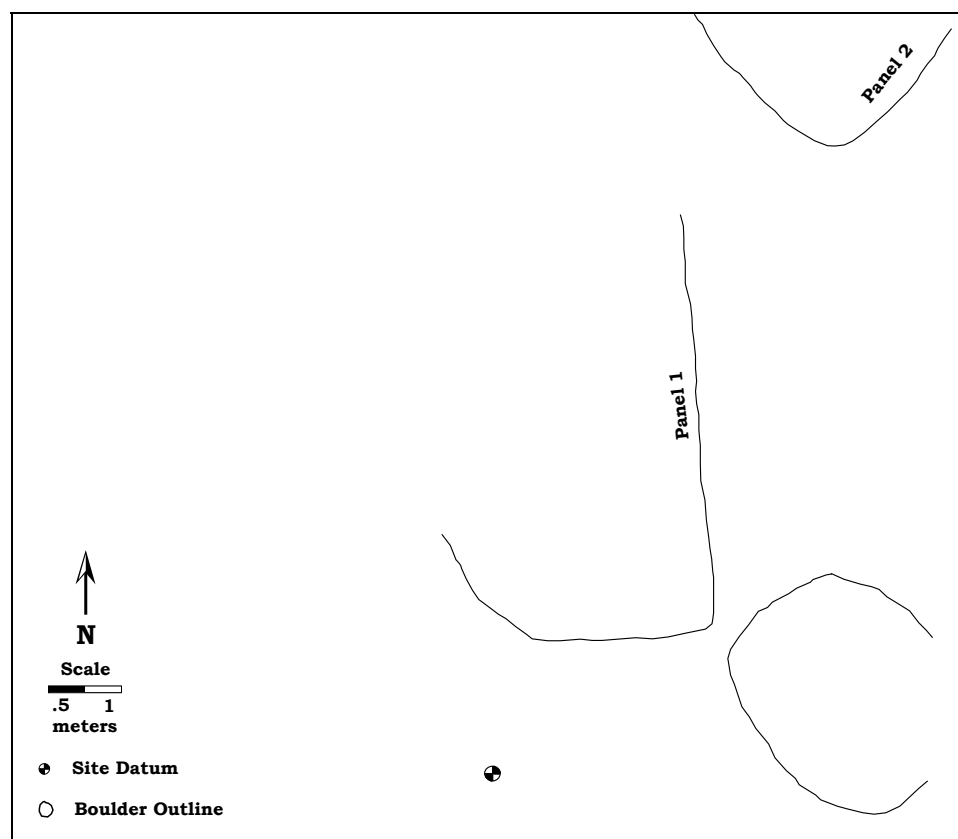


Figure 8.12 Map of LA 137969.



Figure 8.13 Petroglyph panels at LA 137969.

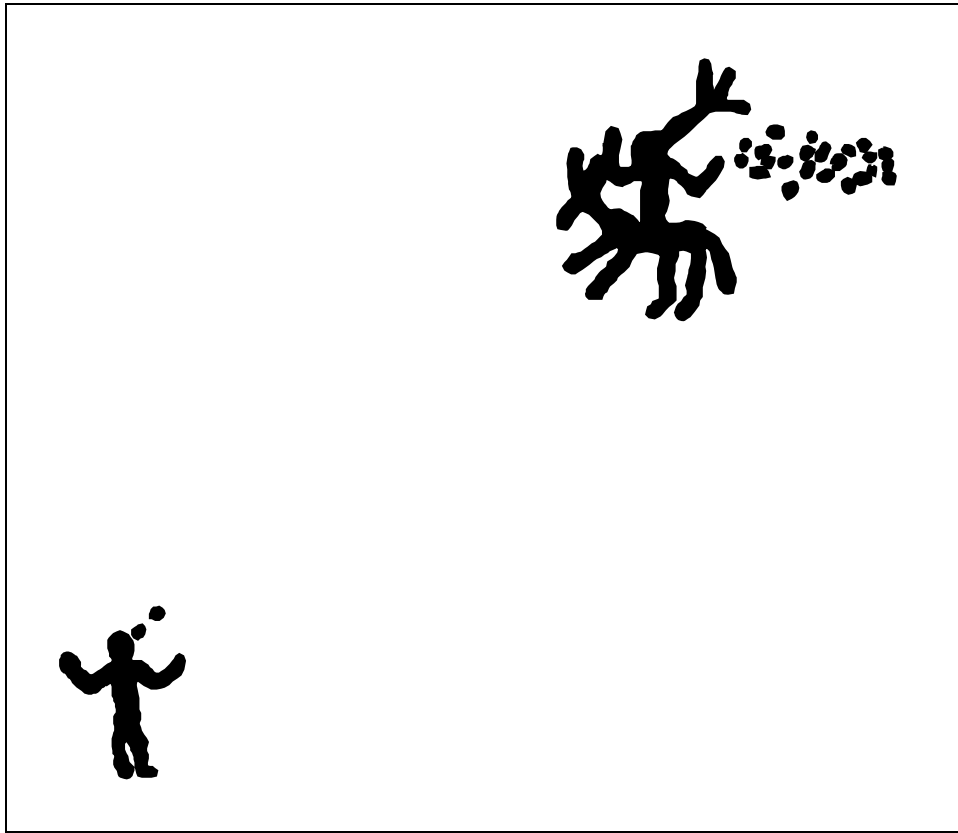


Figure 8.14 Petroglyph Panel 1 at LA 137969 Actual size of anthropomorph: 20 cm high.

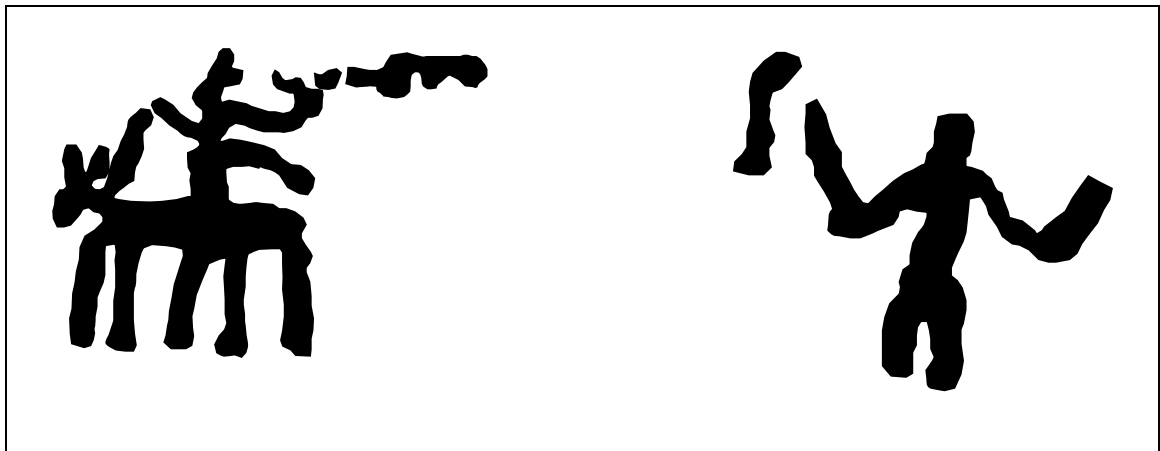


Figure 8.15 Petroglyph Panel 2 at LA 137969 Actual size of anthropomorph: 25 cm high.

**LA 137970**

**Site Type:** Sweatlodge discard pile and nearby pot drop

**Cultural-Temporal Affinity:** Navajo, Diné'tah or Gobernador Phase

**Location:** LA 137970 is located at the base of a talus slope that adjoins the top of Superior Mesa, and is located on the same bench as the Overlook Site. It is close to both LA 137969 and LA 137971, and is likewise in one of the two areas affording easy access to the mesa top. A sparse pinyon-juniper woodland with an understory of blue grama grass, sage brush, and *Opuntia* surrounds the site.

**Description:** The site consists of a very small burned sandstone midden, and a nearby concentration of eighteen Diné'tah Gray sherds. All of the sherds seem to be from the same vessel, and appear to represent a pot drop. Vessel rim diameter is approximately 27 cm, based on sherd curvature.

**Interpretation:** LA 137970 is a single-component Navajo sweatlodge site and nearby pot drop. Based on the presence of the sweatlodge and the Diné'tah Gray pot drop, the site has been dated to the protohistoric Diné'tah or Gobernador Phase. This typical sweatlodge discard pile is quite small, consisting of only nine stones, and likely represents a one-time or short-term use of the site. In conjunction with LA 137969, LA 137971 and LA 137972, this may represent a ceremonial complex

associated with returning from expeditions to hunt, trade, or to battle, as noted in the remarks for LA 137969. The practice of engaging in ritual purification through sweats was one commonly followed by the Navajo after returning from such expeditions (Jett and Spencer 1981:196).

**Maps:** See Figure 8.16.

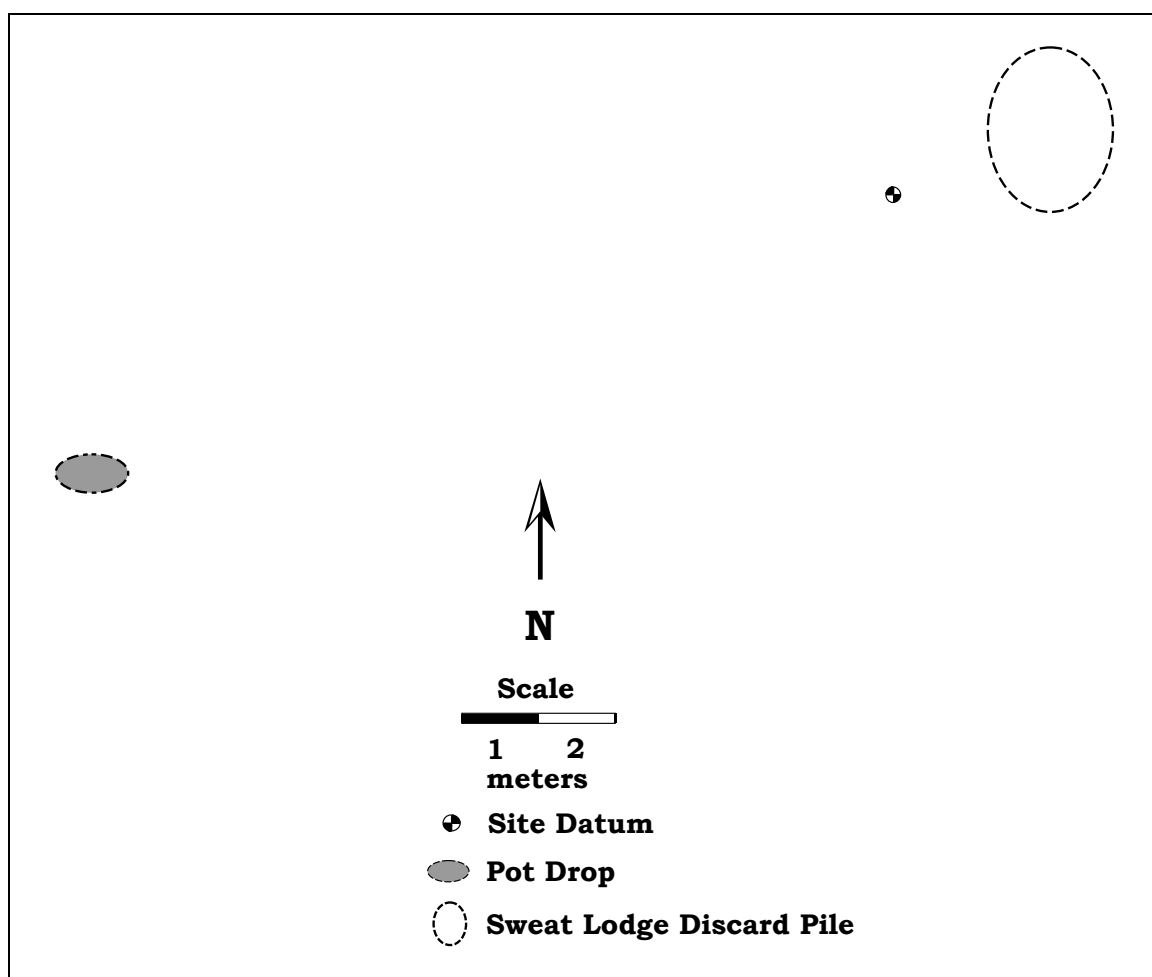


Figure 8.16 Map of LA 137970.

**LA 137971**

**Site Type:** Sweatlodge discard piles and charcoal stain

**Cultural-Temporal Affinity:** Navajo, Dinétah or Gobernador Phase

**Location:** LA 13971 is located at the base of a talus slope that adjoins the top of Superior Mesa, and is situated between LA 137970 and LA 137972. It is at the interface between the pinyon-juniper woodland with an understory of sagebrush and blue grama grass and the relatively barren talus slope.

**Description:** The site consists of two distinct burned sandstone middens flanking a small depression filled with sand and fine charcoal deposits. It appears to represent a sweatlodge, from which rocks were discarded in two different directions. The pattern of deposition of the burned rock, with deeper deposits immediately adjacent to the sandy depression, indicates that the stones were disposed of from the depression in two different directions, rather than representing discard piles from two adjacent sweatlodges.

**Interpretation:** LA 137971 is a single-component Navajo sweatlodge site, which varies from those typically encountered by having two large discard piles, one to the east, and another to the west, flanking a small, sandy depression containing charcoal-stained soil. Jett and Spencer (1981:196) note that in some instances, rocks that could not be re-used

were piled to one side of the entrance to the sweatlodge, whereas rocks which could be re-used in future sweats were piled to the other side. Such a practice may explain the presence of the two separate burned rock middens at LA137971. The extent of the discard piles suggests repeated use of the same site. The sandy depression between the two middens is also consistent with the practice of excavating the floor of a sweatlodge to some extent (Jett and Spencer 1981:193).

Like LA 137970 and LA 137972, LA 137971 is located at a point where access to and from the mesa top is relatively easy, and like the others, may represent ceremonial purification carried out before returning to the habitation areas located closer to the pueblito. No artifacts indicative of a date were encountered at the site, but given the dates for the surrounding sweatlodge sites, it appears likely that it dates to the Dinétah or Gobernador phase, and is in all probability contemporary with the other sites located on the same bench.

**Maps:** See Figure 8.17.

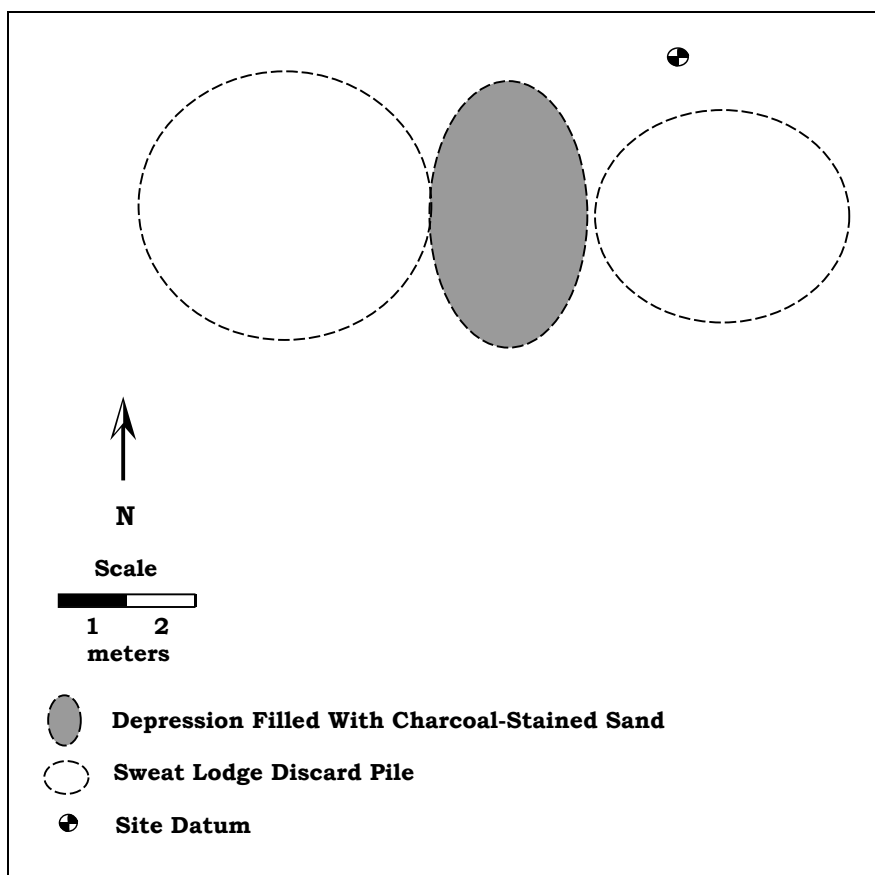


Figure 8.17 Map of LA 137971.

### **LA137972**

**Site Type:** Sweatlodge discard pile and associated ceramic scatter

**Cultural-Temporal Affinity:** Navajo, Dinétah or Gobernador Phase

**Location:** LA 137972 is located at the base of a talus slope that adjoins the top of Superior Mesa. It is located close to LA 137971, and approximately 250 meters from the Overlook Site pueblito. The vegetation in the area consists of sparse pinyon and juniper and an understory of blue grama grass and sagebrush.

**Description:** The site consists of a burned sandstone midden typical of a sweatlodge discard pile, and a scatter of Dinétah Gray ceramic sherds, most of which are spread over a 4 x 5 meter area.

**Interpretation:** LA 137972 is a single-component Navajo sweatlodge site and associated ceramic scatter, consisting of 36 Dinétah Gray sherds. It is located not far from LA 137979, LA 137970 and LA 137971, and is likewise considered to be connected with ritual purification activities by individuals returning to the habitation areas from abroad. Based on the presence of Dinétah Gray sherds, the site is dated to the Dinétah or Gobernador Phase of Navajo occupation.

**Maps:** See Figure 8.18.



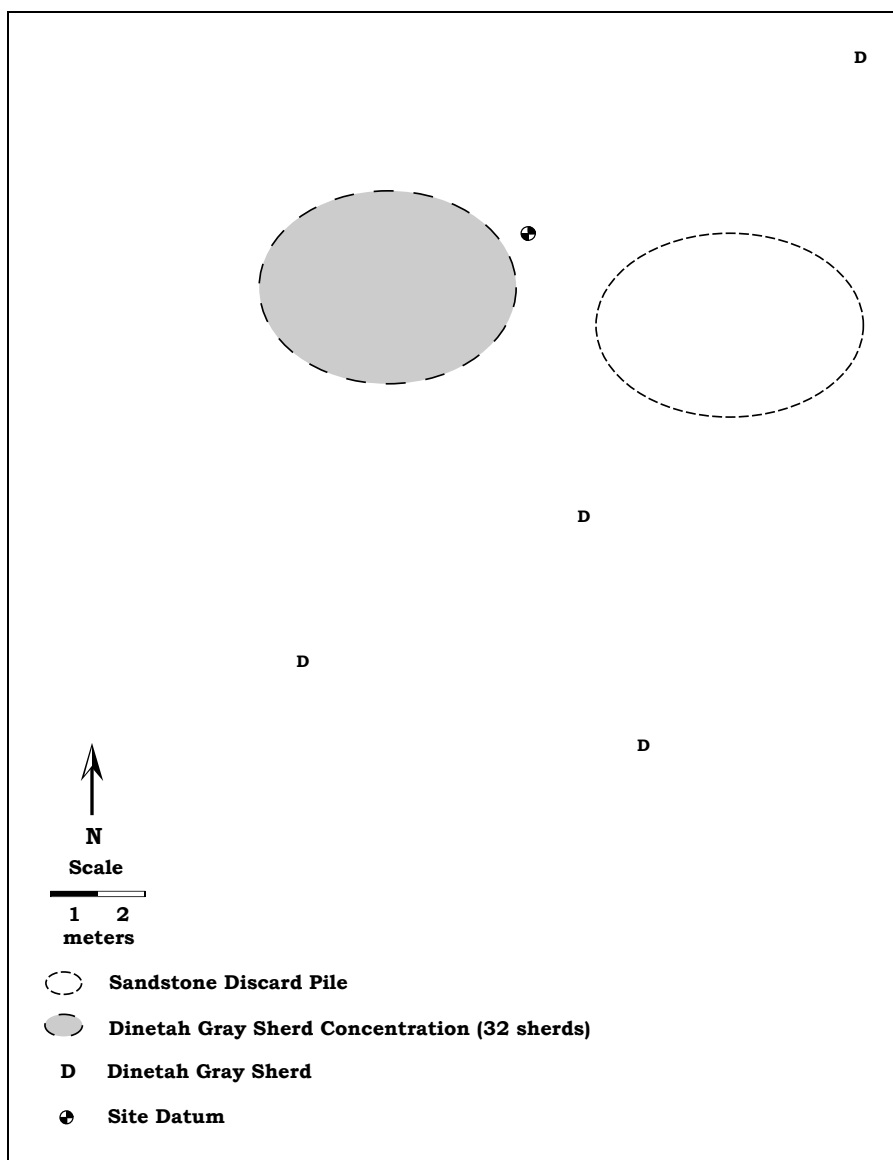


Figure 8.18 Map of LA 137972.

### **LA 137973**

**Site Type:** Burned forked-pole hogan and associated artifact scatter

**Cultural-Temporal Affinity:** Navajo, Dinétah or Gobernador Phase

**Location:** LA137973 is located in the middle of a wide section of the bench that contains the Overlook Site pueblito, is 200 meters from the pueblito itself, and approximately 100 meters from LA 137968. It is located in an area of pinyon-juniper woodland with an understory of grama grass and sage brush that characterizes the majority of the bench. The area is relatively level, loose sand. A small ephemeral wash runs along the southeast corner of the site and some erosion of artifacts into this wash has occurred.

**Description:** The site consists of a number of burned wooden stubs set in a roughly hemispherical pattern encompassing a charcoal stain. A light scatter of ceramics and flakes were also encountered on the site, as was a small (40 cm diameter) cluster of nine pieces of burned sandstone, that may represent a small extramural hearth. An artifact concentration containing twenty-three Dinétah Gray sherds, two flakes and a piece of angular shatter in an area 6 x 7 meters is located slightly to the south and downslope of the charcoal concentration. The absence of bone or charcoal in this area suggests that these artifacts may have been dispersed through erosion and sheet wash, rather than representing a deliberately-created midden.

**Interpretation:** LA 137973 is a single-component protohistoric habitation site consisting of a single burned forked-pole hogan and associated artifact scatter. The presence of Dinétah Gray sherds on the

site suggest that it dates to the Navajo Dinétah or Gobernador Phases. Like LA 137968, it was likely occupied by members of the same Navajo “outfit” which made use of the pueblito. An alternative interpretation suggests that the site, which is located farther back on the bench than some of the other hogan sites, may have been used during the winter when the additional shelter from winter winds would have been welcome.

**Maps:** See Figure 8.19.

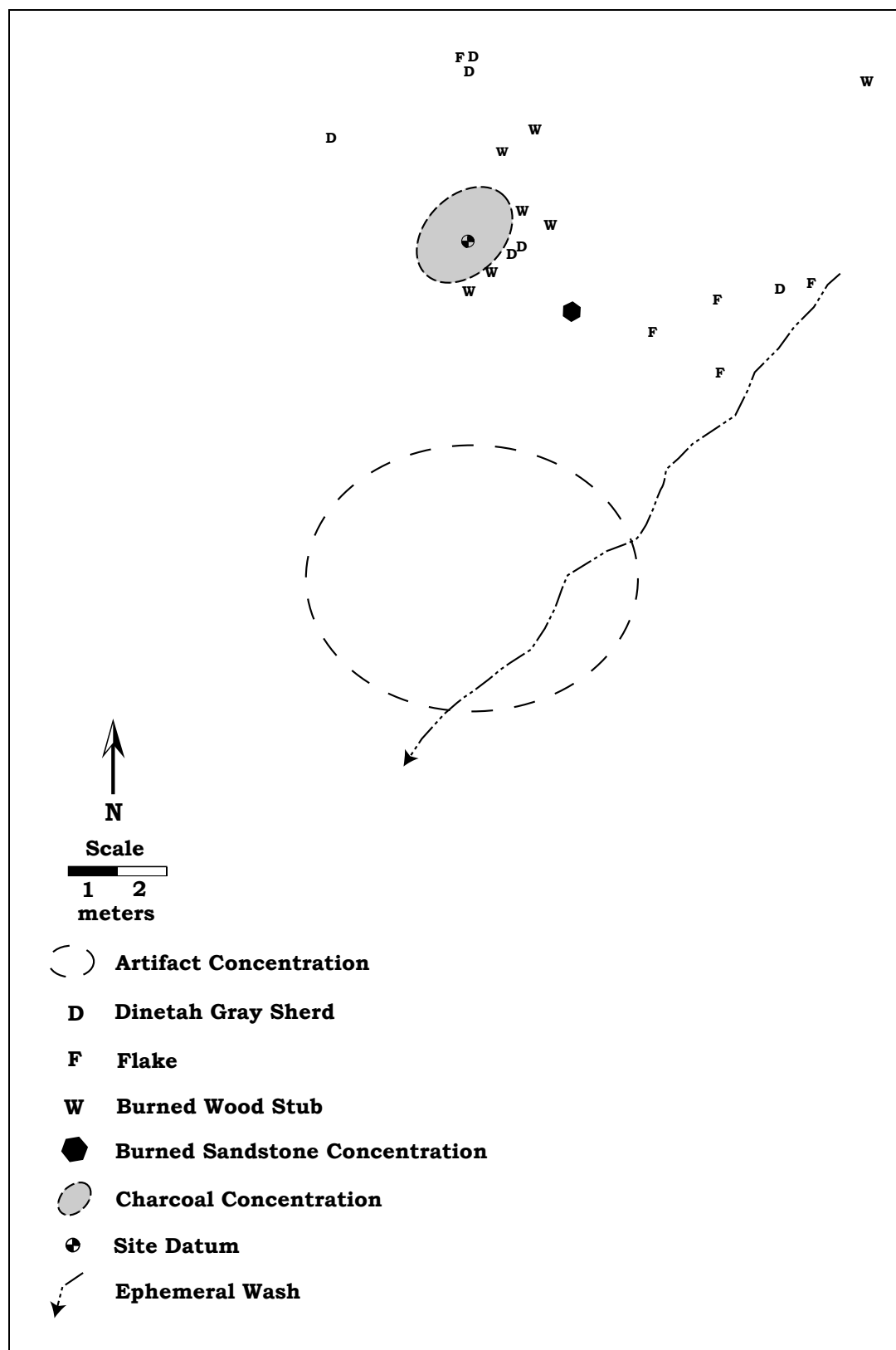


Figure 8.19 Map of LA 137973.

**LA 137974**

**Site Type:** Collapsed sweatlodge and associated discard pile

**Cultural-Temporal Affinity:** Navajo, Diné'tah or Gobernador Phase

**Location:** LA 137974 is located near the base of a talus slope abutting the top of Superior Mesa, and is located in one of the two areas where access from the top of the mesa to the bench is relatively easy. The site is approximately 75 meters from LA 137975, and about 250 meters from the Overlook Site pueblito. The vegetation in the area is primarily sagebrush and blue grama grass, with associated pinyon and juniper.

**Description:** The site consists of a radiating pattern of poles covering an area approximately 2.5 meters in diameter—the remains of a collapsed Navajo sweatlodge—and a midden of burned sandstone representing the associated discard pile.

**Interpretation:** LA 137974 is a single-component protohistoric site consisting of a collapsed, but still extant, Navajo sweatlodge, associated discard pile, and a light artifact scatter. On the basis of the four Diné'tah Gray sherds found on the site, it is dated to the Diné'tah or Gobernador Phases. Like LA 137970, LA 137971, LA 137972, and LA 137975, it is located in an area where access to and from the top of Superior Mesa is relatively easy, and is believed to have been similarly employed by residents returning residents to the habitation areas located more

centrally on the bench. The remaining timbers in the sweatlodge are too eroded for dendrochronology, but a species determination may still be possible. As the type of wood used was dictated in some instances by the type of ceremony a sweatlodge was to have been used for (Jett and Spencer 1981:194-196), species determination may provide an indication not only of the ceremony type, but also an indication of seasonality, because performance of some ceremonies was limited to specific times of the year.

**Maps:** See Figure 8.20.

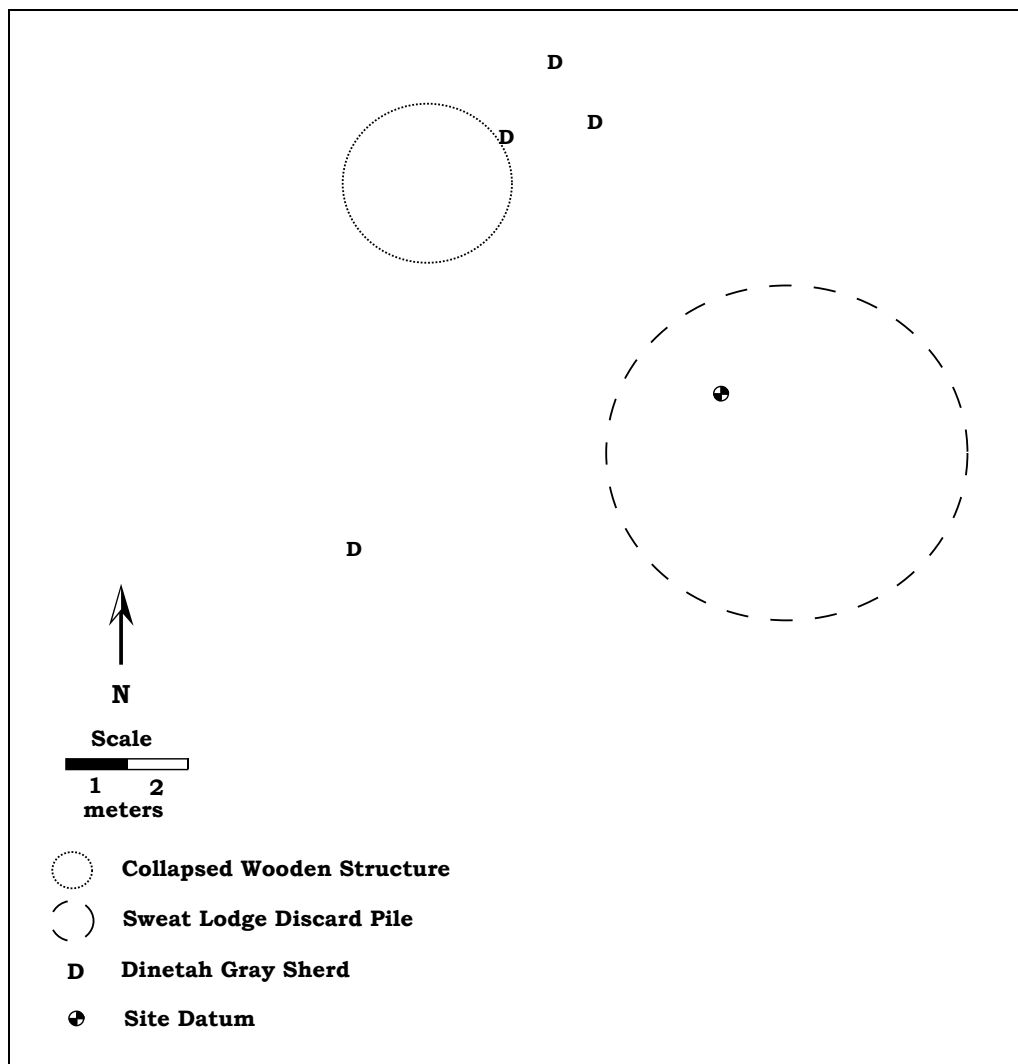


Figure 8.20 Map of LA 137974.

### **LA 137975**

**Site Type:** Sweatlodge discard pile

**Cultural-Temporal Affinity:** Navajo, Dinétah or Gobernador Phase

**Location:** Like nearby LA 137974, LA 137975 is located at the base of a talus slope leading to the top of Superior Mesa, and near one of the two

areas where access to the top of the mesa is relatively easy. The site is located about 250 meters from the Overlook Site pueblito.

**Description:** The site consists of a burned sandstone midden flanked by a charcoal concentration and two scattered flakes.

**Interpretation:** LA 137975 is located not far from LA 137974 and is likewise a single-component sweatlodge site. Only the discard pile and a charcoal stain remain. Like the other sweatlodge sites found in the Overlook Site Survey Area during the 2002 survey, it is located where access to and from the mesa top is relatively easy. This site, along with LA 137974, may have been used by residents returning to the apparent habitation site at LA 139975, a short distance away. No direct evidence for a date for this site exists, although it is believed to date to the protohistoric Navajo Diné'tah or Gobernador Phases. Although this site is located in quite close proximity to LA 139975, it is screened from the habitation site by a bend in the cliff face, the presence of several large sandstone monoliths providing the privacy dictated by Navajo tradition for sweats (Russell 1983:43).

**Maps:** See Figure 8.21.



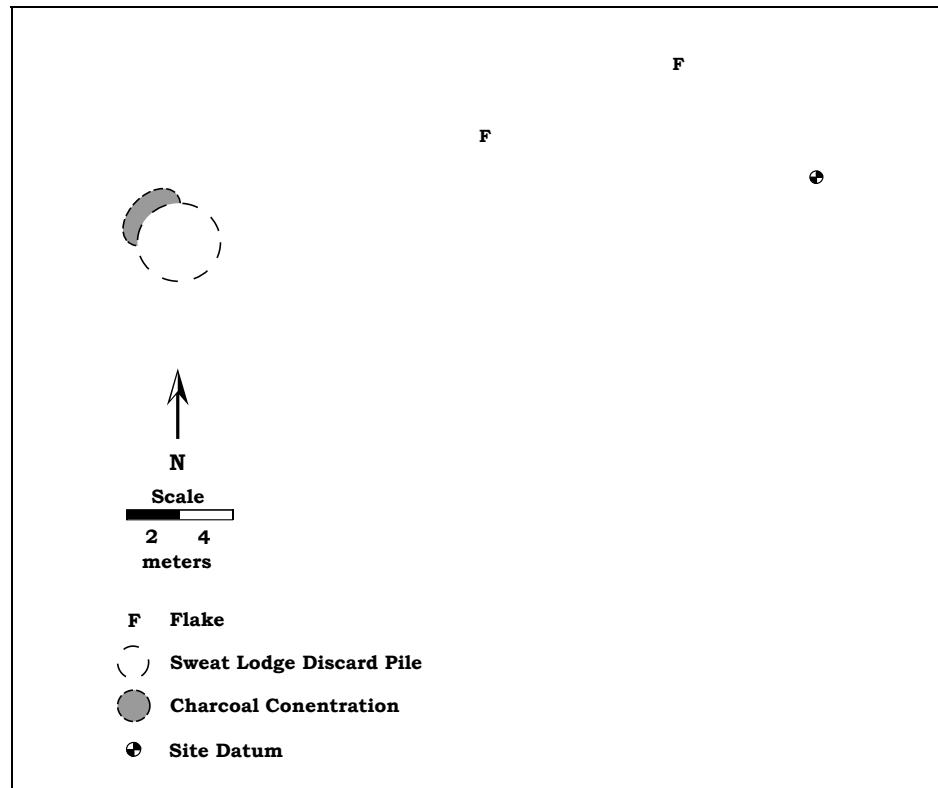


Figure 8.21 Map of LA 137975.

### **LA 139975**

**Site Type:** Artifact concentration and charcoal stains, probable burned forked-pole hogan

**Cultural-Temporal Affinity:** Navajo, Dinétah or Gobernador Phase

**Location:** LA 139975 is located in a small alcove along the cliff leading to the top of Superior Mesa, at the bottom of the talus slope. It is in a more heavily-wooded spot than is evident in the surrounding area, and which is fed by a small ephemeral stream. The vegetation consists of

pinyon and juniper, with an understory of blue grama grass and a few stunted sagebrush. In spite of its proximity to LA 137975 (a sweatlodge discard pile), the two sites are concealed from each other by the curve of the cliff wall and a series of large sandstone monoliths.

**Description:** The site consists of one large (4 x 7 meter) charcoal stain, through which are scattered a large number of sherds, a smaller number of flakes, and a single broken white chert scraper. An unmodified grey chert nodule was also found at the site. Two other, smaller charcoal concentrations are located nearby, one approximately 30 cm in diameter, the other ca. 1 meter. A few flakes and a sherd were found outside of the confines of the largest charcoal stain.

**Interpretation:** LA 139975 is a single-component artifact scatter and associated charcoal stains (one large and two more of very limited extent). Given the high concentration of artifacts in the largest charcoal stain, it appears probable that this represents a burned forked-pole hogan, with the smaller (1 meter diameter) charcoal stain perhaps marking the location of an extramural hearth. The interruption in the line of sight between the nearby sweatlodge (LA 137975) and this site would have permitted both to have been used at the same time, and still be in keeping with Navajo traditional proscriptions about intervisibility between sweatlodges and habitation areas (Jett and Spencer 1981:196).

The presence of Diné'tah Gray sherds on the site clearly indicate that it is protohistoric Navajo, and dates to either the Diné'tah or Gobernador Phase. It is likely that this habitation site is related to the others in the area, and may represent another member of the same Navajo "outfit" which made use of the pueblito. Alternatively, its location in a constricted alcove in the cliff face suggests that it may represent a more sheltered winter location for one of the families occupying the more exposed hogans during the summer.

**Maps:** See Figure 8.22.

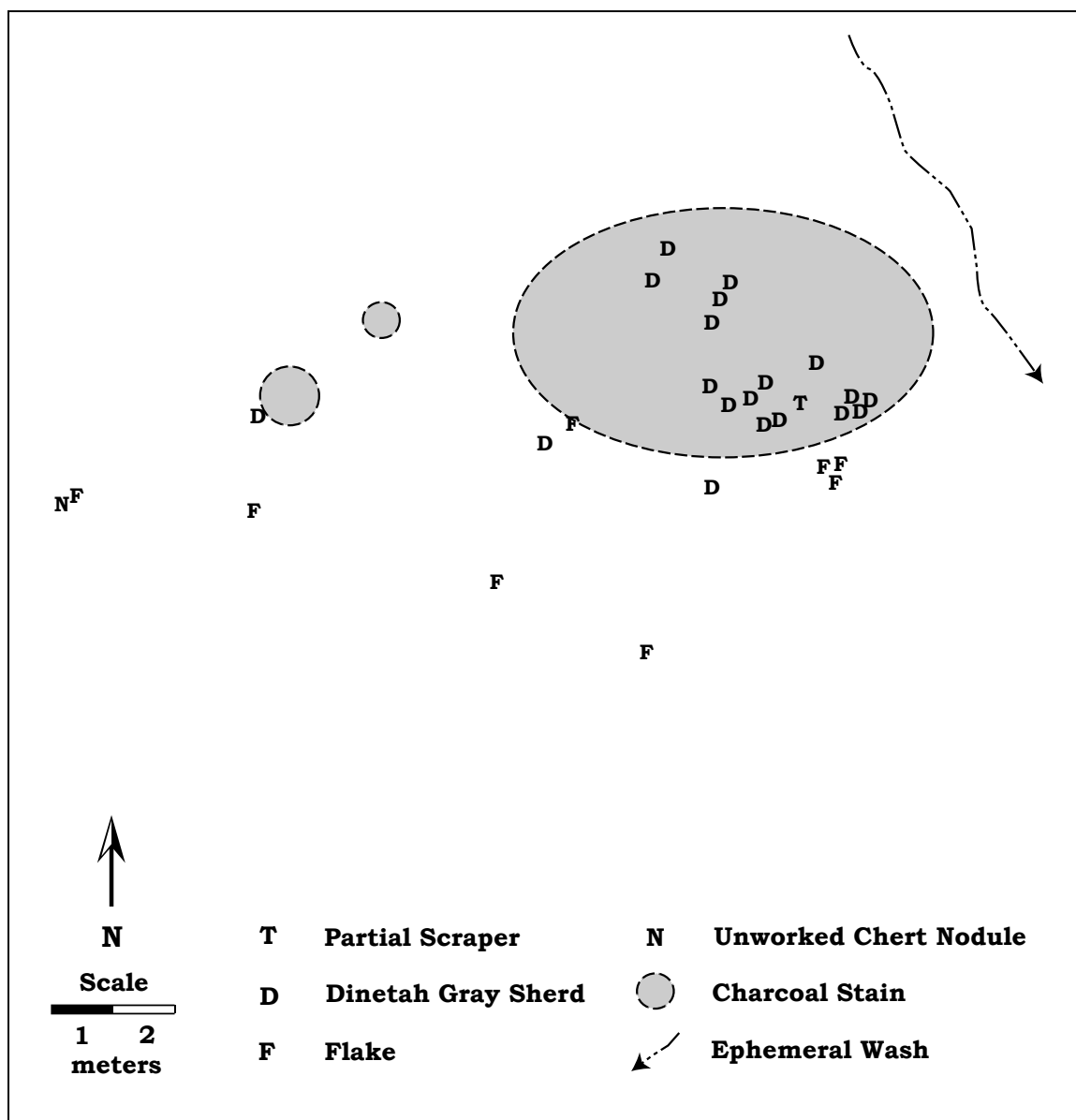


Figure 8.22 Map of LA 139975.

### ***Overlook Survey Isolated Occurrences***

Five isolated occurrences were encountered in the Overlook Survey Area. They are presented in Table 8.1.

**Table 8.1 Isolated Occurrences in the Overlook Survey Area.**

<b>Isolated Occurrence #:</b>	<b>Description:</b>
OV-IO-1	White chert flake
OV-IO-2	Gray chert flake
OV-IO-3	Gray chert flake
OV-IO-4	1 Gray chert flake and 1 white chert flake
OV-IO-5	Broken bifacial scraper of white chert

**Discussion**

The extent of the pueblito complex surrounding the Overlook Site, with its seven (possibly eight) hogans, six sweatlodges, and petroglyph panels, is comparable to that found at other high-elevation pueblito sites (see discussion in preceding chapter).

The mesa location and the extent of the complex suggest that the Overlook complex served as a year-round habitation area for a Navajo “outfit.” The same group may have also made limited use of the canyon bottom below, possibly including the Foothold Ruin Pueblito Complex, which is visible from the Overlook Site pueblito. Both sites could therefore have been in use contemporaneously—the Overlook Site pueblito was built in the late 1720s, and Foothold Ruin in the early 1740s. It is worth noting that the only cutting date from Foothold Ruin

dates from the 1720s (NLC-1357:1720 comp), and that the Navajo Land Claims researchers collected one sample dating to the 1740s from a windbreak at the Overlook Site (1741+G) (Ababneh et al. 2000:282; Towner 1997:191, 245). Simultaneous occupation is therefore entirely possible, and may represent occupation by members of the same, or related, outfits, as postulated by Ababneh et al. (2000:284). If this were the case, it would have allowed residents at one complex to be immediately alerted to the plight of residents of the other complex, in the event of attack.

Such a conclusion is not entirely at odds with Towner et al.'s (2001:85-86) postulation that mesa top sites, such as the Overlook Site, and others in the area were constructed in response to Spanish incursions, and later canyon bottom sites such as 42 Pueblito and Foothold Ruin were built in response to a change of threat and alteration in enemy tactics, as the canyon bottom sites could have formed an adjunct to, rather than a replacement of, the defenses provided by the mesa top pueblitos. Continued use of the mesa top pueblito complexes, in conjunction with the smaller, canyon bottom defensive sites would be entirely in keeping with the documented pattern of Navajo land use in Canyon del Muerto (James 1976:1—See discussion in Chapter 7). Winter and Hogan (1992:310) indicate that “the historic Navajo dual-residence pattern of lowland summer camps and highland winter hogan clusters has considerable antiquity in the region.”

The four (or possibly five) hogans adjacent to the Overlook Site pueblito are quite closely spaced, a pattern which initially would appear to be somewhat at odds with traditional Navajo practice (Jett and Spencer 1981:7). Jett and Spencer, however, describe homesteads belonging to a single Navajo outfit as forming a “straggling agglomeration” (1981:9). Nor do all of the hogans at the site necessarily represent contemporaneously occupied structures—old hogans were often converted to storage structures by plugging up the smoke hole, or used to shelter livestock (Jett and Spencer 1981:21, 155). Hogans were also occasionally built specifically for storage (Jett and Spencer 1981:21). (The eroded condition of some of the hogans at the Overlook site precludes determination of whether they were specifically built as storage structures, based on the presence or absence of charcoal.) In either case the proximity of the abandoned hogan to the occupied one would be an advantage. In some instances, hogans were built for the performance of specific ceremonies, such as the Mountaintop Way (Jett and Spencer 1981:59). As Magers indicates, “a major problem in discussing Navajo habitation sites and social structure is the problem of distinguishing true multi-hogan sites from instances of sequential site occupation,” (Magers 1981:247).

This same pattern of closely-spaced hogans has been encountered by Marshall (1991) at the Hooded Fireplace Complex (LA 5662), the Split

Rock Complex (LA 5664), the Frances Canyon Complex (LA 2135), the Crow Canyon Complex (LA 77871, LA 7783, and LA 77880) and at Hadlock's Crow Canyon Complex (LA 77877 and LA 77878). The close spacing of the hogans at these pueblito complex sites could be attributable to the same defensive considerations which prompted the construction of the pueblitos themselves, allowing the hogan residents to flee to the pueblitos when danger threatened, as is suggested by the Navajo name for pueblito, *yah a'ná honidzo*, "people repeatedly take refuge inside" (Jett and Spencer 1981:204).

Given the relatively short use-life of the typical Navajo hogan—which, based on historical and ethnographic evidence, is estimated at approximately ten years (Dykeman 2003:393; Russell 1983:41)—it is possible that the hogans at the Overlook Site (LA10732) may represent serial occupations by a single nuclear family. Although determination of hogan diameter from the collapsed remains found at the site is somewhat equivocal, there does appear to be a tendency toward increased diameter, with Hogan 3 being the smallest, and Hogan 4 the largest. This trend is particularly pronounced if the stone circle at the Overlook Site also represents the remains of a forked-pole hogan. This postulated pattern of increasing diameter could be accounted for by the needs of a growing family, as more floor space was required for sleeping as children grew in both number and stature. (Bullard [1962:123] indicates that the average adult requires 1.5 square meters of floor space for sleeping.)



The advanced deterioration of possible timbers associated with the stone circle—if it does in fact represent the first hogan built at the site—could be accounted for in part by re-use of timbers from the abandoned hogan in the construction of later structures (Jett and Spencer 1981:15).

The Dinétah Dating Project did not take tree-ring samples from the hogans at the Overlook site (Towner 1997:244), and only four of the eight samples taken by the Navajo Land Claims researchers were datable, with only one yielding a cutting date of 1727G (NLC-1386). The remaining dated samples (NLC-1380, NLC-1381, and NLC-1384) dated to 1726inc, 1723inc, and 1682inc, respectively (Towner 1997:244). Unfortunately, it is unclear which of the hogans these dates refer to, and therefore re-sampling of the hogans at the site will be necessary in order to determine their order of construction.

In the discussions of LA 137969, LA 137970, LA 137971, LA 137972, LA 137974 and LA 137975, reference has been made to their locations in areas of “relatively easy access” from the mesa top. This statement requires some clarification, however, as “ease of access” is relative, and refers only to pedestrian access. The areas in which these sites are located are at the bases of talus slopes strewn with very large sandstone boulders, the slopes of which have a grade of some 65 percent, elsewhere, the grade is less, approaching 30 percent. In neither location would access on horseback, or even by mule, be possible. There are areas within a few hundred meters to the northwest and southeast of

the study area, along the mesa rim, where mounted access could be possible.

Towner et al. (2001:112-113) indicate that the Navajo, in contrast with their Ute enemies, did not have large numbers of horses, which may cast light on the symbolism of the unmounted and mounted, apparently non-Navajo, figures in the petroglyphs at LA 137969.

The possible “ceremonial complexes” alluded to, consisting of LA 137969, LA 137970, LA 137971, and LA 137972, as well as the similar, smaller, two unit complex to the north, consisting of LA 137974 and LA 137975, are believed to have developed through repeated use of the area for ceremonies. They should be considered in this light, rather than being construed as deliberately established as a network of sites. This pattern of sweatlodge concentration at the base of the cliff leading to the mesa above has likewise been observed by other surveys (Dykeman 2003:398-400; Sesler, Hovezack and Wilshusen 2000:192-193)

## 9 Foothold Ruin Survey Area

The Foothold Ruin Survey Area was centered on the Foothold Ruin pueblito (LA 9073), a two-room masonry structure that is located on a large sandstone boulder near the base of Superior Mesa, on the north side of a rincon (Figure 9.1). The pueblito originally had two ground-floor rooms at the base of the boulder, and one on the boulder top.

The Foothold Ruin Survey Area is located on the canyon floor at the mouth of the second major rincon on the east side of Palluche Canyon. The setting is quite similar to that in the 42 Pueblito Survey Area. The single ephemeral stream that drained the Overlook Survey Area on the

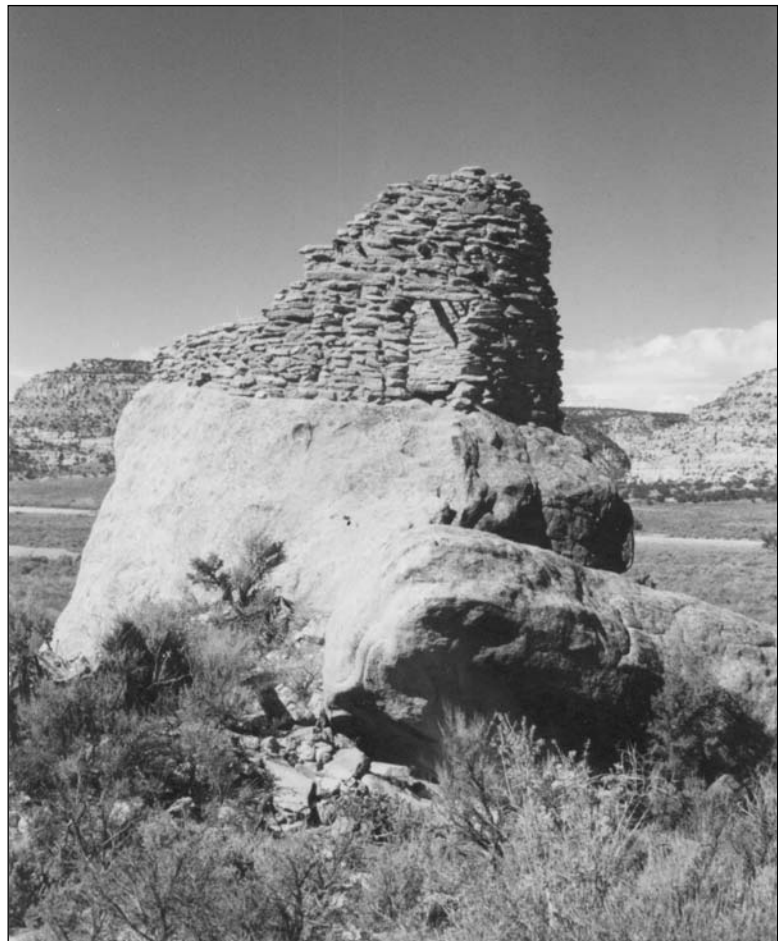


Figure 9.1 Foothold Ruin

mesa above also flows through the middle of the Foothold Ruin Survey Area. As at 42 Pueblito, the majority of the survey area encompasses a relatively level portion of the canyon floor, flanked on the east and north by steep talus deposits and the cliff face, providing the site with a south and west aspect. The talus slopes at Foothold Ruin are considerably narrower, steeper, and more sparsely vegetated than at 42 Pueblito, and the talus boulders are considerably larger, many being more than 10 meters square. As a consequence, the pinyon-juniper woodland is largely constrained to a narrow band near the interface between the talus and the more level canyon floor.

The Foothold Ruin site was re-recorded and mapped as part of the project. The survey of the area around the pueblito resulted in the recording of five new archaeological sites (LA 137976 to LA 137979 and LA 139976--Figure 9.2). In addition to these sites, the survey also located an isolated axe-cut tree and one small boulder-top rock alignment that is believed to be modern, and which was recorded as an isolated occurrence (Table 9.1).

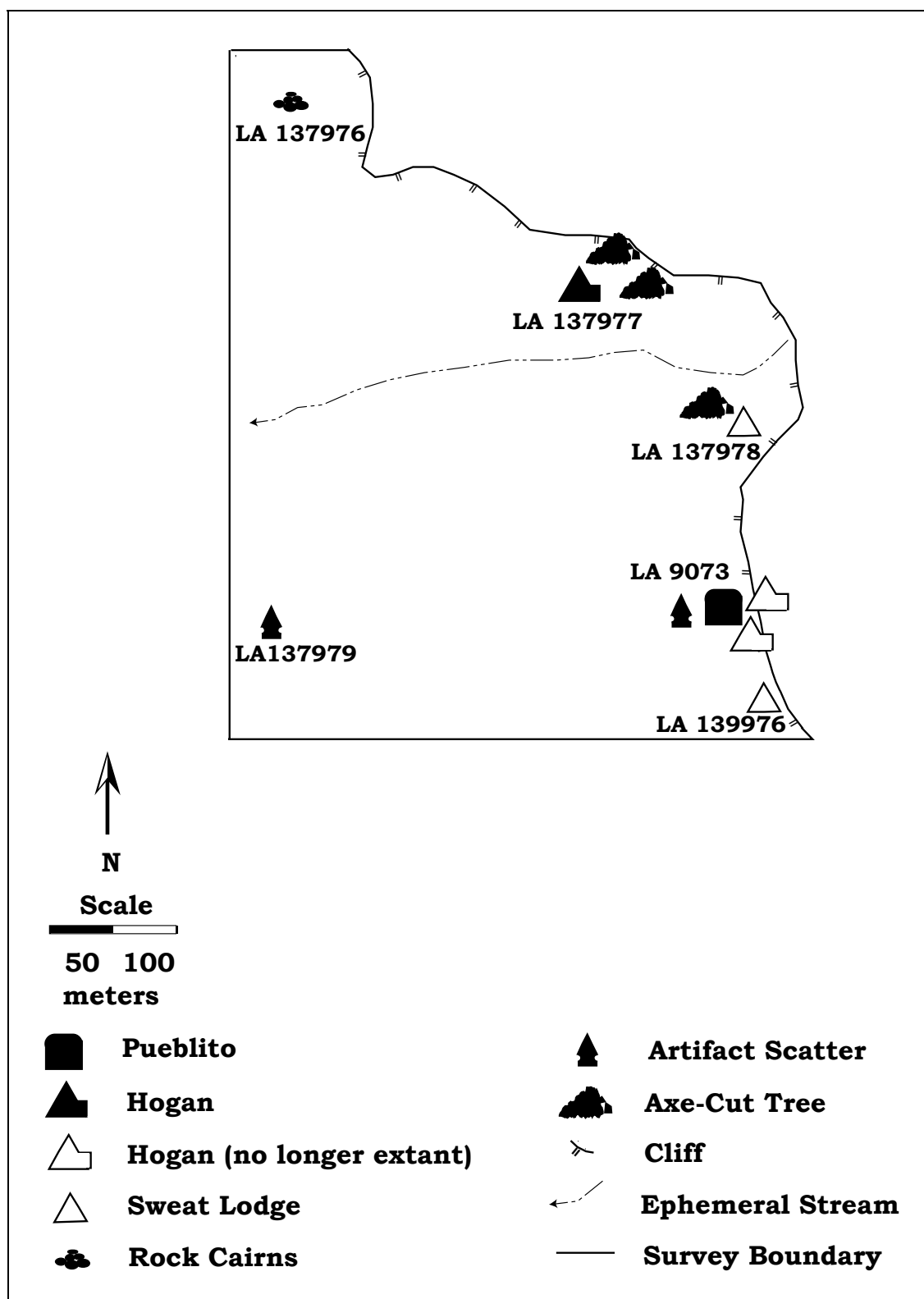


Figure 9.1 Map of Foothold Ruin survey area.

### ***Foothold Ruin: LA 9073***

Foothold Ruin was initially recorded by Navajo Land Claims researchers in 1957, and again by David Snow of the Museum of New Mexico in 1969. It was documented by Margaret Powers and Byron Johnson for inclusion in the National Register of Historic Places in 1985-86 (Powers and Johnson 1987:61). Tree-ring samples were taken for dating by the Navajo Land Claims researchers and again by Ronald Towner of the University of Arizona (Powers and Johnson 1987:61; Towner 1997:190).

The pueblito consists of a single masonry room atop a large sandstone boulder 3-5 meters high, near the base of a talus slope below Superior Mesa. Some of the roof vigas remain in place, and the remains of a hearth are evident in the south end of the room. An additional two ground-floor rooms are located at the base of the boulder, and a wall section extending south from the boulder may be the remains of a third ground-floor room, but its purpose is unclear (Towner 1997:190; New Mexico Cultural Resources Information System, 2002). The boulder-top room is accessed by means of a series of hand- and toe-holds pecked into the side of the boulder, from whence the site draws its name.

Towner concluded that the suite of tree-ring dates, in conjunction with architectural analysis, indicated that the pueblito was built in at least two construction episodes, beginning in approximately 1739. He

indicated that the boulder-top structure was built first, with work on the lower rooms conducted a year or more later, in the 1740s (Towner 1997:190-191).

One collapsed forked-pole hogan and a stone circle—believed to represent the remains of a second hogan--were originally recorded by the Navajo Land Claims researchers, and tree-ring samples taken from the former (New Mexico Cultural Resources Information System). Neither Powers and Johnson (New Mexico Cultural Resource Information System, 2002), Towner (1997:191) nor the 2002 survey crew were able to relocate the hogan or the stone circle, and they are presumed to have been destroyed or buried in the intervening years.

The Foothold Ruin pueblito was extensively mapped by Powers and Johnson for the National Register nomination, and so the structure itself was not re-mapped during the present field work. The 2002 team mapped the boundaries of the artifact scatter around the pueblito (the original site boundaries established in 1987 were approximate, and based on soils) in order to provide a more accurate delineation of the site's extent (Figure 9.3).

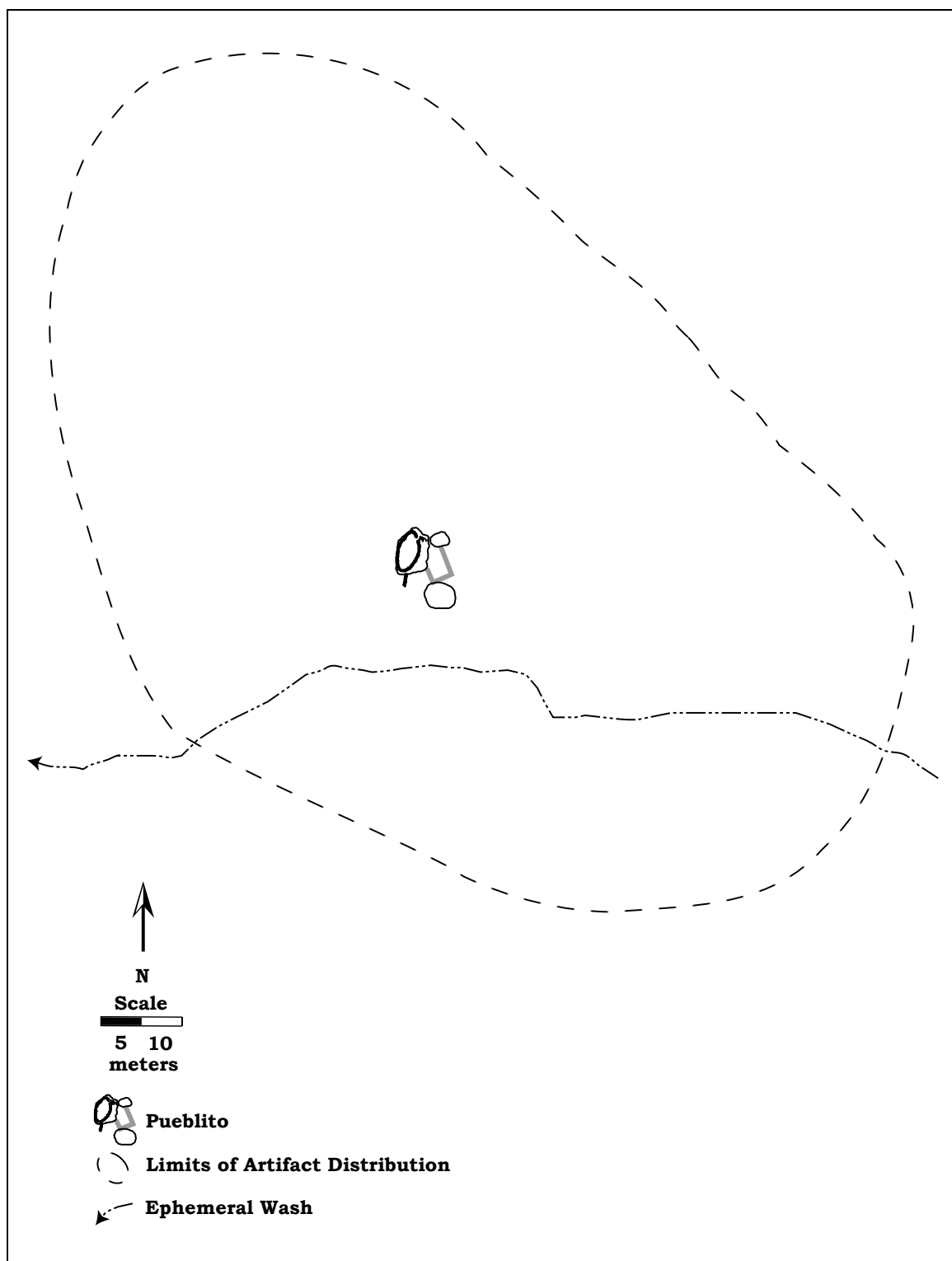


Figure 9.2 Map of Foothold Ruin (LA 9073).



**LA 137976**

**Site Type:** Rock cairns

**Cultural-Temporal Affinity:** Unknown

**Location:** LA 137976 is located near the mouth of the rincon which houses Foothold Ruin, on the north side of the rincon, near the base of a talus slope. Vegetation consisted of very sparse pinyon and juniper, sagebrush, blue grama grass, Indian rice grass, prickly pear cactus, and purslane.

**Description:** The site consists of two rock cairns, the larger approximately 2.5 meters in diameter and 25 cm high, and the smaller, located a few meters to the southwest, approximately 0.9 x 0.6 meters in diameter, and consisting of just a few stones.

**Interpretation:** LA 137976 is a simple, single-component site consisting of two rock cairns, one larger, separated by a few meters from another smaller cairn to the southeast. Due to the lack of distinguishing features, it is impossible to assign a date or a cultural affiliation to this site. The general lack of accumulated alluvium over the site suggests that it may not be Anasazi or earlier in date, although this cannot be considered definitive, and the likelihood is that it dates from the Navajo, Hispanic, or Euro-American occupation of the area.

**Maps:** See Figure 9.4.

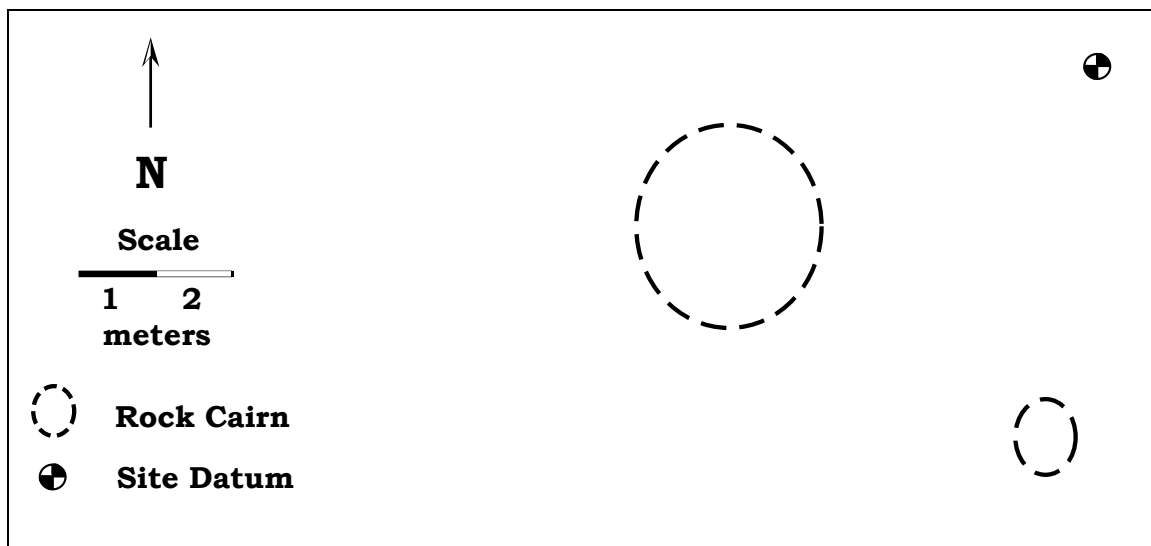


Figure 9.3 Map of LA 137976.

### **LA 137977**

**Site Type:** Collapsed forked-pole hogan and two (possibly associated) axe-cut trees

**Cultural-Temporal Affinity:** Navajo, Dinétah or Gobernador Phase

**Location:** LA 137977 is located near the base of a talus slope and next to a small ephemeral wash, in a sparse pinyon and juniper woodland. Sagebrush, blue grama grass, purslane and Indian rice grass also grow on the site.

**Description:** The site consists of a collapsed forked-pole hogan with radiating poles still evident (Figure 9.6). Two axe-cut stumps, possibly dating from the construction of the hogan, are also located nearby.

**Interpretation:** LA 137977 is a single-component protohistoric site, consisting of a single typical collapsed Navajo forked pole-hogan and two axe-cut stumps, which may date the construction of the hogan. No artifacts were found in association with this site, which is believed to date to the Dinétah or Gobernador Phase of the Navajo occupation of the canyon. The potential exists for dendrochronology to further narrow this time frame, as well as establishing the contemporaneity, or lack thereof of this structure with the nearby Foothold Ruin, as well as determining whether the axe-cut stumps on the site relate to the construction of the structure. It is likely that this site was occupied by the same Navajos who used of the pueblito as a refuge; it may have been a seasonal habitation associated with the cultivation of agricultural fields in deep alluvium of the rincon.

**Maps:** See Figures 9.5 and 9.6.

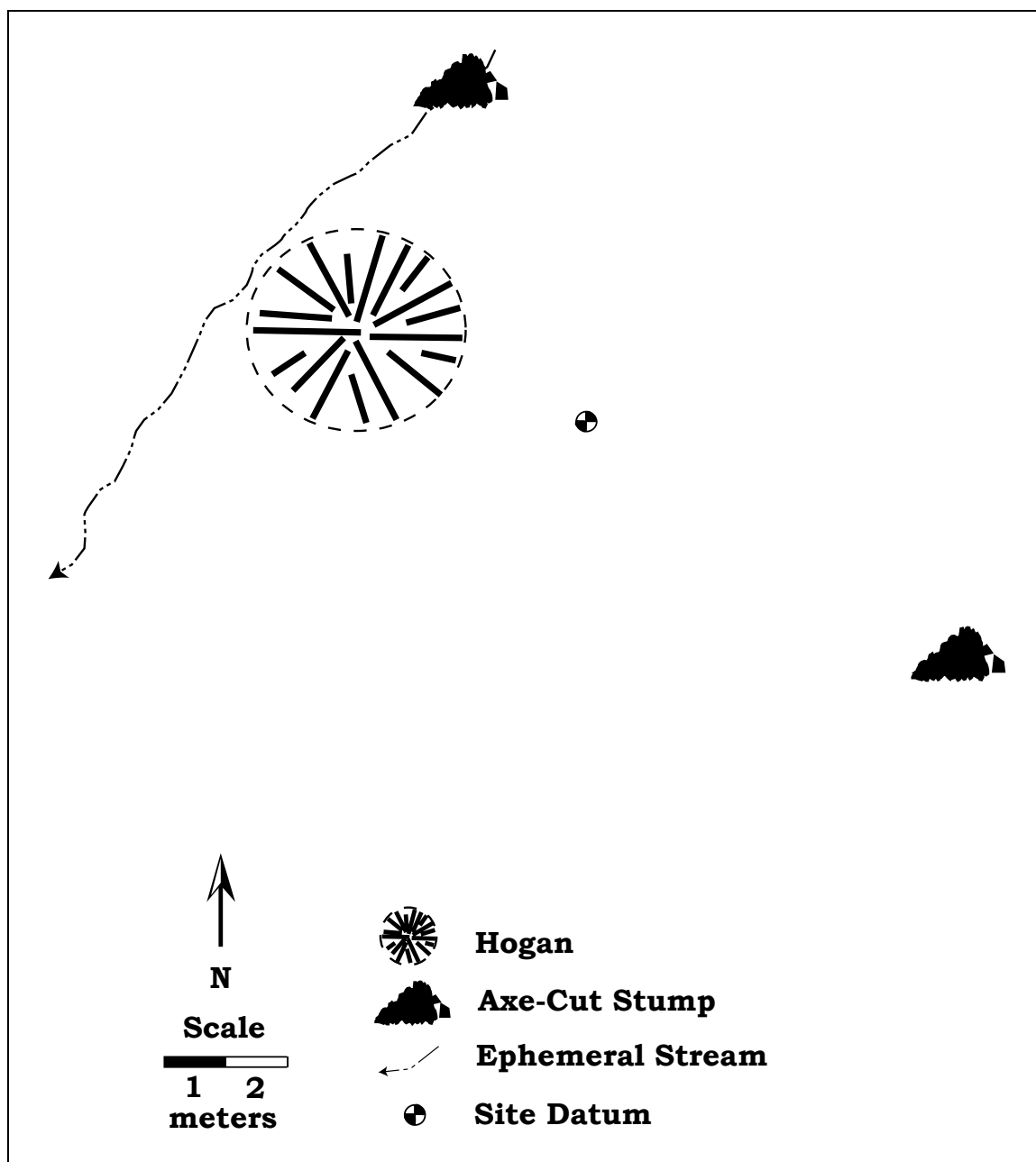


Figure 9.4 Map of LA 137977.



Figure 9.5 Hogan at LA 137977.

### **LA 137978**

**Site Type:** Sweatlodge discard pile

**Cultural-Temporal Affinity:** Navajo, Dinétah or Gobernador Phase

**Location:** LA 137978 is located at the base of a talus slope, well-hidden among a dense stand of pinyon and juniper, and camouflaged by a number of large boulders.

**Description:** The site consists of a burned sandstone midden near the confluence of two small ephemeral washes.

**Interpretation:** LA 137978 is a single-component Navajo sweatlodge, of which only the discard pile remains. No artifacts were located in association with this site, which is believed to date from the protohistoric Dinétah or Gobernador Phases. It is likely that this site was utilized by the inhabitants of the pueblito complex, as it is located in an area intermediate between the hogan at LA 137977 and the pueblito, but is screened from the view of both by a slope, a jumble of large boulders, and a thick growth of trees.

**Maps:** See Figure 9.7

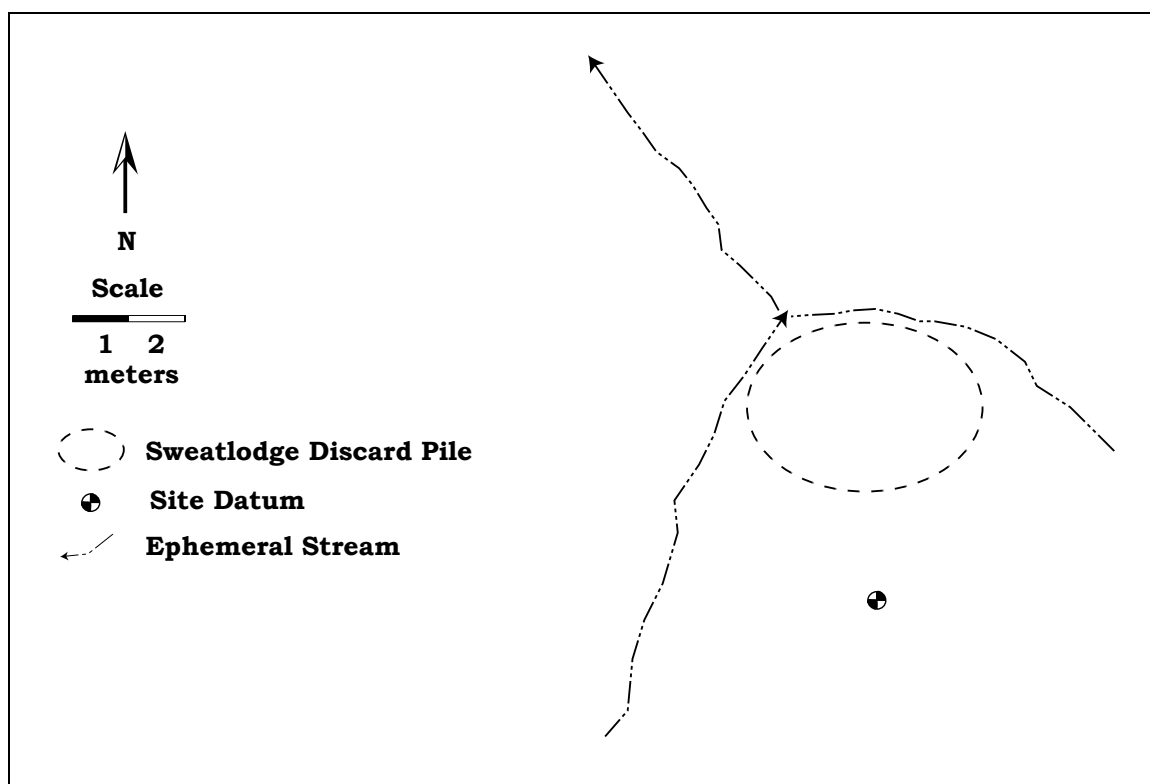


Figure 9.6 Map of LA 137978.

**LA 137979**

**Site Type:** Artifact Scatter

**Cultural-Temporal Affinity:** Navajo, Gobernador Phase

**Location:** LA 137979 is located on the floor of the rincon in which Foothold Ruin is located, and unlike other sites in the area, is somewhat removed from the canyon walls. The surrounding vegetation consists of greasewood, sagebrush, blue grama grass, and purslane.

**Description:** The site consists of a loose scatter of artifacts over an area some 11 by 15 meters. Artifacts on the site consisted of two gray chert flakes, twelve Dinétah Gray sherds, and four Gobernador Polychrome sherds.

**Interpretation:** LA 137979 is a single-component protohistoric Navajo artifact scatter, and based on the presence of Gobernador Polychrome sherds, dates to the Gobernador Phase. No evidence of any structures were found in the vicinity, but it is possible that all traces of an ephemeral structure, such as a ramada, have been obliterated. The site is located at some remove from the other sites nestled along the base of the cliff, and is in a relatively level area, and located between two ephemeral streams flowing down from the mesa top. Such a location would be ideal for agriculture, and LA 137979 is interpreted as an

activity area, perhaps associated with agricultural undertakings in the rincon.

**Maps:** See Figure 9.8.

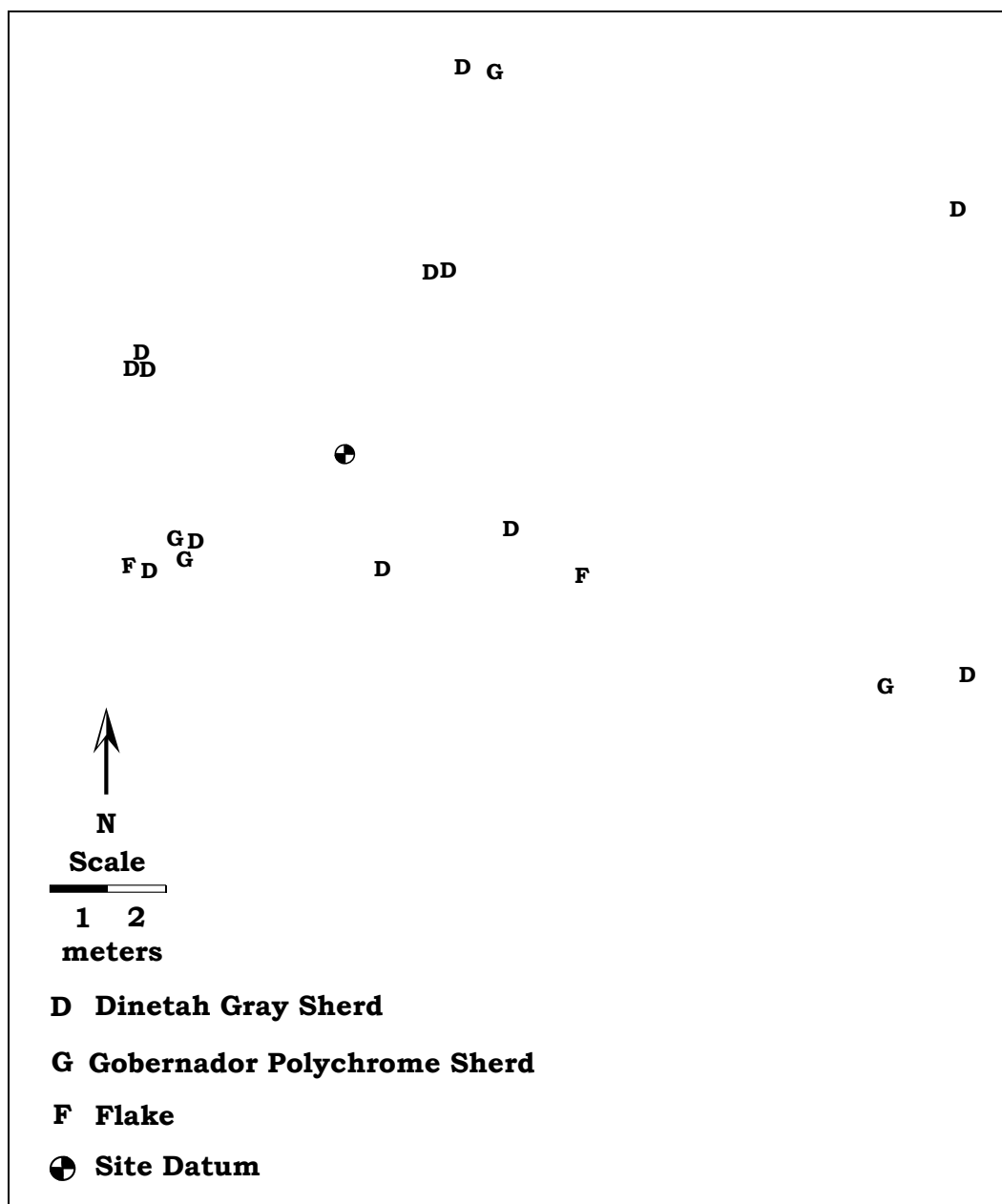


Figure 9.7 Map of LA 137979.



**LA 139976**

**Site Type:** Sweatlodge discard pile

**Cultural-Temporal Affinity:** Navajo, Diné'tah or Gobernador Phase

**Location:** LA139976 is located on a small knoll at the base of a talus slope, near the confluence of three ephemeral washes, and in close proximity to Foothold Ruin. Vegetation in the area consists of sparse pinyon and juniper, with an understory of sagebrush, blue grama grass, and purslane.

**Description:** The site consists of a pile of burned sandstone typical of a sweatlodge discard pile.

**Interpretation:** LA 139976 is a single-component Navajo site consisting of a sweatlodge discard pile. No artifacts were found in conjunction with the site, although it is likely to date to the protohistoric period. The location of this site is somewhat unusual, as it is in close proximity to the pueblito, and to the adjacent and now-obliterated hogans recorded by the Navajo Land Claims researchers. If the two sites were contemporaneous, an individual conducting a sweat would likely have been visible to those in the habitation area, a circumstance generally proscribed by Navajo tradition. The possibility exists, of course, that the sweatlodge either pre- or post-dates the use of the pueblito-area habitations, and their lack of preservation, in contrast with that at LA

137977, may suggest that the hogans adjacent to the pueblito were abandoned, and a new residence established at LA 137977 (although differential preservation may be a factor as well.) The pueblito and associated hogans date to the late Gobernador Phase (Towner 1997:1991), and the sweatlodge site may date to either the Dinétah or Gobernador Phase occupation of the canyon, but is unlikely to have been in use contemporaneously with the pueblito and nearby hogans.

**Maps:** See Figure 9.9.

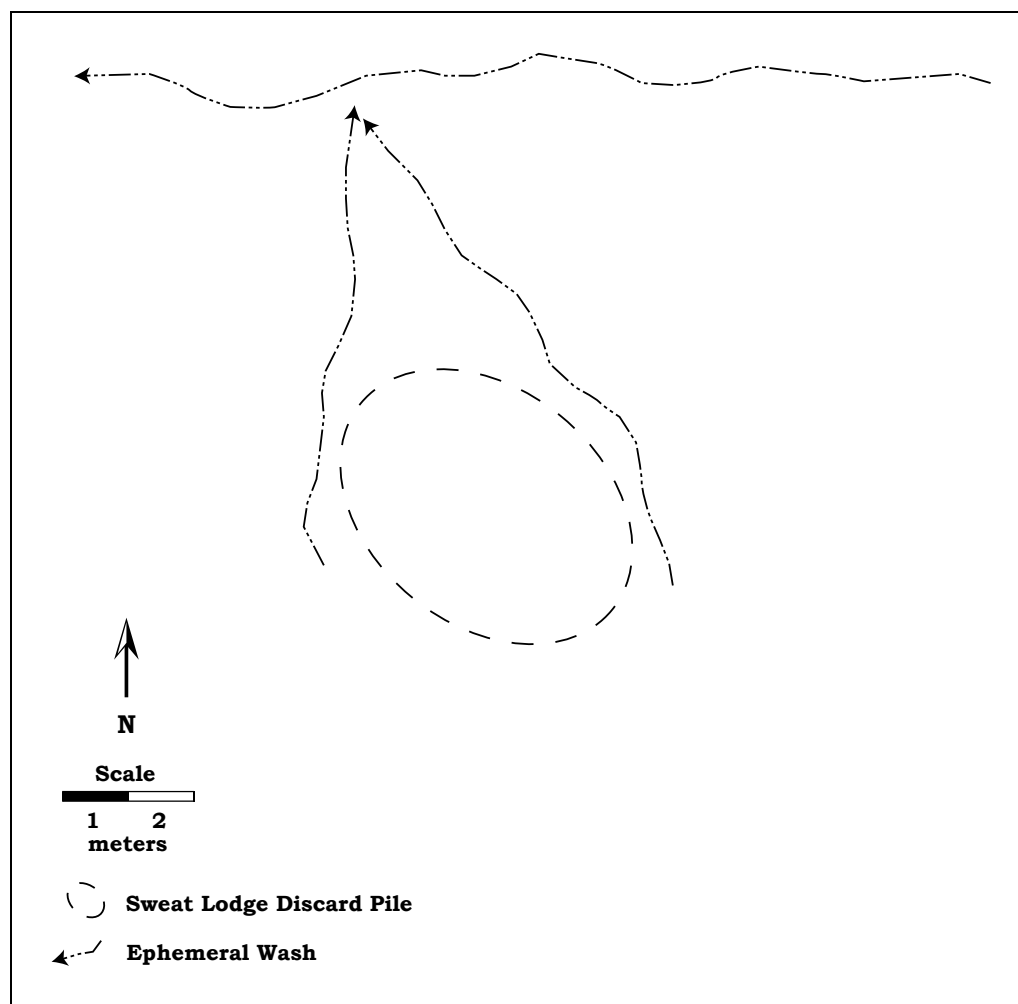


Figure 9.8 Map of LA 139976.

### ***Foothold Pueblito Isolated Occurrences***

Two isolated occurrences were encountered in the Foothold Ruin Survey Area. They are presented in Table 9.1.

**Table 9.1 Foothold Ruin Survey Isolated Occurrences.**

<b>Isolated Occurrence #:</b>	<b>Description:</b>
FH-IO-1	Small, loose pile of rocks along margin of low boulder. No evidence of mortar. This appears to be a modern juvenile effort to erect a "pueblito," and is not believed to be archaeological.
FH-IO-2	Axe-cut stump

### ***Discussion***

Many of the remarks in the discussion of the 42 Pueblito Complex are applicable to the Foothold Ruin Complex. The ostensibly limited extent of the complexes may be a function of more limited, possibly seasonal (summer), use, or alternatively may be a product of taphonomic processes resulting in the burial of sites by alluvium and colluvium. As noted previously, in total only three canyon-bottom pueblito complexes (42 Pueblito, Foothold Ruin and Simon Canyon) have been subjected to extensive survey. Until further surveys of such sites are carried out, the sample remains too small to draw any definitive conclusions.

The presence of a datable hogan at the site, as well as three standing axe-cut trees, may help resolve questions still surrounding the dating and seasonality of the Foothold Ruin Complex, depending upon the degree of preservation and the extent of seasonal ring formation in the samples. Dendrochronological studies of this site also have the potential to provide further insight into the question of contemporaneity of use of the Foothold Ruin Complex and the Overlook Site Complex, which is visible on the mesa above. Although thirty-nine tree-ring samples were taken at Foothold Ruin by the Navajo Land Claims and Dinétah Dating Project researchers, only one cutting date (NLC-1357: 1720comp) was obtained. Of the remaining dates, only a few were near-cutting dates, and only weak date clusters were observed (Towner 1997:190-191). It does appear, however, that one of the now-vanished hogans adjacent to the pueblito may have been constructed much earlier, although probably not as early as the 1710+ date (NLC-1350) would suggest. Towner indicates that the Foothold Ruin Pueblito was likely constructed in the late 1730s or early 1740s (Towner 1997:191), but use may have been made of the complex area for habitation, with the pueblito being built later, in response to the changing enemy aggression (Towner et al. 2001), as alluded to in the discussion of the Overlook Site Complex.

In a different vein, a small number of the Navajo ceramics (both Dinétah Gray and Gobernador Polychrome) encountered in the Foothold

Ruin Survey Area exhibited a peculiar pattern of spalling, which appears to have resulted from the expansion of minute white inclusions in the paste or temper. This spalling appears to be very similar to that which results from the presence of calcium carbonate in the vessel body, and which is caused by a post-firing chemical reaction with atmospheric moisture that forces minute spalls from the vessel surface (Shepard 1954:22). The presence of this phenomenon in a number of the sherds in the area may cast light on the ceramic construction practices of the inhabitants at the site, including the specific clay (or less likely, temper) source employed, as such spalling often results from the presence of minute fossiliferous inclusions in the clay body (Arnold 1985:24-26; Shepard 1954:22). (A number of clay veins are visible eroding from the canyon walls in Palluche Canyon.) No mention of this phenomena has been made in previous studies of Navajo ceramics, and it may be incidental, and specific to this site.

## 10 Ethnographic Evidence of Navajo-Puebloan Co-Residence

Close scrutiny has been made of the Spanish historical accounts regarding population movements among the Puebloans and the Navajo in the aftermath of the Pueblo Revolt and reconquest (Hogan 1991; Schaafsma 2002). Little or no consideration, however, has been given to the oral historical accounts of those cultures directly involved. Reasons for omission may be multiple, including hesitancy among archaeologists to accept the historicity of oral accounts.

The Navajo in particular were located on the perimeter of Hispanic influence, and their resistance to missionization contributed to the spotty nature of historic Hispanic records of their activities. This, combined with marked bias on the part of Spanish recorders, deliberate distortion of the contemporary records (Brown 1996:55; Schaafsma 2002:226,253,277-278), and simply erroneous accounts may render the written Hispanic “histories,” in spite of their appeal to the Euro-American archaeologists’ instincts, little more reliable than indigenous oral histories.

Admittedly, Native American oral histories lack the calendrical precision that Euro-American researchers are accustomed to thinking of as “histories.” None the less, the accuracy of the events which they portray—although sometimes couched in legendary language—is often quite remarkable.

Written histories, oral histories, and archaeologically-constructed “histories,” each suffer from their own inherent limitations, and the greatest accuracy in reconstructing proto-historic events may result from recourse to all three.

As noted above, a review of the Hispanic historical records pertaining to possible Puebloan population movements into the Diné'tah area after the Spanish reconquest of New Mexico has already been undertaken (see Hogan 1991). The bulk of this thesis addresses the archaeological evidence regarding the arrival of Puebloan refugees in Diné'tah. This chapter, however, focuses upon the oral historical record.

Given that a thorough review of the oral histories of all Puebloan groups, in addition to the Navajo, is beyond the scope of this thesis, some use was made of historical records in narrowing the field of study. Hispanic records indicate that the western Pueblos (Zuni, Acoma, and the Hopi Mesas) were sufficiently distant from the Rio Grande to remain largely unaffected by the Pueblo Revolt and subsequent reconquest, other than by serving as destinations for refugees from the eastern pueblos. Hogan's (1991:21) review of population movements between and from the eastern pueblos suggests that the groups most likely to have contributed refugees to the Diné'tah area were members of the Towa and Tewa linguistic groups. Accordingly, it is the oral histories of the

peoples of Jemez and the Tewa pueblos, in addition to the Navajo, which were selected for review.

As previously noted, archaeologists have been notably reluctant to make use of the information provided by oral histories. In spite of this hesitancy, Dorothy Keur (1941:11) has observed that:

If used cautiously, backed by historical records and ethnological and archaeological data, mythology may be useful in shedding some light on the location of points in Navajo cosmography, their migrations, and mingling and intermarriage with the Puebloans and other peoples.

A. V. Kidder's initial suggestion that the pueblitos may have been constructed by Puebloan refugees had its genesis in an observation by Adolf Bandelier (1892:216):

This [1696] defeat...caused the Jemez to flee to the Navajo Country...for several years the Jemez remained among the Navajos until they finally returned to their old range, establishing themselves at or near the site of their present village.

Although the above quotation from Bandelier is from a Euro-American historian, and it is unclear who or what Bandelier's original source(s) may have been, the possibility exists that he was reporting oral history which existed among the Jemez in the late nineteenth century.



### ***Towa and Tewa Oral Histories***

Due to the paucity of ethnohistorical studies among the Jemez and Tewa (in spite of the fact that both groups have produced noted anthropologists), it is difficult to ascertain precisely the meaning of the original information Bandelier may have been given. The phrases “Navajo Country” or “among the Navajos,” however, should not necessarily be construed to mean that the Jemez were living within Navajo communities, as Kidder (1920:328) indicates, “Gobernador Canyon is in the old Navajo Country.” Even the presence of hogans at the pueblito sites was not deemed by Kidder (1920:328) to be conclusive evidence of co-residence, as he remarks, “the presence of the hogan-like structures at the ruins...seem surely to point to contact with the Navajo.” He refrains, however, from specifying the nature of such contact.

The characterization of the San Juan drainage as “Navajo Country” appears to have been standard practice, as Frank Wozniak observes, that the Abiquiu reservoir “appears to have been within what was loosely known as Navajo country in the early seventeenth century” (Wozniak 1992b:52). The phrase “Navajo country” appears again in oral history from among the Jemez, recorded by Albert Reagan (1927:726) in the 1920s:

Against the place on the mesa [Astialakwa] both in 1694 and 1696 they [the Spaniards] came with their cannon, and after a many days battle each time they captured it, reducing it, finally, to the mass of ruins it is to this day. Furthermore, at each of these times some of our people escaped to the Navajo country, but the greater part of them were captured and reduced to a state of servitude.

Frank Wozniak (1992b:10) observed that “it does not necessarily have to have been in the heart of their country, merely in the area they claimed for traditional use.”

The question of the nature of the inter-ethnic contact between the Jemez and the Navajo has been somewhat confounded by a statement by anthropologist E. C. Parsons in which she recounts that “Hemes [Jemez] became Navajo in Long Canyon [Largo Canyon]” (Parsons 1925:3), a statement repeated by Paul Reiter (1938:38).

The anthropologist and historian Joe Sando, himself a Jemez Indian, provides this clarification of Parson’s statement:

At this time [1696], some of the Jemez returned to their ancestral homeland in the northwest, in Canyon Largo and Stone Canyon (Gy’a-wahmu). Others went to An-yu-kwi-nu (Lion Standing Place), to the west of Jemez in the Navajo country. These people lived among the Navajo for a considerable number of years. Many also escaped to Hopi. (Sando 1992:75).

Adolf Bandelier placed the location of An-yu-kwi-nu between the Rio Salado and the Rio Jemez (Hogan 1991:13), which therefore located the Jemez who sought refuge there east of the continental divide, and some considerable distance from contemporary Navajo population centers. The use of the term “among the Navajo” in Sando’s account is notable, as the term “Dinétah,” the Navajo word for the area encompassing the Largo and Gobernador drainages means, “among the (Navajo) people” (Brugge 1968:16). Thus the reference to living “among the Navajo” may be an indication that they were living “in Dinétah” or in the Largo and Gobernador drainages, precisely as indicated by Sando.

Sando (1982:121) notes elsewhere:

[T]he defeated Hemish [Jemez] and their allies scattered into the mountains...the Hemish fled with their families to their ancestral homeland in the northwest, Cañón Largo, or Gy’ a-wahmu (“stone canyon”). Others went to Anyu-kwi-nu (“lion standing place”) to the west, in Navajo country...

Many of the people who fled evidently lived among the Navajos for many years before they returned, others never returned, but became a part of the Dinéh [Navajo], with Hemish traditions. These descendants are identifiable today as being of the “Maii Deesh-giiz-nii” clan, this and the Navajo name for Jemez today come from the name of the Coyote Clan, whose members remained in the Navajo country.

In spite of Sando's credentials as a Jemez and as a historian, the source for the above quotation appears to be drawn, not solely from oral tradition, but from a variety of sources, including Spanish historical documents, an erroneous understanding of Navajo ethnohistory, and conceivably from knowledge of Bandelier's own statement. Sando's most significant argument for the presence of Jemez refugees among the Navajo is the presence of the "Maii Deesh-giiz-nii" or Coyote Clan, which has its roots in a Jemez ancestor. (There are two Navajo clans that could be referred to as the "Coyote Clan." The Maii Deesh-giiz-nii, the actual name of which is the "Coyote Pass" clan, should not be confused with the "MaitoDiné," or "Coyote Spring people," a clan with a completely different origin, unrelated to the Jemez) (Matthews 1994:151-152).

Sando is correct regarding the existence of the "Maii Deesh-giiz-nii" among the Navajo, and its Jemez derivation, but may be incorrect regarding its origin, about which Navajo oral history is very specific. Sando is not alone, however, as archaeologists have hypothesized that the Coyote Pass Clan originated from Jemez Indians who fled the Hopi village of Sichomovi to join the Navajo in Canyon de Chelly (James 1976:14).

### ***Navajo Oral History***

Washington Matthews, the early anthropologist and ethnohistorian who recorded the origin legend and early tribal history of the Navajo as told by a number of respected Navajo informants in the 1880s, gives the origin of the Coyote Pass Clan as follows:

Then a war party was gotten up to attack the people of Jemez pueblo. On this raid one of the Tlastsini [Red Flat Ground People] captured a Jemez girl, but sold her to one of the Tse'dzink'ni [House of Black Cliffs People]. She was the progenitor of the gens [clan] of Maiděskī'znī, People of Wolf Pass (i.e. Jemez). (Matthews 1994:158)

Elsewhere Matthews translates "Maiděskī'znī" as "Coyote Pass" people (Matthews 1994:30). Because of the matrilineal nature of Navajo society, the origin of an entire clan can easily be accounted for by a single clan ancestress (Hogan 1991:17).

One other Navajo clan, added many years before the Coyote Pass clan, is mentioned as coming from the Jemez area. This is the Klógi clan. Once again, however, Navajo oral history is very specific as to the circumstances surrounding the addition of this clan:

[T]here was a great famine in Zuni, and some people from this pueblo came to the San Juan to dwell with the Navahoes...The

famine prevailed also at other pueblos, and some starving people came to the Navahoes from an old pueblo named Klógi, which was near where the pueblo of Jemez now stands. These formed the gens [clan] of Klógi, and made special friends of the *Thá'paha* [Among the Waters Clan]. (Matthews 1994:145).

This description of Klógi as being near the location of the present Jemez pueblo does not necessarily indicate that the inhabitants of the pueblo were Towa. The pueblo of Jemez is located near the confluence of the Jemez and Guadalupe Rivers, at the extreme south end (and indeed, somewhat out of) the traditional Towa range, as it was originally established by the Spanish in an attempt to pacify and indoctrinate the Towa (Elliott 2002:46). The area around the pueblo of Jemez is near the junction of the Keresan and northern Tiwa traditional territories, and therefore the people of the Klógi clan could have originated from any one of these ethnic groups. The likelihood is high, however, that they may have been Keresan, as Espejo recorded a pueblo in 1582 which he called "Gigue." Oñate referred to the same pueblo in 1598 as "Quigui," and which was later known as Santo Domingo, and which was abandoned in 1886 (Schroeder 1979:239-244). There is no other reason for postulating that the Klógi refugees came from Santo Domingo, other than the geographical proximity to the area specified (Santo Domingo is located approximately 25 miles east southeast of Jemez) and the similarity of the names. Whatever the case, the famine which prompted the exodus from

Klógi appears to be unrelated to the Pueblo Revolt, as it is specified that this same famine effected a similar emigration from Zuni (Matthews 1994:145). Although famine was certainly a factor in the experiences of the Rio Grande pueblos during 1695-1696, it was in large part a consequence of systematic destruction of crops and food stores by the Spaniards (Barrett 2002:88-89). Zuni, which was largely insulated from Spanish predations by distance, was not similarly impacted, but rather served as a refuge for Puebloans fleeing the Rio Grande valley (Hogan 1991:17).

Richard Van Valkenburgh and John McPhee indicate that ancestors of the Tipezhiini, or Black Sheep clan, “came to the Navajo from the Pueblo of San Felipe after the Pueblo Rebellion of 1680” (Van Valkenburgh and McPhee 1938:4), although they do not indicate if this addition to the tribe was *triggered* by the revolt, or if their informants merely indicated that the time period involved was subsequent to the Revolt period. It should be noted that San Felipe, a Keresan pueblo located approximately 15 miles southeast of Jemez, may be an alternative location for “Klógi,” as it is certainly located “near where Jemez now stands.” Several of the Navajo clans have multiple clan designations (Matthews 1994:29-31), a factor which is further complicated by variations in English orthography of the names. It is possible that the clan Matthew’s informants referred to as “Klógi” was the same one referred to by Van Valkenburgh and McPhee’s informant(s)—

whom they do not specify—as “Tipezhiini.” This likelihood is increased by the fact that a Tipezhiini clan is not included in Matthews’s exhaustive review of the Navajo clans and their origins (Matthews 1994:138-159).

Such a massive influx of people as postulated by the theory of Puebloan refugees fleeing to the Navajo—even the relatively low number of a few hundred postulated by Hogan (1991:16) certainly would not have gone unremarked in Navajo oral history, yet no mention is made of them. Nor can it be argued that the clan origin histories relate to a time deep in prehistory, as the origin of the Nakaíďine’ (White Stranger People, or Mexican Clan) indicates:

About the time they were incorporated by the Navahoes, or soon after, a party of the Utes [Navajo Ute clan] made a raid on a Mexican settlement, somewhere near where Socorro now is, and captured a Spanish woman. She was their slave; but her descendants became free among the Navahoes and formed the Nakaíďine’ (White Stranger People) or Mexican gens. (Matthews 1994:146).

Clearly, the time period covered by the Navajo clan origin histories does extend into the protohistoric. (The above citation also illustrates another example in which a single woman accounted for the formation of a new clan.) It should also be noted that the sequence of clan accessions is clearly spelled out, and that the addition of the Nakaíďine’ (White



Stranger People) preceded that of the *Maiděskǐ'znǐ* (Coyote Pass Clan) by at least several years, and probably much longer. Seven years passed between the accession of the Overhanging Rocks People and the Walked-Around or Place of Walking People. Four more clans—Two Come for Water, Zuni, *Dildzēhi*, and Salt--were added between the addition of the Walked Around People and the Coyote Pass clan, and during this time the Navajo were also joined by three groups of Apaches and one of Paiutes, all of whom were adopted into extant clans (Matthews 1994:146-158). The oral history, as told to Matthews, also specifies that “some years passed” (Matthews 1994:158) between the arrival of the last group of Apaches and the accession of the Zuni clan. Frederick Hodge (1895:238) has observed that, “the Creation and Migration tradition of the Navajo is remarkably accurate regarding the chronologic sequence of events,” and has estimated that the accession of the *Nakaíđine'* at approximately AD1650 (Hodge 1895:225).

Additionally, Navajo history indicates that the members of the *Taachii'nii* clan were survivors of the destruction of *Awatovi* who settled at Black Mesa in Arizona (Begay and Roberts 1996:204; Gilpin 1996:171). Matthews (1994:145-146) records that the members of this clan (*Thá'tsini*, in his orthography) came from the west to the San Juan area, having “escaped in some way the alien gods,” and that their accession predated even that of the *Nakaíđine'* (White Stranger People). This would place the accession of the *Maiděskǐ'znǐ* (Coyote Pass Clan)

after the turn of the eighteenth century, when the destruction of Awatovi occurred (Plog 1997:193). This date appears to be at odds with Van Valkenburgh and McPhee's (1938:5) assertion that the *Maiděskī'znī* ("Miidiisgizhni," in their orthography) "tell of the killing of the priests in the kiva and wanderings in their clan tradition." The accuracy of this assertion is considerably in doubt, however, as contemporary historical records indicate that both martyred missionaries to Jemez, Fray Juan de Jesus in 1680 and Fray Francisco de Jesus in 1696, were killed in the cemetery near the *convento* (Espinosa 1988:35, 250), and not in the kiva, as indicated by Van Valkenburgh and McPhee.

The pueblos of Jemez, Klógi, and Zuni were not the only ones to contribute clans to the Navajo, although the affinities of the other pueblos mentioned are not so easily determined. A young woman captured in a raid on *Kīnātsī* was the ancestress of the Red House clan. Two girls were captured in a raid on *Saíbehogan* (House Made of Sand), and became the progenitors of the Salt clan (Matthews 1994:146).

Although it is not possible to determine precisely when the Coyote Pass clan came into being among the Navajo, one thing is entirely clear...it did not come about as a consequence of the Pueblo Revolt. Nor is there any indication in Navajo oral history of the accession of refugees from other Rio Grande pueblos.

## **Conclusion**

Thus there appears to be no concrete ethnohistoric evidence among the Towa and the Tewa of ethnic co-residence of members of their tribes with Navajo groups. Nor is there any mention in the precise and detailed oral history of the gathering of the Navajo clans regarding the accession of Puebloan refugees to the Navajo, though other non-Revolt related additions are specified in considerable detail. It appears that, as Copeland and Rogers (1996:218) have observed:

As far as the Diné are concerned, there were no great and sudden influxes of aliens into the Diné world. Rather, after Changing Woman created the Diné, there was a slow but steady joining and assimilation by various outside groups with them.

Thus, the ethnographic evidence, although it apparently once formed the basis for Kidder's "refugee hypothesis," under further examination, appears to refute that very hypothesis.

## 11 Ceramic Evidence

Ceramic assemblages, due to their durability and their nature as highly sensitive indices of cultural change, have long been utilized by archaeologists as evidence of a variety of types of cultural contact, including migration. Although decorative elements of style—such as motifs, surface finishes, etc—can be, and are, consciously manipulated in order to signal affiliation with, or distance from, various social groups, “technological style” or “isochrestic styles” is less consciously manipulated. It involves the basic construction techniques involved in the production of an artifact, and is often linked to learned motor habits (Arnold 1985:235). This, in turn, affects such vessel characteristics as shape, temper orientation, variations in wall thickness, and surface finish (Rye 1981:58-95). Vessel form is a particularly strong indicator of ethnicity, as it is both readily apparent in the whole pot—and therefore a means of social signaling—but also heavily influenced by production technique, and therefore also a form of isochrestic style (Arnold 1985:234-235; Rye 1981:62). For instance, round-bottomed ollas such as those produced by the Towa, require a specialized support during vessel formation in order to prevent the bottom from deforming while the clay is still plastic. Such a practice also results in very standardized vessel forms, as the support is repeatedly used, and the bases of broken pots may be used as supports for subsequent pots (Rye 1981:63). By

contrast, pointed-bottom pots, such as the utility jars produced by the Navajo, are often the result of supporting the vessel in the potter's lap during formation, and the resultant deformation of the still-plastic clay (K.D. Vitelli, personal communication 1994). Greater variation in vessel shape is seen in these types of vessels, as the potter's personal dimensions and even seated position will vary slightly from vessel to vessel. Such a practice may well account for the wide variation in Navajo vessel forms.

Other practices, such as finishing techniques, can also serve to distinguish vessels created by potters from different ceramic traditions. A prime example of this is the case of Gobernador Indented, a rare variant of Diné'tah Gray. While this type superficially bears some resemblance to the partially-obliterated corrugations evident on some Towa pottery, closer examination indicates that the production sequences are quite different. Whereas the corrugation on Towa vessels results from the incomplete obliteration of finger-tip impressions made when joining the coils together, in Gobernador indented, the finger-tip impressions are made *after* the vessels have been thoroughly smoothed, and are a strictly decorative measure (Hill 1995:101; Reed and Horn 1998:64). Thus although the decorative style evident on the two ceramic types is quite similar, the technological styles are widely variant.

From the early stages of pueblito research, the presence of Puebloan decorated wares at pueblito sites has been deemed indicative of

the presence of Puebloan refugees (Kidder 1920; Mera 1938:237), in spite of the extremely small quantities of these wares at any given site, and the fact that:

Southwestern archaeologists have rarely accepted the presence of small percentages of intrusive pottery as evidence that the people who manufactured that pottery actually resided with the local group. Minor amounts of intrusive ceramics almost always are interpreted as evidence of exchange relations. (Hogan 1991:7)

Thus the problem becomes separating Puebloan ceramics present at a site due to trade from Puebloan ceramics present at a site because Puebloans themselves were present at the site.

The occurrence of Gobernador Polychrome (Figure 11.1) at pueblito sites has, until recently, also been considered evidence for an influx of Puebloan immigrants to Dinétah (Mera 1938:237). Gobernador Polychrome, a very highly-fired orange-to-buff ware used to produce bowls—and rarely jars—was lightly polished and decorated with red and black, sometimes white, geometric designs and some figurative elements (Brugge 1963:13-18; Brugge 1981:7-8; Hill 1995:114-115; Marshall 1995:85-90). Because the Navajo were not known to have previously produced a decorated ware, the development of Gobernador Polychrome was deemed a product of the influence of Puebloan potters. More recent research, however, has pushed the initial production of Gobernador

Polychrome back to approximately AD 1650 (Reed and Reed 1992:99; Reed and Reed 1996:103), a date which precludes its development as a result of contact with refugees from the Pueblo Revolt. Gobernador Polychrome motifs also appear to have been equally influenced by Hopi and Rio Grande ceramics (Reed and Reed 1992:102), although the western pueblos were insulated by distance from most of the impact of the Pueblo Revolt. Clearly, then, the development of Gobernador Polychrome occurred completely independent of the events of the revolt and its aftermath.

The problem of detection of immigrant (or refugee) groups from the archaeological record is not one that is unique to the study of the southwestern pueblitos:

The recognition of sites or archaeological assemblages formed by migration and colonization and their differentiation from those produced by exploration, trade, exchange, invasion, or other forms of culture contact constitutes a classic archaeological problem. (Berman and Gnevicki 1995:421)

The same authors caution that, “the application of poorly-formulated models obscures our interpretation of the archaeological record” (Berman and Gnevicki 1995:421).

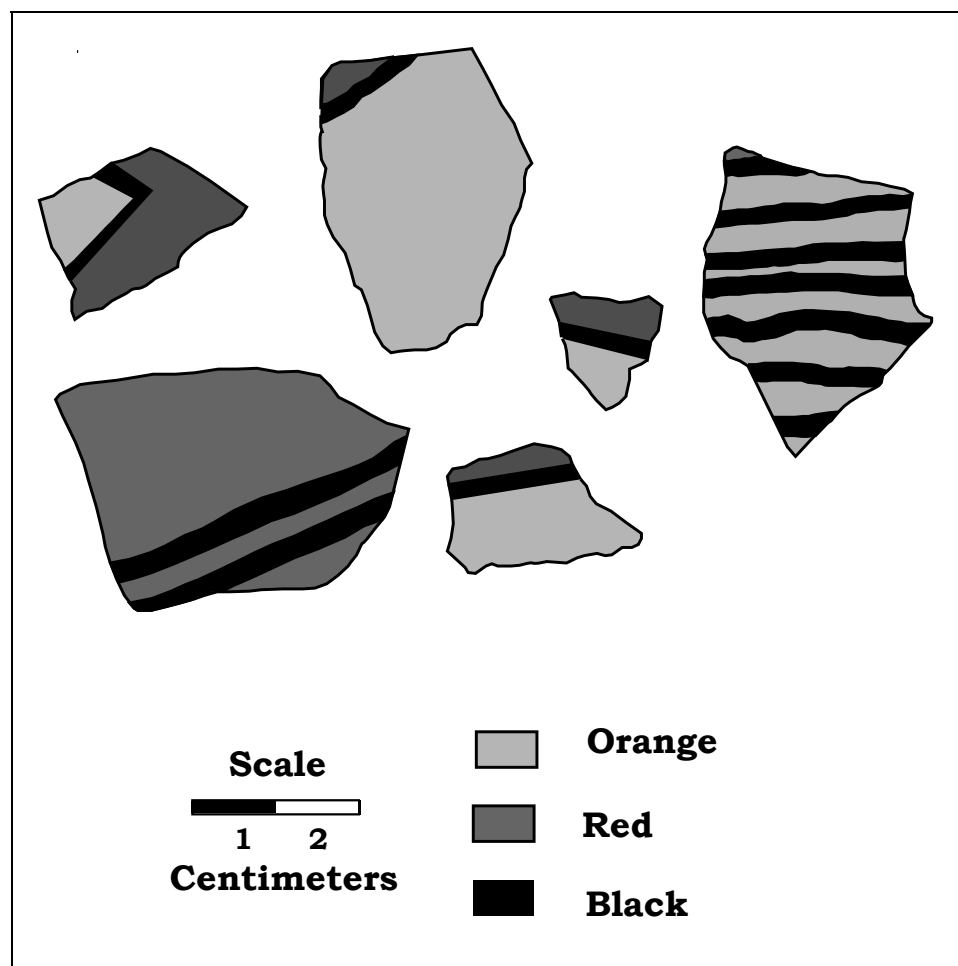


Figure 11.1 Examples of Gobernador Polychrome sherds from the 42 Pueblito survey area.

Maria Nieves Zedeño has formulated a model of ceramic assemblages that attempts to distinguish those produced as a result of trade in goods and exchange of ideas from those created by the immigration of new cultural groups to a site or region. She envisions a three-stage progression in the integration of a new ethnic group, which would be evident in the archaeological record. In this model, newly-arrived immigrants would bring with them pottery manufactured in their home region, with the native pastes and tempers of their previous locale.



At this stage, the ceramic assemblage is likely indistinguishable from one produced through other forms of culture contact. Once established in their new area, however, the immigrants would begin to manufacture pottery using the same techniques as they had always used, but utilizing pastes and tempers native to the new region. Finally, as a gradual consequence of co-residence with a new group and exposure to new techniques, new forms reflecting an amalgamation of the two groups and the sharing of knowledge would develop (Zedeño 1995:132). Anthony (1990:903) envisages a similar pattern:

Migration will carry regionally defined artifacts from a circumscribed home region to a specified destination. Innovation in the new home might then lead to a sort of “founders’ effect” resulting in rapid stylistic change from what was in any case a narrowly-defined pool of variability.

Zedeño (1995:132) also notes that:

Because ceramic technology in the American Southwest was not as readily transferred as design style, visible changes in the technological characteristics of ceramic assemblage may signal changes in the ethnic or social makeup of a pottery-making community.

Although Zedeño’s model was formulated to address decorated wares in the Mogollon region, it is equally applicable to the question of

the arrival of a postulated influx of Puebloan refugees into Navajo communities in the wake of the Pueblo Revolt.

As a refinement of Zedeño's model, utility wares, rather than decorated wares, were selected as the focus of study at the pueblito sites. The rationale behind this was three-fold:

1) Utility wares are less likely to have been subjects of inter-ethnic exchange (Stark 1995:333), therefore obviating the risk of mistaking a trade-derived assemblage for one produced by the arrival of an immigrant group.

2) Utility wares are less obtrusive and less attractive, reducing the risk of the archaeological record having been skewed by unauthorized sherd collection at pueblito sites.

3) In keeping with Zedeño's observation that technological aspects of pottery manufacture (temper, construction technique, choice of mineral vs. vegetal paint sources, etc.) are less likely to be transferred than changes in design style, the same is true of utility wares, which have generally proven themselves to be remarkably stable over long periods of time (Stark 1995:333, 336), even when decorated wares produced by the same ethnic group underwent rapid innovation and change.

Therefore, Zedeño's model adapted to the current problem of ceramic evidence of ethnic co-residence at pueblito sites would involve the appearance of small quantities of foreign utility wares which had been manufactured in the Rio Grande region and brought by the immigrants. This would be followed by the appearance of Rio Grande-style utility wares, produced by immigrant potters, using their traditional techniques and local materials, and possibly with some concessions to local conditions, such as the absence of tuff for temper or mica for inclusion in the slip if those ingredients were not locally available. Given the relatively short time intervening between the arrival of postulated Puebloan refugees in the Dinétah region, and the abandonment of the area—approximately half a century—the likelihood of Zedeño's third stage, the development of new hybrid ceramic forms, is low, and does not form a factor in this iteration of the model.

A functional necessity for the use of this model is the presence of utility ware types that are sufficiently distinct from one another to make the determination of cultural affiliation possible. This condition prevails with Navajo and northern Rio Grande utility wares, as demonstrated below (see descriptions and Table 11.1). As previously noted (see Chapter 10), the most likely pueblos to have served as population sources for refugees emigrating into Dinétah were the Towa and Tewa pueblos (Hogan 1991:21), and it is the culinary wares from these regions which were selected for comparison.

### ***Dinéyah Gray (Navajo)***

Dinéyah Gray (also variously called Dinéyah Scored, Dinéyah Utility) generally occurs in jar form, although some bowls have been found. The jars are elongate, wide-mouthed ollas with an elevated maximum diameter, with the rim and sometimes the lower body recurved. The vessels are coiled and scraped, and fired in an uncontrolled atmosphere, resulting in a core that is light gray or black, or sometimes buff, brown or red. Similar colors appear on the exterior, often varying over the surface of the same vessel, as a consequence of the firing method. The paste is tempered abundantly with quartz sand. Wall thickness ranges from two to eight millimeters, with the majority in the three to five millimeter range. The exterior surface is treated by scraping with a corn cob or wiping with juniper bark, grass, or corn husks, resulting in distinct striae, usually oriented on the diagonal. Alternatively, the surface may be left poorly smoothed, or (rarely) lightly polished. Scattered small mica glints may be visible on the surface, due to inclusions in the paste. The interior surface is generally wiped with corn husks or shredded juniper bark, sometimes smoothed or scraped with a corn cob (Brugge 1981:3; Brugge 1963:5-6; Gerow and Hogan 2000:66; Hill 1995:111; Keur 1941:55; Marshall 1985:183).

Dinéyah Gray is recognized as the earliest form of Navajo pottery yet found in the Southwest, and appears coincident with the first arrival of the Navajo in the area. It continued virtually unchanged between the Dinéyah and Gobernador phases, and exhibits only minor stylistic changes (such as the addition of fillets to the neck of vessels) as it segued into Navajo Gray, a type still produced by the Navajo (Brugge 1981; Hill 1995).

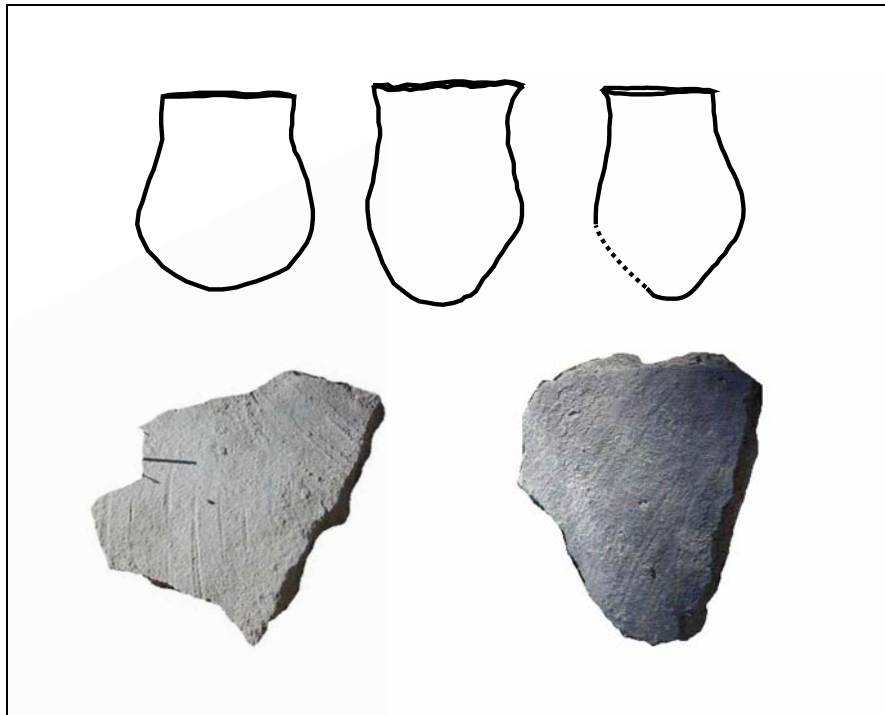


Figure 11.2 Dinéyah Gray pottery, typical vessel shapes and detail of sherds.

### ***Jemez Utility (Towa)***

Jemez utility wares (which have not been assigned a formal type name) occur in both jar and bowl forms, with the jars generally globular, wide-mouthed ollas. Vessels are coiled, and incompletely scraped. Coil thickness is quite fine, even on large vessels, range from 0.9 to 2.5 centimeters. Wall thickness is highly variable, with up to a 2.5 millimeter variation in thickness encountered on a single 7.5 centimeter sherd. Paste color varies from light gray through reddish-brown to dense black. It may also be light mustard yellow. Firing effects (such as fire clouds) vary. The ware is usually notable for its crudeness. Although the exterior surface is characterized as “plain,” this more accurately reflects the absence of corrugation, indentation, and blind corrugation—in contrast to earlier wares—than the surface of the actual ware type. Even “plain” sherd exteriors are noted for a “muffled” or partially camouflaged structural coil. The presence of visible coil junctions appears not to have been deliberate, but rather a result of carelessness, and coils are rarely completely smoothed. On some sherds scratches may be visible, the result of imperfections in the clay being caught by a finishing implement and dragged along the surface of the vessel. Some larger particles may protrude from the vessel surface. The interior surface is usually black, and has been scraped and often burnished with a polishing stone, although never to a high sheen. Ground rock, in the form of vitreous andesite, was used as temper, and was evenly distributed throughout the

paste. In some instances during the protohistoric period, traditional paste and tempers were utilized in the construction of Spanish-influenced vessel forms, such as soup plates and cups (Lambert 1981:220, 224; Reiter 1938b:103-106, 125).

One researcher has remarked that, “Jemez pottery is inconsistent in almost every element of workmanship...variety of workmanship is truly Jemez!” (Reiter 1938b:105-106). Early Jemez utility ware was decorated with finger-tip indentations, but had been largely superceded by plain-surfaced wares by the early seventeenth century (Elliott 1986:20; Reiter 1938b; Reiter, Mulloy, and Blumenthal 1940:18). This would suggest that if the indented utility wares found on Navajo sites are, as Marshall (1985:183) suggests, not Navajo culinary wares, but Jemez, that they would pre-date the Pueblo Revolt period.

### ***Tewa Utility***

Remarkably little archaeological work has been done in the ancestral Tewa area. This combined with the propensity of archaeologists to give little attention to utility wares, has resulted in a paucity of information regarding the culinary wares from this area. The bulk of the information available is for the pueblo of Nambe, although some authors indicate that the production of similar wares was widespread (Warren 1981:154).

The Tewa of Nambe produced smooth, plain utility wares with a brilliant mica slip. Vessel walls are quite thin, between 3.5 and 5.5 millimeters. The exterior is generally smooth, although some striations may be present, and partially-obliterated coils may be visible. A slip consisting of gold or silver mica flakes up to two millimeters in diameter was thickly applied to the exterior, although the slip sometimes became worn thin through use. The interior surface was polished and smudged. Small amounts of mica fleck inclusions are commonly found in the paste of vessels from both Nambe and Pojoaque. Crushed rock or sand was used as a temper (Dodge 1982:89; Ellis 1964:34-38; Warren 1981:154.

**Table 11.1 Comparison of Utility Ware Attributes.**

	<b>Navajo</b>	<b>Towa</b>	<b>Tewa</b>
<b>Vessel Shape</b>	Elongate oval ollas, elevated central diameter, recurved rim	Globular ollas, recurved rim	
<b>Wall Thickness</b>	2-8 mm, average 3-5 mm	Highly variable even within a single sherd	3.5-5.5 mm
<b>Surface Color</b>	Gray, black, buff, brown, or red	Light gray, reddish-brown, black, mustard yellow	Gold or silver, metallic
<b>Surface Treatment</b>	Distinct parallel striations, or smoothed.	Partially camouflaged structural coils, incompletely smoothed	Thick micaceous slip
<b>Temper</b>	Quartz sand	Crushed rock (vitreous andesite)	Crushed rock or sand



### ***Comparison Against the Model***

In contrast to the expectations formulated above if the pueblito complexes were the sites of ethnic co-residence only very small quantities of Puebloan decorated wares were encountered at those covered in the 2002 Palluche Canyon Survey (see Chapters 7, 8, and 9). This is in keeping with the results of Marshall's pueblito complex surveys, in which the maximum percentage of Puebloan decorated wares encountered at any given site (Hooded Fireplace, LA 5662) was 2.7 percent (Marshall 1995:A3-4). Of 6508 ceramic artifacts analyzed by Marshall, only eight sherds, representing five vessels, were from Puebloan utility wares. All of the Puebloan utility ware sherds were from the Southern Tiwa pueblo of Zia (Figure 3.1). These were a basalt-tempered plain gray ware called by Marshall "Zia Plain Gray" (Marshall 1995:93). Four sherds occurred at Hooded Fireplace (LA 5662), and the remainder at Tapacito Ruin (LA 2298) (Marshall 1995:71, 93). The 2002 Survey encountered *no* Puebloan utility wares in any of the three survey areas examined, and a total of only seven decorated trade-ware sherds were encountered in the three survey areas. (No attempt was made, given the expertise and comparative collection required, to assign ware types to these sherds.)

This very low incidence of *any* Puebloan wares (Tables 11.2 and 11.3), and the virtual absence of Puebloan or Puebloan-style utility wares at the pueblito sites suggests that the Puebloan wares present are there

as a consequence of trade. Even the eight sherds of Zia Plain Gray may represent trade in a substance which would, of necessity, have been transported in a pottery vessel.

**Table 11.2 Tradeware Sherds Encountered During 2002 Survey.**

Site	Tradeware Description
LA 86895	White slip, black organic paint. (1)
LA 137968	Heavy white slip. No decoration on sherd. (1)
LA 9073	White slip, black mineral paint. (2) Polychrome. (2) White slip, black organic paint or mineral with organic binder (1)

**Table 11.3 Tradeware Percentages at Pueblito Sites** (after Marshall 1995).

	Frances Canyon	Crow Canyon	Hooded Fireplace	Tapacito	Split Rock	Largo School	Shaft House
Puname Series	0.5		1.7		0.4	0.5	
Acoma Series	0.5		0.5	0.5	0.2		
Rio Grande Glaze			0.3		0.3		
Tewa Series	0.2						
Santa Ana Series	0.1		0.2				
Jemez Series	0.1						
Cochiti Series					0.2		
Zuni Series							
Ocate Series					0.7		
Total	1.3	None	2.7	0.5	1.8	0.5	None

It is worthwhile to note, in view of the third component of Zedeño's model—the sharing of techniques and development of hybrid forms—the observation by Hall (1944:98) that:

Navajo cooking ware...shows little obvious deviation in its general character from early to late. While the shapes of Navajo pottery show a great deal of variation for any given time or place, this variation may be found throughout the known range of the culture.

Similarly, Winter and Hogan (1992:311) have remarked that the “Dinétah and Gobernador components of sites are only distinguishable by the presence of a few sherds of Gobernador polychrome and other late pottery types.” This diachronic consistency of Navajo utility wares, combined with the recognition that the development of Gobernador Polychrome significantly predated the Pueblo Revolt, indicates that Navajo pottery was not significantly influenced by Puebloan immigrants.

It is quite evident that the wide variety and small quantities of Puebloan decorated wares at pueblito sites are precisely the type of assemblage that one would anticipate would be present on Navajo sites as a consequence of trade, and quite unlike that which would be anticipated on a mixed Navajo-Puebloan co-resident site. The absence of virtually any Puebloan utility wares at pueblito sites also argues strongly for the absence of Puebloans, and Puebloan potters, at those sites.

Gobernador Polychrome, the Navajo decorated ware which was originally

attributed to the influence of Puebloan potters, was developed well in advance of the postulated influx of refugees, and Dinétah Gray appears to have remained unchanged throughout the Gobernador period, and uninfluenced by Puebloan utility wares. The sensitive indices of the ceramic assemblages at the pueblito sites makes quite clear who the residents were—Navajos, who had some contact with numerous surrounding Puebloan groups.

## 12 Architectural and Construction Evidence

Much of the basis for Kidder's (1920) hypothesis that pueblitos were of Puebloan construction, and subsequent presumptions regarding their genesis, was based on their apparent similarity to pueblo structures. As Towner (1996:164) has observed, "pueblitos and the architectural features they contain have always been one of the criteria for the refugee hypothesis."

This similarity, however, may in truth be more superficial than actual. There can be no argument that architecture and construction techniques can be, and are, effective cultural indicators. Michelle Hegmon (1989:5, 7) has remarked that:

The most mundane and the most grandiose architecture can be related to cultural conceptions of the universe...Social order can be reinforced in the spatial order defined by the architecture...Architecture constitutes the built environment; it is constructed by people in response to their needs and their conception of both how their community and the universe are ordered. Furthermore, once constructed, the built environment can contribute to maintaining and reinforcing social order, or if modified, the built environment can help to transform that order.

Bell (2000:116-117) has also observed that:

Architecture is an active component of a society. [It] carries and projects a multitude of meanings. Architecture [can become] politicized as a marker of identity and social allegiance...Architecture, as lived space [has] shown to have been a critical means by which [different cultural groups] promoted, obscured, and realized their goals during...intercultural negotiations.

Architecture and construction techniques can be particularly sensitive indices in instances where the cultural norms and values, and their means of architectural expression, are as widely divergent as they are between the Navajo and the Pueblo peoples. Additionally, both groups have employed architecture to reflect and reinforce their worldviews. The Navajo hogan is specifically constructed to represent the universe in microcosm (Hegmon 1989:8; Jett and Spencer 1981:22-23, 239). Likewise, the organization of the Tewa village mirrors their understanding of the cosmos (Hegmon 1989:10; Ortiz 1969:18-24.) Matthew Liebman (2002:133) has observed, with specific reference to Revolt-period Puebloan architecture:

Many new refugee villages were built on or adjacent to ancient pueblo sites, denoting a return by the people to the ways of their ancestors...The form and plan of some of the Revolt period plaza pueblos has been interpreted as an architectural assertion of these traditions.

In addition to architecture's role in reflecting cosmology and structuring societies, its nature as "isochrestic" or "technological" style is an important consideration. These aspects of style are less subject to change (Stark 1995:333) due to their low visibility, they often include factors which are *invisible*, other than to their builders, as illustrated in the wall construction example in Chapter 1. Additionally, as demonstrated by Arnold (1985:229-230), the likelihood of innovation is in inverse proportion to the degree of risk involved, and with architecture, and particularly construction techniques, the risks are high. Arnold was directly addressing innovation in pottery-making, but his principles are applicable to architecture, as well. The collapse of the wall of a pottery vessel caused by innovation in construction technique is minor in contrast to the collapse of a building wall due to the same causes. This is particularly true where no other option for shelter would be immediately available, as would be the case with refugees moving into a new area, who did not have kin or affinal relations with whom they could move in until repairs could be made. These factors would mitigate against any experimentation with new architectural or construction techniques in their adopted home, and would ensure that archaeological and construction styles served as an effective index of the ethnic affinity of a structure's builders.

With regard to the determination of the ethnic affiliation of archaeological remains, Curtis Schaafsma (1996:21) has advised that:

The best methodology is to construct hypothetical models of what to expect of various ethnic groups that might have been in the area, systematically compare the expectations with the observed archaeological materials, and reject the ones that clearly do not match. One might retain the one with the best fit, or reject it too.

Hoggett and Chorley (1967:22, cited in Magers 1981:218) have described a model as “a simplified structuring of reality which presents significant features or relationships in a generalized form.”

In the instance of the ethnic identity of the creators of the pueblitos, the hypothetical models of construction techniques and architectural features are relatively easy to construct, based upon the patterns established by the proposed source communities for the postulated immigrant populations. As was the case in the previous chapters on oral history and ceramic assemblages, the analysis has been confined to the characteristics of the Towa and Tewa pueblos, as these have been determined to have been the most likely source populations for refugees from the pueblo revolt (Hogan 1991:21). In order to facilitate comparison, the characteristics of the pueblito structures are presented first, followed by those of the Towa and Tewa pueblos, and finally a consideration of some applicable aspects of Navajo architecture and construction. Larger issues of settlement patterns, including religious structures, are reserved for the following chapter.



Kidder's refugee hypothesis specified that the inhabitants and builders of the pueblitos were Puebloan, and that the surrounding hogans were evidence of Navajo occupation at the sites. As alluded to previously, it would be anticipated that the architecture and construction of the pueblitos would be reflective of the ethnic affiliations of their builders, whether they were Towa or Tewa. If, however, the builders were Navajo, it would be anticipated a) that pueblito architecture and construction would be decidedly *non-Puebloan*, and b) that some aspects of Navajo construction and architectural practices would be evident at the sites.

### ***Pueblito Construction and Architecture***

The defensive characteristics of the pueblitos have long been noted. These characteristics are not limited solely to their locations, but also to many defensive architectural details, such as the use of dead ends, serpentine passageways, narrow, often single entries, and the use of log bridges and ladders, which could be pulled up or in by a defending group. The walls of the structures often conform to the shape of the landform on which they occur, such as a promontory or boulder (Powers and Johnson 1987:9), thus denying attackers a "staging area" from which to assault the walls, and effectively raising the height of the boulder or cliff face to be scaled by another three to six meters.

Perimeter walls of the pueblitos were generally constructed first, with the enclosed space then sub-divided. The practice of conforming pueblito walls to the surrounding landforms often yielded irregular rooms with some rounded corners. All of the sandstone slabs used in pueblito construction are wet-laid in varying quantities of adobe mortar. With the exception of Tapacito Ruin (LA 2298), which will be examined separately in another chapter, the masonry consists of unshaped, single courses of sandstone slabs laid parallel to the wall, in which there is minimal overlap of the slabs of one course over the slabs of the course below, a technique which has been termed “columnar masonry” (Powers and Johnson 1987:9). Wall thickness averages approximately 30 centimeters.

After construction, pueblito wall interiors were plastered with adobe, and sometimes smoothed with a tool that left a scored surface, then “whitewashed” (Powers and Johnson 1987:9). The similarity between the scored surface of the interior walls and that of the surfaces of Dinétah Gray ceramics is worthy of note, although whether the same type of tool (corn cob or juniper bark in the case of Dinétah Gray) was employed in the creation of this surface finish remains undetermined.

Pueblito ceilings--and second storey floors in multiple-storey structures—were constructed using the viga-and-latilla construction method common in the American southwest. Large primary beams, or vigas, consisting of pinyon, Ponderosa pine, Douglas fir or juniper trunks

up to 30 cm in diameter were socketed into the walls of the structure, and covered with split juniper or pinion slats and smaller-diameter branches or saplings (the latillas, or secondary beams). In some instances the latillas were covered in turn with a layer of shredded juniper bark covered with adobe, in others the adobe was laid directly over the latillas. In some instances, the spans of the vigas were supported by an additional post in the middle of the room, and the underside of most vigas had been flattened with an adze (Powers and Johnson 1987:9).

Entrance to the pueblitos was by means of ground-level doorways with pinyon or juniper lintels which had frequently been squared by use of an adze. The thresholds, if present, are generally masonry. The sides of the entryways are occasionally rounded by the use of adobe, but more commonly are flanked by masonry pillars which were added after the doorway was completed (Powers and Johnson 1987:10). In some instances a jacal wall protrudes a short distance into the room at one side of the doorway (Powers and Johnson 1987:10). This may be an additional defensive measure, allowing a defender to attack intruders from behind the shelter of the jacal wall (Figure 12.1, LA 5659). Alternatively, such a wall may have served to block the wind.

Access to an upper storey was via a hatchway in the ceiling of the room below, or via a doorway built in to the second storey wall. In the instance of boulder-top pueblitos, access to the boulder-top structure

was in some cases via a hatch in the roof of a room constructed at the base of the boulder (Powers and Johnson 1987:10).

Other architectural features common at pueblitos are the presence of diagonally-oriented shelves in the corners of rooms, constructed of parallel secondary beams socketed into adjoining walls, and holes in the walls originally for pegs to hang objects on (Powers and Johnson 1987:10). “Hooded fireplaces,” or their variants, are encountered at some sites (Figure 12.3). These consist of a curved beam as much as 10 cm in diameter, socketed into adjoining walls at a height of 60-80 cm above the floor, forming a diagonal cross-piece. The upper surface of this cross-piece was fitted with a groove, and the ends of wooden slats were fitted into the groove, with the opposite ends leaning against the corner of the room. This served to channel the smoke from the fireplace up through a hole in the ceiling that served as a chimney. A variant on this pattern consisted of the use of an ungrooved crosspiece, set approximately one meter above the floor (Powers and Johnson 1987:130). Hooded fireplaces are a Spanish phenomenon, and do not appear at pre-contact sites in the southwest (Carlson 1965:103).

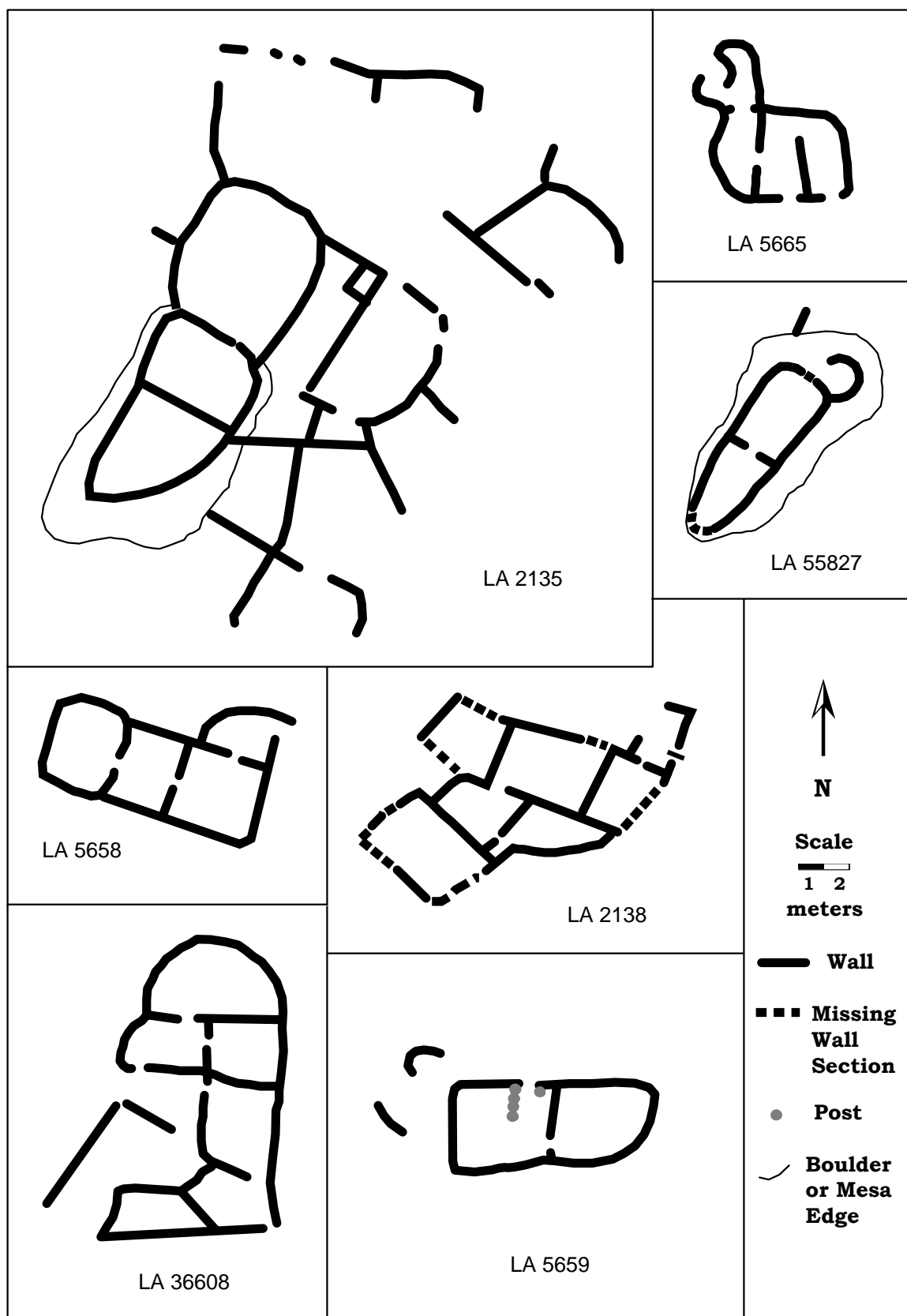


Figure 12.1 Plan views of pueblitos (after Powers and Johnson 1987).

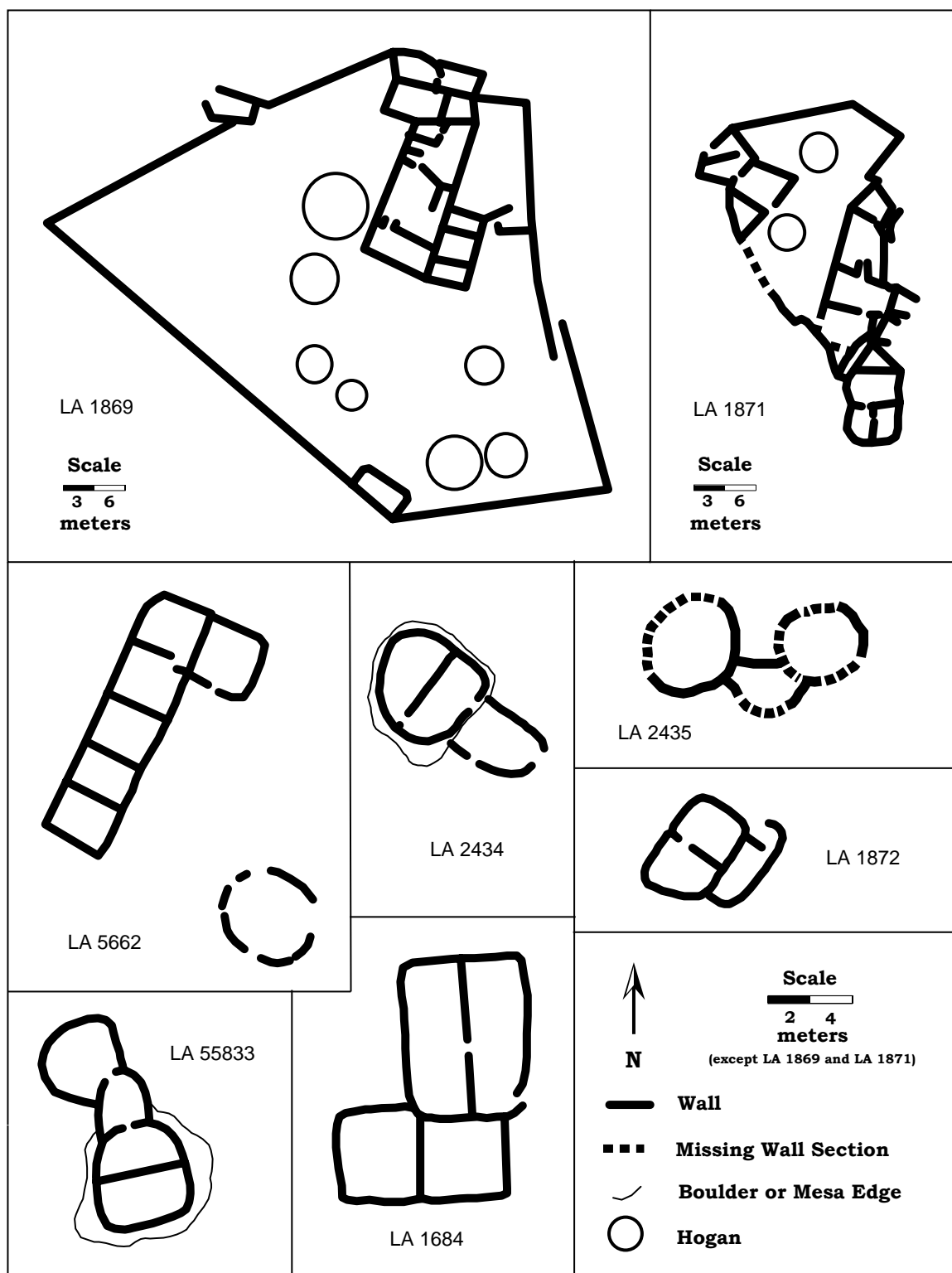


Figure 12.2 Plan views of pueblitos (after Carlson 1965; Powers and Johnson 1987).



Figure 12.3 Hooded fireplace at Frances Canyon Pueblito. Viga-and-latilla roof construction also visible.

So-called “loopholes”—small holes in exterior walls, suitable for viewing attackers or aiming weapons—are also a characteristic of pueblito construction (Powers and Johnson 1987:9), although some care must be taken in interpreting them. In some cases they are clearly deliberately-constructed, but in other cases may be a consequence of the uneven deterioration of the adobe walls (Figure 8.1).

In spite of Powers and Johnson’s (1987:125-127) attempt to create a pueblito typology, there is little consistency, other than those factors noted above, in pueblito architecture and construction, and no “typical”

pueblito floor plan (Figures 12.1 and 12.2) Powers and Johnson had to rely primarily on site location and the presence or absence of hooded fireplaces or modified hooded fireplaces as criteria for their typology. They did observe some variation in room size, but as the smaller rooms were generally located in more constricted sites (promontories and boulder tops) this cannot be considered an entirely independent variable.

### ***Towa Construction and Architecture***

Remarkably little archaeology has been done at Towa sites, in spite of the fact that there are there are more than forty large pueblos exceeding 50 rooms, some of which are considerably larger than Chaco Canyon's Pueblo Bonito (Elliott 1982:13-25; Elliott 1986:175). Enough has been done, however, to provide a general overview of the nature of the architecture and construction techniques employed at these sites. Excavations have been carried out at the sites of Unshagi (LA 123), Nanishagi (LA 541), Giusewa (LA 679), and Amoxiumqua (LA 481) (Reiter 1938; Reiter, Mulloy, and Blumenthal 1940). Although only Giusewa was occupied at the time of the Pueblo Revolt (Elliott 2002:48), Unshagi, a pueblo of some three hundred rooms, was constructed beginning in 1405, and occupied until 1628, and Nanishagi was constructed in the mid-thirteenth century and occupied until the mid-sixteenth century. Amoxiumqua was constructed beginning in 1502 and abandoned before



the beginning of the Pueblo Revolt. It seems likely that little evolution in Towa architectural styles or construction techniques would likely have occurred between the construction of Nanishagi and the construction of revolt-era sites such as Boletsakwa (LA 136) and Astialakwa (LA 1825) (Elliott 1982:11,37; Stallings 1938:99).

The shape of Towa pueblos is prescribed by tradition, and many of the structures conform to this ideal. In some instances tradition necessarily bowed to the demands of topography, as at Unshagi (Reiter 1938:43). The legendary Jemez figure Pest-ya-sode instructed the Towa in the construction of pueblos designed for defense (Reagan 1917:49), as recorded in Jemez oral history:

At this time [the Sun] placed among them a “knowing man” whose name was Pest-ya-sode. Pest-ya-sode defeated the enemies, raised the siege of the cliffs and caves and drove the savages out of the narrow canyons. He trained the people in the arts of war...He then instructed the Indians to build villages in horseshoe shape with continuous outer walls, so that they served both as places of residence and as fortifications. (Reagan 1927:724)

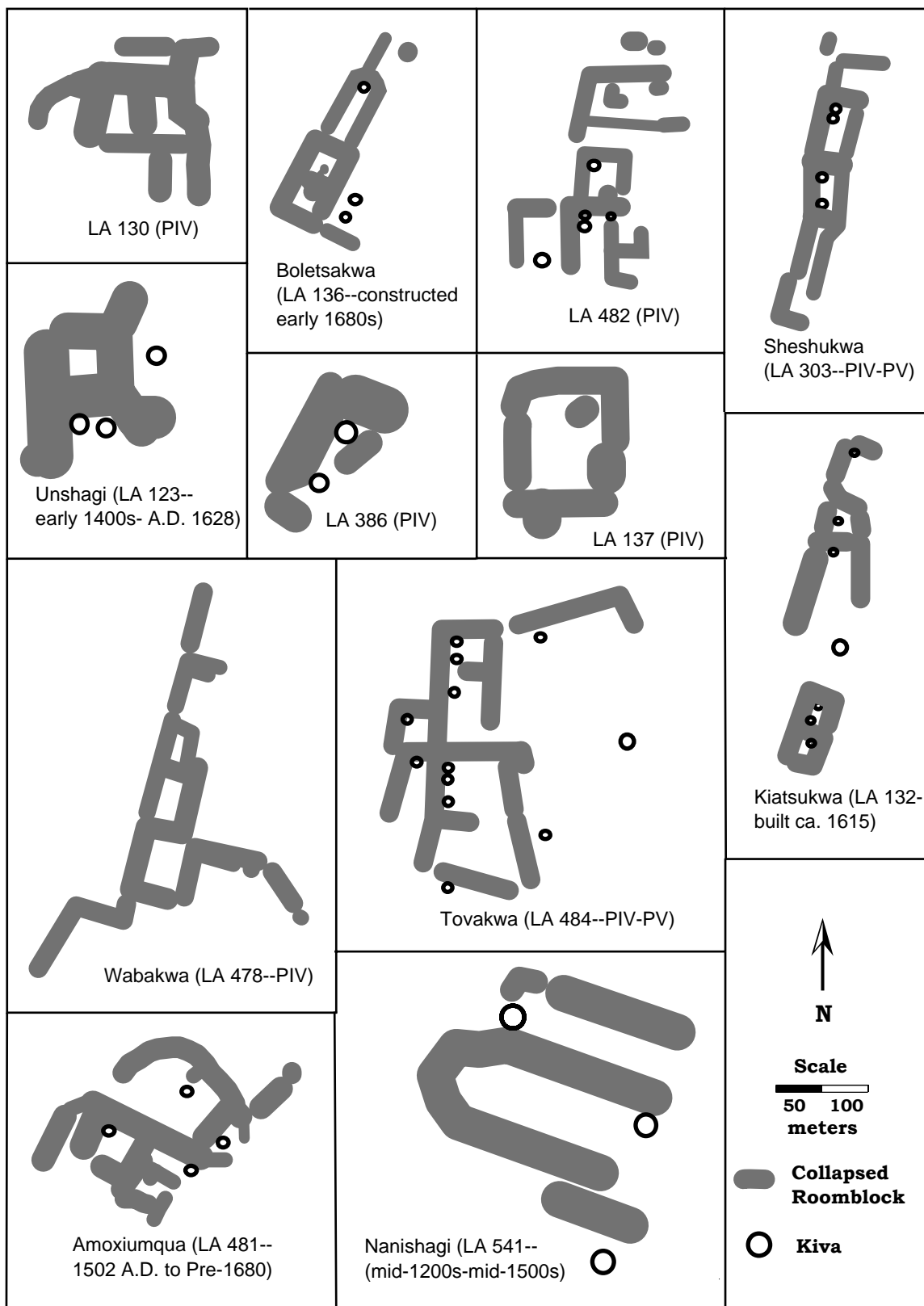
In many instances, the original horseshoe shaped pueblo has grown through accretion, but the repeated shape, with its defensive capabilities, has been retained (Figure 12.4). Walatowa, with three parallel room blocks on either side of open-ended plazas, evinces a departure from this pattern (Simpson 1852:16; Elliott 2002:51).

Walatowa, however, was constructed as a reduction village under the direction of the Spaniards (Sando 1982:74). The Jemez had already proven themselves capable of rising in rebellion in 1623 (Wilcox 2002:174). Therefore, the Spaniards, who may have had considerable influence on the layout of the pueblo, may have had their own reasons for reducing the defensive capabilities of the village.

Towa pueblos were constructed of simple wet-laid masonry, which one excavator has described as “no more than it needed to be” and “mediocre in the extreme” (Reiter 1938:43,47; Reiter, Mulloy, and Blumenthal 1940:6). Walls were a single stone thick, with uncoursed and unmatched stone slabs laid perpendicular to the wall direction. Adobe mortar was used in abundance, with “surprisingly few stones per square yard” (Reiter 1938:45,46; Reiter, Mulloy, and Blumenthal 1940:6). Building stone reflected whatever was locally available, with more than one type employed at some sites. Foundation preparation was rare, and where present were generally 35 cm deep. Wall thickness ranged from 17-35 cm, with the average being 27 cm. Limited interlocking of stone was employed at the intersections of two walls. Very little chinking was used to fill the gaps between stone slabs at Unshagi, but was more common at Nanishagi, where stone slabs occasionally evinced some simple shaping (Reiter 1938:43-47,85; Reiter, Mulloy, and Blumenthal 1940:6). Reiter estimated that Towa masonry was generally insufficient to have supported a three-storey structure,

although at Giusewa, where the masonry was little different, at least portions of the pueblo are known to have contained three storeys (Reiter 1938:72,88). The first coat of plaster on interior walls was often coarse adobe, which was then covered with coats of a smooth, homogenous layer of brown clay or pulverized gypsum (Reiter 1938:59; Reiter, Mulloy and Blumenthal 1940:6).

The exterior walls of the pueblos had few openings, and those few that existed generally faced the plaza (Elliott 1986:17; Reiter 1938:47). The second storey of the structure was set back from the plaza, leaving an open space on the roof of the pueblo (Simpson 1852:16). Access to first-storey rooms was almost exclusively achieved through the roof of the structure, which was in turn reached via ladder (Elliott 1986:17; Reiter 1938:47). Doorways between rooms consisted of two types—low doors approximately 60 cm high, with a few taller doorways slightly more than a meter in height. Both types either had a sill flush with the floor, or one 15-32 cm high and well-polished from use, and both doorway types were generally 42-65 cm wide. The doorways tapered at the top to a lintel composed of a single stone, and were flanked by rounded jambs composed largely of plaster on either side (Reiter 1938:47; Reiter, Mulloy, and Blumenthal 1940:7).



12.4 Pueblo IV and Pueblo V era Towa pueblo layouts (after Elliott 1986).

Many first-floor interior rooms featured a hearth-deflector-bin complex. The hearths were simple, slab-lined, plastered, and roughly rectangular. These hearths often protruded slightly above the floor level, and the floor of the hearth itself was often left unlined. More than half of the hearths encountered at Unshagi had been renovated after construction, generally by raising the floor. In some instances, a double hearth was created by placing two slab-lined hearths immediately adjacent to one another. Hearths were generally located in the middle of the room floor, somewhat off-center toward the deflector (Reiter 1938:48-49, 64; Reiter, Mulloy, and Blumenthal 1940:7).

Rooms with hearths featured a doorway (described above) or a ventilation hole 15-25 cm in diameter. Location of the door or vent varied based on the location of the room in the pueblo, with doorways or vents located in the east wall of rooms on the west side of the pueblo at Unshagi. Deflectors were located between the hearth and a ventilation hole or doorway in the wall of the room, and placed roughly a quarter of the way into the room. The deflectors were created of masonry and adobe, and were roughly 75 cm long, 15-23 cm thick, and 75-90 cm high. The tops of some deflectors at Unshagi were created in a “terraced” form, with three steps at each end of the top, but the one intact deflector at Nanishagi lacked this characteristic (Reiter 1938:56-64; Reiter, Mulloy, and Blumenthal 1940:7) (Figure 12.6.)

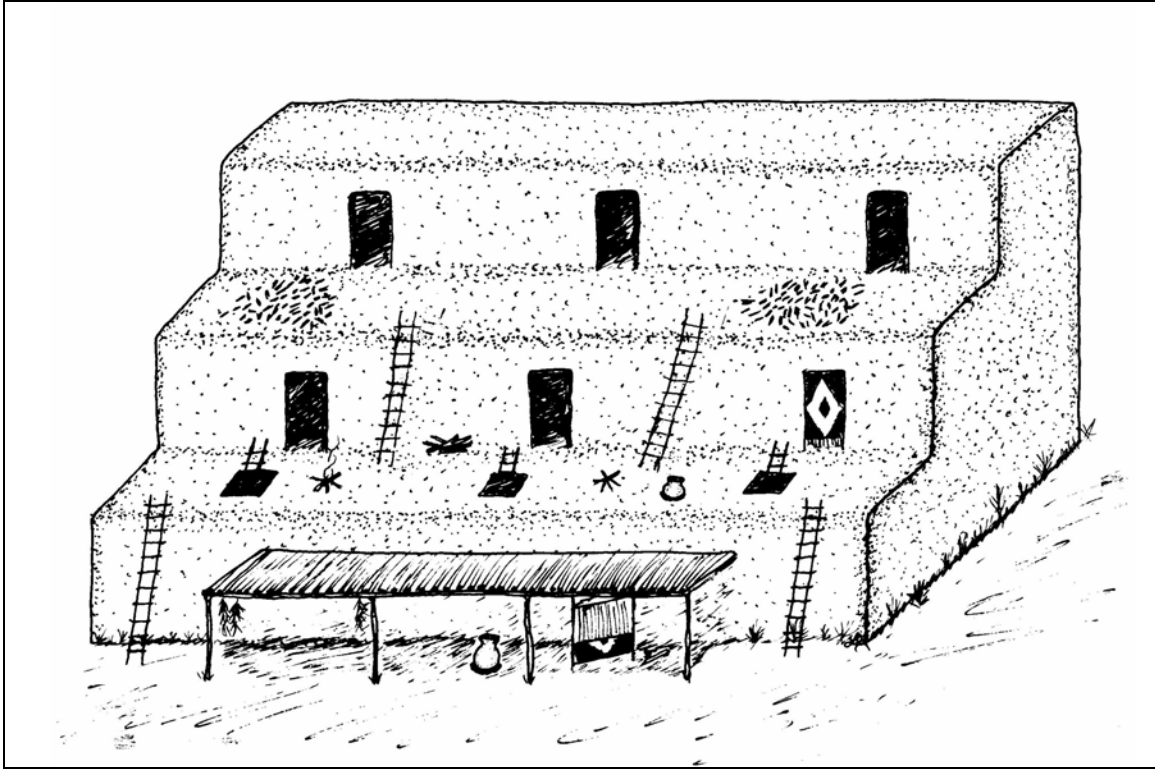


Figure 12.5 Terraced pueblo construction showing setback of upper storeys.

Square or rectangular storage bins of adobe-plastered masonry were commonly located in opposing corners along a single wall in rooms containing hearths, with the deflector located between them. Bin height ranged from 37-162 cm, and the bins may have been used for storing corn. Some of the bins had a limited opening in the side, just large enough to reach into. In some instances a low mortar partition extended from the ends of the deflectors to the corners of the storage bins (Reiter 1938:48-58; Reiter, Mulloy, and Blumenthal 1940:7).

Additional architectural features consisted of plaster pockets, or “crypts” built into the adobe walls—horizontally-oriented oval

depressions roughly the size of a human fist. Subfloor pits also appear to have been employed for storage, some being roughly spherical and excavated into the floor and left unlined, and others containing pottery sherds and likely representing buried storage jars (Reiter 1938:48-52). Rooms with no features were generally located adjacent to the exterior wall of the pueblo (Reiter 1938:64, 92) (Figure 12.6).

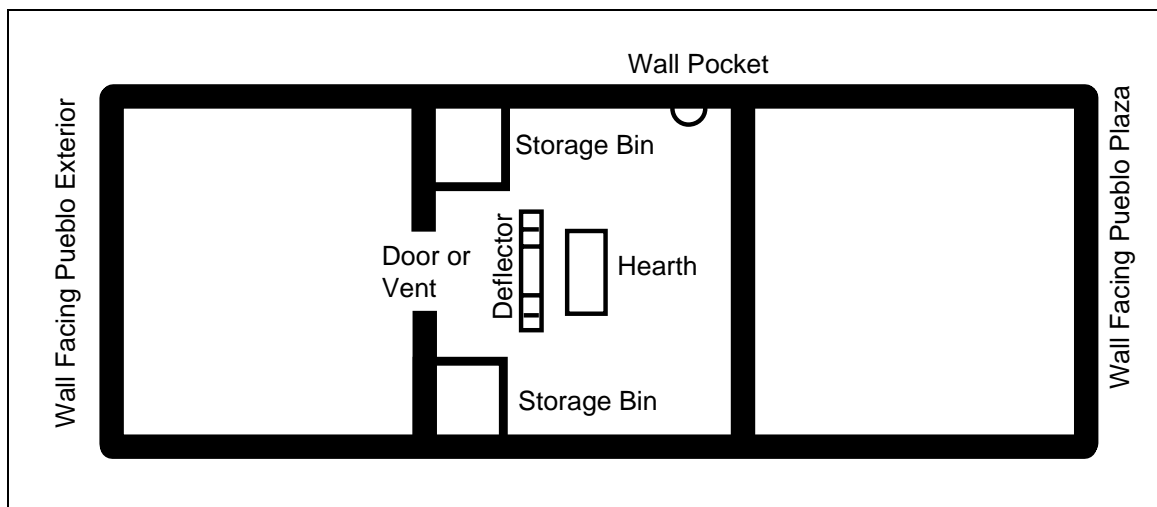


Figure 12.6 Typical ground-floor Towa room suite showing interior features (after Reiter 1938).

Less archaeological work has been conducted at Revolt-era sites, which include Patokwa (LA 96), Boletsakwa (LA 136) and Astialakwa (LA 1825) as well as the reduction villages of Giusewa (LA 679) and Walatowa (modern-day Jemez Pueblo, LA 8860) (Elliott 1982:11). Boletsakwa, constructed in the early 1680s, after the first Pueblo Revolt but prior to the reconquest, consists of two large, twin-plaza pueblos totaling some 650 rooms; it is located next to a series of considerably reduced mounds

from an earlier pueblo which dates from approximately 1250-1400 (Elliott 1982:13; Elliott 2002:53). Patokwa, constructed in the late 1600s, appears to have originally reached two or three storeys in some areas, contained 600 rooms, and was ultimately abandoned in 1693 or 1694 in favor of Astialakwa (Elliott 2002:50-58; Reagan 1917:31).

Astialakwa, located on a high, narrow mesa top above the bench upon which Patokwa is situated, was also constructed in the 1680s, and consists of a number of haphazardly-arranged room blocks of 1-10 rooms, with a total of some 170 rooms and no enclosed plazas (identification of other unenclosed plazas is difficult, but they may have numbered five or six). Defensive walls are present around the perimeter of the mesa, and a number of supposed “tipi rings” are located to the north of the structures (Elliott 1982:39; Elliott 2002:52; Dougherty 1980:17; Hendricks 2002:190). This apparent departure from the normal Towa pattern may be accounted for by the presence of defenders from Walatowa, Giusewa, Santo Domingo, Zuni, Acoma, and the Navajo (Dougherty 1980:3) being present at the site. The abundance of small room blocks may represent buildings constructed by members of different ethnic groups. The supposed “tipi rings” may in fact be “hogan rings” of stone slabs set to help anchor the bases of the hogan poles, a common Navajo practice (Hogan 1992:4; Jett and Spencer 1981:60) (Figure 8.8).



### ***Tewa Construction and Architecture***

Even less archaeological work has been carried out in the Tewa region than in the Towa. The primary source of information on Tewa construction techniques comes from the pueblo of Yungue Yungue, or San Gabriel, a Tewa pueblo occupied at the time of the Spanish entrada. The Tewa abandoned it for Spanish use, and constructed the still-occupied pueblo of San Juan nearby (Ellis 1987).

In 1610 Yungue consisted of a single rectangular plaza surrounded on all sides by pueblo structures, with an entrance to the plaza at each corner. Ruined structures described by Bandelier likewise consisted of a quadrangle surrounding a plaza, and in some instances one or more adjacent, partially-enclosed plazas (Bandelier 1892:38). Villages ancestral to the modern pueblo of Nambe were generally horseshoe-shaped in plan, with the plaza usually open to the south (Ellis 1964:40-41).

The structures were terraced, with the upper storey set back some distance from the plaza, with a sheer wall facing the exterior of the pueblo. The roofs were flat, and the roof of the floor below served as living and working space (Ellis 1987:20; Riley 1987:188). This terracing may have reflected Tewa understanding of the vertical division of the universe into three superimposed levels, consisting of “the below,” “the middle” and “the above” (Ortiz 1969:23), just as the horizontal

component of the village organization represented the horizontal conception of the universe (Ortiz 1969:18-24). Thus, the plaza (and possibly the kiva) would correspond to “the below,” the first storey to “the middle,” and the second storey and roof of the first as “the above.”

Walls were constructed out of adobe, which was patted into place in courses (Bandelier 1892:39-42; Ellis 1964:40; Ellis 1987:23-24; Riley 1987:235). The initial course of adobe was generally laid right on the soil surface, with no foundation, although some later rooms used a course of rock slabs or cobbles as a foundation (Ellis 1987:23-24). Ellis describes the walls at Oya’widi as composed of smooth river stones and adobe (Ellis 1964:40), but it is impossible to tell from this description whether she meant cobbles held together with adobe, or, more likely, the same type of cobble foundation beneath adobe walls as seen at Yungue Yungue.

Pueblo house blocks were constructed in large units, with the major parallel exterior rooms built first, then cross-walls installed, although a family might append a few rooms to the end of an existing structure if needed (Ellis 1987:20-21). Rooms were extremely small, generally 2.4-2.8 meters square (Goodman 1987:92). The pueblo was generally three rooms deep on the first floor, and entrance to ground-floor rooms and to the upper storeys was via ladder to the roof, as floor level doorways and windows were virtually absent (Ellis 1987:20-21) and were “considered dangerous even into the historic period” (Ellis 1987:24).

Some doorways existed between interior rooms, and if the entire plaza was walled in, a few might open into the plaza itself. Even most lower interior rooms were not connected by doorways, however, but were accessed individually via roof hatches (Ellis 1987:24). Bandelier reports that the few doorways present were narrow and tapered toward the top (Bandelier 1892:44).

In large pueblos, ground-floor rooms were used almost exclusively for storage, and second-storey rooms were used as living space. In some instances, the ground-floor room closest to the plaza may have been used for cooking in inclement weather (Ellis 1987:20-21; Riley 1987:188). Interior hearths consisted of a rectangular pit cut into the floor, generally oriented toward the eastern wall. Both the floor and the pit were plastered with adobe. An opening in the roof above the hearth served to vent the smoke, and also as a means of entrance and egress. In favorable weather a hearth located on the open roof of the pueblo served for cooking (Ellis 1987:23-24).

### ***Navajo Construction and Architecture***

Superficially there is little similarity between the traditional Navajo forked-pole hogan and the construction of pueblitos. Some elements of architecture and construction technique, however, are comparable.

The first consideration is means of entrance/egress from the structure. Navajo hogans are entered through the side of the structure (Jett and Spencer 1981:17-18, 60-61; Mindeleff 1898:492). This may seem quite obvious to a Euro-American archaeologist, but represents a marked departure from the Puebloan norm. From Basketmaker times onward, Puebloans have entered and exited their pithouses, kivas, and pueblo structures primarily via a hatch from above (Plog 1997:58-60, 78), a practice which may conceptually represent emergence from the previous world into this one.

Additional details of Navajo entrance construction are worthy of note: the use of trimmed logs for door lintels, and the occasional use of flat stone slabs as door sills, in contrast to the raised thresholds found in Puebloan doors (Jett and Spencer 1981:18; Keur 1941:31). Piles of stone often form “piers” on either side of hogan doorways, and symbolized that the hogan, and the songs used in its creation, would endure forever (Jett and Spencer 1981:60; Keur 1941:19-22). The extended doorways of Navajo hogans form a type of low, short passageway that then provided access into the main body of the structure (Jett and Spencer 1981:60-61).

The Navajo used pegs or projecting limb stubs on the interior of hogans for storage of objects around hogan walls (Jett and Spencer 1981:24), a pattern also seen in the pueblitos (Powers and Johnson 1987:10). As previously noted, the hooded fireplaces encountered at

some pueblitos are an Iberian-introduced phenomenon, and little excavation has been carried out of pueblito floors to determine the nature of hearths—if any—at the sites. However, if the charcoal concentration recorded at 42 Pueblito by the 2002 survey team does represent a hearth—and the unburned condition of the hammerstone found in the charcoal concentration suggests that the charcoal concentration is not the result of recent vandalism—then the hearth at that site may have been the same type of shallow, informal, basin-shaped structure found in many hogans (Hester 1962:47; Jett and Spencer 1981:19).

The apparent difference between hogan roof construction and the construction techniques employed at pueblito sites, however, may not be as great a conceptual leap as would first appear. Although the use of viga-and-latilla construction has been employed by Puebloan groups for centuries (Creamer 1993:18-20; Fewkes 1909:17; Fewkes 1911:35-36; Lekson 1986:30-31), the method of construction of a forked-pole hogan is not markedly different. The foundation of heavy, unsplit poles, covered with smaller poles and split slats, and the whole covered with juniper bark, brush and twigs, and then plastered with mud (Jett and Spencer 1981:15-16, 59-62) bears remarkable similarity to the viga-and-latilla construction technique, with the only major differences being the horizontal, versus diagonal, orientation of the roof and the orientation of

slats crosswise, rather than roughly parallel, to the main poles (Figure 12.7).

It should also be noted that the Navajo have long built stone-walled hogans of piled sandstone slabs, surmounted with a traditional forked-pole, or later, a cribbed-log hogan placed over the stone foundation. This is a relatively late phenomenon, however, and one attributed to the influence of Puebloan “refugees” (Jett and Spencer 1981:99). As no instances of stone-walled hogans which clearly predate the Pueblo Revolt were encountered in the literature, to avoid a circular argument, the masonry of these hogans was excluded from consideration. Further dating of stone-walled hogans may reveal some that pre-date the Pueblo Revolt, and which would further contribute to an understanding of the pueblito question.

A well-known aspect of Navajo architecture, the prescription for hogan doorways to face east-ward, toward the rays of the rising sun (Jett & Spencer 1981:17-18; Mindeleff 1898:490), was not given consideration in determination of the ethnic identity of the pueblito builders. The reasons for this were three-fold: first, the orientation of Puebloan doorways is variable, generally toward the center of a plaza, which may also entail an eastward orientation, depending on the overall pueblo layout. Second, pueblito doorway orientation is generally—and often necessarily--determined by the topography upon which the pueblitos are constructed. Third, the eastward orientation of Navajo structures applies

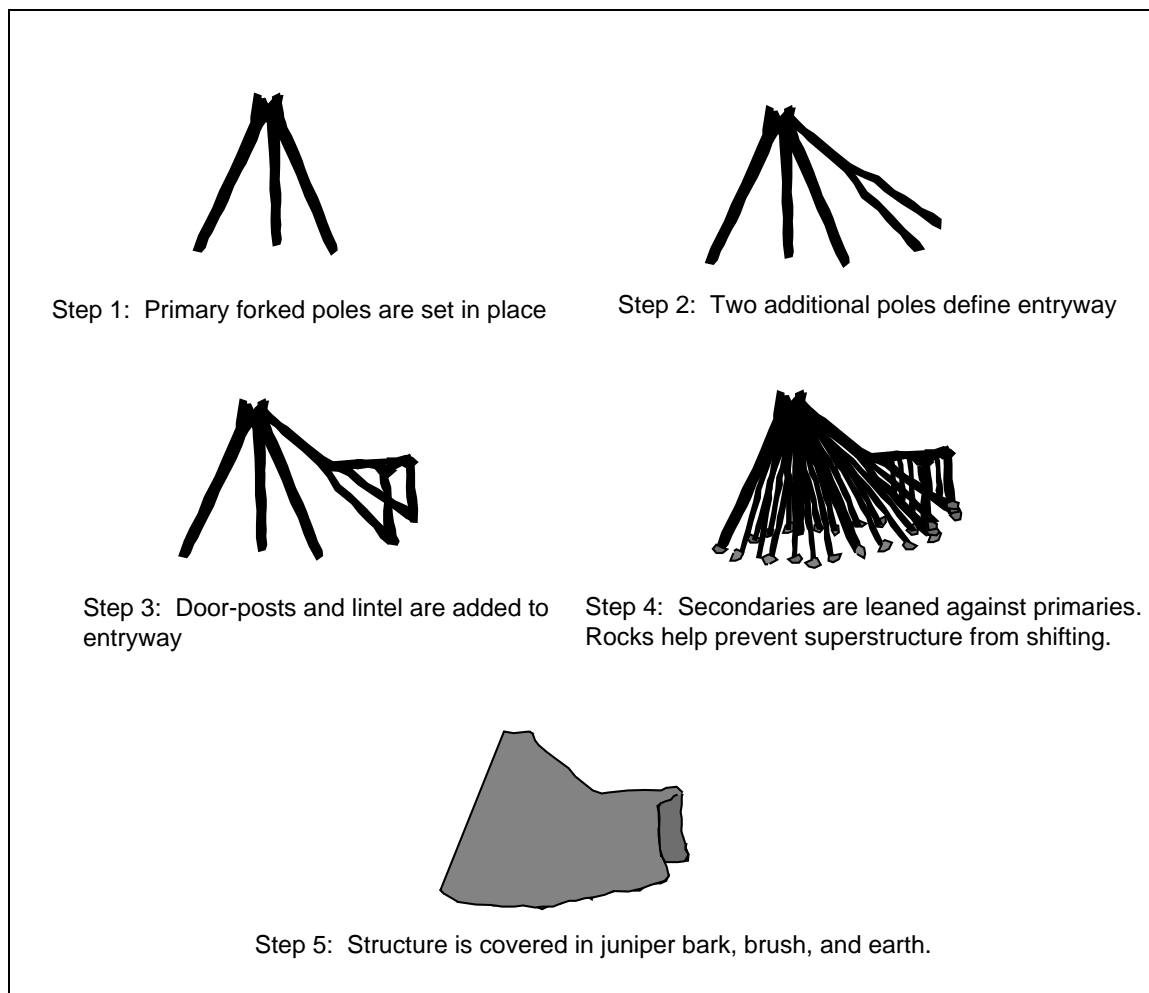


Figure 12.7 Hogan construction sequence.

only to dwellings, and there is little evidence that many of the pueblitos was ever used for residential purposes. Therefore, orientation of pueblito doorways was determined not to be a reliable indicator of the ethnic identity of their builders.

### ***Comparison Against the Model***

Rather than reiterate the elements of the above models, they are presented below in table form, in order to facilitate comparison of the various elements of pueblito construction with those of the various other potential source populations for the pueblitos builders (Table 12.1)

**Table 12.1 Comparison of Architectural Features.** Italics indicate features most consistent with those found at pueblitos

<b>Construction/ Architectural Element</b>	<b>Pueblitos</b>	<b>Towa Pueblos</b>	<b>Tewa Pueblos</b>	<b>Navajo Hogans</b>
Floor Plan	No pattern	Horseshoe shaped or repeated horseshoe elements	Enclosed or partially-enclosed quadrangles or horseshoe-shaped	Circular walls, extended doorway, hearth off center toward doorway
Room Shape	Inconsistent, rounded corners common	Regular, square or rectangular	Regular, square or rectangular	Circular
Wall Construction	Unshaped sandstone slabs set in varying amounts of adobe masonry. Slabs oriented lengthwise to the wall.	<i>Largely unshaped stone slabs set in large quantities of mortar.</i> Slabs oriented crosswise to the wall.	Adobe	Not applicable (slanted roof also forms walls).
Setback or Terracing of Upper Storeys	Absent	Present	Present	Not applicable
Interior Wall Finish	Plastered with adobe, then "whitewashed"	Plastered with adobe, then fine layer of clay	Adobe	Plastered with mud or adobe



Roof Construction	Viga-and-latilla	Unspecified, presumably viga-and-latilla	Unspecified, presumably viga-and-latilla	Post and slat, covered with mud or adobe
Access and Egress	<i>Ground-level exterior doorways, hatches or doorways to second storey</i>	Few or no ground-level exterior doorways, doorways to second story, hatches to first storey	Few or no ground-level exterior doorways, doorways to second story, hatches to first storey	<i>Ground-level exterior doorway</i>
Doorways	Tall, rectangular, with wooden lintels. Piles of stone on either side of door, installed after wall completed. Rarely rounded with plaster.	Short, tapered toward top, with stone lintels. Door jambs rounded with plaster.	Narrow, tapered toward top.	<i>Tall, rectangular, with wooden lintels. Piles of stone on either side of door.</i>
Doorway Frequency	Common	Rare.	Rare.	<i>Ubiquitous.</i>
Thresholds	Low, sometimes a sandstone slab present.	High, plastered over.	Unknown.	<i>Low, sometimes a sandstone slab present.</i>
Entrance Passageway	At some sites	Absent	Absent	<i>Common</i>
Hearths	Hooded, hooded variant, possibly informal on floor. Smoke vented through chimney (possibly through hole in roof for informal hearths).	Plastered, slab-lined rectangular pit excavated into floor. Smoke vented through entrance hatch.	Plastered rectangular pit excavated into floor. Smoke vented through entrance hatch.	<i>Informal, shallow, basin-shaped. Smoke vented through smoke hole.</i>

Deflector	None noted	Masonry plastered with adobe, often terraced top	Unknown	<i>Rare.</i> If present, a single sandstone slab set upright
Shelves	Parallel logs placed diagonally across corners of rooms	Unknown	Unknown	Sometimes a low, unexcavated platform around perimeter of hogan
Storage Bins	At two sites only.	Common	Unknown	Slab-lined bin in floor (uncommon)
Wall features	Pegs in walls for hanging, "loopholes" in exterior walls.	Plaster "crypts" or pockets	Unknown	<i>Pegs or branch stubs for hanging</i>

Clearly, all architectural and construction features cannot be considered equally, and the most important factors must be construction techniques and, given the clearly defensive nature of the pueblitos, those architectural features contributing to defense. These include overall floor plan, terracing, doorways or the absence thereof, and entryways.

The presence of masonry architecture at pueblito sites has long been considered significant evidence of Puebloan construction. As Hogan (1991:7) has observed, however, "There are numerous examples of prehistoric Puebloan architecture in the Navajo territory that could have served as models for the pueblitos." Indeed, the closely-spaced sandstone slabs found at pueblito sites are somewhat more reminiscent of the masonry at sites such as Chaco Canyon, Aztec Ruin, and Salmon Ruin, than it is of the more "expedient masonry" (Elliott 1986:17) found

at Towa sites. The core-and-veneer masonry at the Chacoan sites is considerably more massive (but see the discussion of masonry in Chapter 14 in this volume). If firmly-dated pre-Revolt stone-walled hogans are found, it would establish the antiquity of Navajo use of masonry techniques, and provide the basis for the comparison of those techniques to those used in the construction of the pueblitos.

The Tewa did not employ masonry, but rather built their pueblos of adobe. This practice could conceivably have had to be abandoned in favor of the use of masonry upon moving to an area of higher rainfall due to rapid wall deterioration from higher precipitation. This could not have been the case for postulated Puebloan immigrants from the Tewa area retreating to the Dinétah area, however, as the annual precipitation in the Rio Grande Valley (20-50 cm, average 35 cm at Santa Fe) is higher than that in the Dinétah region (16-35 cm, average c. 25 cm at Farmington) (Phillips 1998:398), and therefore adobe construction would have lasted longer in Dinétah.

A consideration of the floor plans of pueblitos and Towa and Tewa pueblos is also vital. Towa and Tewa pueblos were built around enclosed or partially-enclosed plazas (Figure 12.5) so that any attacker entering the plaza would be virtually surrounded by defenders. The outward-facing walls of the pueblo were massive, doorless and windowless, providing no means of access to an attacking group. Likewise, the plaza-side walls also had few or no openings, and defenders who retreated to

the rooftops and drew up the access ladders effectively prevented attackers from gaining a foothold in the pueblo. The entire pueblo became, effectively, a fortress.

The defensive architecture at pueblitos is quite different, eschewing the avoidance of ground-level entrances, and instead using such entrances as a means of defense, with the use of long, easily-defended entrance passages, often with a jacal or stone projection inside the doorway which allowed the defenders to attack intruders from a position of relative safety (Figures 12.1 and 12.2). These extended passageways are reminiscent of those found on many hogans. The doorways, with their wooden lintels, low thresholds, and flanking piers of stone all bear considerable similarity to equivalent structures in Navajo hogans. It is worth noting that, had the pueblito builders come from a Towa or Tewa architectural background, and—inexplicably—opted to construct their new defensive structures with the more vulnerable ground-level doorways, they would likely have built them with the same very low lintels and high thresholds evident in their original pueblos. The necessity of an attacker negotiating a narrow doorway in a crouched position, over a raised threshold, would have conferred considerable advantage to the defenders inside. The importance that Puebloan defenders placed on the absence of ground-floor doors and windows is illustrated by the remodeling conducted on the “Casa Reales” (Governor’s House) in Santa Fe after it was taken over in the successful revolt of

1680. Doors and windows were sealed and replaced by roof hatches accessed by ladders. Rooms were subdivided, and the structure was effectively turned into a walled and fortified Puebloan village (Preucel 2002:16).

The lack of terracing or setbacks at the pueblitos is likewise notable. As previously discussed, this terracing may be indicative of the cosmological understanding of the pueblo inhabitants, and would not have been abandoned lightly.

In light of the above considerations, Carlson's (1965:103) assertion requires re-examination:

[Pueblito] construction techniques, roofing of vigas and wooden slabs, cribbed log roofs, bins, loopholes, wooden lintels, rectangular rooms, notched log ladders, hatchways and stone towers are generically Puebloan. What are decidedly non-Puebloan are the random arrangement of rooms and the entrance passageways into many rooms. The random arrangement may be explained as the result of growth at larger structures by accretion and the passageways as defensive in nature.

As previously discussed, the difference between the viga-and-latilla construction of pueblito roofs and the post-and-leaner construction of Navajo hogans is not a large conceptual or technological leap. No "cribbed log roofs" have been reported at any known pueblito site. Large masonry bins have been recorded at only two sites, Three Corn Ruin (LA

1871) and Frances Canyon Ruin (LA 2135) (Powers and Johnson 1987:18; Ron Towner, personal communication 2004). Wooden lintels, rather than being typical of the Rio Grande Puebloans, are rather typically Navajo. No mention of the presence of “loopholes” has been made at Towa or Tewa pueblos. Pueblito rooms are generally better described as sub-rectangular than rectangular, and in some cases are not even that (Figures 12.1 and 12.2).

In the eighteenth century (admittedly, post-Revolt) stone towers were not unknown among the Navajo, as Ungarte y Loyola reports the Navajo building “ten rock towers within their encampment” (Farmer 1942:70). It should also be noted that although many pueblos have grown by accretion—Carlson’s justification for the irregular layout of the pueblitos—the regular pueblo layout is still followed, and rooms are appended to the ends of extant wings (Ellis 1987:20; Reiter 1938:43). Thus, the majority of Carlson’s “generically Puebloan” traits are either rare, absent, or are attributable to Navajo construction.

In sum, the masonry techniques which formed the basis for the hypothesis that the pueblitos were of Puebloan construction, are in fact unlike those practiced by contemporary Puebloan groups. The absence of setbacks, and the presence of ground-floor exterior entryways is contrary to Puebloan defensive and architectural practices, and the construction and form of the doorways have more in common with those found on Navajo hogans than at pueblo sites. Other, more minor

architectural details such as hearths and storage (or the lack thereof), etc., likewise point to Navajo construction of these sites.

Given the results of the above comparison of architectural traits and construction techniques, it appears improbable that the builders of the pueblitos hailed from either the Towa or Tewa pueblos, and highly unlikely that they were Puebloan at all. The greater likelihood is that they were Navajo, drawing on their own architectural and technological heritage, and applying to it their own knowledge—based on their own tribal experiences mounting raids on Puebloan villages—of the efficacy of masonry fortifications against the attacks of mounted raiders.

### 13 Community Organization and Settlement Patterns

The paucity of archaeological research that has been conducted at late seventeenth- and early eighteenth-century Towa and Tewa pueblos places serious constraints on the ability to analyze the ethnicity of the pueblito builders through settlement studies. Through the work of Marshall (1991, 1995) and the 2002 surveys, data are available for the pueblito complexes, and information on Navajo community organization in the Dinétah and succeeding Gobernador phases has likewise accumulated (see Brown 1996; Dykeman 2003; Gerow and Hogan 2000; Hester 1962; Hogan 1992; Jett and Spencer 1981; Magers 1981; Sesler, Hovezak and Wilshusen 2000). Unfortunately, little comparable information is available for the Towa and Tewa, which would facilitate comparisons. Consequently, the consideration of community organization must be confined to two particular areas: population density as a defensive measure and reflection of social values, and the presence and types of religious or ceremonial structures at the sites. Fortunately, due to the considerable divergence in practice between the Navajo and the Puebloans as concerns these two factors, in spite of the paucity of data, these two areas are powerful predictors of the ethnic identity of the pueblito inhabitants.

If, as Kidder (1920) intimated, the pueblitos were built by Puebloans, it would be anticipated that they would follow a typical



Puebloan settlement pattern, which includes population aggregation, both as a function of social structure and as a defensive measure. Additionally, because much of the impetus for the 1680 revolt was religious, and because of the prime importance of religious ceremonies as both a protective and an incorporative force in Puebloan society, it would be expected that Puebloan religious structures, particularly kivas, would form a significant part of the settlement pattern. Conversely, if the pueblitos were constructed by the Navajo as a defensive measure, it would be expected that they would continue the dispersed settlement and defensive patterns that had been successful for the Navajo against their enemies in the past. Likewise, it would be anticipated that Navajo religious structures, particularly the frequently-employed sweatlodges, would form part of the settlement pattern. If the pueblitos proper had been built by Pueblos, living in the midst of Navajo communities, then one would expect to find large populations of Pueblos aggregated at the pueblito sites, with kivas nearby, surrounded by more dispersed Navajo residence groups making use of scattered sweatlodges.

### ***Population Density and Defense***

Pueblitos are presumed to be defensive structures for a number of reasons: a) their appearance at a time when the inhabitants of Dinétah were under threat of Spanish, and later Ute, attack, and the cessation of

their construction appears to be roughly coincident with the removal of that threat, b) the architecture of the structures appears to be defensive in nature, and c) there is little evidence that these structures were used either for habitations or as storage facilities.

The tendency of the Navajo to live widely dispersed over the landscape may have originally been a functional necessity of hunter-gatherer groups, but this characteristic is one that has continued into the modern period. As Jett and Spencer (1981:231) have observed:

Most remaining core characteristics that are of northern Athapaskan origin are—besides the Navajo language—in the realms of architecture and settlement. These realms reflect not only the means of livelihood of the people but also, importantly, their social values. Individualism, autonomy, and privacy are valued, but so are helpfulness and cooperation. Social interaction, especially along homestead group and clan lines, is highly valued.

If this dispersed settlement pattern were merely a functional necessity among the Navajo, and not a reflection of their social values, then it would be expected that the adoption of agriculture, and a subsistence base more closely resembling that of the prehistoric and proto-historic Puebloans, would also tend toward a greater density of settlement, such as that found among the Puebloans. It did not.

This dispersion also served the Navajo in times of conflict, as it fulfilled a dual function: to lower the profile of Navajo settlements,

making them harder to locate, and to allow for rapid retreat from approaching enemies. Magers (1981:225) remarked that:

Traditional Navajo defensive tactics consisted largely of moving people and stock to inaccessible places of refuge...Elements important to Navajo defensive strategy, which would have affected settlement patterns for the earlier periods, included need for camouflage, compactness, seclusion, a commanding view, and access to places of refuge.

Cosmos Mindeleff (1898:483-484) observed that:

Each hogan stands by itself, and it is usually hidden away so effectually that the traveler who is not familiar with the customs of the people might journey for days and not see half a dozen of them...So prevalent is this custom of placing the houses in out-of-the-way places that the casual traveler receives the impression that the region over which he has passed is practically uninhabited...Probably this custom of half-concealed habitations is a survival from the time when the Navaho were warriors and plunderers, and lived in momentary expectation of reprisals on the part of their victims.

Likewise, the Puebloan tendency toward aggregation into large, multi-family structures has both social and defensive rationales. The division of western pueblos into two distinct moieties and numerous societies, each with specific ritual responsibilities, results in a large

manpower requirement in order to fill the various offices. For instance, among the Tewa, fifty-two adults (37 men and 15 women) are needed to fill the various ritual offices, each of whom fulfills a critical role in the performance of ceremonies that ensure the continuance of seasonal cycles (Ortiz 1969:81-82, 98). Historically, when the populations of various pueblos have dropped too low to provide for the performance of these rituals, their inhabitants have migrated to other pueblos, as was the case with Jacona and Cuyamunge in the wake of the Spanish Reconquest, and with Pecos in 1838 (Barrett 2002:111; Plog 1997:196).

The large numbers of people necessary for the maintenance of the cosmological order also provides a large number of defenders when a pueblo came under attack. The structures described in Chapter 12, although formidable, are not inherently impregnable. When manned by a large number of resident defenders, who by virtue of the architecture were placed in an elevated and strategically superior position, however, they became a significant military fortification.

This contrast in settlement patterns as related to defense is a significant factor in examining the ethnic origins of the pueblito builders. Palluche Canyon provides an excellent example of the kind of close proximity found with many pueblitos—the canyon and flanking mesas contain no less than six pueblitos: Pork Chop Pass (LA 5661), Compressor Station Ruin (LA 5658), and Twine House (LA 127737), in addition to 42 Pueblito, the Overlook Site, and Foothold Ruin, for a total

of 19-20 rooms, all of which were occupied between the late 1720s and early 1740s (Towner et al. 2001:83-84).

Were these various pueblitos in fact built by Puebloans, it would be expected that the inhabitants of the sundry small immigrant communities would have banded together, both for ceremonial and defensive reasons, rather than remaining dispersed upon the landscape. Conversely, however, this type of dispersed settlement pattern is precisely what would be expected if the builders were Navajo, with one or perhaps two pueblitos serving as defensive retreats for a given residence group.

### ***Ceremonial Structures***

The Navajo construct a variety of religious or ceremonial structures, among which are hogans, sweatlodges, shrines, large windbreaks, and dance grounds (Jett and Spencer 1981:35,111,193,197,198). Of these, the most archaeologically recognizable are the hogans and sweatlodges. Although their primary use is as a residence, hogans are also considered necessary for certain critical rituals, and a specific type of hogan was constructed for the Mountaintop Way ceremony (Jett and Spencer 1981:59, 111). Sweatlodges are recognizable by their associated discard piles, even after the structure itself has disintegrated. The exception is a sweatlodge

constructed for the Nightway ceremony, which must be completely dismantled and all evidence of its existence obliterated after the ceremony (Jett and Spencer 1981:197). Although Reagan (1917:42) mentions limited use of sweat baths among the Jemez, Jett and Spencer indicate that Puebloans do not make use of sweatlodges (1981:197).

Among the Puebloans, the most significant, and most archaeologically recognizable, ceremonial structure is the kiva (Hegmon 1989:10), which serves as the locus for many of the critical ceremonies alluded to above. She has remarked (Hegmon 1989:10):

Kivas and at least some plazas have a strong symbolic component, serving to affirm pueblo world view and traditional links with the past. They symbolize in a number of ways the origin myth of people's emergence from a lower world.

Of the twelve total pueblito complexes surveyed by Marshall (1991, 1995) and the 2002 Palluche Canyon team, 75 percent feature sweatlodges, often more than one. Only the Hooded Fireplace (LA 5662), Simon Canyon (LA 5047) and 42 Pueblito complexes do not (Marshall 1991:36, 132). By contrast, “notable...is the lack of anything that might be identified as a kiva” (Brugge 1968:17) at pueblitos. “Not a single kiva has been identified at a pueblito site, with the possible exception of a depression at Tapacito Ruin” (Towner 1992:55). Marshall describes the

feature at Tapacito Ruin as a “large but shallow depression...(with) a few unburned sandstone blocks scattered along the west side,” and suggests that it may represent a “borrow pit or subterranean pit structure” (Marshall 1991:95). Another possibility, unaddressed by Marshall, is that it may represent a slickrock tinaja, providing a source of drinking water to the inhabitants. Two such similar tinajas, totaling a capacity of several hundred gallons, are located approximately 150 meters west of the pueblito (Marshall 1991:94). Being located at the base of a cliff, this depression has filled in more rapidly than the tinajas to the west. Significant indications that this structure may *not* represent a kiva are its size, shape and presumed depth—it is oval, not circular, approximately eight meters by six, with its long axis located roughly east-west.

Two pithouse-like depressions recorded at Old Fort (LA 1869) by Powers and Johnson as Anasazi sites later proved to be depressions from Earl Morris’s 1915 excavations at the site (Towner and Johnson 1998:36).

If the pueblitos were of Puebloan construction, it is highly unlikely that kivas would be absent. Mobley-Tanaka (2002:79) has observed that:

Despite the fact that starvation and epidemic disease, both brought on by the Spaniards, had decimated the Rio Grande in the years immediately preceding the Pueblo Revolt, the cause of the

Revolt repeatedly stated by Pueblo captives questioned by the Spanish was religious oppression.

“Beginning in the 1650s, the missionaries began to forcibly eliminate the native religion” (Goodman 1987:89), burning sacred masks, prayer sticks, katsina dolls, dance head-dresses and other sacred objects, destroying kivas and brutally punishing native religious leaders (Dozier 1966:7; Mobley-Tanaka 2002:78; Preucel 2002:4). Given the lengths and risks that the Puebloans went to in order to evict the Spaniards from the American southwest and to protect these important rituals and artifacts, it would seem starkly inconceivable that they would promptly turn around and abandon the construction and use of their most important ritual structures in the wake of such sacrifices.

Although no excavations have been carried out at Black Mesa, where at least a thousand Tewa defenders took refuge from the Spaniards, surveys of the mesa-top refuges employed by the Towa have revealed that all of the sites, with the exception of Astialakwa, contain kivas (Elliott 2002:49-53). The absence of kivas at Astialakwa may be accounted for in two ways. First, Astialakwa was occupied for only a brief period. Elliott (2002:56) indicates that the majority of the Towa moved from Walatowa to Patokwa and Boletsakwa after the 1680 Revolt, and only after Vargas’s arrival in the southwest was Patokwa abandoned in favor of Astialakwa. (Walter [1921:19] gives the date of the occupation of Astialakwa as 1688.) Astialakwa, located on the mesa top, is in an



area with little soil depth, and subterranean kivas would, of necessity, have had to have been excavated into bedrock. Such excavation is not unknown. At the Keresan refuge site of Kotyiti (LA 295) on Horn Mesa, not far from the Jemez sites, two 8-10 meter diameter kivas were excavated into bedrock to a depth of approximately two meters, and lined with coursed cobble masonry (Dougherty 1980:43). Kotyiti was established in 1683 in anticipation of an attempted Spanish reconquest by Indians from Cochiti, San Felipe, and San Marcos (Capone and Preucel 2002:99-100). At Astialakwa, with its shorter occupation span, there may not have been time or manpower to excavate bedrock kivas, as the population may have been occupied with construction of residential roomblocks and repulsion of Spanish aggression.

An alternative explanation for the absence of kivas at Astialakwa may lie in what Mobley-Tanaka (2002:79) terms “false acquiescence,” — the appearance of the abandonment of traditional ritual, when in fact such ritual had merely been masked. Some instances of such “false acquiescence” have been recorded for the Revolt period. The key Pueblo Revolt leader, Popé, made use of an old storage room as a kiva, in order to conceal his activities from the Spaniards (Mobley-Tanaka 2002:78). At Zuni and Acoma, kivas went from subterranean plaza features to incorporated room in the residential room blocks, for the same reason—it allowed the ceremony participants to move to and from the ceremonial structure without attracting the attention of the Spanish missionaries.

Such roomblock kivas are also found at some Anasazi sites, including Salmon Ruin. Although Popé made *temporary* use of interior pueblo rooms as a “kiva” in order to conceal his activities from the Spanish missionaries, this alternative for “false acquiescence” was not permanently adopted in lieu of the more dangerous and potentially catastrophic option of revolt.

The lack of sufficient soil depth to permit the construction of subterranean structures could, conceivably, explain the lack of kivas at some pueblito sites, but at others, such as Foothold and 42 Pueblito, such an explanation is inadequate, because the soil depth is certainly adequate. As illustrated by the Kotyiti example, this was not viewed as a major barrier, in any case.

No plaza kivas—the type employed by the Towa and Tewa, postulated source groups for immigrants to the Navajo—are found at pueblito sites, and none of the structures appear to contain roomblock kivas. The Rio Grande pueblos revolted in 1680 and again in 1694 specifically in order to preserve their religious freedoms, including the use of plaza kivas. Nor would there be any reason for the postulated Puebloan refugees in Dinétah to abandon their plaza kivas for roomblock kivas in the pueblitos, as in their new homeland they would have been far from the vigilant eyes of the Spanish missionaries.

### **Comparison Against the Model**

As noted above, several significant differences in settlement patterns are evident between the Navajo and Puebloans, some of which are related to defense, and others to religious practices. These differences are summarized in Table 13.1, and compared to the settlement patterns evident in pueblito sites.

**Table 13.1 Comparison of Settlement Characteristics.** Those most closely resembling the pueblitos are shown in italics.

<b>Settlement Characteristic</b>	<b>Navajo</b>	<b>Puebloan</b>	<b>Pueblito</b>
Population Density	<i>Low, dispersed in small settlements across the landscape</i>	High, aggregated into large villages	Low, dispersed upon the landscape
Defensive Techniques	<i>Camouflage, flight</i>	<i>Fortress-style architecture, superior tactical position and superior numbers</i>	Camouflage, fortress-style architecture, superior tactical position
Ceremonial Structures	<i>Sweatlodges</i>	Kivas	Sweatlodges present at pueblito complexes, no kivas evident

The evidence for assigning the ethnic affiliation of the pueblitos, on the basis of settlement and community organization, consists of two types: negative and positive. Negative evidence—the absence of certain critical factors—leads to the conclusion of who the builders were *not*:

they were not Puebloan. This evidence includes the absence of kivas, and the inability of most pueblitos to house sufficient numbers of individuals to fulfill the social and religious offices deemed critical by the Puebloans to the continued functioning of society and the cosmos. Positive evidence—the presence of certain factors—leads to the conclusion of who the pueblito builders *were*: they were Navajo. This evidence includes the dispersion of pueblitos on the landscape in spite of the proximity of many pueblitos to one another, and the presence of numerous sweatlodges in the vicinity of the pueblitos. Thus, both lines of argument based on settlement and community organization—both negative and positive—lead to the same conclusion: the pueblitos were built by the Navajo.

## 14 Tapacito Pueblito: A Reconsideration

Towner (1997:131) has observed that Tapacito Ruin (LA 2298) is “architecturally, ceramically, chronologically, and topographically different from other pueblitos and should be viewed as a separate entity.” That separate consideration is the purpose of this chapter.

### ***Architecture and Settlement Pattern Evidence***

Tapacito Ruin is located in a relatively open and unfortified position on a wide bench on a mesa, near the confluence of Tapacito Creek and Largo Canyon (Marshall 1991:89; Towner and Dean 1992:326; Wilson and Warren 1974:18). This results in a more restricted field of view than is encountered at many pueblitos (Powers and Johnson 1987:27), which are generally situated with a commanding view of large portions of the surrounding landscape.

Tapacito is unique among pueblitos in that the main walls are of massive core-and-veneer construction, with the two outer wall sections being built of large (20-40 cm) sandstone blocks, and the interstices filled with masonry rubble. This results in a wall that is approximately one meter thick (Marshall 1991:90; Powers and Johnson 1987:27; Towner and Dean 1992:317,326; Wilson and Warren 1974:10), making Tapacito Ruin an “archetype of the ‘*casa fuerte*’ or ‘strong house’” (Marshall

1991:89). The massive exterior walls of Tapacito Ruin are approximately 8-9 meters on a side, and the corners are remarkably square (Powers and Johnson 1987:27). There are no exterior doorways, and access to the structure must have been via roof hatches, of which one still remains (Marshall 1991:90; Powers and Johnson 1987:27; Wilson and Warren 1974).

The quadrangle formed by the core-and-veneer walls is subdivided into four rooms (Figure 14.1) by simple masonry walls of slabs of sandstone one stone (c. 0.25 meters) thick (Marshall 1991:90; Wilson and Warren 1974:12), resulting in a “quartered square” floor plan which is unique among pueblitos (Towner and Dean 1992:326). In sheltered areas, traces of adobe plaster coated in a white paint are still visible on the walls (Wilson and Warren 1974:12).

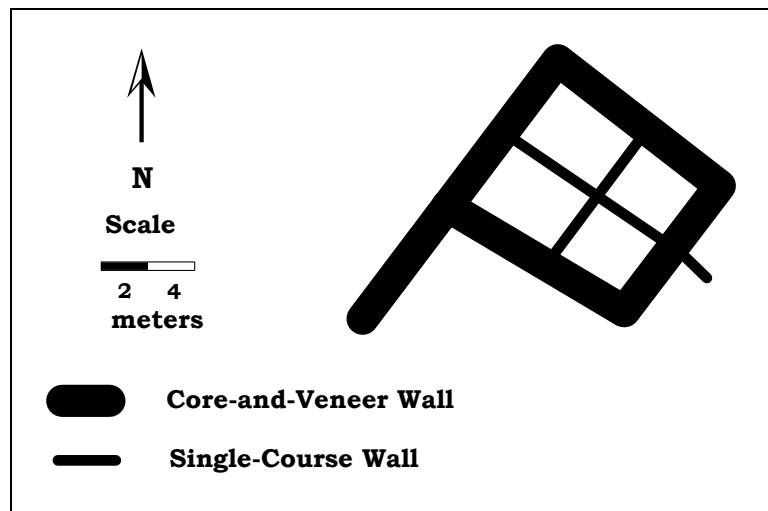


Figure 14.1 Plan view of Tapacito Ruin (after Powers and Johnson 1987).

A parapet constructed in the same technique as the interior partitions, and estimated to originally have stood one to one-and-a-half meters high surmounts the exterior walls (Marshall 1991:90; Wilson and Warren 1974:12). This may have served as additional protection for defenders, both by allowing observation and attack of enemies from the roof of the structure, and also by raising the height of walls would-be attackers must scale to a total of three-and-a-half to four meters.

The interior walls are pierced by two rectangular doorways with wooden lintels. Room IV would only have been accessible through this doorway, as there is only a chimney flue, and no hatch, in the roof of that room. Hooded fireplaces also occur in the corners of two of the rooms (Wilson and Warren 1974:12).

The roof is of typical viga-and-latilla construction. The vigas have been debarked, but not shaped. The latillas are surmounted by a layer of sandstone slabs, which is in turn coated with a layer of adobe (Wilson and Warren 1974:12). This would have helped to prevent the inhabitants from being “smoked out” by setting fire to the roof of the structure.

Two additional rooms (Rooms I and II) were appended to one end of the pueblito after the construction of the main structure. These are composed of a single thickness of a non-local tabular white sandstone. It appears that these rooms were never completed and roofed, and they are now partially collapsed. An additional room, Room VII, consists of a

masonry foundation for yet another room, although it is estimated that the wall heights never exceeded one meter (Marshall 1991:93).

Tapacito Ruin dates to a single construction event in the autumn of 1694 (Towner and Dean 1992). The original tree-ring sample expedition to Tapacito, in 1941, also collected nine other samples yielding cutting dates, eight from 1690 and one from 1689 (Towner and Dean 1992:319-325). The proveniences of these earlier samples (all pinyon) is unknown, but Towner and Dean (1992:326) suggest that they could come from a no-longer-extant hogan (Marshall reports five forked-pole hogan rings and the masonry base of a possible cribbed-log hogan at the site [Marshall 1991:93]).

### ***Ceramic Evidence***

In spite of Towner and Dean's assertion that the ceramic assemblage at Tapacito Ruin differs considerably from those at other pueblito sites (1992:326-327), this appears not to be the case. Marshall's assessment of 1220 sherds from the site did not yield any of the Hopi yellowwares cited by Towner and Dean (Marshall 1995:A3-9; Towner and Dean 326-327). The percentages of contemporary tradewares at Tapacito Ruin are presented in Table 14.1, along with the percentages encountered in Marshall's total sample of 6508 sherds from seven pueblito sites.



With the exception of the glazewares and Ocate micaceous wares, the ceramic profile at Tapacito Ruin differs little from that at other sites. The higher percentage of Rio Grande glazewares likely represents the pueblito's early date, as the production of these wares declined in the seventeenth century (Marshall 1995:31; Shepard 1942:147). Hooded Fireplace Ruin, (another early pueblito, dating from 1723) is the only other pueblito at which they are encountered (Marshall 1995:95; Towner 1997:224-225).

**Table 14.1 Tradeware Frequencies at Tapacito Ruin** (data from Marshall 1995:75, A3-A9).

<b>Ceramic Type</b>	<b>Tapacito Ruin</b> (n=1220)	<b>Total Sample</b> (n=6508)
Puname Series	0.5%	0.69%
Acoma Series	0.4%	0.36%
Cochiti Series	0.2%	0.03%
Rio Grande Glazeware	0.7%	0.13%
Ocate Micaceous	0.7%	0.14%

Tapacito Ruin was the only pueblito site at which Marshall and his team recovered Ocate Micaceous sherds, finding a total of nine from two proveniences. These sherds suggest some contact with Plains Apache groups, perhaps the Jicarilla (Marshall 1995:98). The Cochiti series sherds, likely from a glazeware bowl, are the only Cochiti series sherds

recorded by Marshall for any pueblito sites (1995:98). Like the other glazeware sherds, this may be attributable to Tapacito Ruin's early date.

Of the other intrusive sherds at Tapacito, the Puname series sherds (which included 3 Zia Plain Gray utility sherds, as discussed in Chapter 11, the only non-Navajo utility wares at the site), are indicative of contact with pueblos along the lower Jemez drainage (Marshall 1995:93, A3-9). The Acoma series sherds are the second most common at pueblito sites (Marshall 1995:93).

### ***Conclusion***

Towner and Dean hypothesize that Tapacito Ruin may represent a site at which a Navajo family permitted Puebloan refugees, likely from Jemez, to construct a pueblito in their midst, making Tapacito the only genuinely Puebloan pueblito (Towner and Dean 1992:327). Towner also suggests that this Puebloan occupation at Tapacito Ruin may represent the origins of the Coyote Pass clan (Towner 1996:168). There are problems with this interpretation, however.

First, the location of Tapacito Ruin seems unusual for a group fleeing the Spanish reprisals after the Pueblo Revolt. During the reconquest, most Puebloan groups sought sanctuary on the natural ramparts of the local mesas, and established their pueblos there. If Tapacito Ruin were occupied by a fragment of one of these groups, it

would appear natural that they would opt for the additional protection of the mesa top, or at least establish the pueblito at the edge of the bench, thus cutting off potential routes of approach for an enemy group.

However, unlike the refuge pueblos of the Rio Grande and the later pueblitos, use was not made of this natural defense, although it was available.

Second, the wall construction techniques employed at Tapacito Ruin are completely unlike those used by the Jemez, or by the Tewa. In fact, the closest similarity is to the massive Pueblo II period walls found in Chaco Canyon. It is possible that the Navajo, faced with the necessity of defense, and knowing from their own experience the difficulty of mounting an attack against pueblo-style fortifications, drew upon the ruins of Chaco Canyon as a reference for masonry construction. This hypothesis may initially appear far-fetched, but the Chaco Wash run adjacent and parallel to Largo Canyon, and Navajo legends tell of the Navajo sojourning in the area (Matthews 1994:140, 195). The masonry structures which the Navajo would have encountered in the Rio Grande drainage among the Jemez and other contemporary Puebloan groups would have been coated with a thick layer of well-maintained adobe plaster, thus concealing the construction technique from view. The crumbling walls of the Pueblo II structures in Chaco Canyon, however, would have been available for inspection and emulation by the Navajo. It is possible that the later departure from the core-and-veneer

construction technique at subsequent pueblitos was presaged by the use of the single-course thick partition walls within Tapacito Ruin, and its use in the incomplete Rooms One, Two, and Seven. The construction of the double facing-walls, which were then filled with rubble, markedly increased the time, material, and manpower commitment involved in the construction of a pueblito. For a structure which was not likely to have been utilized as a full-time residence, and which would potentially be abandoned upon the death of one of the inhabitants, such a commitment seems overblown. One of the rationales behind the massive core-and-veneer walls at Chaco is the necessity of supporting the weight of several successive storeys, a level of engineering unnecessary at the smaller pueblitos. It is worthy of note that although the principle of the use of wooden lintels over doorways is one utilized in the construction of Navajo hogans, it was also used in the construction of the Chaco Canyon structures.

The construction of hooded fireplaces, as discussed in Chapter 12, was adopted from the Spaniards. However, the principle of the curved chimney bears considerable similarity to the Navajo principle of venting smoke through the top of the hogan—the shape of the hooded fireplace being approximately that of a quarter of a conical hogan. Even the construction bears similarities, as the leaning slats supported by the corner are similar to the “leaners,” or secondaries, supported by the forked poles of a forked-pole hogan. Moreover, the Navajo may have

observed such structures when visiting the Spanish missions at Puebloan villages to trade—unlike the masonry wall construction, the construction techniques of the hooded fireplaces would have been open to view.

Had Tapacito Pueblito been constructed by Puebloans, it would be expected that the profile of the utility ware assemblage would have been considerably different. Of the 1059 utility ware sherds at the site, only three (0.28 percent) were from a non-Navajo vessel, from the Southern Tiwa pueblo of Zia (Marshall 1991:A3-9). If, as Towner and Dean postulate, Puebloans were welcomed into an extant immigrant community, one would expect either Puebloan utility sherds, or variant Puebloan utility sherds constructed using local materials. A similar pattern would be expected among the service ware sherds, with a preponderance of sherds representative of the pueblo of origin. Neither is the case at Tapacito.

Towner also suggests that Tapacito Ruin may be the origin site for the Coyote Pass Clan among the Navajo. In addition to the factors cited above which make this highly improbable, it appears that the accession of the Coyote Pass clan occurred *after* the destruction of Awatovi in AD 1700 (see Chapter 10). Additionally, if the residents were from Jemez, one would expect a certain number of the service ware sherds to be of Jemez Black-on-White—a type which is entirely absent from Tapacito Ruin.

It appears highly likely, therefore, that Tapacito Ruin is in fact an indigenous Navajo phenomenon, and the first step in the development of a unique defensive strategy in the American Southwest.

## 15 Conclusion

Western scientific understanding of the nature and development of Navajo culture has long been heavily influenced by the “refugee hypothesis,” although at the time of its formulation by A.V. Kidder in the early part of the twentieth century, it was simply that—a hypothesis. A hypothesis, however, that soon achieved the status of accepted fact, and was not seriously questioned until the last decade of the twentieth century, almost seventy years after Kidder first published his hypothesis. These challenges (Hogan 1991; Towner 1996) were based upon historical and chronometric data, respectively. The necessity of the application of archaeological data to the resolution of the question has not been overlooked, however, and calls have been made for a review of the archaeological evidence (see Brown 1996:47, 52; Wheeler, Wilcox and Ayers 1996:232). It is the examination of such archaeological evidence which has been the focus of this work.

In an attempt to expand the sample size available for study, a survey of the site complexes surrounding three pueblitos in and around Palluche Canyon, New Mexico, were undertaken. The results of the surveys at 42 Pueblito (LA 86895), the Overlook Site (LA 10732) and Foothold Ruin (LA 9073) expanded the previous sample, established by Marshall (1991), by thirty-three percent. The project also added fifteen

newly-recorded sites to the database at the New Mexico Laboratory of Anthropology, providing additional data for future archaeological research in the area.

Archaeological data were then applied to the question of the ethnic affiliations of the pueblito inhabitants, focusing on three general categories of data: ceramics, in particular utility wares; architecture and construction techniques; and settlement patterns and community layout. Comparisons were drawn between the characteristics of the pueblito sites, and those of the Navajo, Towa, and Tewa—these latter groups being those determined by Hogan (1991) on the basis of historical records, to have been the most likely source populations for immigrants to the Dinétah area. An examination of the ethnohistorical record, rather than that provided by Spanish chroniclers, was also undertaken to find evidence of the postulated presence of Puebloan refugees in the Navajo area.

Ethnohistoric Navajo accounts indicate that there was no major influx of Puebloan immigrants to the Navajo, but rather that accessions of Puebloan groups occurred gradually, over a period of many years. Likewise, there is little ethnohistorical evidence among the Tewa and Towa of a retreat to the Navajo. The origin of the Navajo Coyote Pass Clan, sometimes cited as indicative of Puebloan refugees among the Navajo was determined instead to have arisen from a single Jemez



woman captured in a raid, and that the addition of this clan likely postdates AD 1700.

Utilizing the data from both the 2002 Palluche Canyon surveys, and from Marshall's 1990 surveys (Marshall 1991), ceramic evidence for the presence of Puebloan immigrants at pueblito sites was examined, based on the presence or absence of Puebloan utility wares, and was determined to be non-existent. Only small numbers of Puebloan decorated ware sherds have been encountered at the pueblito complexes, and only eight sherds of Zia utility wares were encountered at all twelve sites combined. Had Puebloan immigrants constructed the pueblitos, it would be expected that they would have a) brought small numbers of utility vessels with them, which would then be deposited at the site in the form of sherds, and b) created larger quantities of utility vessels, employing traditional manufacturing techniques, but local materials. Neither was determined to have been the case at the pueblito sites, and the Puebloan decorated wares represent the wide spectrum of sherds one would anticipate from trade activities, rather than a preponderance of sherds from a single Puebloan group, which would be the case if the immigrants hailed from a specific pueblo or language group.

The similarity between the construction of the Navajo pueblitos and the Puebloan pueblo structures was a major contributing factor to the formulation of the "refugee hypothesis." These similarities were determined to be more superficial than real, however. Architectural

details such as doorways (or the lack thereof), room shape, lintels, hearth style, storage bins, and the setback of upper storeys were all considered, as well as details of roof and wall construction. The masonry techniques employed at the pueblitos and those used at Towa pueblos were determined to be quite different, and the Tewa use of all-adobe wall construction was more different still. The use of ground-floor exterior doorways, wooden lintels, hooded fireplaces, the irregular room shape, the absence of interior storage bins and slab-lined hearths, and the lack of setbacks on the upper storeys of structures were all determined to be non-Puebloan in nature, and many of these details have direct Navajo correlates.

The relationship between population density, social structure, and defensive techniques was also considered. The Navajo, Towa, and Tewa were examined, and this evidence was then compared with the known data regarding pueblitos. The dispersion of pueblito sites on the landscape was determined to be a hallmark of Navajo settlement, and contrary to the social and defensive practices of Puebloan groups. Although the fortress-like architecture and superior tactical position it conveyed was Puebloan in nature, some important aspects of Puebloan tactical architecture—such as U-shaped buildings housing large numbers of defenders and surrounded the enemy on three sides—were determined to be missing. Some aspects of Navajo defensive techniques, such as camouflage, are evident in pueblito construction, and in this

respect alone, pueblito structures appear to be an amalgam of Puebloan and Navajo defensive techniques.

The importance of ceremonial structures, particularly of kivas among the Puebloans, and the absence of such structures at pueblito sites was also considered. Given that the prime rationale for the mounting of the 1680 Pueblo Revolt was to protect the native religion from Spanish attempts at eradication, the lack of kivas at pueblito sites was deemed particularly strong evidence for the lack of Puebloans at those same sites.

Taken together, the absence of ethnohistorical accounts of Puebloan refugees among the Navajo, and the absence of ceramic, architectural, and settlement pattern evidence for Puebloan immigrants at the pueblito sites, indicates that the builders and inhabitants of the sites were not Puebloan. The evidence is not entirely negative, however. The preponderance of Navajo ceramics—especially utility wares—the numerous Navajo elements present in the architecture of the pueblito sites, and the correlation between the pueblitos and Navajo settlement patterns and defensive techniques all argue cogently that the inhabitants of the pueblitos were not merely *not Puebloan*, but that they *were Navajo*.

Tapacito Ruin (LA 2298) has long been acknowledged by archaeologists to be unique among pueblitos, and the suggestion has been made that it represented the only truly “Puebloan” pueblito. The ceramic, architectural, construction, and settlement pattern evidence

from this particular site was given separate consideration in Chapter 14. Like the other pueblitos, Tapacito Ruin was determined to have been of Navajo origin, and it was suggested, based on this analysis, that this represented the initial adoption of this defensive technique among the Navajo.

In concert with the historical and chronometric data regarding the pueblitos, therefore, it appears that the question of the ethnic identity of the pueblito builders has finally been conclusively answered: the Navajo pueblitos are, in fact, *Navajo*.

### ***Implications and Directions for Further Research***

As is universally the case in archaeology, however, the answer to one question in archaeology only breeds a litter of new ones. In this instance, so much of the academic understanding of Navajo history, archaeology, and the development of the Navajo culture has been predicated on the assumption of intense inter-cultural exchange in the period after the revolt, that almost all of the notions regarding the Navajo will have to be re-evaluated, some old questions jettisoned, and new ones formulated.

Perhaps some of the most fascinating questions raised by the rejection of the “refugee hypothesis” are those which it was always deemed to answer. Anthropologists have long noted the similarities

between Navajo and Puebloan ceremonialism and creation stories, a similarity attributed to post-Revolt co-residence. How, then, did these similarities develop? Have the Navajo in fact been in the Southwest longer than previously believed? Does Navajo ceremonialism bear greater similarity to that of one Puebloan group than another, and what implications might that have for Navajo migration routes into the Southwest?

Other questions which arise are related to the pueblitos themselves: can a pattern in the development and refinement of a defensive system be traced, from the massive Chacoan-style architecture at Tapacito Ruin, to the adoption of a perimeter-wall style such as that at Old Fort (LA 1869) to the final small, isolated structures typical of the pueblito? To what extent do these developments reflect a changing response to a changing threat, and to what extent do they reflect a continuing adaptation of a new defensive technique to the Navajo way of life?

Kidder's "refugee hypothesis" has finally, after more than eight decades, has been tested, and disproved. But the pueblitos have no less fascination for archaeologists now than they did for Kidder in the early 1900s, and they will continue to provide the basis for many more hypotheses in the future.

**Appendix A**

**Terrestrial Photogrammetry:  
Preparation of Hogan Feature Maps**

by

Lawrence O. Sinkey and Leslie-lynn Sinkey

## ***Introduction***

This appendix discusses the terrestrial photogrammetry techniques that were used to create detailed hogan feature maps for the 2002 Palluche Canyon Survey. All the maps were produced on a computer using digital photographs taken in the field. The information is presented in order to make the techniques and resources available for other researchers.

Figures are shown that illustrate each of the steps required to create feature maps. For an illustrative feature map in this appendix, four adjoining grid cells (Figure A.2) were selected from Overlook Hogan 3 that showed both the wood from the original hogan and the stones in the vicinity. These four grid cells were manipulated just like the more numerous grid cells showing entire hogan sites.

The entire process utilized digital images. All of the original photographs were taken with an Olympus C700 digital camera. The digital images were transferred from the camera to a Toshiba 1900 Laptop computer via a USB 1.1 connection. The computer was located off site but was available to review the images each evening after they were taken. The software used to produce the feature maps consisted of Microsoft Windows XP Home Edition and Adobe PhotoShop Elements 1.0. Although the hardware and software listed above were employed for this project, other similar hardware and software could be utilized.

### ***Photographing the Site***

Site photography utilized a 3 m by 3 m collapsible grid frame (Figure A.1 and Appendix B) to determine the location of pictures. The first step in taking pictures for a feature map was to establish a temporary photography datum, marked with a pin flag. Then the grid frame was overlaid on the feature with one of the grid intersections located at the temporary datum. The initial placement of the grid should be selected to keep the number of subsequent grid placements to a minimum. The grid frame was carefully oriented to true North using a compass adjusted for the local declination. An orientation photograph was then taken to show the location of the grid frame relative to the feature, the temporary datum and the background. This photograph was taken from the south edge of the grid facing north and shows the relative positions of the cells in the final map. Use of this orientation photograph provides insurance against mis-numbering of the photographs or grid cells. If necessary, errors can be corrected in the lab by referring to the orientation photo. Use of the orientation photo should *not* be considered as a substitute for good record-keeping in the field, however. In the 2002 Survey, one site required taking pictures of the grid frame from the west due to the presence of trees and a cliff. Such deviation from the norm should be noted in the photography record, so that it can be corrected for



in the lab, and the final map or photograph oriented toward north. Once all the grid cells were photographed, temporary pin flags were positioned along the edges of the grid frame to facilitate repositioning the frame. The grid frame was then moved to the new location and the flags were removed. Only the temporary datum flag was left in the hogan feature while photographing cells to avoid confusion about the location of the temporary datum. Use of a different color of flag for the datum, or marking the datum flag in order to distinguish it from other flags can avoid confusion at this stage.



Figure A.1 Orientation photo of Hogan 3 showing photogrammetry grid frame.

Once the grid frame was positioned, photographs were taken of each of the individual grid cells. These photographs were taken from the west edge of the grid cell facing east. The west-to-east orientation of the

photographs was adopted to avoid having the shadow of the photographer in the picture. (This orientation requires that the grid cell photographs will have to be rotated 90 degrees before a map can be prepared.) The photographer stood outside of the west edge of the cell and located all four corners of the cell in the photograph. As each of the grid cell photographs was taken, the photograph number was recorded on graph paper (providing a Reference Grid) to correlate the photograph with the site map. Figure A.2 for a sample reference grid showing photograph numbers. The gray area indicates the four cells that were used for examples in this appendix.

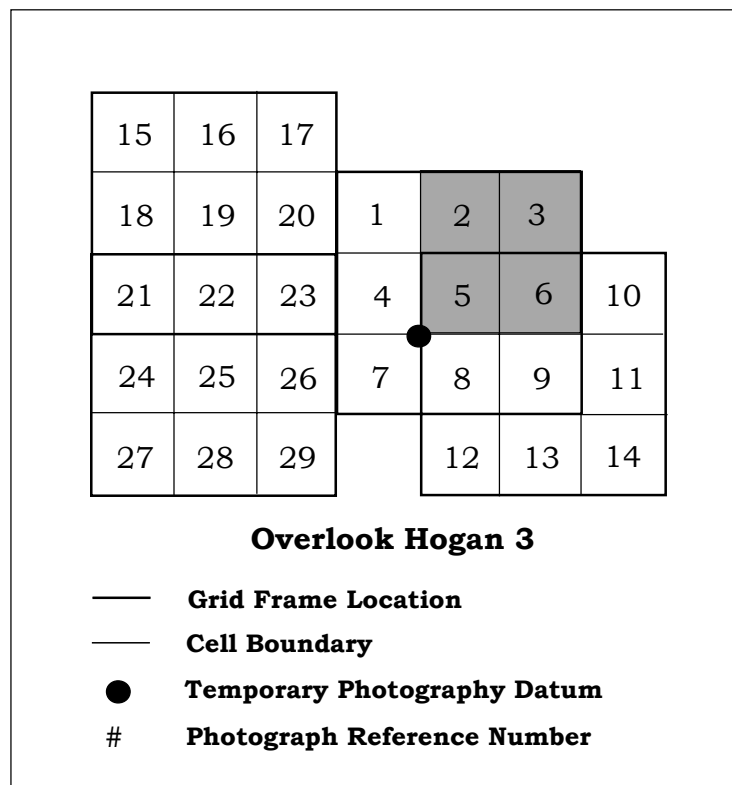


Figure A.2 Photograph locations on the reference grid for Hogan 3.

### ***Storing and Renaming Grid Cell Files***

After all the photographs for a site map were taken, they were downloaded to the laptop computer via a USB connection. All the photographs used in this project were saved as JPEG (Joint Photographers Expert Group) files. Once in the computer, the grid cell photographs were copied to a new folder, for example “Hogan 3.” After the files were saved in the new folder, all the grid cell photographs for Hogan 3 were renumbered with names that ranged from 01.jpg to 37.jpg, corresponding to the numbers assigned to them on the Reference Grid. The renaming was carried out to ensure that the files were stored in the correct order as noted in the grid drawn in the field (Figure A.2). Figure A.3 shows examples of the original grid cell photographs. The original photographs had names such as P9260692 (the camera-assigned file name of the original photograph shown in Figure A.1), and were saved in a separate folder as a backup. A removable backup disk was also used, so the files could be saved outside of the computer for data continuity if something untoward happened to the computer or its disk. (In the absence of a removable backup disk, these files could also be burned to a compact disk.)

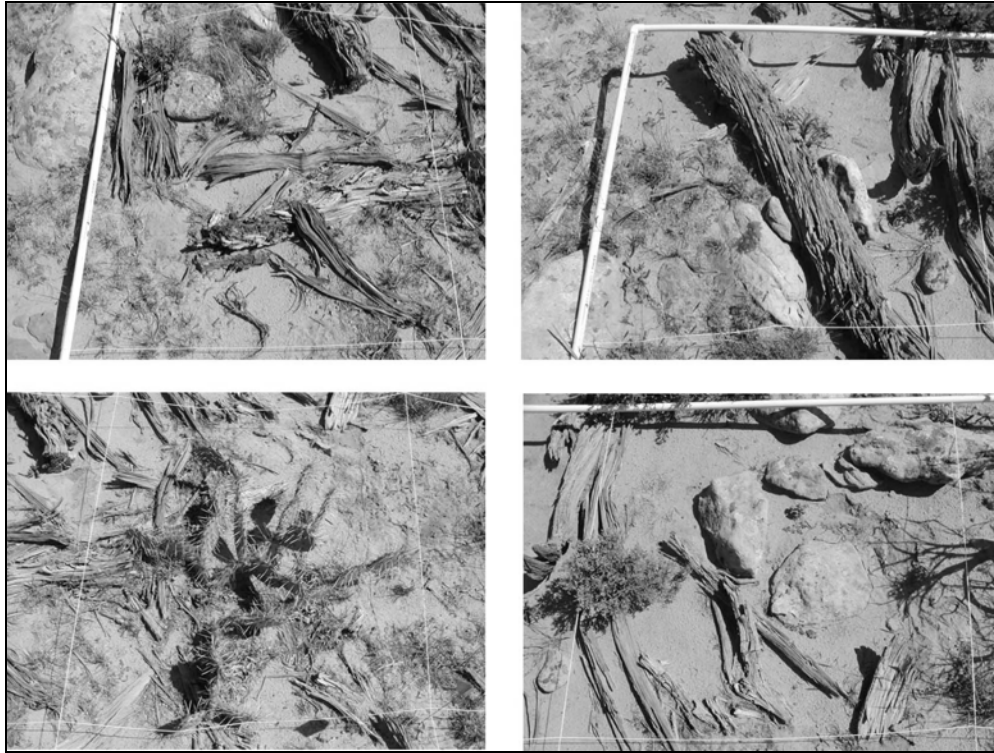


Figure A.3 Original photographs of grid cells, Hogan 3.

### ***Grid Cell Rotation***

Once the grid cells were renamed, they were rotated 90 degrees clockwise (Figure A.4), so that each image was now oriented south-to-north. By selecting all the files (click on the first file and shift+click on the last file), a single rotate command in Windows XP rotated all the files.

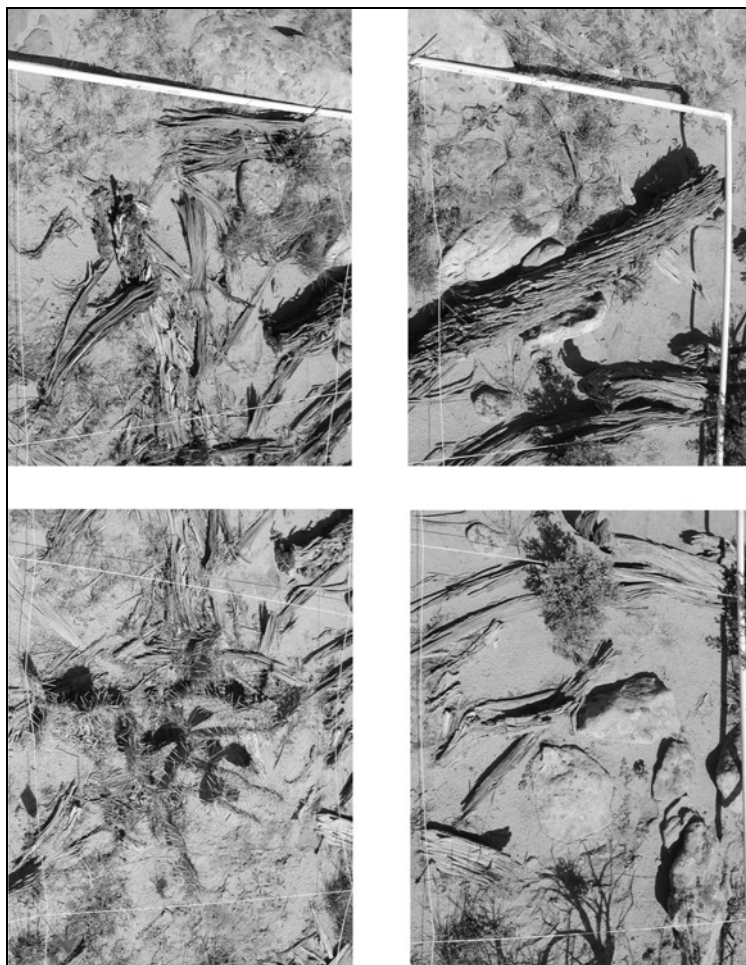


Figure A.4 Hogan 3 grid cells after rotation.

### ***Parallax Removal***

The ideal manner in which to take the photograph of each cell would be to locate the camera directly above the center of the cell. With a 38 mm lens (35 mm camera equivalent) on the digital camera this proved to be impracticable in the field. A special frame *could* be constructed to



hold the camera above the center of the cell but the materials were not available, and the photography would be much more time consuming. Instead, the picture of each cell was taken from the west side of the cell, as described above. Each cell photograph then had to be manipulated to remove the parallax introduced by the non-vertical camera angle. The parallax appears as converging grid lines in Figures A.3 and A.4.

The following documentation describes in detail how the parallax was removed from each grid cell photograph. PhotoShop Elements was used as the tool to remove the parallax. All terminology in the following discussion relates to PhotoShop Elements. Items to be clicked with a mouse are shown in **Bold**. Drop down menus to be selected with a mouse are shown in the following example: **Image > Transform > Distort**. This indicates that the user should click on **Image**, then in the drop down menu, move the mouse to (or click on) **Transform** and finally in the next drop down menu, click on **Distort**.

Start PhotoShop Elements. Select **File Browser** to open the cell photograph. Click on the pull down list to choose the folder that contains the file. This may require working through the folder tree the first time. Then double click on the file to be opened. The file browser remembers the folder that was chosen.

Next, select **View** and determine if there is a check mark in front of **Snap** signifying that the “snap to grid” function is turned on. If there is a check mark in front of **Snap**, click on **Snap** to remove the check mark

and turn off the “snap to grid” function. If the “snap to grid” function is turned on, all “handle” movements that control image distortion in the distort function described below will snap to the nearest grid intersections. “Handles” are points on the bounding box for the image that can be dragged with the mouse to distort the image. Since small movements of the “handles” are necessary to adjust the parallax, freedom to position the “handles” anywhere is necessary. Once the “snap to grid” function is turned off, the program will remember this setting.

Next, enlarge the window that contains the photograph of the grid cell by moving the edges of the window. Then choose the **Rectangular Marquee Tool**. Use the marquee tool to outline the cell photograph so that all four cell corners (intersections of the grid lines in the grid frame) are located in the selected area. Choose **Image > Crop** to crop the area that contains the four reference points. This removes portions of the photograph which appear outside of the selected grid cell. Select **Image > Transform > Distort** to start the parallax removal process. One by one move the four corner “handles” until the four sides of the grid cell form a rectangle at the edge of the crop window. Double click on the center of the rectangle to finalize the distortion correction. Use the marquee tool to outline the new rectangle and choose **Image > Crop**. If the cell still isn’t quite rectangular, repeat the distort and crop steps.

Once the grid cell is rectangular, choose **Image > Resize**. Click the **Resample Image** box and then choose **Bicubic**. Unclick the **Constrain**

**Proportions** box. The program will remember these values. Set the **Width** and **Height** values to 1100 pixels. Choose **OK** to scale the image. This will scale the grid cell rectangle into a square. By setting the size of the square to 1100 pixels for each photograph, all the grid cells in the hogan feature map will be the same size. (The value 1100 pixels was chosen as the size because the original photographs were about that size.) Any consistent pair of values can be used as long as the width and height are equal. The user may even choose a width and height to match some predetermined scale. The width and height may also be set to values in inches or centimeters.

Select **File > Save As** to save the modified file. Save the file with a new name. For example, if the original file was 01.jpg name the new file could be h01.jpg (any different name is OK, but some connection back to the original file name is helpful). Select **Save** to save the file in the same folder that contains the original file. In the JPEG window, set the **Quality Value** to 4 and select **OK**. Close the grid cell window and start the process for the next cell by using the **File Browser**. Figure A.5 shows the four grid cells after the parallax has been removed.



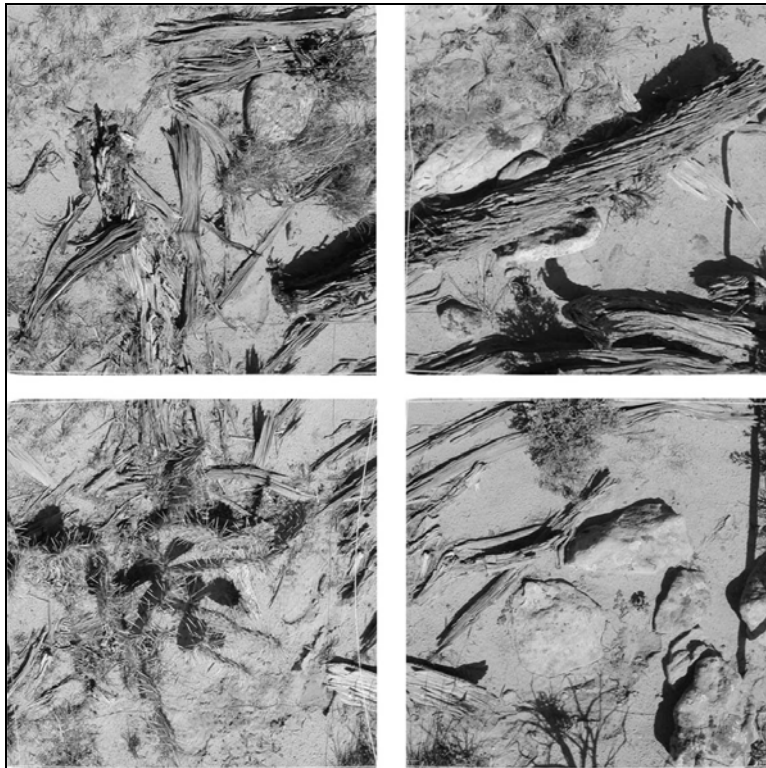


Figure A.5 Images of Hogan 3 after parallax removal.

### ***Merge All the Files for a Site***

Once all the individual cells for a feature have had the parallax corrected, it is time to put them together to form an image of the entire feature.

Start PhotoShop Elements. Choose **File > Photomerge**. In the window that opens, set the **Image Size Reduction** to 50 percent if there are more than about 20 400 KB photographs to merge. Choose **Add**. In the next window that opens, choose all the files that make up the entire

site. The easy way to select the files is to click on the last file in the set (assuming they are in numeric order) and then shift+click on the first file. Choose **Open**. Check the list to ensure that all the files have been chosen. Unclick **Automatically Attempt to Arrange Source Images** since it only works with linear images not two-dimensional images. Then choose **OK**.

The computer will then display lots of images and will finally settle on the window that allows the photographs to be merged. Figure A.6 shows the Photomerge screen at the beginning of the process to produce the merged image in Figure G7. It is very helpful to have your hand drawn grid of the site (Figure G2) to help get the grid cells in the right order. In the merge window, unclick **Snap to Grid**. The photomerge screen contains three windows: the source window containing the source files (across the top), the image window that shows the work area relative the entire image (on the right) and the work area (lower left).

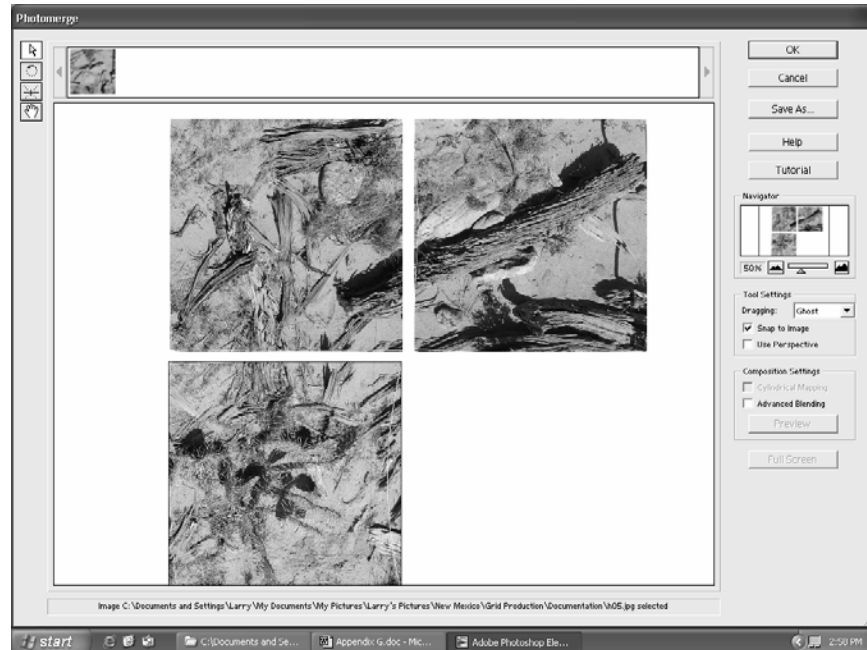


Figure A.6 The Photomerge screen in Photoshop Elements.

Drag the first source file from the source window into the work area. On the slider under the image window choose 37 percent to reduce the size of the source file in the work area. Move all the source files into their relative positions in the work area. Leave a small space between each file. Move the slider to about 65 percent to increase the size the files in the work area. Moving the red rectangle around in the image window (Figure A.6, right-hand side) changes the portion of the site displayed in the work area. Merge the files in the work area by starting with the center file and moving the surrounding files so they align with the center file. Work out from the center and keep aligning files. (Two files being aligned may overlap one another.) Once all the files have been merged into the best possible configuration, choose **OK**.

Select **File > Save As** to save the merged file. Save the file with a new name. Select **Save** to save the file in the same folder that contains the original file. In the JPEG window, set the **Quality Value** to 4 and select **OK**. The photomerge process is finished. See Figure A.7 for a picture of the four merged files.



Figure A.7 Hogan 3 after Photomerge.

### ***Background Removal***

The files produced by photomerge show the entire site but can be difficult to read because of brush, cacti, shadows and other miscellany.

As a result, the next step in the process is to remove the background, if desired, to help discern patterns. This process is particularly useful for larger sites. The process described below addresses the removal of the background using PhotoShop Elements, but other graphics programs, such as Adobe Illustrator, can be used to achieve a similar effect.

Start PhotoShop Elements. Use the **File Browser** to open the merged file. Expand the image window to create a large work space. Select the **Eraser** to remove the background. In the window that allows the definition of the eraser parameters, choose a brush size and a brush type. The brush size is set in a pull down menu and the brush type is set by specifying the **Mode**. In the sample picture shown in Figure A.8, the picture was blown up so individual pixels could be seen (smaller images can be used for production work). An eraser with a brush size of **3** and a Mode of **Brush** was used to outline each piece of wood and each stone. Then an eraser with a brush size of **3** and a Mode of **Pencil** was used to expand the outline. Brush feathers the edge and pencil leaves a sharp edge. The feathered edge looks better when printed. Finally, a larger eraser with a brush size of **19** and a Mode of **Pencil** was used to clean out the background between the outlines. The largest brush size used in the project was 65.

During background removal, some portion of the image was left in each of the corners to insure that the map sizes remained constant and that the corners of grid remained visible. If wood or stone exists in a

corner, it is left there. If nothing of interest exists in a corner, a small triangle is left. Since the maps are scaled using minimum and maximum coordinates, this ensures that if maps are overlaid, they will be the same size. In Figure A.8, three corners contain triangles and the fourth corner contains stone.

Select **File > Save As** to save the file with the background removed. Save the file with a new name. Select **Save** to save the file in the same folder that contains the original file. In the JPEG window, set the **Quality Value** to 4 and select **OK**. Figure A.8 shows the merged file with the background removed.



Figure A.8 Hogan 3 with the background removed, showing wood and stone.



In the search for discernible patterns, the next step in this project was to separate the wood from the stone. Using the same process that is described in background removal, a copy of the Wood & Stone file where the background was removed was used. All of the stone was removed with the eraser and the file that contains only wood was saved. The Wood & Stone file with the background removed was used again, and in this case all the of wood was removed and the file that contained only stone was saved.

Figure A.9 shows just the wood in the Hogan Site Map while Figure A.10 shows just the stone.

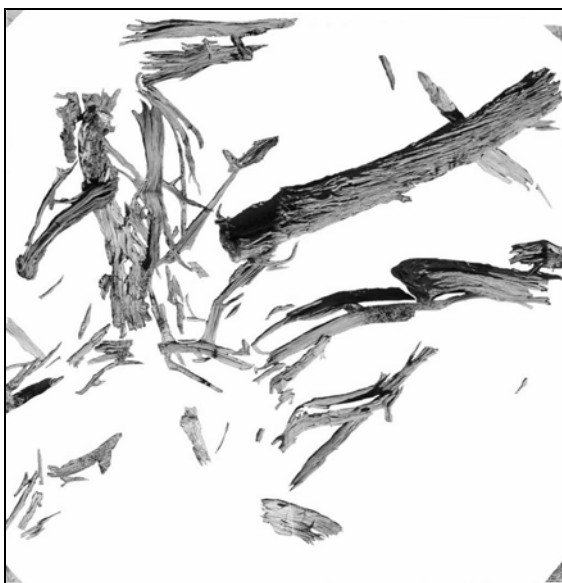


Figure A.9 Hogan 3 showing only wood.



Figure A.10 Hogan 3 showing only stone.

## ***Black-and-White Images***

Figures A.9 and A.10 show the patterns of wood and stone as a photograph. This may be problematic if the document is to be photocopied, since some of the light colors and light grays may not show up well. The following process indicates how to replace the color with black. The description that follows is for the process using PhotoShop Elements, but other graphics programs can also be used.

Start PhotoShop Elements. Use the **File Browser** to open the file that has had the background removed. Expand the working window to give the maximum work area. Choose **Image > Mode > Grayscale** to remove all color from the image. Expand the image so that individual pixels can be seen and choose an area with lots of wood and/or stone. Choose **Image > Adjustments > Threshold**. In the popup window, move the slider to approximately 240. Watch the image as you move the slider and choose a value that is a compromise between extraneous white spots in the black areas and black spots in the white areas. Then choose **OK**.

Select the **Eraser** to remove the black spots in the white areas and use the **Pen** to fill in the white spots in the black areas. When all the spots are fixed, select **File > Save As** to save the black and white file. Save the file with a new name. Select **Save** to save the file in the same folder that contains the original file. In the JPEG window, set the **Quality Value** to 4 and select **OK**.



Figures A.11, A.12 and A.13 show images where the wood and stone have been turned to black. Figures A.12 and A.13 show the wood and stone patterns clearly. This portion of Hogan 3 was selected for illustrative purposes because it showed both wood and stone, and no definite patterns are visible. The only pattern that might be seen is that the center of the hogan is in the lower left corner and the wood in the hogan radiated outward from the center.



Figure A.11 Black-and-white image of Hogan 3 showing wood and stone.

## ***Use of Layers***

Cleaning up the Black and White images takes time to delete and fill in pixels. Instead of cleaning up all three images (Wood & Stone, Wood and Stone) it is possible to clean up the individual Wood and Stone images and merge the two images to make the Wood & Stone image.

Start PhotoShop Elements to merge the two images. Use the **File Browser** to open the Stone image and then open the Wood image. Chose **Select > All** to select all of the Wood image. Choose **Edit > Copy** to save the Wood image to the clipboard. Close the Wood image window. Choose **Layer > New > Layer** to create a new layer on top of the Stone image. Choose **Edit > Paste** to copy the clipboard image of Wood onto the new layer. Use the **Magic Eraser** to erase the background on the new Wood layer. At this point both layers should be visible in the working window. Choose **Layer > Flatten Image** to merge the two layers.

When the two layers have been merged, select **File > Save As** to save the black and white Wood & Stone image. Save the file with a new name. Select **Save** to save the file in the same folder that contains the original two files. In the JPEG window, set the **Quality Value** to 4 and select **OK**.

### Comments

Once the limited set of PhotoShop Elements procedures that are necessary to complete the project have been learned, the procedures required to produce these images are easy to repeat. If an individual is starting from scratch, the learning curve is moderate to difficult depending on the computing knowledge of the individual. During the course of this project, by the time each step was finished, the procedure was easy to carry out because a number of short cuts were found. Future users will benefit from the instructions contained herein.



Figure A.12 Black-and-white image of Hogan 3 showing only wood.



Figure A.13 Black-and-white image of Hogan 3 showing only stone.

A PhotoShop Elements User Manual is very helpful the first time through certain steps in the process. For example, working with layers required the user manual although the help menu might have been sufficient.

While taking photographs of a feature, the grid frame should be laid flat on the ground so that the frame and twine are not raised above portions of the site surface. If the grid frame or twine is held above the ground, the camera may see a portion of the site that is outside the actual grid cell boundary, producing some cell overlap (Figure A.14). This can happen if there is brush or stones on the site that lift the grid frame, or if the ground is otherwise uneven (Figure A.1 where the grid frame is resting on logs and brush).

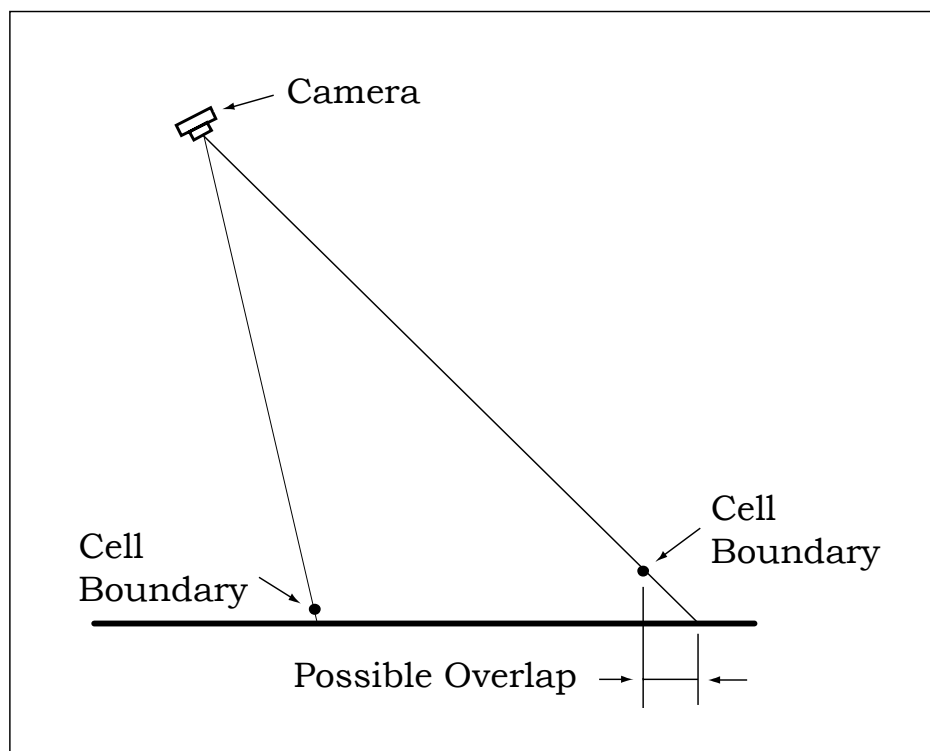


Figure A.14 Grid cell overlap caused by a raised boundary.

A partial solution to the cell overlap problem is to place markers on the ground directly below the intersections of the twine and grid frame. Possible examples of markers are black and white disks 1.5 inches in diameter. Vertical sticks or wires inserted through the markers would facilitate the placement and movement of markers. The photographer would use the disks as the corners of the grid cells. The markers would then be used as cell corners in the parallax removal step in PhotoShop Elements. Where a cell corner is under a rock or log, white tape could be used to point toward the point of intersection on the ground making the corner visible during parallax removal. However, image overlap becomes evident in the process of merging the cell photos, and provided that adequate care is taken in placement of the grid in the field, the problem is not a serious one.

The final merged image is approximately to scale but is not exact. When the source files are merged, there is some overlap to line up objects in the image. After parallax removal, the grid cell size was set to 1100 pixels. The first step in the photomerge process was to reduce the 1100 pixel cell size by 50 percent, giving a 550 pixel cell size. After merging the grid cell images, the average cell size was 532 pixels based on the horizontal and vertical dimensions of the five hogans and one stone circle. Table A.1 for the dimensions of each Feature Map. This means that the average cell size was 96.79 percent of the original cell

size which indicates a 3.21 percent overlap of grid cells in the final image. If the entire image is expanded by 3.38 percent to increase the average cell size to 550, the error on object placement in the hogan feature map should be no more than +/-5 cm. This accuracy should be at least as good as images hand drawn in the field. As described in the previous paragraph, reducing cell overlap caused by elevation of the grid would improve the overall accuracy.

**Table A.1 Site Map Properties.**

Map Name	Width In Pixels	Height In Pixels	Width In Cells	Height In Cells	Average Pixel Width Per Cell	Average Pixel Height Per Cell
Foothold Hogan 1	4018	3195	7.5	6	535	533
Overlook Hogan 1	4195	3089	8	6	524	514
Overlook Hogan 2	2711	2633	5	5	542	526
Overlook Hogan 3	3677	2674	7	5	525	534
Overlook Hogan 4	3236	3245	6	6	539	540
Overlook Stone Circle	1602	1628	3	3	534	542
					----- --	----- --
Average Width and Height of Cells in Pixels					533.18	531.5
Average Cell Size for the Project in Pixels						532.33
Average Cell Size for the Project in Meters						0.9679

A computer with a fair amount of memory and a fast processor is beneficial because PhotoShop uses lots of memory and performs lots of computations. The Toshiba 1900 laptop computer used for this phase of the project runs at 1.6 GHz and contains 512 MB of memory.

JPEG files have a problem displaying sharp edges if the Quality Value is low. They tend to have JPEG artifacts around sharp edges which can show up in detailed prints. The JPEG artifacts show up as a pattern of dots along the sharp edge. Two solutions are available to solve this problem: use file types that have loss-less compression or increase the JPEG Quality Value to a maximum of 12. The black and white Wood file (Figure A.12) was 112 KB with a Quality Value of 4. The same file with a quality Value of 12 was 235 KB but the JPEG artifacts did not show up. While the file size doubles, this is still far better than the 1.04 MB required for a Bit Map file (BMP). If files are being manipulated at the pixel level, it is best to use the higher Quality Value JPEG file. A PhotoShop Data file (PSD) saves all the data as there is no data compression. The PSD file for Figure G9 is 971 KB compared to 104 KB for the same image stored as a JPEG file with a Quality Value of 4. The use of high quality PSD files is probably unnecessary because the original camera images are JPEG files.

PhotoShop Elements “remembers” the parameters that have been set during previous uses of the program. This makes running the program convenient. It also means that some parameters may have been

set prior to starting this project and may not be included in this discussion about how to use the program.

All the photographs were taken in September and October and the manipulation of the images occurred during the following January. As a result, the lessons learned could not be applied to the field work after the fact. Since all the procedures for using PhotoShop Elements had to be figured out while working on the project, it took longer than if the procedures had been known in advance. All-in-all, the procedures work well and produce good images. The images can be blown up to large sizes and still retain good detail.

### ***Conclusions***

The terrestrial photogrammetry techniques developed for the 2002 Palluche Canyon Survey are relatively simple, require little additional time in the field, and do not require highly specialized equipment, computer programs, or capital outlays. For these reasons, the techniques could be used in a number of field research applications, including both survey and excavation applications.

The production of detailed maps for archaeological sites is a task which often consumes considerable field time, which in turn reduces the amount of fieldwork that can be accomplished in a given time frame.

Although this technique was developed in order to provide detailed maps



of surface features, the same techniques could be employed to produce detailed site maps of excavations, whether they be small-scale or large-scale. In the case of excavations, the excavation grid units could be used in lieu of the portable 3 x 3 meter grid frame used for this survey. If desired, photographs could be taken of each excavation level (5 or 10 centimeter units, for example) as it was reached *in each excavation square*. It would then be possible to create maps at each level of an entire site, effectively allowing researchers to visually “peel back” the site one level at a time...a capability which would be particularly useful at complicated, multi-component sites.

The technique developed by the 2002 Palluche Canyon Survey team (or “Sinkey system”) has a number of advantages over other site imaging techniques, such as the use of a bipod. For instance, in order to prepare an excavation site for photography using a bipod, all excavation squares must have reached the same level (a hogan or pithouse floor, for instance), and must be prepared for photography—artifacts pedestaled, backdirt removed, etc. Inevitably, this results in lost time if some portions of the site are still being prepared, while others are ready. Use of the Sinkey system reduces this down time, as excavation squares can be prepared individually for photography as they are completed, and the whole assembled into a site map upon return from the field.

An additional advantage of the Sinkey system over traditional site photography techniques is the amount of detail which can be captured

for mapping. The use of a bipod, particularly for large sites, results in inevitable loss of detail due to the distance from the camera to the subject. With the Sinkey system, because the photographer is less than 2 meters (the average height of an individual) from the subject, considerable detail can still be maintained. When the final feature montage is assembled, the amount of detail to be included in the final feature maps can then be determined by researchers in the lab.

The accuracy of maps produced using this system is extremely high—higher than with traditional hand-mapping technologies, and also higher than maps produced using photographs taken with a bipod, particularly of large sites. This is in part because of the greater detail which can be captured, but also because it addresses the distortion caused by parallax—the visual phenomenon which causes lines, such as railroad tracks, to appear to converge with increasing distance. Even with a bipod, not all portions of the site are the same distance from the camera—those being directly under the lens being closer—which introduces an element of distortion to the photograph, and to subsequent maps produced from that photograph. This system addresses, and corrects for, parallax, which allows greater accuracy in mapping.

**Appendix B**  
**Construction of the Photogrammetry Grid Frame**

by

Leslie-lynn Sinkey

### ***Construction Technique***

The 3 x 3 meter photogrammetry grid frame was constructed using four lengths of ¾” CPVC pipe, and four 90 degree elbows, mason’s twine, and ring terminals (Figure A.1 in Appendix A), purchased at the local hardware store. The pipe is sold in slightly over 3 meter lengths, and was cut to the appropriate length using a hacksaw. It is important to include in the calculations the additional length contributed by the elbow joints when attached to the pipe, in order to achieve a grid frame that is precisely 3 x 3 meters in interior dimensions (exterior dimensions will be slightly larger, due to the diameter of the pipe.)

Once the pipe was cut to length and the grid frame assembled, it was necessary to divide the grid into one-meter increments. Measurements were taken, and two points marked on each of the pipes, representing one meter intervals. A drill was used to drill through each pipe at these points. Mason’s twine (also available at the hardware store, as were the ring terminals), was then fed through the holes in the pipe, and through the corresponding holes in the pipe on the opposite side of the grid frame. Care was necessary at this point, as the mason’s twine must be sufficiently taut to provide an accurate grid, but not so taut that it distorts the pipes, which are quite flexible. Checking measurements with a tape measure can preclude distortion.

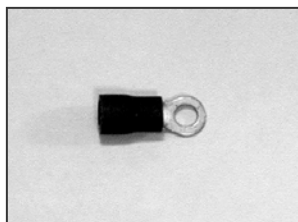


Figure B.1 Ring terminal, available in electrical section of hardware store. Actual size: 1.7 x 0.8 centimeters

For this project, bright yellow mason's twine was employed. The twine is available in a number of bright colors, as well as in white. The use of colored twine made distinguishing the edges of the grid cells in the final photographs much easier than might be possible with white, especially in areas with light-colored soils. The ends of the mason's twine were secured using ring terminals, which would not pull through the holes in the pipe, as might be the case with simple knots.

Once frame construction was complete, the elbow joints were removed, the two pairs of pipes, joined by mason's twine, were rolled together, and the elbow joints were strung on a spare piece of mason's twine to prevent their loss. The pipes can be mounted on top of an expedition vehicle's roof rack for transportation. The entire assembly weighs only a few pounds, and can easily be carried to the site over one person's shoulder.

It should be noted that in using this system, as with all archaeology, careful record-keeping is *an absolute necessity*. In order to ensure that once the researchers have returned to the lab, it must be

possible to place the photographs in their proper positions in the feature grid.

**Appendix C**

**Detailed Hogan Feature Maps  
for Overlook Hogan 4**

by

Lawrence O. Sinkey

The following images show three Hogan Feature Maps of Overlook Hogan 4. The first map shows the photographic image following the merge step (no background removal). The second shows a photographic image with only the background removed. The third shows the Black-and-white image. The three images show the detail that can be produced when making maps using the terrestrial photogrammetry techniques described in Appendices A and B, and provide a perspective on the results obtained than is provided in the more limited four-cell illustrations in Appendix A.

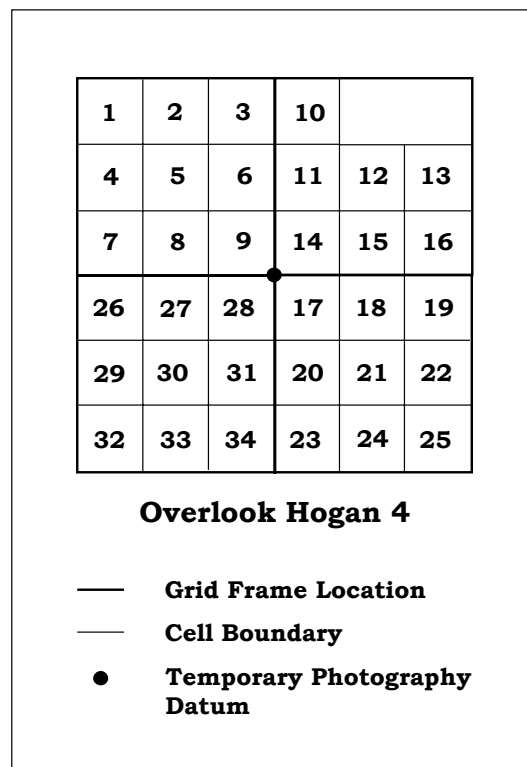


Figure C.1 Photography reference grid for Overlook Hogan 4.



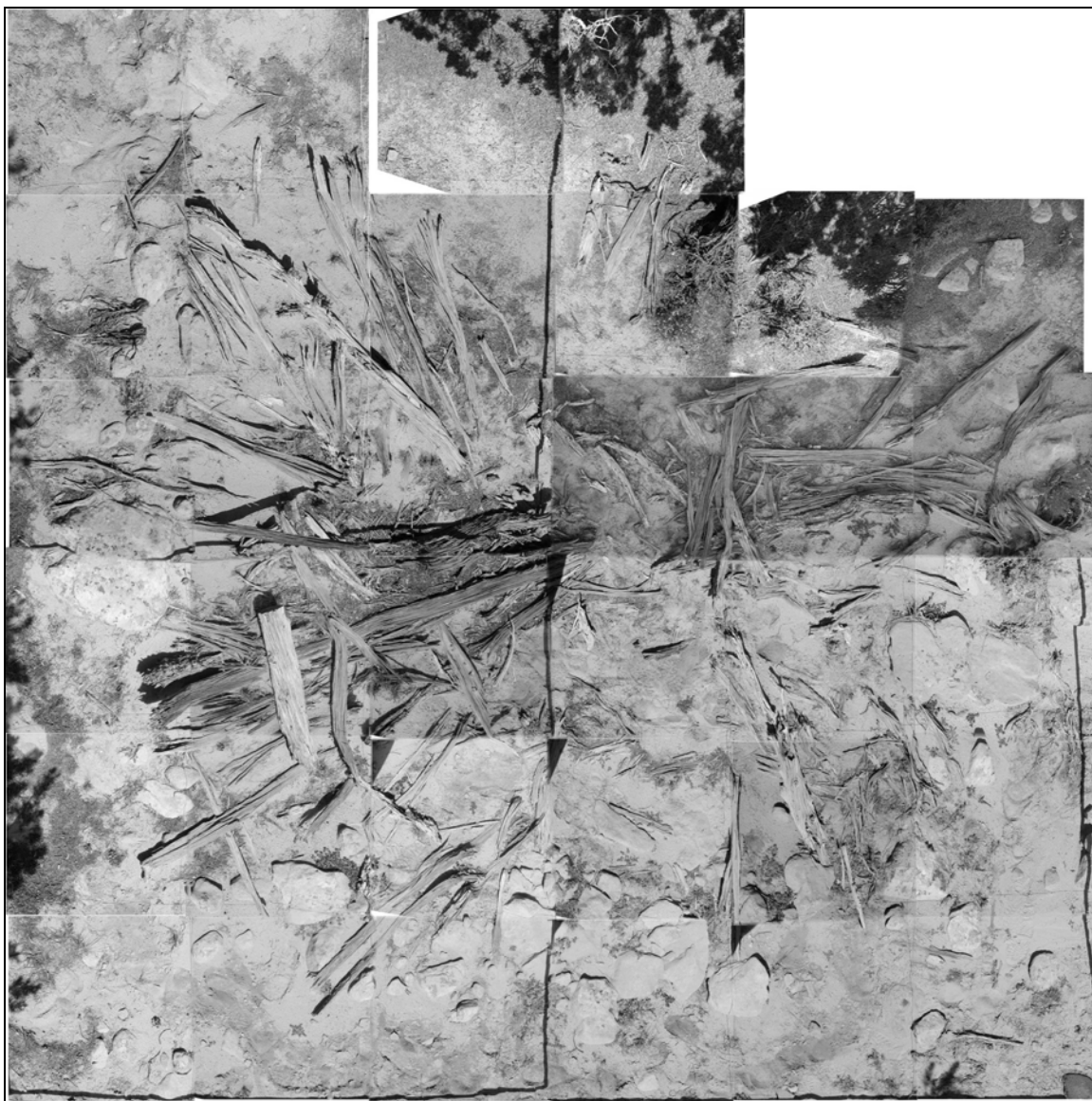


Figure C.2 Merged photos of Overlook Hogan 4.

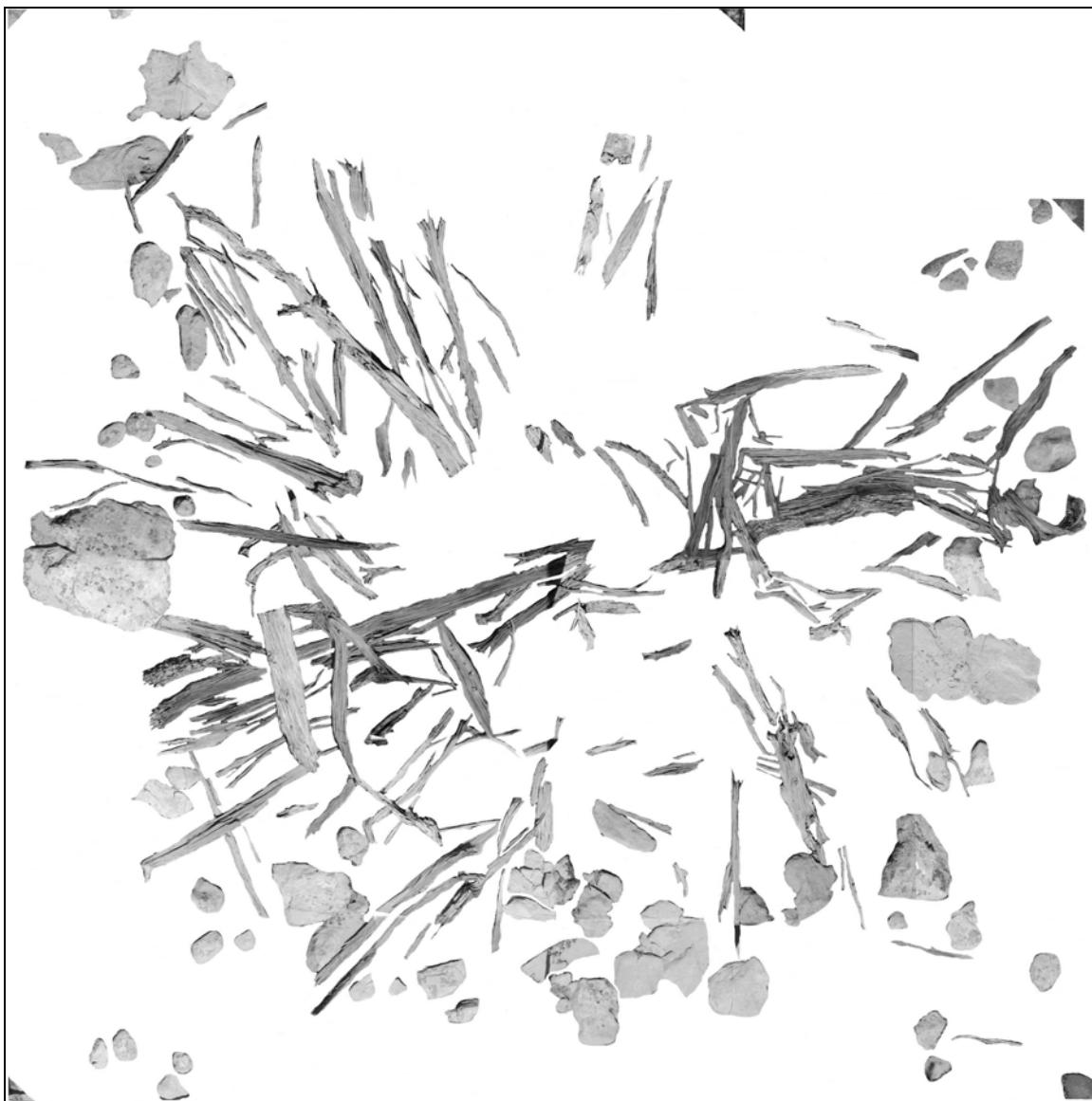


Figure C.3 Photograph of Overlook Hogan 4, with the background removed.



Figure C.4 Black-and-white map of Overlook Hogan 4 showing wood and stone.

## References Cited

Ababneh, L. N., R. H. Towner, M. M. Prasciunas and K. T. Porter.

2000 The Dendrochronology of Palluche Canyon, Dinétah. *Kiva*  
66(2):267-289

Anthony, D. W.

1990 Migration in Archaeology: the Baby and the Bathwater. *American Anthropologist* 92(4):895-914

Arnold, D. E.

1985 *Ceramic Theory and Cultural Process*. Cambridge University Press,  
Cambridge.

Bailey, G. A. and R. G. Bailey

1986 *History of the Navajos: The Reservation Years*. School of American  
Research Press, Santa Fe.

Bandelier, A. F.

1892 *Final Report of Investigations Among the Indians of the  
Southwestern United States*. Volume 2. J. Wilson, Cambridge,  
Massachusetts.

Barrett, E. M.

2002 *Conquest and Catastrophe: Changing Rio Grande Pueblo Settlement Patterns in the Sixteenth and Seventeenth Centuries*. University of New Mexico Press, Albuquerque.

Begay, R. M. and A. Roberts

1996 Early Navajo Occupation of the Grand Canyon Region. In *The Archaeology of Navajo Origins* edited by R. H. Towner, pp. 197-210. University of Utah Press, Salt Lake City.

Bell, J.

2000 Negotiating Space and Place: Architecture as Social Discourse in Post-Euroamerican Contact Honolulu Hawai'i (c. 1820-1845). In *The Entangled Past: Proceedings of the Thirtieth Annual Chacmool Archaeological Conference* edited by M. Boyd, J. C. Erwin, and M. Hendrickson pp. 116-126. University of Calgary Press, Calgary, Alberta.

Berman, M. J. and P. L. Gnivecki

1995 Colonization of the Bahama Archipelago: a Reappraisal. *World Archaeology* 26(3):421-441

Brown, G. M.

1996 The Protohistoric Transition in the Northern San Juan Region. In *The Archaeology of Navajo Origins* edited by R. H. Towner, pp. 47-70. University of Utah Press, Salt Lake City.

Brown, K. L. and M. E. Brown

1995 Cultural Behavior and Past Environments as Reflected in the Vertebrate Faunal Assemblages. In *Chapter in Early Navajo History: Late Gobernador Phase Pueblito Sites of the Dinétah District* edited by M. P. Marshall, pp. 145-186. Office of Contract Archaeology, University of New Mexico Report 185-469B. Albuquerque, New Mexico.

Brugge, D. M.

1996 Navajo Archaeology: A Promising Past. In *The Archaeology of Navajo Origins* edited by R. H. Towner, pp.255-271. University of Utah Press, Salt Lake City.

1981 *Navajo Pottery and Ethnohistory*. Navajo Nation Papers in Anthropology No. 4. Navajo Nation Cultural Resource Management Program, Window Rock, Arizona.

1968 Pueblo Influence on Navajo Architecture. *El Palacio* 75(3)14-20



1963 *Navajo Pottery and Ethnohistory*. Navajoland Publications No. 2.

Navajo Tribal Museum, Window Rock, Arizona.

Bullard, W. R. Jr.

1962 *Cerro Colorado Site and Pithouse Architecture in the Southwestern United States Prior to AD 900*. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. XLIV, No. 2. Cambridge, Massachusetts.

Capone, P. W. and R. W. Preucel

2002 *Ceramic Semiotics: Women, Pottery, and Social Meanings at Kotyiti Pueblo*. . In *Archaeologies of the Pueblo Revolt* edited by R. W. Preucel, pp. 99-113. University of New Mexico Press, Albuquerque.

Carlson, R.L.

1965 *Eighteenth Century Navajo Fortresses of the Gobernador District*. Museum Series in Anthropology, vol. 10. University of Colorado, Boulder.

Carillo, C. M.

1992 Where Were the Sheep? The Piedra Lumbre Phase Revisited. In *Current Research on the Late Prehistory and Early History of New Mexico*, edited by B. J. Vierra, pp. 323-326. New Mexico Archaeological Council Special Publication no. 1. Albuquerque

Copeland, J. M. and H. C. Rogers

1996 In the Shadow of the Holy People: Ceremonial Imagery in Dinétah. In *The Archaeology of Navajo Origins*, edited by R. H. Towner, pp.213-230. University of Utah Press, Salt Lake City.

Correll, J. L. and D. M. Brugge

1959 Navajo Land Claim Site form for NLC-CL-UL-U. On file, the John S. Boyden Papers, Special Collections and Manuscripts, Harold B. Lee Library, Brigham Young University, Provo.

Creamer, W.

1993 *Architecture of Arroyo Hondo Pueblo, New Mexico*. School of American Research Press, Santa Fe.



Dodge, W.

1982 *Archaeological Investigations at Jemez Pueblo New Mexico: the Monitoring of Indian Health Service Waterline Trenches*. Office of Contract Archaeology, University of New Mexico, Albuquerque.

Dougherty, J.

1980 *Refugee Pueblos of the Santa Fe National Forest*. Cultural Resources Report No. 2, Santa Fe National Forest. United States Department of Agriculture Forest Service, Santa Fe.

Dozier, E.

1966 *Hano, a Tewa Indian Community in Arizona*. Holt, Rinehart, and Winston, New York.

Dykeman, D. D.

2003 Early Navajo Settlement and Land Use. In *Morris Site 1: Early Navajo Land Use Study* edited by D. D. Dykeman pp. 391-453. NNAD Fruitland Data Recovery Series No. 4 Vol. 2. Navajo Nation Papers in Anthropology No. 39. Navajo Nation Archaeology Department. Window Rock, Arizona.

Elliott, M. L.

2002 Mission and Mesa: Some Thoughts on the Archaeology of Pueblo Revolt Era Sites in the Jemez Region, New Mexico. In *Archaeologies of the Pueblo Revolt* edited by R. W. Preucel, pp. 45-60. University of New Mexico Press, Albuquerque.

1986 *Overview and Synthesis of the Archaeology of the Jemez Province*. Archaeology Notes 51. Museum of New Mexico, Santa Fe.

1982 *Large Pueblo Sites Near Jemez Springs, New Mexico*. USDA Forest Service, Santa Fe National Forest Cultural Resources Report No. 3. Santa Fe.

Ellis, F. H.

1987 Long-Lost "City" of San Gabriel de Yungue, Second Oldest European Settlement in the United States. In *When Cultures Meet: Remembering San Gabriel de Yungue Oweenge, Papers from the October 20 1984 Conference Held at San Juan Pueblo, New Mexico* pp. 10-38. Sunstone Press, Santa Fe.

1964 Archaeological History of Nambe Pueblo. *American Antiquity* 30(1):34-42.

Espinosa, J. M.

1988 *Pueblo Indian Revolt of 1696 and the Franciscan Missions in New Mexico: Letters of the Missionaries and Related Documents.*  
University of Oklahoma Press, Norman.

Fall, P. L.

1981 *Canyon del Muerto Survey Project: Anasazi and Navajo Archaeology in Northeastern Arizona.* Western Archaeological Center  
Publications in Archaeology no. 15. National Park Service, Tucson.

Farmer, M. F.

1942 Navajo Archaeology of the Upper Blanco and Largo Canyons,  
Northern New Mexico. *American Antiquity* 8:65-79.

Fewkes, J. W.

1911 *Antiquities of the Mesa Verde National Park: Cliff Palace.* Bureau of  
American Ethnology Bulletin No. 51. Bureau of American  
Ethnology, Washington, D.C.

1909 *Antiquities of the Mesa Verde National Park: Spruce Tree House.*  
Bureau of American Ethnology Bulletin No. 41. Bureau of  
American Ethnology, Washington, D.C.

Fishler, S.

1953 *In the Beginning a Navaho Creation Myth*. University of Utah  
Anthropological Papers No. 13. University of Utah Press, Salt Lake  
City.

Gerow, P.A. and P. Hogan

2000 *Investigations and LA110299, a Late Dinétah Phase Occupation  
Along U. S. 550, North of Cedar Hill, New Mexico*. Office of Contract  
Archaeology. University of New Mexico, Albuquerque.

Gilpin, D.

1996 Early Navajo Occupation West of the Chuska Mountains. In *The  
Archaeology of Navajo Origins*, edited by R. H. Towner, pp.171-196.  
University of Utah Press, Salt Lake City.

Goodman, L. J.

1987 Brief History of Yunge Owinge Pueblo (San Gabriel LA 59) and the  
Surrounding Area (including LA 60). In *When Cultures Meet:  
Remembering San Gabriel de Yungue Oweenge, Papers from the  
October 20 1984 Conference Held at San Juan Pueblo, New Mexico*  
pp. 85-104. Sunstone Press, Santa Fe.

Gunnerson, D. A.

1956 Southern Athapaskans: Their Arrival in the Southwest. *El Palacio*  
63:346-365.

Hall, E. T. Jr

1944 Recent Clues to Athapaskan Prehistory in the Southwest.  
*American Anthropologist* 46:98-105.

Haskell, J. L.

1975 *The Navajo in the Eighteenth Century: An Investigation Involving  
Anthropological Archaeology in the San Juan Basin, Northwestern  
New Mexico*. Unpublished Ph.D. dissertation, Department of  
Anthropology, Washington State University, Pullman.

Hegmon, M.

1995 *Social Dynamics of Pottery Style in the Early Puebloan Southwest*.  
Occasional Paper No. 5, Crow Canyon Archaeological Center,  
Cortez, Colorado.

1989 Social Integration and Architecture. In *The Architecture of Social  
Integration in Prehistoric Pueblos* edited by W. D. Lipe and M.

Hegmon, pp. 5-14. Crow Canyon Archaeological Center Occasional  
Paper No. 1. Cortez, Colorado.

Hendricks, R., and J. P. Wilson

1996 *The Navajos in 1705: Roque de Madrid's Campaign Journal*.

University of New Mexico Press, Albuquerque.

Hester, J. J.

1962 *Early Navajo Migrations and Acculturation in the Southwest*.

Museum of New Mexico Papers in Anthropology #6. Santa Fe, New Mexico.

Hester, J. J. and J. L. Shiner

1963 *Navajo Period Sites in the Navajo River District*. Museum of New

Mexico Papers in Anthropology no. 9. Museum of New Mexico, Santa Fe.

Hill, D. V.

1995 Brief Overview of the Navajo Presence in the Upper San Juan

Drainage and in Southwestern Colorado and Their Ceramics. In *Archaeological Pottery of Colorado: Ceramic Clues to the Prehistoric and Protohistoric Lives of the State's Native Peoples* edited by R. H. Brunswig, Jr., pp. 98-119. Occasional Papers No. 2. Colorado Council of Professional Archaeologists, Denver.

Hill, W. W.

1940 Some Navajo Culture Changes During Two Centuries (With a Translation of the Early Eighteenth Century Rabal Manuscript). *Smithsonian Miscellaneous Collections*, vol. 100 :395-415. Washington, D.C.

Hodge, F. W.

1895 Early Navajo and Apache. *American Anthropologist* 8:223-240.

Hogan, P.

1992 *Archaeology of the San Juan Breaks: the Navajo Occupation*. Office of Contract Archaeology, University of New Mexico, Albuquerque.

1991 Navajo-Pueblo Interaction During the Gobernador Phase: A Reassessment of the Evidence. In *Rethinking Navajo Pueblitos*. Cultural Resources Series vol. 8. New Mexico Bureau of Land Management, Albuquerque.

Hojjer, H.

1956 Chronology of the Athapaskan Languages. *International Journal of American Linguistics* 22:232.

1938 Southern Athapaskan Languages. *American Anthropologist*  
40(1):75-87.

Jacobson, L. A., S. Fosberg and R. Bewley

1992 Navajo Defensive Systems in the Eighteenth Century. In *Cultural Diversity and Adaptation: the Archaic, Anasazi and Navajo Occupation of the Upper San Juan Basin* edited by L. S. Reed and P. F. Reed pp 105-136. Cultural Resources Series no. 9. New Mexico Bureau of Land Management, Santa Fe.

Jett, S. C. and V. E. Spencer

1981 *Navajo Architecture: Forms, History, Distributions*. University of Arizona Press, Tucson.

Kearns, T. M.

1996 Protohistoric and Early Historic Navajo Lithic Technology in Northwest New Mexico. In *The Archaeology of Navajo Origins* edited by R. H. Towner, pp. 109-145. University of Utah Press, Salt Lake City.



Kemerer, M. F.

1992 Appraisal of the Piedra Lumbre Phase in North Central New Mexico. In *History and Ethnohistory Along the Rio Chama*, edited by J. D. Schelberg and R. R. Kneebone, pp. 66-108. Army Corps of Engineers Albuquerque District, Albuquerque.

Kessell, J. L.

1979 *Kiva, Cross, and Crown: the Pecos Indians and New Mexico 1540-1840*. National Parks Service, Washington, D.C.

Keur, D. L.

1941 *Big Bead Mesa: An Archaeological Study of Navajo Acculturation, 1745-1812*. Memoirs of the Society for American Archaeology no. 1. Society for American Archeology, Washington, D.C.

1944 A Chapter in Navajo-Pueblo Relations. *American Antiquity* 10:75-86.

Kidder, A. V.

1913. Some Undescribed Ruins of the Historic Period from the Upper San Juan. *American Journal of Archaeology* 2 (17):89-90

1920 Ruins of the Historic Period in the Upper San Juan Valley, New Mexico. *American Anthropologist* 22:322-329.

Klah, H.

1942 *Navajo Creation Myth: Story of the Emergence*. Recorded by M. C. Wheelwright. Museum of Navajo Ceremonial Art, Santa Fe, New Mexico.

Lambert, M. F.

1981 Spanish Influences on the Pottery of San Jose de los Jemez and Giusewa Jemez State Monument (LA 679) Jemez Springs New Mexico. In *Collected Papers in Honor of Erik Kellerman Reed* edited by A. H. Schroeder, pp. 215-236. Papers of the Archaeological Society of New Mexico #6. Albuquerque Archaeological Society Press, Albuquerque.

Lekson, S. F.

1986 *Great Pueblo Architecture of Chaco Canyon, New Mexico*. University of New Mexico Press, Albuquerque.

Liebman, M. J.

2002 Signs of Power and Resistance: the (Re-) Creation of Christian Imagery and Identities in the Pueblo Revolt Era. In *Archaeologies of the Pueblo Revolt* edited by R. W. Preucel, pp. 132-144. University of New Mexico Press, Albuquerque.

Magers, P. C.

1981 Navajo Settlement in Canyon del Muerto. In *Canyon del Muerto Survey Project: Anasazi and Navajo Archaeology in Northeastern Arizona* edited by P. L. Fall, pp. 177-250. Western Archaeological Center Publications in Anthropology 15. National Park Service, Tucson, Arizona.

Marmon, L. H. and G. C. Pearl

1958 A Fortified Site Near Ojo del Padre: Big Bead Mesa Revisited. *El Palacio* 65:136-142

Marshall, M. P.

1995 *Chapter in Early Navajo History: Late Gobernador Phase Pueblito Sites of the Dinétah District*. Office of Contract Archaeology, University of New Mexico Report 185-469B. Albuquerque, New Mexico.

1991 The Pueblito as a Site Complex: Archaeological Investigations in the Dinétah District. In *Rethinking Navajo Pueblitos*. Cultural Resources Series, no. 8. New Mexico Bureau of Land Management, Albuquerque.

Matthews, W.

1994 *Navaho Legends*. University of Utah Press, Salt Lake City.

McNitt, F.

1972 *Navajo Wars: Military Campaigns, Slave Raids and Reprisals*. University of New Mexico Press. Santa Fe.

Mera, H. P.

1938 Some Aspects of the Largo Cultural Phase, Northern New Mexico. *American Antiquity* 3:236-243.

Mindeleff, C.

1898. *Navajo Houses*. Seventeenth Annual Report of the Bureau of American Ethnology for the Years 1895-1896, part 2, 669-517. Bureau of American Ethnology, Washington, D.C.

Mindeleff, V.

1891 *Study of Pueblo Architecture in Tusayan and Cibola*. Eighth Annual Report of the Bureau of American Ethnology for the Years 1886-1887, 13-228. Bureau of American Ethnology, Washington, D.C.

Mobley-Takaka, J. L.

2002 *Crossed Cultures, Crossed Meanings: the Manipulation of Ritual Imagery in Early Historic Pueblo Resistance*. In *Archaeologies of the Pueblo Revolt* edited by R. W. Preucel, pp. 77-84. University of New Mexico Press, Albuquerque.

O'Bryan, A.

1956 *Diné: Origin Myths of the Navaho Indians*. U. S. Government Printing Office, Washington, D.C.

Ortiz, A.

1969 *Tewa World: Space, Time, Being, and Becoming in a Pueblo Society*. University of Chicago Press, Chicago.

Parsons, E. C.

1925 *The Pueblo of Jemez*. Yale University Press, Andover.

Phillips, J.

1998 *New Mexico Gardening Guide*. Cool Springs Press, Nashville, Tennessee.

Plog, S.

1997 *Ancient Peoples of the American Southwest*. Thames and Hudson, London.

Powers, M. A. and B. P. Johnson

1987 *Defensive Sites of Dinétah*. Cultural Resources Series, vol. 2. New Mexico Bureau of Land Management, Albuquerque.

Preucel, R. W.

2002 Writing the Pueblo Revolt. In *Archaeologies of the Pueblo Revolt* edited by R. W. Preucel, pp. 3-29. University of New Mexico Press, Albuquerque.

Reagan, A. B.

1927 Origin Story and the Mythical History of the Jemez People.  
*American Anthropologist* 29 (4):722-726

1917 Jemez Indians. *El Palacio* 4:25-72

Reed, A. D. and J. C. Horn

1988 *Archaeological Investigations of Kin 'Atsa' (LA 49498): A Late Archaic-Basketmaker Transition, Basketmaker II and Dinétah Phase Navajo Habitation Site in San Juan County, New Mexico*. Nickens and Associates, Montrose, California.

Reed, L. S. and P. F. Reed

1996 Re-examining Gobernador Polychrome: Toward a New Understanding of the Early Navajo Chronological Sequence in Northwestern New Mexico. In *The Archaeology of Navajo Origins*, edited by R.H. Towner, pp. 83-108. University of Utah Press, Salt Lake City, Utah.

1992 Protohistoric Navajo: Implications of Interaction, Exchange and Alliance Formation with the Eastern and Western Pueblos. In *Cultural Diversity and Adaptation: Archaic, Anasazi and Navajo Occupation in the Upper San Juan Basin* edited by L. S. Reed and P. F. Reed, pp. 91-204. Cultural Resources Series no 9. New Mexico Bureau of Land Management, Santa Fe.

Reeve, F. D.

1956 Early Navajo Geography. *New Mexico Historical Review* 31:290-309.

1958 Navajo-Spanish Wars: 1680-1720. *New Mexico Historical Review*  
33:204-231

1959 Navajo-Spanish Peace:1720's-1770's. *New Mexico Historical Review* 34:9-40.

Reiter, P.

1938 *Jemez Pueblo of Unshagi, New Mexico, With Notes on the Earlier Excavations at "Amoxiumqua" and Giusewa.* Two volumes.

University of New Mexico Bulletin No. 4. University of New Mexico, Albuquerque.

Reiter, P., W. T. Mulloy and E. H. Blumenthal Jr.

1940 *Preliminary Report of the Excavation at Nanishagi, New Mexico.*

University of New Mexico Bulletin Anthropological Series, Vol. 3  
No. 3. University of New Mexico, Albuquerque.

Riley, C. L.

1987 *Frontier People: the Greater Southwest in the Protohistoric Period.*

Revised and expanded edition. University of New Mexico Press,  
Albuquerque.

Roessel, J. A. Jr.

1983 *Dinétah.* Navajo Curriculum Center, Rough Rock, Arizona.



Russell, S.C.

1983 *Navajo History and Archaeology of East Central Black Mesa, Arizona (CRMP-83-046)* Navajo Nation Papers in Anthropology No. 21. Navajo Nation Cultural Resources Management Program, Window Rock, Arizona.

Rye, O. S.

1981 *Pottery Technology: Principles and Reconstruction*. Manuals on Archaeology 4. Taraxacum, Washington D.C.

Sackett, J.R.

1990 Style and Ethnicity in Archaeology: the Case for Isochrestism. In *The Uses of Style in Archaeology* edited by M. W. Conkey and C. A. Hastorf, pp. 32-43. Cambridge University Press, Cambridge.

Sando, J. S.

1992 *Pueblo Nations: Eight Centuries of Pueblo Indian History*. Clear Light Publishers, Santa Fe.

1982 *Nee Hemish*. University of New Mexico Press, Albuquerque.

1979 Jemez Pueblo. In *Handbook of North American Indians* Vol. 9.

Edited by A. Ortiz, pp. 418-429. Smithsonian Institution,

Washington D.C.

Schaafsma, C.F.

2002 *Apaches de Navajo: Seventeenth-Century Navajos in the Chama*

*Valley of New Mexico*. University of Utah Press, Salt Lake City.

1996 Ethnic Identity and Protohistoric Archaeological Sites in

Northwestern New Mexico: Implications for Reconstruction of

Navajo and Ute History. In *The Archaeology of Navajo Origins*

edited by R. H. Towner, pp. 19-46. University of Utah Press, Salt

Lake City.

1979 *Cerrito Site (AR-4), a Piedra Lumbre Phase Settlement at Abiquiu*

*Reservoir*. School of American Research, Santa Fe, New Mexico.

Schroeder, A. H.

1979 Pueblos Abandoned in Historic Times. In *Handbook of North*

*American Indians Volume 9: Southwest* edited by A. Ortiz, pp. 237-

254. Smithsonian, Washington D. C.

Sesler, L.M., T.D. Hovezak, and R.H. Wilshusen

2000 Cultural Landscape of Dinétah: The Navajo Occupation of Frances Mesa. In *Frances Mesa Alternative Treatment Project* edited by R.H. Wilshusen, T.D. Hovezak and L.M. Sesler, pp. 159-253. Research Papers No. 3, Vol. 1. La Plata Archaeological Consultants. Dolores, Colorado.

Shepard, A. O.

1942 *Rio Grande Glaze Paint Ware*. Contributions to American Anthropology and History No. 39, pp. 131-262. Carnegie Institution, Washington, D. C.

1954 *Ceramics for the Archaeologist*. Publication 609, Carnegie Institution. Washington D.C.

Simpson, J. H.

1852 Journal of a Military Reconnaissance from Santa Fe, New Mexico to the Navajo Country, Made With the Troops Under Command of Brevet Lieutenant Colonel John M. Washington, Chief of Ninth Military Department and Governor of New Mexico in 1849. Senate Ex. Doc. First Session. Thirty-first Congress #64. Lippincott, Philadelphia.

Stahle, D.

1973 Navajo Archaeology in Light of LA-2298. Ms. on file at the  
University of Arizona, Tucson.

Stallings, W. S.

1938 Unshagi Dates. In *Jemez Pueblo of Unshagi, New Mexico with  
Notes on Earlier Excavations at "Amoxiumqua" and Giusewa*, edited  
by P.W. Reiter, p. 99. University of New Mexico Bulletin No. 4.  
University of New Mexico, Albuquerque.

Stark, M.

1995 Cultural Identity in the Archaeological Record: the Utility of  
Utilitarian Ceramics. In *The Roosevelt Community Development  
Study, Vol. 2 Ceramic Chronology, Technology, and Economics*,  
edited by J. M. Heidke and M. T. Stark, pp. 331-362.  
Anthropological Papers No. 14. Center for Desert Archaeology,  
Tucson, Arizona.

Steward, J.H.

1936 *Pueblo Material Culture in Western Utah*. University of New Mexico  
Bulletin 47 Vol. 1 No. 3. Albuquerque.

Terrell, J. U.

1973 *Pueblos, Gods, and Spaniards*. Dial Press, New York.

Towner, R. H.

2003 *Defending the Dinéah*. University of Utah Press, Salt Lake City.

1997 *Dendrochronology of the Navajo Pueblitos of Dinéah*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Arizona, Tucson.

1996a *The Archaeology of Navajo Origins*. University of Utah Press, Salt Lake City.

1996b The Pueblito Phenomenon: A New Perspective on Post-Revolt Navajo Culture. In *The Archaeology of Navajo Origins*, edited by R. H. Towner, pp 149-170. University of Utah Press, Salt Lake City.

1996c Preface. In *The Archaeology of Navajo Origins*, edited by R. H. Towner, pp. xi-xii University of Utah Press, Salt Lake City.

1992. Dating the Dinéah Pueblitos: The Tree-Ring Data. In *Interpreting the Past: Research with Public Participation* edited by L. Jacobson

and J. Piper, pp. 55-72. Cultural Resources Series no. 10. New Mexico Bureau of Land Management, Santa Fe.

Towner, R. H. and J. S. Dean

1996 Questions and Problems in Pre-Fort Sumner Archaeology. In *The Archaeology of Navajo Origins*, edited by R. H. Towner, pp. 3-18. University of Utah Press, Salt Lake City.

Towner, R. H., D. Grow, J. Psaltis, and A. Falzone

2001 The Importance of Sample Context in Dendroarchaeological Interpretation: an Example From Northwestern New Mexico, USA. *Tree Ring Research* 57(1):75-88

Towner, R. H. and B. P. Johnson

1998 *The San Rafael Canyon Survey: Reconstructing Eighteenth Century Navajo Population Dynamics in the Dinétah Using Archaeological and Dendrochronological Data*. Arizona State Museum Archaeological Series 190. Arizona State Museum, Tucson.

Towner, R. H., H. C. Rogers, and J. M. Copeland

2001 Changing Threats, Changing Responses: Tactical Aspects of the Navajo Pueblitos of Dinétah. In *The Archaeology of Ancient Tactical Sites*, edited by J. R. Welch and T. W. Bostwick. Arizona Archaeologist No. 32. Arizona Archaeological Society, Tucson.

Van Valkenburgh, R. and J. C. McPhee

1938 *Short History of the Navajo People*. United States Department of Interior Navajo Service, Window Rock, Arizona.

Vivian, R. G.

1960 *The Navajo Archaeology of the Chacra Mesa*. Unpublished M. A. Thesis, Department of Anthropology, University of New Mexico, Albuquerque.

Walter, P. A. F.

1921 Trip to Jemez. *El Palacio* 11(2):15-23

Warren, A. H.

1981 Micaceous Pottery of the Rio Grande. . In *Collected Papers in Honor of Erik Kellerman Reed* edited by A. H. Schroeder, pp. 149-166. Papers of the Archaeological Society of New Mexico #6. Albuquerque Archaeological Society Press, Albuquerque.

Wheeler, C. W., Wilcox, S. and D. O. Ayers

1996 Material Correlates of Early Navajo Ceremonialism. In *The Archaeology of Navajo Origins*, edited by R. H. Towner, pp. 231-252. University of Utah Press, Salt Lake City.

Wilcox, D. R.

1981 Entry of the Athabaskans into the American Southwest: the Problem Today. In *Protohistoric Period in the American Southwest, AD1450-1700* edited by D. R. Wilcox and W. B. Masse, pp. 213-256. Arizona State University Anthropological Research Papers No. 24. Tempe.

Wilcox, M. V.

2002 Social Memory and the Pueblo Revolt. In *Archaeologies of the Pueblo Revolt* edited by R. W. Preucel, pp. 167-179. University of New Mexico Press, Albuquerque.

Wilson, J. P. and A. H. Warren

1974 LA 2298: The Earliest Pueblito? *Awanyu* 2:8-26



Winter J. C. and P. Hogan

1992 Dinétah Phase of Northwestern New Mexico: Settlement and Subsistence. In *Current Research on the Late Prehistory and Early History of New Mexico* edited by B. J. Vierra, pp. 299-312. New Mexico Archaeological Council Special Publication No. 1, Albuquerque.

Wozniak, F.

1992a Location of the Navajo Homeland in the Seventeenth Century: An Appraisal of the Spanish Colonial Records. In *Current Research on the Late Prehistory and Early History of New Mexico*, edited by B. J. Vierra, pp. 327-332. New Mexico Archaeological Council Special Publication no. 1. Albuquerque

1992b Ethnohistory of the Abiquiu Reservoir Area. In *History and Ethnohistory Along the Rio Chama*, edited by J. D. Schelberg and R. R. Kneebone, pp. 1-65. Army Corps of Engineers Albuquerque District, Albuquerque.

Zedeño, M. N.

1995 Role of Population Movement and Technology Transfer in the  
Manufacture of Prehistoric Southwestern Ceramics. In *Ceramic  
Production in the American Southwest* edited by B. J. Mills and P. L.  
Crown, pp. 115-141. University of Arizona Press, Tucson.