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THE NAVAJO DEPOPULATION OF DINÉTAH

Ronald H. Towner
Laboratory of Tree-Ring Research, The University of Arizona, Tucson, AZ 85721, USA.
Email: rtowner@ltrr.arizona.edu

KEY WORDS: Dendroarchaeology; Dinétah; Early Navajo; Migration; Paleoclimate

The ancestral heartland of the Navajo people (Diné) is Dinétah, an area of northwestern New Mexico centered around the Largo and Gobernador drainages. The date of the Navajo entry into the area remains the subject of debate, but there is abundant evidence of an intensive and extensive Navajo occupation of the area in the 1500s–1700s. There is also ample evidence that the area was depopulated, if not abandoned, by the 1770s. Traditionally, the Navajo "abandonment" of Dinétah as a habitation region in the mid-1700s has been considered a seminal event in Navajo cultural development. Drought and Ute raiding have been invoked as causes for a Navajo migration toward the south and west. In this paper, I suggest that the emigration was a long-term social process that involved many push and pull factors. It began much earlier than previously thought, and the area continued to be used intermittently for many years after it was supposedly abandoned. This reevaluation of the abandonment has important implications for the protohistoric and early historic period archaeology and history of large areas of northern New Mexico and Arizona.

THE "ABANDONMENT" OF THEIR DINÉTAH HOMELAND IN NORTHWESTERN NEW MEXICO (Figure 1) has been viewed as a seminal event in Navajo history and cultural development. After an intensive occupation of the Largo-Gobernador area in the 1600s and early 1700s, the entire area was seemingly abandoned quite suddenly in the middle of the eighteenth century. "Seemingly" is the key word here, because there is archaeological and oral history data to indicate Navajo use of the area after the late 1700s, although the area was never again home to a large resident Navajo population. These data indicate a minimal reoccupation during the U.S. Army's Kit Carson campaign against the Navajos and the Bosque Redondo incarceration (160 mi/260 km east of Albuquerque), and continued use of the area by traditionalists and *hátáálíí* ("chanters," or medicine people); indeed, the area is still used today for religious and educational purposes. The purpose of this paper is to evaluate the "traditional" archaeological interpretations of the depopulation and suggest new avenues of research to illuminate the processes by which the Navajo left the Largo-Gobernador area and occupied much of northern New Mexico and Arizona by the beginning of the nineteenth century.

The traditional archaeological and historical model of the depopulation suggests a relatively sudden, perhaps catastrophic, event or combination of events that forced the Navajo to leave an area they had occupied for at least 200 years (Hester 1962; Marshall 1995; but see Carlson 1965). As a consequence of the

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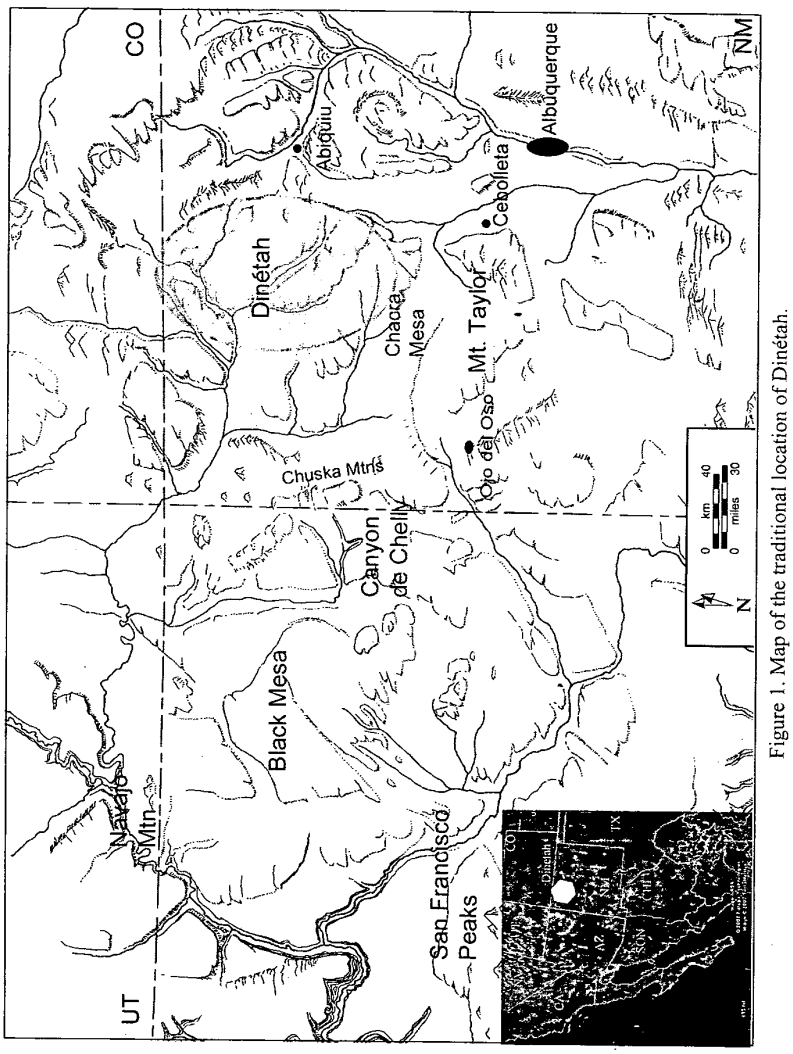

Figure 1. Map of the traditional location of Dinétah.

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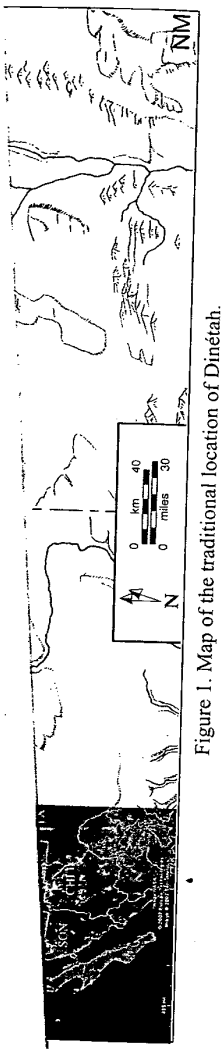

Figure 1. Map of the traditional location of Dinétah.

depopulation and subsequent developments, the Navajo apparently shifted their economy toward a pastoralist regime, rejected masonry pueblitos as an architectural form, ceased to produce painted ceramics, and expanded their territory to the south and west (Brugge 1963, 1972, 1983). Both historical and archaeological data have been used to develop this model. The historical data have been used to suggest a severe drought in 1748 as the primary "push" factor in the emigration, and to posit as a secondary cause the Ute raiding of Navajo "rancherias" (Schroeder 1963). The archaeological data long consisted of negative evidence: prior to 1990, only two post-1748 tree-ring dates were known from the Dinétah (Powers and Johnson 1987). Research in the past 18 years, however, indicates that the Navajo did not depopulate the area until the late 1750s or early 1760s; emigration from the area may have been a long-term process beginning at least as early as the late 1600s. Paleoclimatic data also suggest that the "drought" of 1748 was a single-year event that was probably offset by above-average years immediately preceding and succeeding 1748 (Towner and Salzer 2003).

Both the archaeological data and some Navajo oral traditions suggest that Ute raiding, not drought, was the primary cause of the final depopulation. Because both the timing and causes of the migration are now in question, we must examine this phenomenon as a structured movement of a significant number of people over a broader time span, and one that involved a variety of pushes and pulls.

HISTORICAL DATA CONCERNING DROUGHT AND ABANDONMENT

The most common historical reference in support of the traditional model is Reeve's (1959:20) statement that

> The Navahos were suffering from the effects of a drought in 1748. With inadequate crops, they had been forced to draw heavily on their livestock for subsistence. This no doubt made some of them more amenable to the missionaries' suggestion that they move to Cebolleta.

Reeve's 1959 work, however, is a secondary document. He was interpreting a statement made to Governor Códallos y Rabal on July 20, 1748 (Hackett 1937). The original statement was made in the context of determining whether or not to build missions in the Navajo country and derived from information supplied by missionaries who fervently wanted such missions to be constructed (Hackett 1937). Thus, even the primary document must be viewed critically because the missionaries had a professional agenda for suggesting the Navajos were willing to move south to Cebolleta. Nevertheless, the traditional model is still embraced, as can be seen in recent pueblito research by Marshall (1995:203) in which he states, "A severe drought which began in about A.D. 1730 had major impacts on the Navajos by A.D. 1748 [Reeve 1959:20]. This drought and continued Ute and Comanche predation appear to have caused . . . ultimately the abandonment of their Dinétah District homeland."

In none of these earlier theses is the Navajo "abandonment" of the Dinétah discussed as a structured behavior—it is simply viewed as a reaction to external

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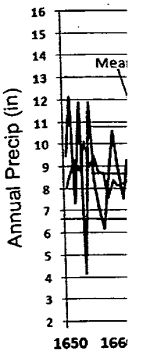
forces, whether natural or cultural or both. Hester (1962) provides the most complete discussion, but the movement out of Dinétah is only one of a series of topics broached in that seminal work.

PALEOENVIRONMENTAL EVIDENCE OF A DROUGHT

Climate has long been a topic of interest to Southwest archaeologists (e.g., Dean 1988). Although there are some notable exceptions (Brugge 1986; Kemrer 1974; Oswald 1993), climatic factors usually have not been invoked as explanatory tools by students of early Navajo archaeology. I believe that there are three main reasons for this omission. First, most published paleoclimatic data, usually tree-ring-reconstructed precipitation or temperature data (Dean and Robinson 1977), have presented decadal summaries of departures from mean conditions for relatively large areas of the northern Southwest. Similarly, the low-frequency processes (LFP) that have been of most concern to archaeologists studying the prehistoric Anasazi (Dean 1988) have generally been viewed as covering too long a time span to have affected Navajo settlement patterns. Although useful (e.g., Powers and Johnson 1987:3), the decadal summaries have not had the temporal or spatial resolution necessary to address the questions of concern to archaeologists studying early Navajo development. Second, Navajo subsistence in the historic period was not exclusively oriented toward maize agriculture (Dykeman 2003), and therefore most researchers have assumed the Navajo were less affected by environmental fluctuations than their Puebloan neighbors (but see Brugge 1986). Most archaeologists and historians have viewed the Navajo transition to pastoralism as an adaptation to the social, not natural, environment. Finally, because the Navajo sites of interest were occupied during the historic period, historical accounts and anecdotal references have been used by most scholars in discussions of environmental oscillations and their effects on the Navajo (e.g., Reeve 1959). These anecdotal data, while useful, have not been used to generate inferences concerning the patterns and trends of climatic fluctuations in relation to Navajo settlement in the Dinétah.

Recently, a fine-grained reconstruction of precipitation in the Gobernador area has been developed. Using live-tree cores from several sites, archaeological samples from the area, and precipitation data from Chaco Canyon, Towner and Salzer (2003) developed an independent annual precipitation reconstruction for the Gobernador area. The reconstruction covers the AD 624–1975 period, but only the latter part of the reconstruction (Figure 2) is relevant to this paper.

The individual annual values indicate a precipitation regime that varied between 2.78 inches in 1748 and 14.4 inches in 1771, with an average of 8.72 inches and standard deviation of 2.24 inches of precipitation per year. Much of the period was highly variable, alternating between very wet and very dry years in short time frames. Such variability could have enabled a number of different subsistence and settlement strategies, including surplus production and storage (the typical Puebloan option), high mobility and broad-spectrum hunting and gathering (the typical Archaic option), or a semi-sedentary exploitation of wild and domestic flora and fauna supplemented by trading and raiding (the



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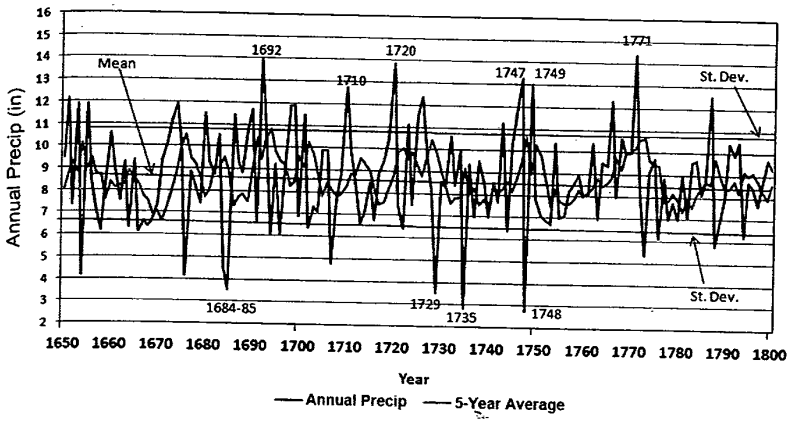

Figure 2. Reconstructed Gobernador precipitation, AD 1650–1800.

Navajo option). Dykeman (2003, n.d.) has labeled this last option "the perfect Southwestern adaptation."

Another approach to examining past precipitation is via moving averages. If the typical storage strategy used a 3-year surplus (Schlanger 1985), a 5-year precipitation average might illuminate particularly stressful periods. As can be seen in Figure 2, no 5-year period was even one standard deviation below the mean, although the late 1670s were particularly dry. Interestingly, 1748 was within a particularly wet interval between 1745 and 1749, when every other year was above average and three (1746, 1747, 1749) were more than one standard deviation above the mean.

Finally, an examination of the "good" and "bad" years helps identify specific wet or dry episodes. In this discussion as in many others (Graybill 1989), I assume that years with high precipitation values, those more than one standard deviation above the mean, were "good" years, and low precipitation years, those more than one standard deviation below the mean, were "bad" years; "very good" and 'very bad" years were more than two standard deviations from the mean. As shown in Table 1, there were 18 good and 3 very good years between 1650 and 1800; there were also 15 bad and 6 very bad years. The precipitation reconstruction indicates that the "drought" of the mid-1700s was a short-lived phenomenon. Certainly, 1748 was a very dry year; indeed, in the Gobernador area precipitation reconstruction, it is the driest year in the entire 1,348-year chronology. Two of the preceding three years, 1746 and 1747, were "good" years, however, and the succeeding year, 1749, was the fifth wettest year in the 150 years of the reconstruction. Thus, the "drought" of 1748, which supposedly made the Navajos "amenable to the missionaries' suggestion that they move to the Cebolleta region" (Reeve 1959:20; Hester 1962:77) was a single-year event in the midst of a decidedly wet interval. Other dry years, such as 1707, 1729, and 1735, have not been given such importance by those inferring climate as an emigration push. In addition, 1748 was a very dry year throughout the Southwest and is clearly recorded in other

dendroclimatic reconstructions (e.g., Grissino-Mayer 1996) and in fire-scarred trees across Arizona and New Mexico (Swetnam and Baisan 1996). If the Navajo "abandoned" Dinétah in 1748, they were moving into areas that were also in the throes of a very dry year. Thus, there simply was no "climatic gradient" from the Dinétah to surrounding areas, similar to that posited as a factor in the Anasazi migration from the Four Corners to the Rio Grande area in the 1300s (Ahlstrom et al. 1995), that would have facilitated migration to a more favorable locale.

Table 1
Good, bad, very good, and very bad precipitation years, AD 1650–1800

Good years		Bad years	
Year	Precipitation (inches)	Year	Precipitation (inches)
1723	11.12	1748†	2.79
1673	11.15	1735†	2.85
1743	11.26	1685†	3.52
1686	11.45	1729†	3.53
1701	11.48	1676†	4.16
1680	11.52	1654†	4.17
1725	11.57	1684	4.51
1690	11.69	1707	4.81
1655	11.87	1773	5.38
1653	11.89	1788	5.79
1698	11.9	1694	6.03
1699	11.91	1696	6.09
1674	11.92	1666	6.13
1746	12.1	1776	6.17
1651	12.11	1658	6.18
1766	12.34	1794	6.22
1726	12.35	1664	6.32
1787	12.55	1668	6.38
1710	12.75	1744	6.4
1749	12.98	1702	6.41
1747	13.26	1722	6.45
1720†	13.88		
1692†	13.98		
1771†	14.4		

† indicates > 2 s.d. from mean ("very good" and "very bad" years)

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Bad years
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4.81
5.38
5.79
6.03
6.09
6.13
6.17
6.18
6.22
6.32
6.38
6.4
6.41
6.45

ARCHAEOLOGICAL DATA CONCERNING ABANDONMENT

Beginning in the first decade of the 1700s, Dinétah Navajos constructed "pueblitos," small rock-and-mud masonry structures in defensively oriented locations, such as on boulders and mesa rims. Traditionally interpreted as built by Pueblo Refugees fleeing Spanish power after the Pueblo Revolt of 1680 (Kidder 1920; Keur 1944; Hester 1962), pueblitos are now viewed as solely Navajo constructs (Towner 1997, 2003) that served a variety of functions (Dykeman 2003; Powers and Johnson 1987) and were built at different times in response to different stimuli.

The archaeological data indicate that Navajo pueblitos were constructed throughout the Dinétah after the supposed drought of 1748. Figure 3 shows the number of tree-ring cutting and near cutting dates for each 5-year interval between 1675 and 1754. The initial 1690–1694 spike is the result of a single, probably anomalous, site (Towner and Dean 1992). Tree-cutting and pueblito construction surged in the first 15 years of the eighteenth century, perhaps in response to Spanish military incursions into Dinétah such as that conducted by Roque de Madrid in 1705 (Hendricks and Wilson 1996). A slight decline in the 1715–1719 period—the initiation of the Navajo-Spanish Peace (Reeve 1959)—was followed by a "boom" that lasted nearly 35 years from 1720 to 1754. Tree-cutting reached a peak in the late 1720s but continued throughout the 1730s and 1740s at a relatively high rate. It virtually ceased after the spring of 1754—except in the Hart Canyon area north of Aztec. When viewed in an archaeological context, tree cutting after 1748 represents at least seven construction episodes, and possibly several more, at as many as eight sites (Figure 4). Interestingly, an equal number of pueblito sites show tree-ring evidence of occupation in the five years following 1748 as in the five years preceding the "drought." No pueblitos were constructed in 1748, or any other "drought" year (Towner 1997, 2003), possibly because Ute raiding declined in those years as well. Pueblito construction actually expanded into new areas, such as Simon Canyon north of the San Juan River, during the years following 1748. In addition to pueblitos, at least two sites (LA 81172 and NLC-N-SJ-LA-D) north of the San Juan near Hart Canyon were in use as late as the 1770s (Fetterman 1996).

ORAL TRADITION AND THE "ABANDONMENT"

Two examples of Navajo oral histories concerning the depopulation of the area indicate that Ute raiding was the primary push factor behind the emigration. First, Van Valkenburgh (1940) relates a story about a battle with the Utes told to him in 1935 by Red Woman. Although she had never been there, she described the Tower of Haskhek'izh (Spotted Warrior) as "the headquarters of the chief of all the eastern Navajo" and the location of a battle where Utes lay siege to a "Navajo watchtower"—presumably a pueblito.

According to Red Woman's story, the Utes set out from a camp on the Los Pinos River, rode up the Largo, passed the watchtower at the mouth of Rincon Largo, and attacked the site. The battle and siege lasted 12 days, after which a group of Navajos from Canyon de Chelly attacked the Utes, killing most and

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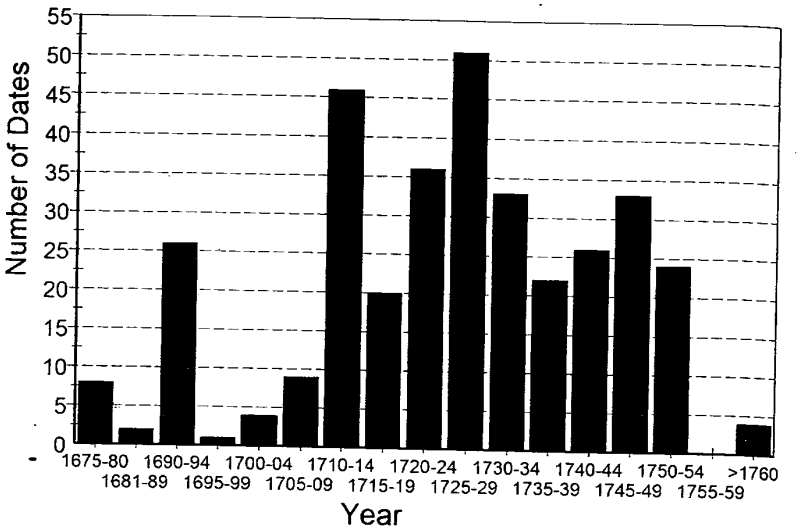

Figure 3. Distribution of Navajo pueblito tree-ring cutting and near cutting dates ($N = 336$).

chasing the survivors north across the San Juan. Spotted Warrior abandoned the site and moved to Canyon de Chelly with his four wives and their children (Van Valkenburgh 1940).

A second example, the story of "Shattered Hooves," is related by Cleveland, Begay, and Arviso-Kakos (n.d.). Their work with traditional Navajo elders uncovered the story of a young Diné girl captured by Utes in the 1700s. After some period of captivity, the girl, with the help of an older Ute woman, escaped. Utes, and later Spaniards, chased her south into Dinétah, where her horse's hooves shattered in the rough country around Gobernador Knob. The girl continued on foot and reached her people's home in Dinétah.

These oral histories are important for several reasons. First, both indicate that the Utes were located north of the San Juan, as detailed in various historical accounts (Schaafsma 1981, 1996). Second, they reinforce the notion that conflict with the Utes was an important consideration in Navajo settlement patterns during the occupation of pueblitos (Brugge 1972; Jacobson et al. 1992; Towner et al. 2001). Although pueblitos were originally thought to represent Pueblo refugee habitations built for protection against the Spaniards, most pueblitos are now identified as part of a Navajo defensive strategy to counter Ute and Spanish raiding (Hogan 1991; Towner 1996, 1997, 2003; Towner et al. 2001). Third, Shattered Hooves suggests Spaniards may also have been slave raiding in the area. Fourth, the oral histories make no mention of drought as a factor in the abandonment. If the Navajo had "inadequate crops" and were butchering livestock to compensate for the loss, we might expect such factors to be mentioned in the histories. Fifth, Haskhek'ish's status as chief of the *eastern* Navajos and the "rescue" in Red Woman's story by Navajos from Canyon de Chelly indicates that there was (*a*) an

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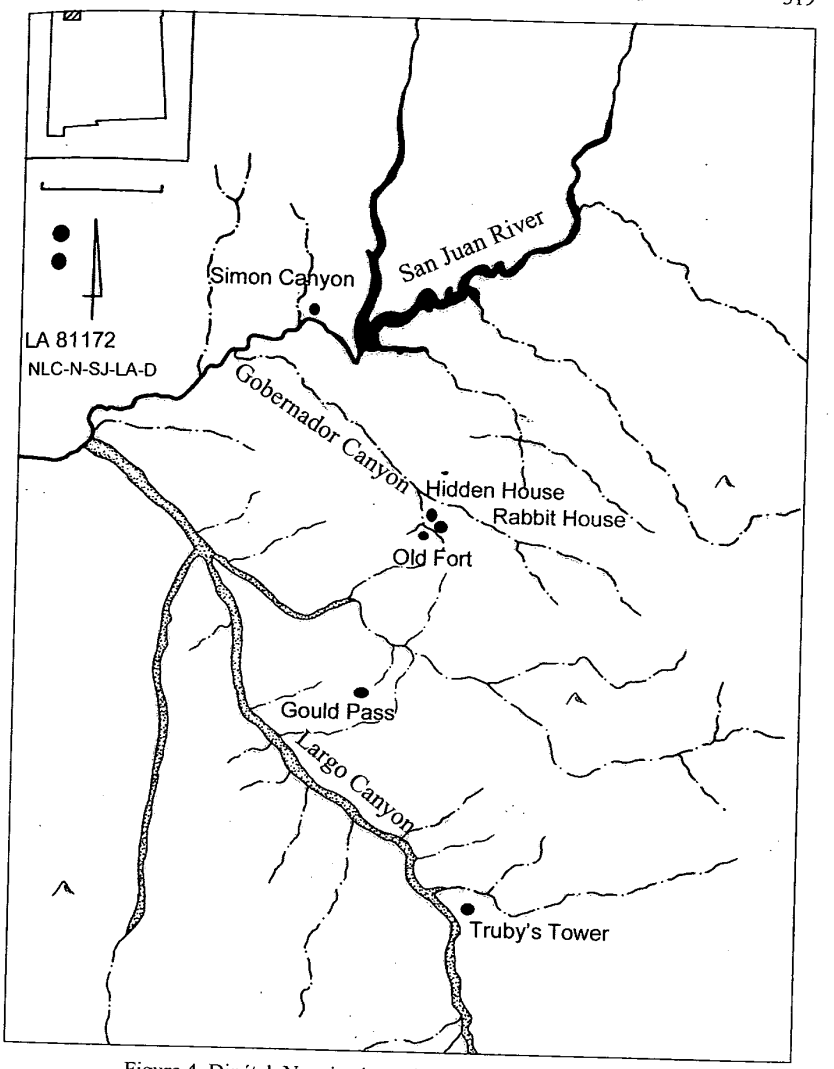

Figure 4. Dinétah Navajo sites with tree-ring dates after 1750.

extant Navajo community west of the Chuska Mountains during the occupation of Dinétah pueblitos (Gilpin 1996; McDonald 1976), (*b*) communication between the Dinétah and de Chelly populations, and (*c*) organization and mobility that allowed the de Chelly Navajos to counterattack the Ute force rather quickly. Finally, the oral history not only provides a destination for the Navajos after Red Woman's site was abandoned but implies a relationship between the two Navajo groups that may have facilitated both migration and return-migration prior to the final depopulation of Dinétah.

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DISCUSSION

The new data relevant to the Navajo migration out of the Dinétah can be used to address a number of important questions. First, Dinétah Navajo settlement patterns prior to the depopulation need to be delineated. In all areas of Dinétah that have been intensively surveyed, masonry pueblitos are spatially associated with less substantial forked-pole hogans (e.g., Marshall 1995). There are also large forked-pole hogan villages (10+ hogans) not associated with masonry pueblitos (Sesler et al. 2000). Detailed analysis of tree-ring dates from pueblitos suggests that most, if not all, were relatively short-term-use structures (Towner 2003).

Identifying the pushes and pulls (Anthony 1990) relevant to the migration needs additional research. The pushes behind the exodus were probably more complex than a single-year "drought." Ute and/or Comanche raiding (Hester 1962; Reeve 1959) and possibly free-lance Spanish slave raiding (Bailey 1964), appear to have been increasing during the middle part of the eighteenth century and may have been critical pushes. Spanish slave-raiding was officially forbidden, but the market for slaves in Mexico may have enticed many individuals to break the law. Although pueblito construction may have been a response to these conditions (Jacobson et al. 1992), performing tasks away from pueblitos may have become increasingly dangerous as more raids were conducted. The Utes and Comanches probably had more horses and more and better guns than the Navajos (Calloway 2003; John 1975), thus putting the latter at a distinct disadvantage even in their home territory. Finally, Ute/Comanche raiders also may have been able to destroy crops and steal horses and other livestock—an eerie foreboding of Carson's tactics more than a century later.

Towner et al. (2001) suggest that Dinétah pueblitos were built at different times in response to different conditions. They infer that prior to about 1720, pueblitos were either population aggregations or "hidden" locations to counter the numerous Spanish military incursions into Dinétah between 1705 and 1716 (Hendricks and Wilson 1996); between 1720 and 1745, however, most pueblitos were small defensive structures used to counter slave raiding parties.

Historical documents and Navajo oral history data indicate that the Ute were the primary raiders of the Dinétah Navajo, but the Comanche are also mentioned as participants in the slave trade (Hamalainen 1998; Kavanagh 1996; Marez 2001), although whether they raided Dinétah Navajo settlements is still undetermined. Marez (2001:274) indicates that "Comanche bands raided as far south as Chihuahua . . . and took horses, slaves, and captives from Pawnees, Osages, Apaches, Kiowas, Cheyennes, Arapahos, and Navajos, *sometimes in joint ventures with New Mexican auxiliaries*" (emphasis added). Although year-specific data are not available, Gutiérrez (1991:156) indicates that more than 2,708 non-Pueblo Indian slaves, mostly Navajo, were baptized into Spanish households between 1700 and 1820.

Based on archaeological data, Towner et al. (2001) suggest that a fundamental shift in the nature of warfare—from raiding to "total war"—occurred in the late 1740s and was a major factor in the depopulation of Dinétah. The Ute attacks that forced the temporary abandonment of Abiquiu in 1747 (Gutiérrez 1991)

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suggest a powerful military force; similarly, 3,000 Comanches are reported to have attacked Taos Pueblo in 1760, seizing fifty-seven women and children who were then sold or traded into slavery (Brooks 1996). These data suggest a large military force for which the rancheria-dwelling Navajo were ill-prepared; whether similar-size forces attacked Navajo settlements in Dinétah remains an important question.

Another possible push factor that has not been examined, but that deserves close scrutiny, is overhunting. There are references throughout the historical period to the Navajo trading buckskins to the Puebloans and others (e.g., Hammond and Rey 1966). The faunal remains at pueblito sites (Brown and Brown 1995) routinely include deer bones, but the overall numbers are relatively small. There is also archaeological evidence of antelope procurement in substantial quantities (Reynolds et al. 1984) in the Blanco drainage to the west of the Dinétah heartland. One antelope trap (Reynolds et al. 1984) has not been chronometrically dated, but it did contain the largest assemblage of Early Navajo projectile points ever identified and lacked evidence of metal tools; thus, it almost certainly predates 1800 and may be evidence of Navajo exploitation of extensive faunal resources on the fringes of Dinétah during the 1700s or earlier. Another antelope trap (LA 68613) contains a single tree-ring date of 1867vv (Laboratory of Tree-Ring Research files, University of Arizona, Tucson) and may indicate substantial pronghorn exploitation after the Navajo Long Walk (the removal of many Navajos to the Bosque Redondo in eastern New Mexico in 1863; Bailey 1964).

It remains to be seen whether the overexploitation of deer and pronghorn antelope contributed to the Navajo decision to emigrate, but this may be a fruitful line of investigation in the future. Historical records, including procurement documents such as supply orders or bills of sale, may be particularly important in this regard, but they are probably located in distant archives (Flint and Flint 2005), if they even exist.

Before identifying the "pulls" affecting the migrants (Anthony 1990), it is necessary to posit destinations. Obviously Canyon de Chelly was one such possible destination. In addition to the oral history related above, archaeological, and tree-ring data (Fall et al. 1981; James 1976; Robinson and Towner 1993) indicate an extant Navajo settlement in the canyon. Archaeological, tree-ring, and historical data indicate that there were also substantial communities at Big Bead Mesa (Keur 1941), Chacra Mesa (Brugge 1986; Vivian 1960), and Cebolleta (Carroll 1979) prior to AD 1750, and west of the Chuska Mountains near Ganado and Wide Ruins by 1759 (Gilpin 1996; Magers 1976). Finally, Navajo oral traditions regarding the Grand Canyon area (Begay and Roberts 1996) and tree-ring data from the Black Mesa (Kemrer 1974) and the Defiance Plateau (Robinson and Towner 1993) suggest that substantial Navajo communities existed far to the west in the early and middle parts of the eighteenth century. Such existing communities may have provided the Dinétah migrants with the initial support systems necessary for successful movement.

Just when these communities were initially established remains problematic, but it is clear there were substantial numbers of Navajos living outside Dinétah in the 1700s. Indeed, Brugge (1985:36) has suggested that "in spite of the spectacular

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nature of cultural developments in the Dinétah during this period [1700–1745], it was not the center of the greatest Navajo population." That distinction, in the Spanish records at least, was long held by areas to the south near Albuquerque.

The "pulls" that attracted Dinétah Navajos to those other communities have yet to be quantified. Certainly, security from Ute/Comanche raids may have been a strong pull factor. The movement south to join communities at Big Bead Mesa and Cebolleta, and the protection offered by nearby Spanish settlements, suggest that protection from raids was important. Indeed, some Navajos requested Spanish protection from Ute predation (Reeve 1959), and such requests may have been a factor in the establishment of missions at Cebolleta and Encinal in 1749 (Hackett 1937). Such data may be somewhat ironic—Navajos in southern Dinétah requesting protection and aid from Spanish priests and government officials, while Navajos in northern Dinétah were being captured by Ute/Commanche/Spanish raiders and sold into slavery in the haciendas of the Rio Grande Valley and silver mines of northern Mexico (Brooks 1996, 2002). Clearly, the 1700s in the Southwest were violent and confusing times as many groups and individuals negotiated their survival in a turbulent world.

Spanish military force may have been a factor in the decision for those Navajos who moved south, but it cannot account for movements to the west, where there were no Spanish militias. Brugge (1986:142–43) suggests that while Dinétah was occupied, the Chacra Mesa area was unattractive to raiders. One might infer that distance from the Dinétah, and the bases of raiders, was a factor in deciding where to move—provided there was an extant Navajo population willing to incorporate the migrants. Distance, however, may not have provided enough security, and other conflicts may have developed. That security was important is evidenced by the construction of several pueblitos west of the Chuska Mountains, such as Kinnazinde, Ganado Crag, and Nazlini Pueblito in the early 1760s (Gilpin 1996). Battles with the Utes/Plains people have also been documented as far west as Bidahochi in northeast Arizona (Downer et al. 1988). Thus, whereas security from Ute/Comanche raiding seems adequate as a pull factor into the Big Bead Mesa and Cebolleta Mesa areas, it remains suspect for areas west of the mountains.

The idea that the Navajo were seeking better pastures for their expanding herds (Haskell 1975) has not been seriously tested. Historical references (Hill 1940) and archaeological data (Brown and Brown 1995; Goodman 2003) indicate that a few small herds were present in the Dinétah, but their importance in the Navajo economy is still unknown. Typically fewer than three individuals (MNI) are represented in archaeological remains of sheep found at these sites, and all tree-ring dated corrals associated with pueblito sites dating to the late 1800s reoccupation of those structures by Hispanic sheepherders (Towner 1997). Thus, there is no solid evidence that increased dependence on sheep and the desire for good pastures were factors in the abandonment, but comparative data have yet to be synthesized. Bailey and Bailey (1986), however, indicate a major expansion of Navajo sheep and goat herds beginning in the late 1700s, after the depopulation of Dinétah, which reshaped subsequent Navajo subsistence and settlement patterns.

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Finally, if overhunting was a push factor, the availability of more abundant game in the Chuska Mountains may have been a pull factor. Such increased hunting would, of course, have had to be facilitated with the existing communities—not an easy task with population increasing as a result of both immigration and reproduction.

The extant Navajo communities that may have accommodated Dinétah Navajo emigrants (Figure 5) are mentioned in historical documents by 1786 and undoubtedly existed earlier (Hester 1962). These communities—Cebolleta, San Mateo, Ojo del Oso, and Canyon de Chelly (Bartlett 1932)—were all located outside the traditional Dinétah. Migration and return-migration are suggested in both the historical and archaeological data, although identifying specific events or individuals may prove impossible. The paucity of detailed archaeological data from most "destination" areas, except Chacra Mesa, limits the interpretations that can be used to address the Navajo depopulation of Dinétah.

CONCLUSIONS

The Navajo depopulation of Dinétah was clearly caused not by the "drought "of 1748, but more likely by increased Ute and Comanche raiding that supplied slaves for the Spanish colony's industrial and household economies. The paleoclimatic data indicate that the drought of 1748 was a single-year event that was probably offset by above-average precipitation in the preceding and succeeding years. The archaeological data also clearly show Navajo occupation of the area for probably another 10–15 years. There were undoubtedly multiple causes for the depopulation, but most probably involved adaptations to the social, not natural, environment.

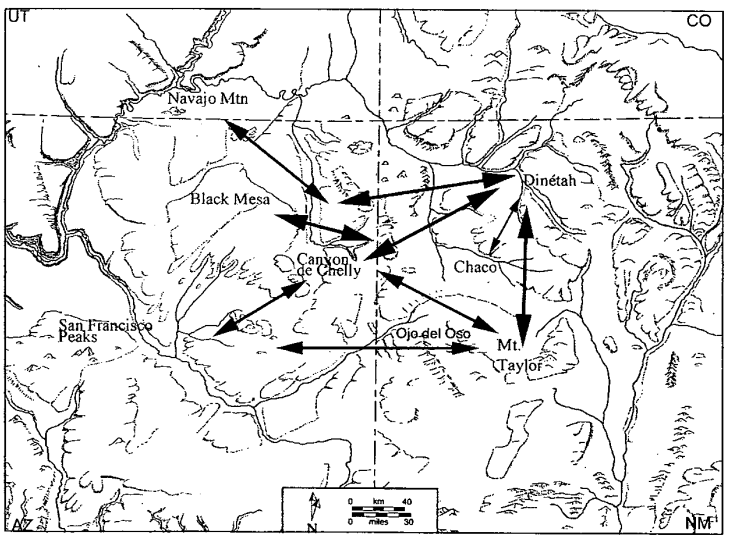

Figure 5. Possible Navajo communities and migration patterns in the 1700s.

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The traditional model of drought as the primary push factor in the "abandonment" is yet another example in Navajo archaeology of a dubious historical record being given precedence over both archaeological and oral history data.

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