Navajo Multi-Household Social Units: Archaeology on Black Mesa, Arizona

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Although the original Navajo settlers in the Southwest were probab hunter-gatherers, they developed a mixed farming economy early on; in fa an early seventeenth-century Spanish account interpreted the name "Navajo as meaning "large planted fields" (Benavides 1952). Of even more critic importance for the future Navajo way of life was the acquisition of livestock particularly sheep. The Navajos probably began to get sheep from the Spanisl in the seventeenth century. By early in the eighteenth century sheep and horse bones as well as corrals were present on Navajo archaeological sites in the Dinétah, and livestock is mentioned alongside farming in Spanish documents (Carlson 1965; Hill 1940b; Marshall 1991). Stock, however, remained of limited importance throughout the eighteenth century (Bailey and Bailey 1986:16–17).

Past archaeological research suggests that Navajos were living in substantial numbers on eastern Black Mesa by the mid- to late eighteenth century, and on central and northern Black Mesa by the early to mid-nineteenth century (Kemrer 1974:129–31). BMAP tree-ring sampling, which produced reliable dates extending as early as the 1830s, supports this interpretation (see chapter 6). The absence of definite pre-1830s dates in the large BMAP sample supports the view of a gradual northward (or northwestward) spread of Navajo settlement into the area, with slightly earlier dates coming from the central part of the mesa (see Stokes and Smiley 1964).

The timing of the move onto isolated and rugged Black Mesa coincides with a prolonged period of Navajo-Spanish (and later Navajo-Mexican and Anglo-American) warfare that began in 1804 and escalated around 1818 (Bailey 1980; Brugge 1964; Reeve 1960; see also Kemrer 1974:132–35). The historical sources concerning Black Mesa in the early nineteenth century referred to the area as Mesa de las Vacas (Van Valkenburgh 1941:10), and come from Spanish or Mexican military expeditions against the Navajos. In August 1823, part of a Mexican force traveled across Black Mesa from south to north and also went around its western and northern flank. The members of the expedition located a few Navajos and killed those they were able to catch. They also captured Navajo sheep, goats, and cattle, and reported seeing Navajo mules and horses and the tracks of still more livestock (Brugge 1964). Hostile forays continued throughout much of the second quarter of the nineteenth century. Mexican forces were in the Black Mesa area again around 1840 (Bailey 1980:160) and the region was a prime target of Mexican slaving expeditions in this period (Bailey 1966:79).

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though little about the Navajo occupation of northern Black Mesa beyond its use as an escape route north, away from the enemy forces. The descriptions of substantial numbers of livestock, however, indicate a critical transformation in the Navajo economy. Although farming remained important in some regions, it was during this period of warfare in the early nineteenth century that herding apparently became a central part of Navajo adaptation in many areas (Bailey and Bailey 1986), including Black Mesa.

The threat of warfare involved not only people of European ancestry, but other Native American tribes as well. Navajo tradition refers to battles between Utes and Navajos on and around Black Mesa (Correll 1972, cited in Russell 1983b:15–16; Dyk 1967:64–66). A metal projectile point found on Black Mesa at a site where such a battle was said to have occurred (just south of the BMAP study area) substantiates these accounts (Russell 1983b:16). Given these unsettled conditions, it is likely that Navajo occupation was irregular from year to year and season to season. Northern Black Mesa probably served as a hideout from Euro-Americans and Utes, a travel route for trade with the Hopis to the south, and perhaps, as in later years, a winter settlement area.

Hostile activity in the area continued intermittently into the second half of the nineteenth century after the United States gained control of the region from Mexico. An Anglo-American force crossed the north-central end of Black Mesa in the fall of 1858 (Bailey 1980:201; Van Valkenburgh 1941:113). This expedition reported most of the area deserted, although this probably represents Navajo evasion of the force more than any characteristic of the regular seasonal settlement pattern. Continued tension is indicated by a Navajo killing of a Mormon traveler west of Black Mesa near Red Lake in 1860 (McNitt 1962:90; Shepardson and Hammond 1970).

During the early 1860s, hostilities between Navajos and the United States intensified. Finally, the United States embarked upon a systematic campaign to pacify the entire tribe by capturing and imprisoning all Navajos. The military's plan was to transport the entire tribe to a concentration camp at Fort Sumner in eastern New Mexico and establish a permanent agricultural community there. U.S. forces began to cover much of the Navajo territory, killing those who resisted and destroying fields and herds, in a largely successful effort to force Navajos to surrender. During this period the area on and around Black Mesa continued its role as a remote hideout for Navajos escaping their enemies. A number of families successfully evaded the U.S. troops and remained in the area through the period of government incarceration at Fort

Sumner from 1864 to 1868 (Adams 1963:39; Bailey 1980:253–54; Brewer 1937:611; Downs 1964:6; Dyk 1947:13, 1967:4; Henderson 1982:115; McPherson 1988:9–10).

Finally, in 1868, a treaty with the U.S. government resulted in the freeing of the surviving Navajos at Fort Sumner. The treaty created a reservation that covered a portion of the original Navajo territory. Black Mesa fell outside the reservation boundaries, but it was nevertheless quickly resettled by the returning captives, who joined those who had remained during the Fort Sumner period (Dyk 1967:4). The archeological record of northern Black Mesa shows a jump in site construction during the 1870s, marking the return of the refugees. The latter half of the 1870s and the succeeding decade is also the first period for which detailed accounts are available concerning Navajo settlement on and around Black Mesa. These descriptions are in the autobiographies of Left Handed (also called "Son of Old Man Hat"), Old Mexican, and Frank Mitchell, Navajos who lived on or near Black Mesa at various times during the 1870s or 1880s (Dyk 1947, 1967; Dyk and Dyk 1980; Mitchell 1978; see also Russell 1981a and 1983b for much of the discussion that follows). By the end of the 1880s, ancestors of most of the family groups currently in the BMAP area were present in the region (Russell 1981a:54 and n.d.).

Navajo settlement on Black Mesa during this period was most common during the fall and winter (Russell 1981a, 1983b; see also Van Valkenburgh 1941:113). This was true in the southern part of the mesa, where trade with the Hopis was among the factors encouraging Navajo settlement (Dyk 1947:13; Mitchell 1978:39–41), and in the higher northern part of Black Mesa where the supply of winter graze, firewood, and water (in the form of snow) encouraged settlement. In addition, the tree cover provided by upland areas such as Black Mesa created sheltered spots with accessible graze free of snow (Dyk 1967:117, 288; Jett 1978; Russell 1983b:58). During the summer, the typical pattern was for the families who wintered on northern Black Mesa to move onto the adjacent lowlands, leaving livestock that did not require daily care (cattle and excess horses) unattended on Black Mesa (Dyk 1967; Dyk and Dyk 1980; Hegemann 1963:320).

This pattern was not universal. Russell (1981a:51) reports one elderly pair of informants who stated that their parents summered on the mesa and wintered off of it. Another informant (Russell n.d.: interviews 6/7/75, 6/8/75) pointed out summer sites in the BMAP study area—an agricultural field and a Nda ("Enemy Way" ceremony) location—that may date to this period. Still

ʾperse. To attack this problem, I use a form
bregions as the quadrats. Quadrat analysis
: among a series of spatial blocks (quadrats)
ıer a random pattern. The resulting statistic,
n of quadrat site frequencies, is higher than
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This technique evaluates clustering or dis-
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ʼariance/mean ratio" to evaluate the spatial
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ue operate at below the subregional scale.
ːame continuous information on the scale
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Measuring Change on Northern Black Mesa

Black Mesa's archaeological record offers the chance to follow long-term changes in Navajo life, but it raises methodological challenges as well. Describing changes in population, economics, and small-scale (residence-group) units is relatively straightforward. Discerning multiresidence group cooperative units is more complicated.

The Population

Shifts over time in the number of tree-ring dates, site components, or structures all track the changing population of northern Black Mesa. The level of resolution of these data can be adjusted by varying time intervals, site types, seasons, or geographic areas, but by and large the results are internally consistent.

The simplest approach is to count the number of individual tree-ring dates by period. Traditional Navajo wooden structures require frequent repair and replacement (see appendix A), so a continuous stream of architectural wood cutting accompanies life on the mesa. Figure 6.1 shows *all* tree-ring samples, including dead wood samples and noncutting dates (lacking the B, G, L, c, r, or v symbols; see chapter 5, note 1). Although dates extend to before the nineteenth century (the oldest sample falls in the twelfth century), most of these earliest specimens are isolated noncutting dates and dead wood. Small groups of dates cluster around 1775 and 1805 to 1810. These clusters, again mostly noncutting dates, may represent poorly preserved wood from sparse early occupations, but there are not enough samples to adequately demon-

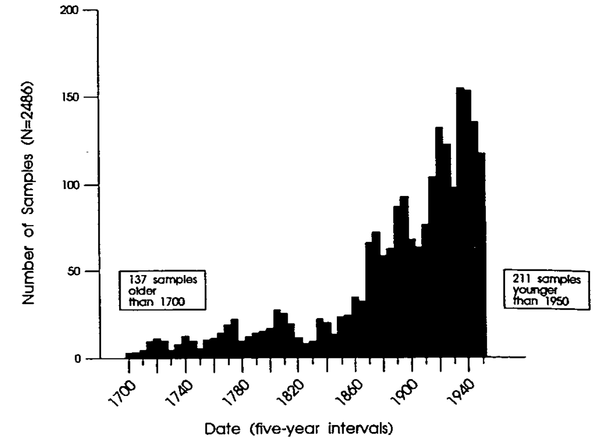

Figure 6.1. All Tree-Ring Sample Outer Dates, Including Dead Wood and Noncutting Dates.

strate this. The next group of dates falls in the 1830s and contains the earliest cutting dates clustered on individual sites. Marked growth begins after the end of Navajo captivity at Fort Sumner in the late 1860s and extends up to recent times. This large group of post-1860s dates indicates a clear increase in use of the area starting around 1870, although it may also reflect wider availability of axes for wood-cutting (Brugge, personal communication 1985). The growth trend breaks several times, around 1880, 1900, after 1920, and again after about 1940. This last decrease is due to a lack of dates from occupied sites, rather than to a population drop. Because the BMAP did not map occupied sites, very few recent tree-ring samples are available.

Counts of site components or individual structures show similar patterns (see also Rocek 1985). Figure 6.2 shows all reliably dated components (that is, it excludes components guess-dated solely on the basis of their condition; see appendix A). The pattern is similar to figure 6.1, although survey data on occupied sites (which lack tree-ring dates) add another spike around 1980. The oldest well-dated sites (based on clustered tree-ring cutting samples) are in the late 1830s. Although early sites may be underepresented due to attrition, the figure suggests that Navajo settlement in the area was light through the mid-nineteenth century. As suggested by figure 6.1, increased construction began in the late 1860s and 1870s. The number of components dipped slightly around 1880, fell again sharply during the first decade of the twentieth

Restricting analysis to relatively well-studied blocks of contiguous land also limits data on portions of settlement systems beyond the boundaries of the study area (see chapter 5; cf. Kelley 1982b:202–3; Roberts 1990). The variation among subregions in seasonal data noted in chapter 6 implies that parts of multiple settlement systems are included. Although some families lived year-round on the mesa, others moved off on a seasonal basis. Even most of those living full-time on the mesa probably moved outside of the BMAP study area during part of the year. The scale of nineteenth-century mobility and variability in mobility among families and over time makes analysis at the level of the full settlement systems impossible. The goal here is less ambitious; it is simply to examine the behavior of the occupants of a series of sites who shared a region in certain decades and at certain seasons. Patterns of cooperation should be visible at this scale.

The definition and dating of site components is another limiting factor in the data. My coding strategy emphasized dating of construction episodes, and then assumed an approximately uniform occupation duration for all habitation sites. Emphasis on construction as a basis for dating site components is well grounded in many cases, because the BMAP tree-ring record provides an extremely precise way of dating many of the sites. Assuming constant occupation duration is not accurate, however, because informants make it clear that some habitation sites may be used only briefly, while others may be occupied for an extended period. The detailed data necessary to identify duration of occupation for each component are not available for the majority of sites, so an approximation such as the one I use is necessary. As a result, even with the tight tree-ring chronological control, contemporaneity of component-use is known only approximately. In the spatial analyses described in chapter 6, some of the sites within a decadal or fifteen-year interval may in fact be occupied at slightly different times, or even represent consecutive occupations by the members of a single residence group. As discussed later, there is evidence that this kind of error does occur in some cases. Furthermore, if changes in occupation duration covary with other factors, then spurious spatial patterns may result. For example, if habitation sites were moved short distances more frequently when livestock levels were high, this could produce the appearance of clustering correlated with livestock levels. Because I find a correlation of clustering and livestock, the risk of such spurious relations is significant. If, however, the arguments for an approximately constant *average* occupation duration up until the recent period is correct (chapter 6), this proba fence that happens to run near the habitation's structures, unless there was evidence of a functional association between the fence and the habitation. This is because there is no known pattern of fence lines functionally associated with habitation sites in the Navajo site data in the BMAP area (Haley et al. 1983). In general I used informant and spatial-functional evaluations of relative ages of portions of a site (such as structure and feature condition, artifact associations, and any available tree-ring data), as well as a functional interpretation of the site's structures and features in order to derive an internally consistent interpretation. Again, I did not divide site uses separated by less than fifteen years into separate components, except in cases of strong evidence of discrete occupations—use by separate families, complete change in site function, or clustering of construction dates such as discussed earlier.

Analysis of Site Components

The next (or concurrent) step is to evaluate the age, function, and season of each component. I consider four types of age indicators: (1) tree-ring dates, (2) informant data, (3) artifact associations, and (4) subjective field assessments of site condition and apparent age. Tree-ring dates under most conditions are the most reliable dating criteria in this study. In particular, cutting dates or other dates with evidence of proximity of the tree's outer surface (dates with a B, G, L, v, r, or c outer date code; see Dean 1969:19), combined with evidence of clustering among dates from different samples, provides the strongest basis for dating (e.g., Ahlstrom 1985; Dean 1981:6). I use an arbitrary rule for tree-ring dating: A site is coded as having been dated based on tree-ring data if it has a cluster of three or more dates falling within five years of each other, *and* if at least one of these dates has an indication of proximity of the tree's outer surface. The only exceptions to this rule are cases where a date cluster is followed by chronologically later dates from the same structure or feature, implying that the earlier date cluster may be the result of reuse of construction material rather than multicomponent use of the site (see the discussion of structure and feature dating that follows). Field observation of wood condition indicative of wood reuse aids in evaluating such cases.

This approach is patterned after the dating strategy described by Dean (1981), but differs in several respects. My examination of field assessments of wood condition (intended to distinguish freshly cut from dead wood; Dean 1981:5) indicates that the BMAP field interpretations of wood condition are of limited reliability. Numerous samples judged to be dead wood by field