



Contents lists available at ScienceDirect

Journal of Anthropological Archaeology

journal homepage: www.elsevier.com/locate/jaa

Perimortem mutilation of human remains in an early village in the American Southwest: A case for ethnic violence

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ARTICLE INFO

Article history:

Received 11 September 2009

Revision received 29 July 2010

Available online xxx

Keywords:

Violence

Early villages

American Southwest

Sacred Ridge Site

Ethnic conflict

Perimortem mutilation

ABSTRACT

Recent excavations at the Sacred Ridge Site, just south of the town of Durango, Colorado, have uncovered the single largest deposit (to date) of mutilated and processed human remains in the American Southwest. This deposit dates to the very late eighth or very early ninth century A.D. and therefore represents an incidence of large-scale violence and perimortem mutilation dating to the Pueblo I period (A.D. 700–900), when initial village formation occurred in the northern San Juan Region of the Southwest. Expectations for various interpretations for the Sacred Ridge assemblage are generated based on previous research and cross-cultural data on cannibalism, warfare, and human bone processing. Based on a lack of fit with previous models developed to account for extreme processing (EP) events, including starvation cannibalism, warfare and social intimidation, and witch-craft accusations, it is proposed that the Sacred Ridge massacre was the result of ethnic conflict during the Pueblo I period.

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Introduction

In the last several decades, interest in identifying and explaining cases of perimortem (around the time of death) mutilation and processing of human remains in the American Southwest has grown considerably. Debates persist as to whether most, some, or any of these extreme processing (EP) events (Kuckelman et al., 2000) involved cannibalism, what the root causes were of the treatment (e.g., environmental degradation and starvation vs. political strife and intimidation), and how to explain the variation exhibited among assemblages (Billman, 2008; Billman et al., 2000; Bustard, 2008; Darling, 1999; Dongoske et al., 2000; Kantner, 1999; Kuckelman et al., 2000, 2002; LeBlanc, 1999; Lambert et al., 2000; Lekson, 2002; Turner and Turner, 1999; McGuire and Van Dyke, 2008; Walker, 2008a; White, 1992). Regardless of the interpretation, it is clear that the vast majority of cases of violence and perimortem mutilation occurred after A.D. 900, during the Pueblo II and III periods (A.D. 900–1300) (Billman, 2008; Bustard, 2008; Kuckelman et al., 2000; Turner and Turner, 1999). Recent excavations at the Sacred Ridge Site, just south of the town of Durango, Colorado, have uncovered the single largest deposit (to date) of mutilated and processed human remains in the Southwest. This deposit dates to the very late A.D. 700s or very early 800s and therefore represents the first documented incidence of large-scale

violence and perimortem mutilation dating to the Pueblo I period (A.D. 700–900).

This paper comprises four sections. First, it reviews processed human remains assemblages from across the Southwest and notes some temporal trends in these assemblages. Second, expectations for various interpretations for the Sacred Ridge assemblage are generated based on previous research and cross-cultural data on cannibalism, warfare, and human bone processing. Third, this report provides a detailed description of the Sacred Ridge Site and the features and deposits containing the large fragmented-bone assemblage. In addition, attributes of the human bone assemblage are briefly described, including the demographic profile of the assemblage and the types of bone modification present. The final section revisits the expectations presented in section two, given the attributes and patterns documented in section three and discusses in greater detail the role of identity construction and ethnicity in the Pueblo I period. It is proposed that the Sacred Ridge massacre was the result of ethnic¹ conflict during the Pueblo I period. It is further suggested that conflict among identity-conscious

¹ Following Lucy (2005) and Levine (1999:168), we view ethnicity as a means of classifying people based on culturally constructed notions of shared origins. Ethnic groups are composed of members who “choose to do (some) things in similar ways to each other, and in different ways from others. These similarities and differences are then articulated as ‘ethnic’ ones (often framed in terms of members of the group having shared ‘origins’ or decent)” (Lucy, 2005:86). Thus, for archaeologists, ethnic distinctions are often based on behavior and the material culture affected by those behaviors rather than biological relatedness per se (although relatedness certainly can and often does play into perceptions of origin and rules structuring behavior).

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social groups may also have played a role in other, later cases of violence and mutilation documented in the Southwest.

EP events in the southwest (A.D. 500–1300)

The earliest well-documented evidence in the Southwest for the violent death of humans and the perimortem mutilation of their remains dates to the late Basketmaker II period, and comes from Cave 7 in southeastern Utah (McNitt, 1966; Hurst and Turner, 1993). The Basketmaker II component of the site, dating some time before A.D. 500, contained the remains of at least 61 individuals who had been massacred and subsequently beaten, mutilated, and dismembered for the taking of trophies (Hurst and Turner, 1993). The relatively high proportion of adult men represented ($n = 40$) in the assemblage suggests an attack related to large-group warfare. Breakage and cut marks were extensive on facial and cranial bones and most damage appears to have been the result of impact blows from clubs, stone mauls, and axes (Turner and Turner, 1999:59). Evidence of scalping was also present and one rib had an embedded stone point. Yet burning, anvil abrasions, and polishing (attributes evident in many later post-900 assemblages) were lacking. Turner and Turner (1999:65) note that “faces receive [sic] the most identifiable damage, and mutilation such as stabbing the face or smashing the mouth can sometimes be inferred.” While Turner and Turner (1999:65) suggest that “death occurred relatively soon after the trauma,” it is also possible that some of the facial injuries in particular were post-mortem and were delivered not as death blows but rather to inflict further damage to the victims after death.

There are very few incidents of violence and possible cannibalism documented for the period from A.D. 600–900. Bustard (2008) notes only three cases, two in the early Pueblo I period (A.D. 700–800) and one in the Late Pueblo I period (A.D. 800–900). The early Pueblo I cases were small in scale. The Cottonwood Wash site, in southeastern Utah, had an MNI of one, and Ram Mesa Pithouse, along the Rio Puerco near the Arizona–New Mexico border, had an MNI of 4 (Bustard, 2008:Table 4.2). The Late Pueblo I one example is Robert’s Small House in Chaco Canyon, which involved at least eight individuals. Turner and Turner (1999) place this site in the early Pueblo II period; Bustard revisited Robert’s original site report and has reassigned the deposit to the late Pueblo I period (2008:82–83). Interestingly, in addition to broken long bones and evidence of burning, Turner and Turner (1999:172–178) note a great deal of facial damage to the eight individuals at this site.

Incidents resulting in violent deaths increased dramatically in the Pueblo II period—20 cases of violent death have been assigned to the period from A.D. 900 to 1150² (Turner and Turner, 1999; Turner, n.d.; Kuckelman et al., 2000:Table 1). In most of these cases the human remains were subjected to extreme perimortem processing, including breakage, skeletal disarticulation, burning, weathering, and carnivore damage. The victims of these events included all age groups and both sexes; that is, they were not primarily adult males, as in the Basketmaker II example.

Several researchers have argued that the extensive perimortem mutilation evident in Pueblo II assemblages is related to cannibalism. White (1992:361–363), for example, proposed that starvation cannibalism accounts for the extensive mutilation exhibited by the assemblage from Mancos Canyon Site 5MTUMR-2346. Kantner (1999:25) suggests that this site may be an exception to the gen-

eral pattern, however, and that starvation cannibalism is not the likeliest explanation for most examples of extreme processing in the Pueblo II period. Kantner (1999:24–25) argues that several expectations for starvation cannibalism are not met by Pueblo II assemblages: none of the skeletal assemblages were associated with nonhuman faunal remains, each site exhibits a normal demographic pattern—that is, it does not appear that the weak, young, or old were differentially selected for processing; and these assemblages date to a period in which the environmental conditions on the Colorado Plateau were generally benign compared with previous and subsequent periods (Plog et al., 1988:235).

Cannibalism as a component of warfare or social control has also been suggested to account for the Pueblo II pattern. Many of the assemblages exhibit evidence of scalping, facial destruction, and extensive cranial damage, well beyond what starvation cannibalism would predict, but well in line with the expectations for violence stimulated by revenge, punishment, or intimidation (Kantner, 1999:26). At Polacca Wash, for example, the faces of most of the victims had been crushed while still covered with flesh. “Skulls had received from three to as many as 20 or 25 blows” (Turner and Morris, 1970:32–33; cited in Kantner, 1999:25). The violence evident on crania suggests that, if cannibalism occurred—as is implied by the heavily processed post-cranial remains also present in most Pueblo II period assemblages—it was a method of social intimidation used in conjunction with cranial mutilation.

Kuckelman et al. (2000:157) note that “the 100-year span associated with the Chacoan occupation of the Northern San Juan region appears to have been a time of dramatic increase in violent deaths and associated extreme perimortem processing of human remains.” But it should be pointed out that many of these Pueblo II EP events, including the Mancos Canyon Site (White, 1992) and Cowboy Wash (Billman et al., 2000), occurred at the very end of this period, at around A.D. 1150, when Chaco’s florescence (or hegemony) was diminishing (see also Billman, 2008; Bustard, 2008; McGuire and Van Dyke, 2008).

Thus far, 17 assemblages dating to the Pueblo III period (A.D. 1150–1300) exhibit evidence of violence (Kuckelman et al., 2000:Table 1). These assemblages reveal less evidence of mutilation or extensive processing than Pueblo II assemblages. However, Kuckelman and others (2000:157) note that, although incidents of extreme processing decreased after A.D. 1150, they did not altogether cease. Nine of the 17 Pueblo III assemblages exhibited evidence of extreme perimortem processing, and by extension possible cannibalism. Kantner (1999:27) notes that trauma evident in Pueblo III assemblage appear consistent with injuries incurred during large-scale battles over resource conflicts (see also Kuckelman et al., 2002).

In summary, as early as A.D. 500 large-scale violence and perimortem mutilation appears in the Southwestern record. Evidence from Cave 7 in Southeastern Utah indicates a large-group massacre involving beating, mutilation, and scalping of the victims (see also Farmer (1997) for evidence of scalping in Basketmaker periods). With the exception of the newly discovered Sacred Ridge assemblage (see below), there are no large assemblages of extensively processed human bone assemblages that date from A.D. 500 to 900 (the Basketmaker III and Pueblo I periods). After 900 and until 1300 incidents of extensive processing increase dramatically—37 sites contained assemblages exhibiting evidence of violence, most of which comprised extensively processed remains. Pueblo II assemblages appear more often the result of attempts at social control, intimidation, and violence stimulated by revenge and punishment. Pueblo III assemblages, on the other hand, more often reflect injuries sustained in battles, although post-mortem processing also occurred. In all periods, perimortem cranial and facial trauma occurred frequently, suggesting that the face and head

² For this paper, the end of the Pueblo II period is A.D. 1150 rather than the frequently used date of A.D. 1100. This is done to remain consistent with Kuckelman et al.’s (2000) analysis and to coincide with the end of the Chaco florescence (Lipe and Varien, 1999:242). Many of the EP events documented in the Southwest occurred very close to 1150 and are considered Pueblo II in date even though they are right at this later placement for the Pueblo II to Pueblo III boundary.

were consistently the targets of violence even after the death of the victim. This also suggests that if cannibalism occurred in any of these instances, it was not the only goal of the aggressors. The following presents an outline of expectations gleaned from archaeological and ethnographic sources for various behaviors related to perimortem mutilation and extensive processing.

What do EP events signify?

Assemblages of highly fragmented and burned, or extensively processed human remains can derive from a myriad of sources, including starvation cannibalism, warfare, social control, and preparation of the deceased. Based on ethnographic, ethnohistoric, and archaeological information on 35 societies, Kantner (1999) has developed archaeological and osteological expectations for each of these behaviors, which are summarized in Table 1. Note that in all cases the presence of cut marks, burning, disarticulation, fragmentation, and anvil abrasions may be expected to be present. Kantner also notes that cannibalism may or may not be associated with each of these behaviors (with the exception of starvation cannibalism, which obviously always includes cannibalism), including in some cases the formal preparation of the deceased. “Endocannibalism is one possible mortuary behavior, but it is often restricted to the consumption of small amounts of flesh, an activity that would not be identifiable in the archaeological record” (Kantner, 1999:11). Moreover, determining whether warfare and/or social control were accompanied by cannibalism is difficult because the process of violent mutilation often produces comparable osteoarchaeological signatures (Kantner, 1999:13). In addition to perimortem processing, however, ten other variables apportion differentially among the various behaviors, allowing for general differentiation among them archaeologically (Table 1).

Warfare and social control

Inter-group warfare is often accompanied by the perimortem mutilation of the remains of enemy victims. The expectations of a warfare-induced EP event are similar to those of intimidation and social control, with a few exceptions (Table 1). Large groups of victims are evident in assemblages from several sites in the Southwest interpreted as having been attacked and their population subsequently massacred. Cave 7 yielded an MNI of 61 (Hurst and Turner, 1993) and Castle Rock Pueblo had at least 41 victims represented (Kuckelman et al., 2002). In addition, Hopi oral history speaks of a massacre at Awatovi, a village of approximately 800 people that was attacked in A.D. 1700 that may have resulted in the deaths of hundreds of people (Turner and Turner, 1999:72–77). In two of these cases, adult males dominated the assemblages, due both to males dying disproportionately in battle and to the taking of women and children as captives.

At Awatovi, attackers killed the men by pulling up the ladders of kivas, trapping the men inside, and setting fire to the kivas (Turner and Turner, 1999:72–77). Kuckelman et al. (2000:153) note that, at Castle Rock Pueblo, a Pueblo III village that was attacked in the late 1200s, the demographic profile of the victims resembles that of family or residence groups; victims included adult men, women, children, infants, and the elderly. Thus, adult males are not expected to dominate an assemblage resulting from inter-group warfare in every case.

Kuckelman et al. (2000) also make the observation that, while the Castle Rock assemblage did exhibit evidence of violent death, ante-mortem cranial trauma—including scalping—and careless disposition of the bodies, the remains were not subjected to extreme perimortem modification, as is often seen in Pueblo II assemblages interpreted as the result of attempts at social control and intimidat-

Table 1
Expectations for processed human remains as a result of warfare, social control, starvation, preparation of the deceased and witch destruction.

	Processing of bodies, including disarticulation, fragmentation, anvil abrasions, cut marks, and/or burning	Formal burial and/or offerings	Extensive facial/cranial trauma	Removal of skeletal parts for trophies, esp. hands, feet, crania, including scalping	Missing/reduced parts due to marrow processing	Faunal remains intermingled	Evidence of nutritional or environmental stress	Old/young/weak preferentially selected	Adults males preferentially selected	Large group of victims dispatched at one time	Relatively small number of victims at any one time
Inter-group warfare	X		X	X			X	X?		X	
Violent social control	X		X	X						X	X
Starvation cannibalism	X				X?	X	X	X?			X
Preparation of the deceased	X	X				X					X
Witch destruction	X		X			X	X				X

X = expected. X? = questionable.

tion. Extreme perimortem modification was also lacking at the Basketmaker II site Cave 7 (see above). Intensity of perimortem processing, therefore, may be another significant difference between warfare-induced mutilation and that stimulated by intimidation and attempts at social control. Finally, environmental or nutritional stress may trigger inter-group conflict and may help archaeologically distinguish EP events resulting from warfare from those associated with social control or intimidation.

Starvation cannibalism

As with warfare, starvation may be induced by environmental or nutritional stress, and evidence of either may aid in the identification of starvation as a motivation. Unlike warfare, historic examples of starvation cannibalism mostly involved a limited number of victims at one time (Rautman and Fenton, 2005; Tuzin, 1983) (Table 1). The well-known historic Alferd Packer case of murder and short-term survival cannibalism involved only five victims, for example (Rautman and Fenton 2005). And while the Donner Party tragedy involved the cannibalization of 21 individuals in total, these may be thought of as a series of discrete incidents involving a handful of individuals at a time and occurring in six separate locations—Alder Creek ($n = 5$), Camp of Death ($n = 4$), Sierra foothills ($n = 3$), Murphy Cabin ($n = 2$), Breen Cabin ($n = 4$), and Starved Camp ($n = 3$)—over a number of months (Dixon et al., 2010; Grayson, 1990; Hardesty, 1997).

Estimates of edible meat available from an adult human body range from 45 to 60 lb (Diehl, in preparation [cited in Turner and Turner, 1999]; Smith, 1969). Five adult men would provide upwards of 300 lb of meat. A single person would be hard pressed to consume this amount in a short period of time. It thus makes sense that consumption, and processing, would occur over a long period as well, particularly over a cold winter. These numbers also provide reasoning as to why survival cannibalism often targets relatively small groups of victims; large groups would provide inordinate and unwieldy amounts of potential food. Furthermore, the large amount of meat provided by a single body may counter the expectation of the intensive processing of bones for marrow in survival cannibalism situations, as suggested by Turner and Turner (1999) and White (1992). Indeed, the bodies of the Packer victims exhibited no disarticulation, fragmentation, or burning. Processing centered solely on the defleshing of the skeletons, and did not include breakage and processing for marrow extraction.

In both the Packer and the Donner Party cases, processing and defleshing was narrowly targeted on fleshy and fatty areas of the body. Rautman and Fenton (2005) note, for instance, that few or no cut marks were seen on the small bones of the hands and feet or on the crania of the Packer victims. Cut marks were instead concentrated on areas of the body containing large meat packages, such as the distal and proximal ends of long bones and on axial elements such as ribs and pelvis. Furthermore, Packer cooked the detached flesh in his cabin, so burning was not evident on the bodies.

Among the Donner Party victims, there appears to have been variation in the treatment of the corpses. For example, when in late December 1846, four men died at the Camp of Death, they were dismembered and roasted by survivors; when a man named Jay Fostick died he was cut up and boiled; and when the fourth and last rescue team reached the lake on April 17, they found Lewis Keseberg Sr. surrounded by mutilated corpses, one of which was George Donner's body, which was largely intact but his skull had been split open to permit the extraction of his brains. Also found were pots of blood and a large pan of fresh liver and lungs. Amazingly, Keseberg had not eaten an oxen leg that was also found nearby, because, he explained, it was too dry, and human liver, lungs and brains tasted better (Diamond, 1992). In both the Packer and the Donner cases, intensive processing of corpses did not occur where bodies were

completely disarticulated and the majority of bones broken, burned, and smashed. Indeed, Keseberg was described as being found surrounded by half-eaten corpses (Hardesty and Lindstrom, 1997:33).

All five victims of Packer were adults males. This demographic profile is at odds with ethnographically and archaeologically derived expectations, which suggest that the old, young, and weak are preferentially selected for survival cannibalism (Askenasy, 1994:59–82; Kantner, 1999; White, 1992) (see Table 1). But the Packer case may not be a good analog because the victims were a gold prospecting party, a situation requiring adult male participants exclusively. Yet, even in the context of the Donner Party, of which females made up 39%, males were more often the subject of cannibalism. Of the 21 cannibalized, 18 were male (86%)—six were under 6 years of age, two between 6 and 20, seven between 20 and 50, and three over 50 (Grayson, 1997a:Table 15). Thus, in the Donner Party case, the old and the young were targeted, as expected, but also adult males. Grayson (1997a:124–132) suggests that adult males died disproportionately because either the men exhausted their energy reserves early in the trip or they did not travel in large family groups. But even so, the females that died (10) were rarely cannibalized. Whereas, 67% of males who died were cannibalized to some degree, only 30% of females were.

These cases are in stark contrast to the Mancos Canyon assemblage (White, 1992), an archaeological assemblage that has been argued to have been the result of starvation cannibalism. In contrast to the Packer and Donner Party cases, the Mancos assemblage was a very large assemblage that contained the remains of at least 33 people, which were found jumbled, disarticulated, fragmented, and burned. And unlike the historic cases, adult males were not inordinately selected for. The Mancos assemblage comprised five infants and children (0–6 years old), eight adolescents (6–18 years old), and 15 adults (Turner and Turner, 1999:222). Both sexes are evident in the assemblage. Although the actual number of males and females could not be determined, “there is no evidence that either sex is more abundant in the sample” (White 1992:93). These incongruities suggest an alternative interpretation for the Mancos assemblage. Indeed, the chronology of the site (ca. A.D. 1150) places it coeval with other examples of extreme processing in the northern Southwest that have been interpreted as the result of social control and intimidation rather than starvation cannibalism (Kantner, 1999; Kuckelman et al., 2000).

The expectation that faunal remains should be associated with human remains processed to mitigate starvation is borne out in the Donner Party example. Grayson's (1997b) analysis of faunal remains from the Murphy Cabin site noted remains from cattle, bear, and horse (or mule). These data corroborate the written accounts which indicate the occupants of the Murphy cabin made extensive use of their domestic cattle and also that they had access to a bear. Dixon et al. (2010, p. 648) also note the processing and consumption of cattle, horse, canid, deer, rabbit, and rodent at the Alder Creek camp.

It can be argued whether the Packer and Donner Party cases make good models for attributes expected for starvation cannibalism (or not) in the ancestral Puebloan contexts. In the Packer case the victims were all adult men because they were a gold prospecting party, and the bodies were processed in a particular way in part because it was winter and Packer could keep them on ice. These particular conditions are of course not applicable to every case of survival cannibalism. But in both historic cases, even in the face of extreme starvation and death, small numbers of people were targeted at one time, their bodies were not intensively processed, and the processing that did occur focused on fleshy and fatty areas of the body. These may be the most notable and consistent characteristics of survival cannibalism and the processing of a body or bodies to mitigate starvation.

Preparation of the deceased

Kantner (1999:10) found that ten of the 35 societies examined in his study prepared their dead in ways that produced perimortem mutilation, only four of which involved ritual cannibalism. For example,

The Asmat of New Guinea separated the crania and mounted them on poles for placement in the house of relatives (White, 1992:18–19). Other activities associated with the preparation of the deceased included dismemberment, defleshing, smashing the bones, burning the remains, and the burial of the skeletal material in pits and pots (Kantner, 1999:10).

Archaeologically and historically, Pueblo groups generally interred individuals with their remains intact and undamaged. However, if it did occur (since this is an empirical question posed on the data), the expectation would be for the processed remains to be interred in a formal grave, possibly with grave goods, as the Hohokam did with cremations. In addition, mass accumulations of the processed remains of large numbers of people would not be expected.

Destruction of witches

The destruction of witches is another possible motivation underlying the extreme processing of human remains in the Southwest (Darling, 1999; Walker, 1998). Witch persecution and destruction has been documented to have occurred among Pueblo groups and in some cases the body of the witch has undergone cutting, fragmentation, and burning. Burning, pounding, cutting, and dismemberment not only serve as instruments of destruction, but also neutralize supernatural power, release the spirit, and prevent the spirit from using its body should it want to return to the living (Darling, 1999:735).

Darling (1999) and Walker (1998) outline the archaeological signatures of witch destruction, several of which overlap with other potential causes of perimortem mutilation (Table 1). There is a correlation between witchcraft accusations and environmental, subsistence, and social stress. Witch accusations and executions increase in frequency with the occurrence of drought and epidemics, for example (Darling, 1999:735–736, Table 3). This is also a hallmark of warfare and starvation induced mutilation. Other crossover traits are cranial and facial trauma and an emphasis on burning. During a process referred to as corpse pounding, the body of the witch is partially buried and the face is pounded, knocking the teeth out. Following this, the entire body is pounded (Darling, 1999:735; Parsons, 1962:68; Goldfrank, 1967:175–176). Burning is also a common element of the ritual destruction of witches, exorcism, and purification (Darling, 1999:740, 746; Parsons, 1939).

More restricted to witch destruction are the following attributes. At Zuni, males have tended to be inordinately accused of witchcraft (Darling 1999:742–743). However, in Pueblo society witchcraft is thought to be heritable and to run in families (Walker, 1998:267), and knowledge of witchcraft is passed among family members (Darling, 1999:747). Thus, in instances of multiple executions, there is often a high degree of relatedness among the victims (Darling, 1999:743). This is expected to directly affect the age and sex structure of the victims, which should resemble that of a family, portions of a family, or related members of kin groups, including young, adult, and old members of both sexes (Darling, 1999:746–747).

Both Walker and Darling discuss the expected context of disposal of executed witches. Walker (1998:270) notes that most processed human remains in the Southwest have been recovered

from pit structures and kivas and that ethnographic sources “describe the killing of witches in their homes and in kivas” (Walker, 1998:271). Darling (1999:744–745) separates conceptually contexts of execution and defleshing from disposal contexts. He notes that the ritualistic destruction of the body was probably not a public ceremony, that kivas may have been a common locus of processing, and that witch executions may mark the hasty closure of kivas, protokivas, or other structures. Moreover,

floor artifacts in defleshing contexts may be tied to the act of dismemberment and may include heavy mauls, axes, groundstone, chipped stone, and blades, as well as spalls or flakes from sharpening or use. Small splinters of bone, which might be lost in a disposal context, would be present. Their distribution on the structure floor may be indicative of processing areas or specific operations involved in the processing of the corpse (Darling, 1999:746).

Disposal contexts, by contrast, are those areas containing the cut and broken remains resulting from an execution that have been removed or collected from a defleshing location and redeposited. As such, “the cut and burned human remains will no longer retain direct associations with the behaviors that modified them,” and in the act of disposal, “the assemblages may become mixed with other materials” (Darling, 1999:745). Finally, he notes that out-of-use structures may be dedicated to the disposal of witch remains, and that depositional events may result in concentrations of human bone at different levels in the structure fill above the floor (Darling, 1999:745).

The mixing of materials in disposal contexts, as noted above, may cause faunal remains to become associated with the remains of those executed for witchcraft. In addition, domesticated animals may be accused of witchcraft and subsequently executed, and this may result in processed animal remains being mixed with processed human remains (Darling, 1999:739; Goldfrank, 1967:194–194). Dogs in particular may have been considered witches themselves or guardians of the entrance to the underworld—keeping witches from returning through the hole of emergence (i.e., the sipapu)—as their remains are often associated with kivas and pit structures with sipapus (Walker, 2008b:157).

Summary

In summary five general behaviors that result in processed human remains have been modeled: warfare, violent social control, starvation cannibalism, preparation of the dead, and witch destruction. There are no simple or invariant signatures for deposits created by the various sources of perimortem mutilation. As a consequence, considerable overlap of test implications is evident (Table 1). Moreover, the various sources of the behaviors are not necessarily mutually exclusive, further muddling archaeological expectations. For example, witch destruction and attempts at social control could certainly co-occur, and indeed the threat of witchcraft accusation may be thought of as a form of social control. Nonetheless, substantial variation among the different motivations has been noted and general suites of expectations developed. The following describes a large assemblage of processed human remains associated with an early Pueblo I village, the Sacred Ridge Site, and the contexts of those remains.

The Sacred Ridge Site

The Sacred Ridge Site (5LP245) was a multiple habitation site of 22 pit structures located in Ridges Basin approximately 8 km (4.8 miles) southwest of Durango, Colorado (Fig. 1). Dating to the early Pueblo I period, the site occupied one of several small ridges that

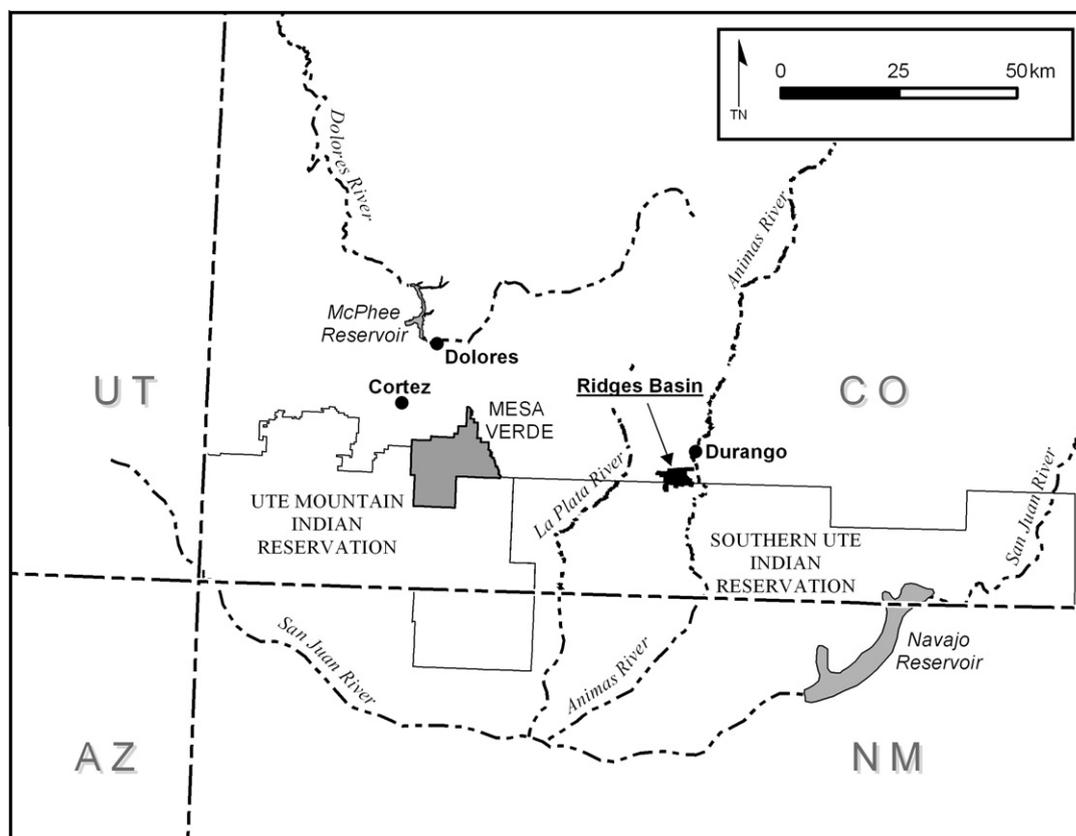


Fig. 1. Map showing the location of Ridges Basin in southwestern Colorado.

formed the southwest edge of the basin (Fig. 2). The cultural deposits covered 4.7 ha (11.6 acres), making it the largest site excavated by SWCA Environmental Consultants as part of the Animas–La Plata (ALP) archaeological project (Chuijka, 2009). SWCA identified 10 loci based on concentrations of cultural debris evident on the modern surface. With the exception of Locus 10, all of the loci contained at least one pit structure, remnants of surface architecture, and midden deposits.

This site was one of a number of more or less contemporaneously occupied early Pueblo I sites in Ridges Basin, 34 of which SWCA excavated as part of the ALP project (Fig. 2). These other Pueblo I sites were all much smaller than the Sacred Ridge Site and consisted of from one to four pit structures and associated surface features. Some of them appear to be clustered on the landscape, forming social units above the level of the individual household. The Eastern Cluster at the base of Carbon Mountain, for instance, is a relatively tight cluster of houses that, based on architectural, mortuary, and ceramic variation and dental and cranial biodistance studies, represents a sub-group within the Ridges Basin community (Fig. 2).

Tree-ring dates from Sacred Ridge indicate occupation from about A.D. 700 to just after 803. Three cutting dates or near-cutting dates were recovered: 729, 802, and 803 (Fig. 3). Based on these tree-ring dates, several radiocarbon dates, and fill sequencing, Potter and Chuipka (2007) have determined this occupation to be represented by three identifiable building phases (Fig. 4). The earliest occupation appears to have consisted of Features 1, 18, and 23 on the ridge top and Feature 179 immediately below the crest of the ridge. This early occupation appears to have lasted from the A.D. 600s or early 700s until about 750. The middle phase involved the construction of multiple smaller pit structures across the eastern and southern slopes of the site.

An extra-large pit structure with a vent entryway, Feature 49, was built during this period and may have functioned as a community-level ritual structure. This phase appears to have occurred in the mid to late A.D. 700s. At some point between A.D. 780 and 800, the middle-phase pit structures were abandoned, salvaged, and used as trash receptacles or left to fill naturally. Large pit structures were built across the site, often adjacent to the structures that had been dismantled. The Ridgetop Complex was constructed on top of the knoll, an activity that involved the remodeling of the Feature 23 pit structure and the addition of Features 2 (a domed circular structure), 16 (a two-story wooden and adobe tower structure), and 17 (a palisade) (Potter and Chuipka, 2007). A fourth pit structure (Feature 19) was added to the cluster on the ridge top during this period. Newly built over-sized pit structures and the Ridgetop Complex may have operated as communal ritual facilities for a population that extended beyond the immediate site occupants. By about A.D. 810, all of the in-use structures, including those on the ridge top, were burned and Sacred Ridge was entirely abandoned. Three structures on the Sacred Ridge Site dating to the latest phase of occupation contained heavily processed human remains, Features 58, 104, and 134 (Fig. 4). The following describes each feature and associated assemblage of human remains.

Feature 134

Located on the north end of the eastern slope of the ridge, Feature 134 was an oval to D-shaped pit structure oriented to the east (Fig. 4). The structure measured 6.9 × 6.0 m and had a maximum prehistoric depth of 2.0 m. A poorly preserved 40-cm-wide and 50-cm-tall bench surrounded the structure on three sides. The structure's abandonment appeared to have been a planned event involving the burning of the roof and the removal of most of the

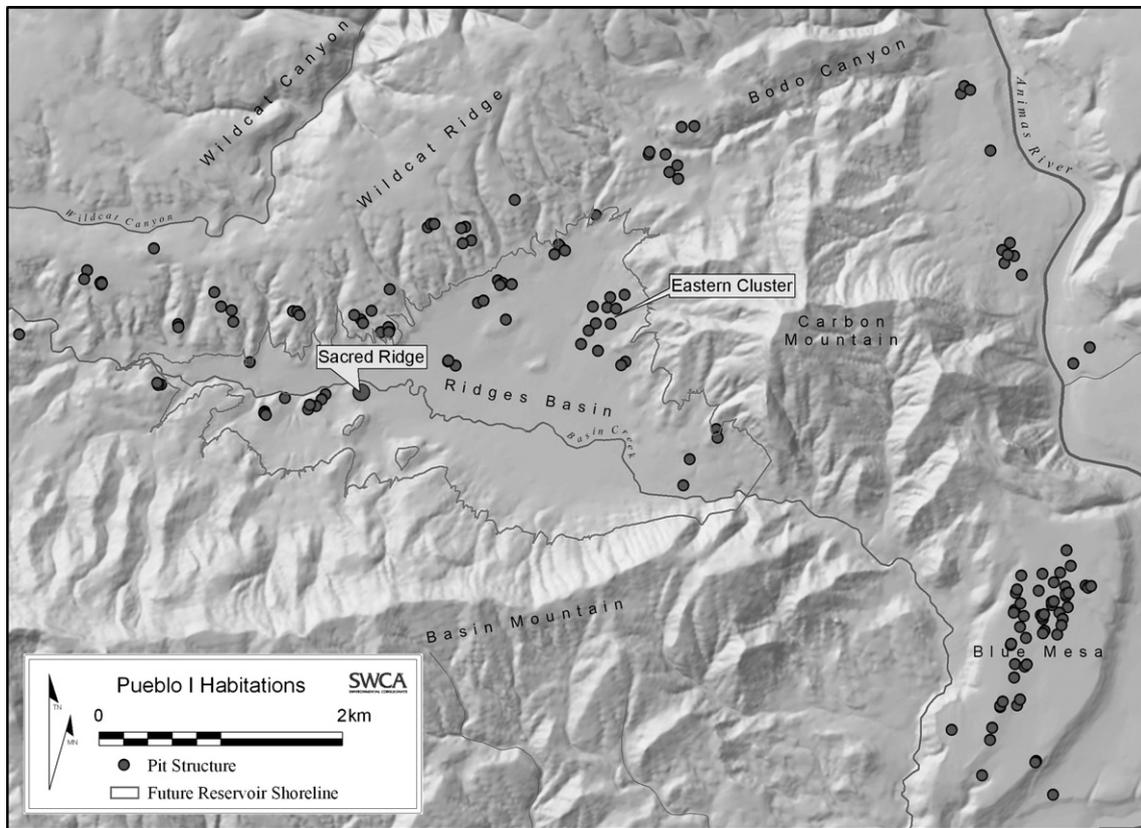


Fig. 2. Map of the location of Pueblo I habitations in the ALP project area, A.D. 725–825.

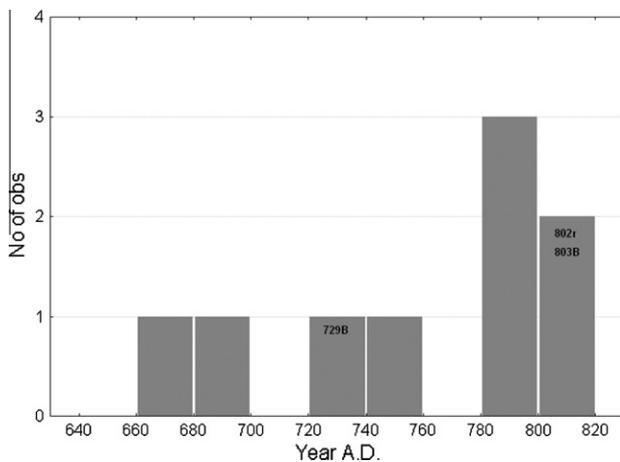


Fig. 3. Histogram of tree-ring dates recovered from 5LP245, the Sacred Ridge Site. Cutting and near-cutting dates identified as individual values within bars. B = bark present; r = outermost ring present.

domestic assemblage. In addition, a cluster of broken and disarticulated human remains measuring 94×63 cm was placed in the vent/entry around the time the pit structure was abandoned. The jumble of highly fragmentary remains was recovered approximately 10 cm above the floor of the vent/entry. No formal burial pit was evident in the overlying fill, suggesting that the remains were expediently deposited soon after abandonment. A single projectile point was the only artifact directly associated with the remains.

The remains represented less than 50% of a 45–49 year old female. One subadult humerus fragment was found co-mingled.

Skull fragments exhibited cut marks superior to the left orbit and oriented circumferentially, which is consistent with scalping. Perimortem fracturing of both left and right zygomatics was consistent with posteriorly placed blows to the side of the head. And a fragment of the mastoid process on the left temporal had an area of crushing on the super anterior surface, which is also consistent with crushing produced by blows to the side of the skull. In addition to the trauma evident on the cranial fragments, this individual exhibited numerous tool marks on her internal iliac fossa, possibly indicating disembowelment, and extreme fracturing and cutting of the long bones and vertebrae. The lower limbs in particular showed extensive processing in the form of multiple chop marks, cut marks, scrape marks, and perimortem fracturing. These remains exhibited very little burning.

The floor of Feature 134 did not contain any human remains. But ten floor artifacts were tested for blood residue and two artifacts were strongly positive for human hemoglobin (blood) and myoglobin (muscle) (Marlar 2010). One of these artifacts was a gray ware jar that tested positive on its interior in all three places tested, the bottom, the side, and the neck. The other was a two-headed axe or maul that tested positive on both ends. These data suggest that the processing of human remains likely occurred on the floor of this structure.

Feature 58

Feature 58, located at the southern edge of the site in Locus 9, was subrectangular and oriented southeast (Fig. 5). It measured 7.9×6.8 m and was surrounded on three sides by a bench that measured 40–80 cm wide and 80 cm high. The downslope (southeast) side of the structure had a prehistoric depth of 1.4 m, whereas the upslope (northwest) side had a prehistoric depth of at least

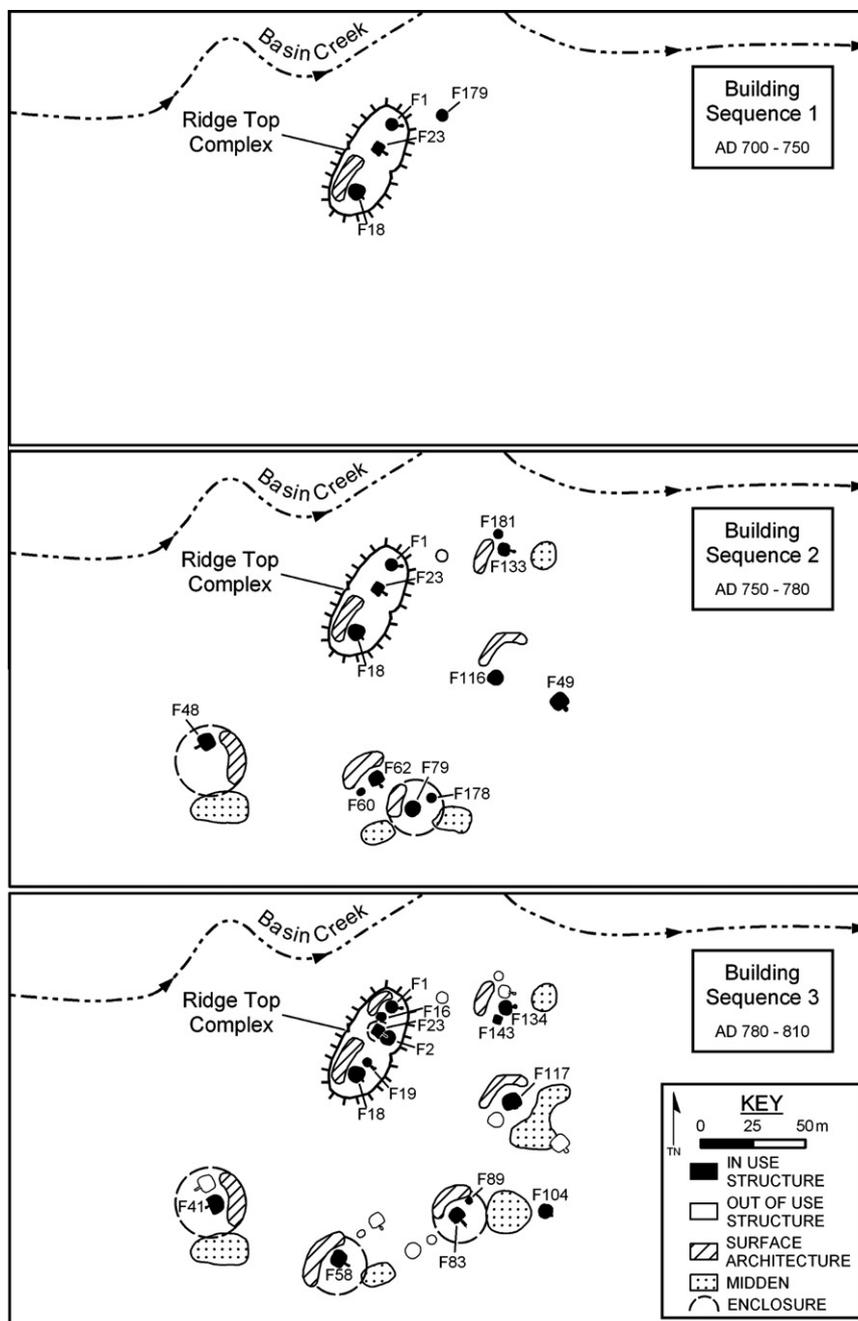


Fig. 4. Maps showing the pit structures associated with various building phases at the Sacred Ridge Site (from Potter and Chuipka, 2007). (Courtesy of the Arizona Archaeological and Historical Society and *Kiva*.)

1.8 m. Its original use was as a domicile. Just prior to the closure of the structure, human remains were processed around the hearth area. Following this processing event, the roof was burned, at which time only a small domestic artifact assemblage was in place. The structure may have been mostly cleaned out prior to the processing of the human remains, and the debris that was left behind may represent items used in the processing event. The abandonment of Feature 58 was not as formal as other structures excavated elsewhere in the project area. Instead, it appears to have been haphazard and hurried, with portions of the assemblage removed and the structure burned down around what assemblage was left. The upper fill of Feature 58 was relatively clean compared to that of other pit structures in Locus 9 (Features 60 and 62), suggesting it was the last pit structure to be discontinued from use. The burning

of Feature 58 is inferred to have coincided with the end of occupation of the locus.

Clusters of human remains showing varying degrees of fragmentation were found on the floor surface in the southeastern half of the pit structure (Fig. 5). The densest deposits were found near the hearth and in the hearth itself (Subfeature 58.28). Several fragments of human bone were also found in the southeastern corner of the structure (Subfeatures 58.27 and 58.30). Additionally, an incomplete inhumation of a subadult (Subfeature 58.29) was found on the bench surface in the northeastern corner of the structure. Because the human remains were so fragmented, it is unclear whether the clusters represented portions of a single individual or several individuals. Possibly, portions of the subadult on the bench were also part of the floor scatter. Some of the bone

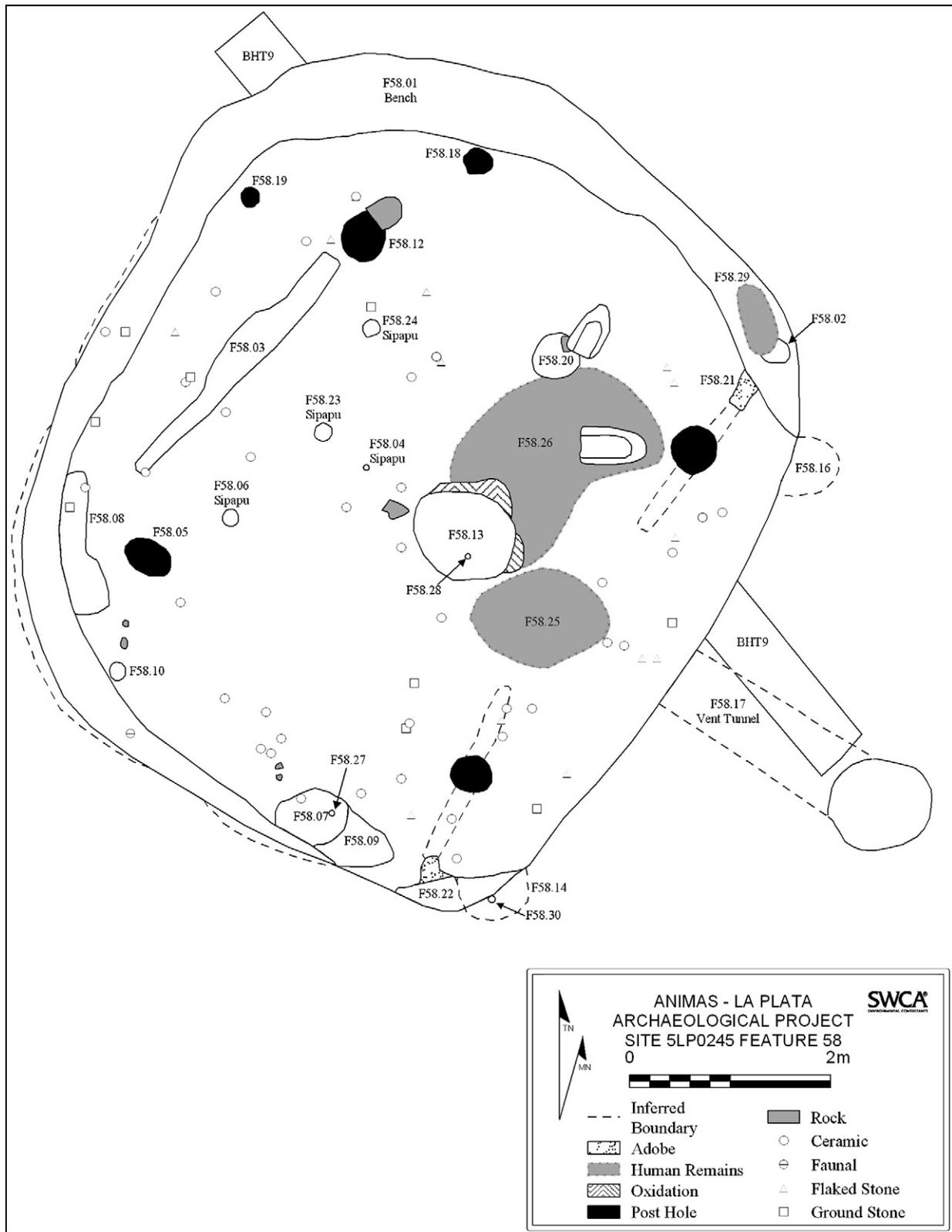


Fig. 5. Feature 58 plan map. Clusters of human remains shaded gray.

fragments in the hearth fill were charred, and some of the bone within the other scatters was also thermally processed, indicated by the extreme chalkiness and fragility of many of the fragments.

No funerary items were identified in association with these human remains. Two metates in the Subfeature 58.26 scatter

appear to have functioned as anvils on which the bones were fractured with hammerstones. Indeed, one trough metate contained a human skull fragment and a hammerstone in situ. Also associated with the remains were several burned sandstone fragments.

Blood residue analysis was conducted on 19 floor artifacts and three artifacts recovered from the hearth (Subfeature 58.13) (Marlar 2010). None of the hearth-associated artifacts (two flaked stone artifacts and a mineral item) were positive for human myoglobin. Six floor artifacts (two ground stone items, two flaked stone items, one ceramic item, and one mineral item) tested positive for human hemoglobin and myoglobin, including the trough (but not the sides) of the metate that contained a human skull fragment and a hammerstone.

This structure appears to have been a central processing area in which multiple human bodies were reduced to fragments and burned. The assemblage in the structure appears to be a mixture of the remnants of the domestic assemblage and the remains of processing, with many of the processed remains cleaned out of the structure prior to the structure roof being set on fire. The timing of the processing event was late in the occupation of the site and concurrent with other processing activities on the site, especially the secondary deposition of thousands of processed remains into a small pit structure (Feature 104) to the east of Feature 58. Many of the remains processed on the floor of Feature 58 may have been deposited in Feature 104 (see below).

Feature 104

Feature 104, an unburned pit structure, was located on the eastern edge of Locus 7, where the east slope of the ridge met the Basin Creek floodplain. Feature 104 was oval and oriented to the southeast (Fig. 6). It had a maximum prehistoric depth of 1.8 m and lower wall dimensions of 6.0 × 5.2 m. This structure did not have a bench and was the only structure excavated on Sacred Ridge with a bifurcated vent. It also stood out for its oval shape and the large number of floor features, including a corner bin. In general, Feature 104 was more similar to structures found elsewhere in the greater Durango area than it was to neighboring structures at the Sacred Ridge Site. Structures with a nearly identical morphology have been excavated on Blue Mesa and east of the Animas River on Grandview Mesa. Feature 104 functioned as a habitation that became the focus for the processing of human remains immediately before the structure was abandoned. Moreover, after it had gone out use as a domicile and processing locus, it became the receptacle for the secondary deposition of massive amounts of processed human remains. No evidence was found to suggest that the structure had burned. Instead, the roof was disassembled after human remains were processed in the structure. Evidence of this processing is clearly evident in the Feature 104 floor assemblage, in the remains found in and around the hearth (Subfeature 104.10), and in the material recovered from the upper half of a thermal refuse pile (Subfeature 104.08).

After the roof was disassembled, an even greater amount of processed human remains and artifacts was deposited into the structure depression (Features 110 and 111). This larger deposit of broken human bone and artifacts was then prehistorically buried in a somewhat expedient manner and the remaining depression was left to fill naturally.

Feature 104 floor assemblage

The Feature 104 floor assemblage includes 1508 human bone fragments from west of the wing wall–deflector complex, and 1079 human bone fragments in Subfeature 104.08, a thermal refuse pile east of the wing wall–deflector complex (Fig. 6). The human remains represented several individuals. Also present in both assemblages is a typical assortment of domestic artifacts, including several ceramic vessels, flaked stone scrapers and choppers, bone tools, manos, and metates. These point-located items likely represent activities that occurred in the structure immediately prior to, and during, the disassembly of the roof. The final activity that took

place in the structure was the processing of both human and dog remains. At least four dogs are represented. Fewer ungulate-sized and rabbit-sized mammals were also processed in the structure around the time of abandonment.

Almost every fragment of human bone in the Feature 104 floor assemblage exhibited some degree of burning that ranged from partial charring to being fully calcined. Given that the roof of the structure had not been burned at abandonment, this thermal alteration is assumed to be cultural and likely took place in the hearth (Subfeature 104.10). Similarly, the degree of fragmentation of the bones does not appear to be natural. The damage to these remains is also assumed to be cultural and appears to have taken place in Feature 104 immediately prior to abandonment.

Blood residue analysis was conducted on 12 floor-contact artifacts from Feature 104, including three ceramics, a mineral sample, four ground stone items, a worked bone, and a flaked stone item (Marlar 2010). Only one artifact, a grayware jar, tested positive. One soil sample from the floor was also analyzed and tested negative.

Feature 104 upper fill

The human remains recovered from the post-occupational fill of Feature 104 were designated Feature 110 and Feature 111 (Fig. 7). This difference in designation is due partly to the method of excavation and partly to the fact that these two features appeared to have been differentially affected by cultural and natural formation processes. The features were similar to each other in that the human remains were heavily fractured and were associated with artifacts and burned rock. A charcoal-rich matrix surrounded most of the cultural material in both Feature 110 and Feature 111. Feature 111 was the most extensive deposit in the post-occupational fill and measured 5.9 × 5.2 m. This dense deposit of artifacts, human bone fragments, and burned rock was separated from the floor assemblage by the collapsed roof material (Substratum IVa) everywhere but in the center of the structure, where it merged with the floor assemblage (Stratum V) around the hearth. Feature 111 was associated with the charcoal-rich Stratum III deposits of the Feature 104 fill and appeared to be the primary deposit. Feature 110 was the uppermost scatter of human bone fragments, artifacts, and rock that was recovered from the post-occupational fill (Stratum II) of Feature 104. Feature 110 is thought to represent material that naturally eroded out of Feature 111. The items provenienced to Feature 110 were widely dispersed both horizontally (over an area measuring 6.5 × 6.0 m) and vertically (throughout Stratum II). Features 110 and 111 contained over 12,000 fragments of human bone, all within the context of the post-occupational fill of Feature 104. Distributed among these remains were nearly 600 artifacts that appeared to have been deposited at the same time as the bone fragments. All of the human remains and artifacts appeared to have been deposited in a single event after the structure roof was dismantled.

Most of the human remains recovered from Features 110 and 111 exhibited some form of modification or perimortem processing. The degree of fragmentation of these bones is most evident in the composite plan map of Features 110 and 111 presented in Fig. 8.

Burning was also a common type of damage to the bone fragments. Given the context of the remains, it is evident that much of the processing occurred elsewhere before the fragments were deposited in Feature 104. The processing was most likely perimortem, occurring soon after the individuals died.

The bone assemblage

The human remains on the floor and upper fill of Feature 104 consisted of a wide variety of mostly partial elements from the

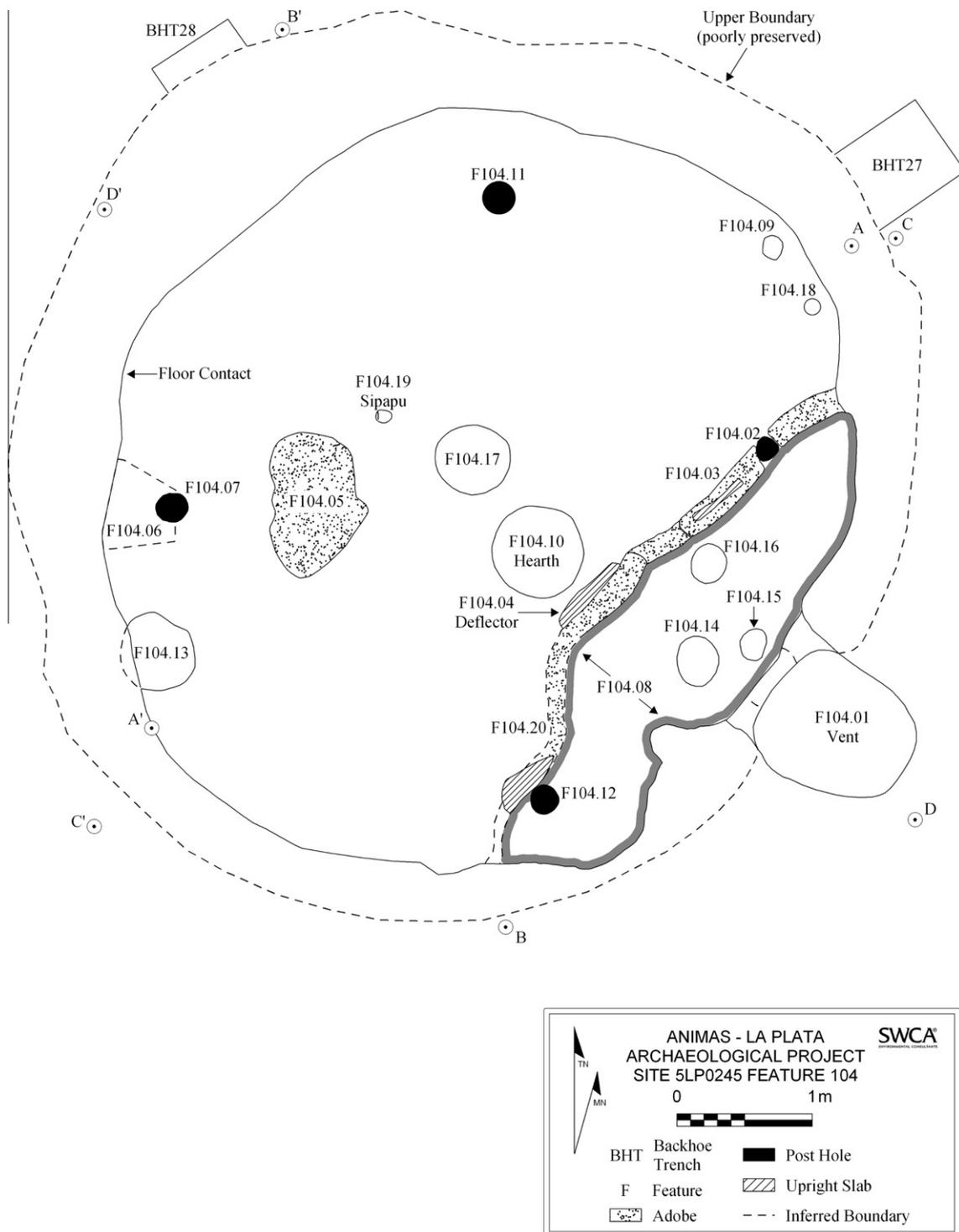


Fig. 6. Feature 104 plan map.

cranial and post-cranial skeleton. A minimum of 35 individuals was represented in the assemblage; both males ($n = 5$) and females ($n = 7$)³ were present, with ages ranging from infant to adult (Fig. 9). The entire assemblage comprised 14,882 fragments, which is more than any other Southwest assemblage (Fig. 10). This exceptionally

large number reflects not only the large number of individuals represented in the assemblage, but even more so, the degree of fragmentation of the assemblage. With the exception of one partial foot and an elbow, no articulated body parts were recovered—there was more destruction evident in this assemblage than in any other assemblage that we know of. In addition, the processing of these individuals was patterned; on several individuals the same damage is evident in the same anatomical locations (Stodder et al. 2010). In each case, the systematic destruction of the entire body was

³ These are minimum numbers of individuals identified to sex based on various elements. Infants, children, and subadults (adolescents) are often not identifiable to sex. Data from Ezzo (2010).

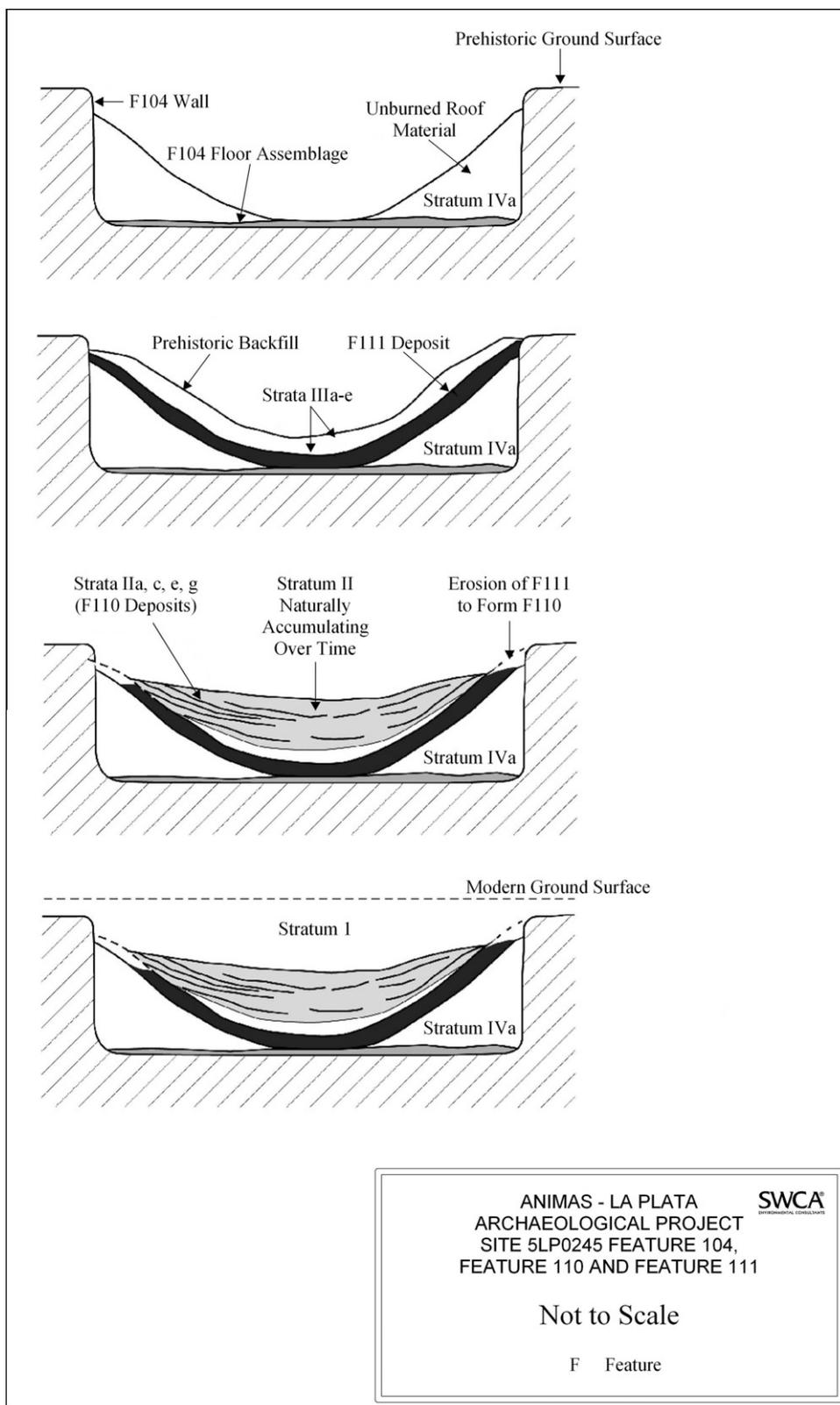


Fig. 7. Schematic profile drawings showing the deposition sequence of Features 110 and 111 in the upper fill of Feature 104.

evident from head to toe. Even foot and toe bones were broken and the bottoms of feet cut, chopped, and scraped. Several individuals had undergone removal of the scalp, nose, and/or ears, perhaps as trophies. Other common damage to the skull and face included the smashing of the front teeth, the disarticulation of the lower jaw,

and blunt force trauma on, and subsequent breakage and burning of, the cranium.

Deposition into Feature 104 was of already broken bones and skulls rather than intact elements, and there was very little exposure to weathering or predators before deposition and burial. Some

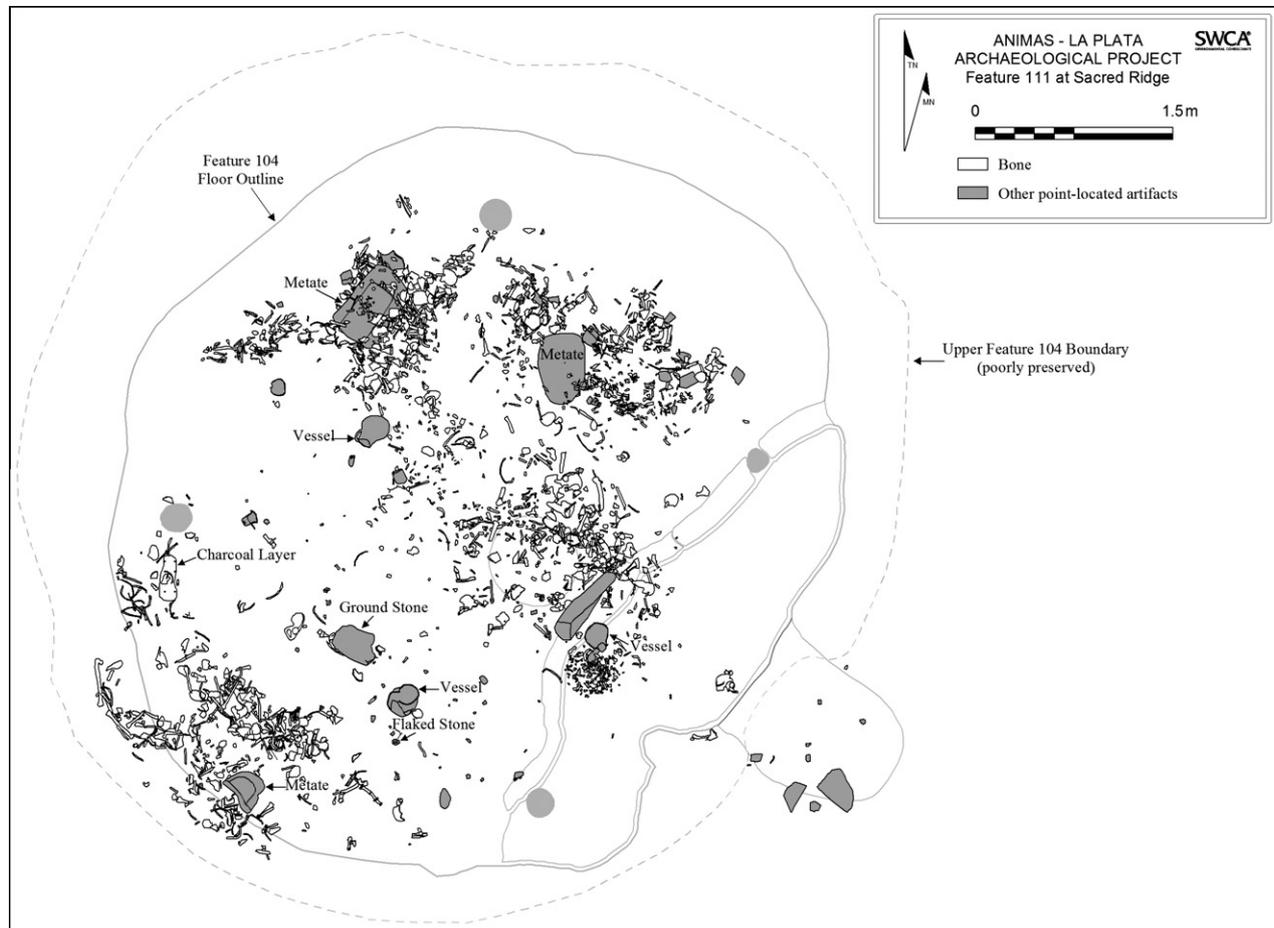


Fig. 8. Feature 110 and 111 plan map showing locations of human bone fragments and associated artifacts.

of the processing represented in the upper fill of Feature 104 (i.e., Features 110 and 111) was conducted on the floor of Feature 104 prior to the dismantling of the roof. Parts of the same skull and other conjoinable elements were recovered both from the floor of Feature 104 and from Features 110 and 111. Additionally, it is reasonable to assume that processing of human remains occurred in three additional pit structures at the Sacred Ridge Site—Features 58, 134, and 79, all of which contained floor artifacts that tested positive for blood residue (Marlar 2010).

Biodistance studies. Biodistance studies indicate that the people deposited in Feature 104 were biologically distinct from the rest of the Ridges Basin population. As a part of the Animas–La Plata project, John McClelland (2010) analyzed teeth from 173 individuals from 18 Pueblo I sites in Ridges Basin, including the Sacred Ridge Site. Among these samples, he found that the processed human remains assemblage from Sacred Ridge significantly differs from all others in Ridges Basin in six dental traits (four at the $p = 0.5$ level and two at the $p = 0.10$ level).

The individuals at Sacred Ridge whose remains were disarticulated and processed were not a random selection from among the overall population of Ridges Basin. In addition to the biological differences, they appear to have had a somewhat different diet and may have experienced a higher level of juvenile growth disruption (McClelland, 2010:237).

In an analysis of the skulls of 26 individuals from across the basin, Douglas and Stodder (2010) found similar patterning. “The nonmetric trait variation, supported by multivariate analysis, sug-

gests the processed human remains [PHR] assemblage was a familial group distinct from the non-PHR assemblage as a whole, and that it was also distinct from other individuals buried in a normative manner at the Sacred Ridge Cluster” (Douglas and Stodder, 2010:220).

Ezzo (2010) collected samples of tooth enamel from 98 individuals from the Ridges Basin community and analyzed them for variation in their strontium isotope signature ($^{87}\text{SR}/^{86}\text{SR}$). Differences noted between local strontium ratios (as exhibited by local plants, animals, and geology) and the strontium ratios in the enamel of individuals, which forms during the first year of life and does not remodel, may signal the presence of immigrants to an area (Ezzo, 2010). Twenty-eight samples were analyzed from individuals associated with Features 104 and 111. According to Ezzo (2010:194),

of the 28 individuals who were analyzed, 24 patterned as local to Ridges Basin, one patterned local to Blue Mesa or the upland areas surrounding Ridges Basin, and three patterned as intermediate between Ridges Basin and Blue Mesa. None could confidently be defined as immigrants; the three intermediate values may represent immigrants from a geologically younger region, such as the San Juan Basin, or they may have spent their first year of life obtaining food from both Ridges Basin and Blue Mesa/upland areas surrounding Ridges Basin.

The strontium analysis suggests, then, that the people represented by the processed remains in Features 104 and 111 were part of the local population and were not outsiders or first generation immigrants. Nevertheless, the dental and cranial biodistance stud-

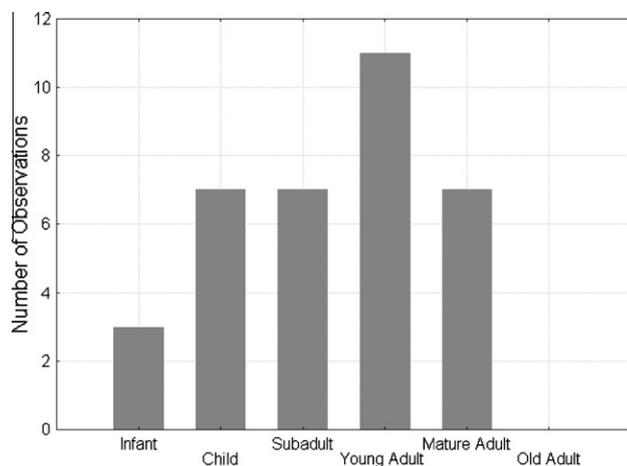


Fig. 9. Age distribution for processed remains in Feature 104 ($n = 35$) (Source is McClelland, 2010).

ies indicate that they were a distinct group within the community, possibly a lineage or members of a distinct (and rather endogamous) ethnic group.

The Feature 111 artifact assemblage

In total, 463 artifacts were found co-mingled with the processed human remains in Feature 111: 205 ceramic items, 61 flaked stone items, 17 ground stone items, 178 faunal remains, and 2 minerals (Table 2). In general, these artifacts typify of a Pueblo I domestic assemblage. Of particular note, however, is the relatively large number of domesticated dog remains associated with the processed human remains. A full one-third (33.7%) of faunal remains recovered from Feature 111 were dog bones. For the project assemblage as a whole, domesticated dogs comprised only 13.7% (Potter and Edwards, 2008:250). A higher than average number of dog remains was also found in association with the floor of Feature 104 and these appear to have been processed similarly to human remains (Chuijka, 2009:213).

Blood residue analysis was conducted on seven artifacts and four soil samples from Feature 111 (Marlar 2010). Four of the artifacts (a flaked stone item, two ceramic vessels, and the blunt ends of a rock [but not the flat side]) tested positive for human myoglobin. The remainder of the artifacts (a flaked stone item, a mineral

piece, and a ceramic sherd) and all four soil samples tested negative. These negative results suggest that the artifacts and portions of artifacts that tested positive did so not because of incidental contact with soil or human body parts, but rather because they were indeed used to process the remains and were deposited with those remains once the task was complete.

Revisiting the models

The Sacred Ridge assemblage was similar to other EP event assemblages in the Southwest in that victims were heavily processed and reduced, were subject to scalping and trauma to the head and face, and were associated with pit structures. Yet, the Sacred Ridge Site is unique in a number of ways and does not fit the expectations of any single model presented in Table 1. The characteristics of the Sacred Ridge assemblage differed from those expected from inter-group warfare and violent social control by having faunal remains co-mingled with the assemblage. It varied further from the expectation of inter-group warfare by involving both men and women of all ages, especially infants, children, and subadults. By exhibiting extensive facial and cranial trauma, including scalping, by involving a large number of victims dispatched at one time, and by exhibiting evidence of processing of all parts of the body, including the feet, the Sacred Ridge assemblage diverged considerably from the expectations of starvation cannibalism. Moreover, formal preparation of the deceased may be discounted from the lack of formal burial and offerings and the enormous collection of co-mingled bones from many individuals.

In contrast, the attributes of the Sacred Ridge assemblage did exhibit many attributes of witch destruction, including extensive facial and cranial trauma, association with faunal remains—particularly those of domesticated dogs (Walker, 2008b)—the relatedness of the group members, and the spatial separation of contexts of execution and processing from the final disposal context. In addition, environmental conditions appear to have become drier and cooler in the early A.D. 800s (Anderson 2008), which may have added stress to a community dependent upon dry farming and living at 6800 feet, and as a result increased the likelihood of witch-craft accusations within the community.

One pattern at the Sacred Ridge Site that does not fit well with the witch destruction scenario, however, is the extremely large size

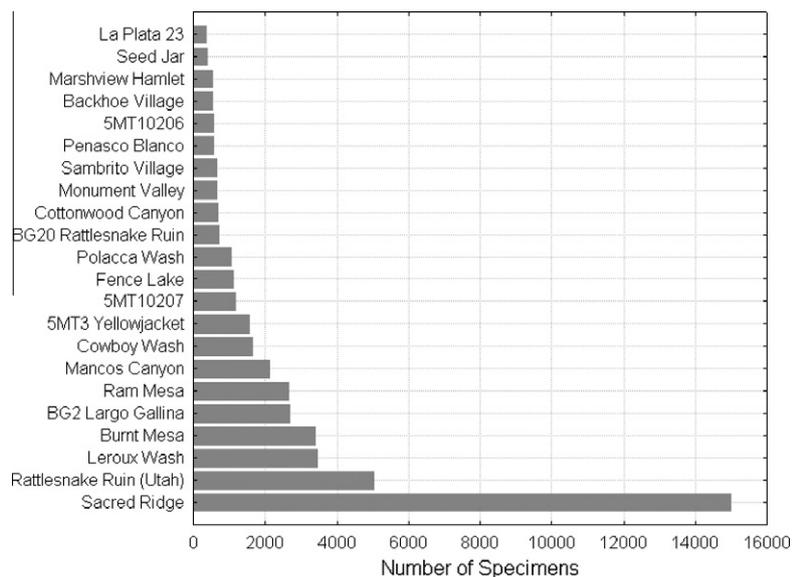


Fig. 10. Number of bones or fragments from the larger disarticulated human bone assemblages in the Northern Southwest (sources are Turner and Turner, 1999; Turner, n.d.).

Table 2
Artifacts from Feature 111.

Artifact type	Count	Description
<i>Ceramics</i>		
159		Plain grayware sherds
2		Plain grayware narrow-necked jars (RC 1033, RC 1034)
1		Plain grayware jar (RC 1042)
1		Plain grayware bird-shaped effigy vessel (RC 1040)
3		Rosa Black-on-white bowl sherds
12		Rosa/Piedra Black-on-white bowl sherds
24		Unpainted early whiteware sherds
2		Unpainted redware sherds
1		Unfired or raw clay, possible pinch-formed animal head effigy
<i>Flaked stone</i>		
6		Pieces of angular debris/shatter
20		Flakes
10		Used flakes
4		Hammerstones
2		Unhafted chopper/axes
2		Multidirectional cores
1		Unidirectional core
1		Tested cobble
6		Heavy-duty scrapers
7		Light-duty scrapers
1		Knife
1		Perforator/engraver
<i>Ground stone</i>		
1		One-hand mano (PL 1340)
1		Active reducer fragment
1		3/4 trough metate (PL 832)
3		3/4 trough metate fragments
5		Indeterminate metate fragments
1		Pecking/pounding stone
3		Polishing stones
1		Tabular passive reducer fragment
1		Tabular fragment, possible pot lid/rest
<i>Faunal, unworked</i>		
2		Deer
24		Ungulate-sized mammal
60		Domesticated dog
13		Dog-sized mammal
1		Indeterminate medium-sized carnivore
5		Jackrabbit
2		Cottontail rabbit
22		Rabbit-sized mammal
3		Pocket gopher
2		Rock/ground squirrel
1		Rodent-sized mammal
1		Turkey
8		Indeterminate large-sized bird
1		Indeterminate medium-sized bird
1		Indeterminate frog/toad
30		Unidentified remains
<i>Faunal, worked</i>		
2		Awls, deer
<i>Mineral</i>		
1		Fossil, small piece of fibrous calcite
1		Soft, sandy material; possibly processed (found inside RC 1040)
Total	463	

of this group of victims. At least 35 people, perhaps more, were killed and mutilated during this event. That would be an unprecedented number of people found guilty and executed at one time as a result of witch-craft accusation. Most witch trials on record at Zuni, for example, involved single individuals, and only one trial involved more than two individuals (Darling, 1999:741; Smith and Roberts, 1954). The Sacred Ridge assemblage, then, is many times larger than even the largest recorded group executed for witchcraft at Zuni. Is there another explanation that can better account for the patterning at Sacred Ridge?

Ethnic conflict in the Pueblo I period

The Pueblo I period in the northern Southwest was a time of considerable cultural and ethnic diversity among village communities (Chuiпка, 2008; Wilshusen and Ortman, 1999). In addition to these documented inter-community differences, Ridges Basin exhibits evidence of intra-community cultural and ethnic diversity. Spatially clustered patterns of distinct architecture (Potter and Yoder, 2008), ceramics (Allison, 2010), and mortuary features and associated artifacts (Potter, 2010), as well as measures of biological distance (Douglas and Stodder, 2010; McClelland, 2010), indicate that at least three biologically distinct, identity-conscious groups composed the Ridges Basin community.

We propose that the violence and extreme mutilation evident at the Sacred Ridge Site was the result of intra-community conflict between ethnic groups. An “ethnic-strife” model certainly accounts for the large number of victims better than the witchcraft model, for example. It also predicts the people deposited in Feature 104 being biologically related and distinct from the rest of the Ridges Basin population, as denoted by the cranial and dental bio-distance analyses (Douglas and Stodder, 2010; McClelland, 2010). Furthermore, the utter destruction of these people, and in the process their identity, seems consistent with the goals of ethnocide, particularly the extreme damage to the facial areas of the skull. Even the destruction of the dogs may have been a tactic designed to further eradicate all that was identifiable with this group.

The underlying cause of the Sacred Ridge massacre is not known, but deteriorating environmental conditions may have been a factor (Anderson, 2008). Households at Sacred Ridge had greater access to highly valued food resources (deer and elk) than did others (Potter and Edwards, 2008), which potentially exacerbated social tensions. The combination of an increasingly colder and drier climate, an over-hunted local environment, unequal access to meat among households, and a growing population relying on limited soils to grow food, may have turned the various groups composing the community into natural competitors. Consequently, any stress experienced by this multi-ethnic community may have been enough to trigger a violent event, the goal of which would have been to destroy the targeted group wholly or in part.

Conclusion

Invoking ethnic violence as an explanation of the massacre at Sacred Ridge does not rule out other goals and actions. The event may well have been accompanied by witch-craft accusations and attempts at social intimidation, for example. Cannibalism may also have occurred. The level of brutality and degree of processing suggests, however, that starvation cannibalism was not a primary motive and instead that it was the destruction of these people's identities that was the primary goal of the extreme perimortem mutilation evident at Sacred Ridge.

It may be well worth revisiting later assemblages with the ethnic violence model in mind. One of the triggers of this type of behavior seems to be the sudden breakdown of leadership or political structures that had been keeping ethnic conflict at bay. As examples, the former Yugoslavia, Iraq, and Rwanda each saw extreme ethnic strife erupt in the wake of the dissolution of an overarching political structure. A similar situation may account for the dramatic increase in EP events in the northern Southwest at about A.D. 1150, when the region saw the collapse of the Chaco regional system (see Billman, 2008; Bustard, 2008; McGuire and Van Dyke, 2008). Rather than social intimidation or starvation cannibalism driving these extreme behaviors, they may have been the result of ethnic conflict on the heels of a massive breakdown of the political structure. Re-examining the data for evidence of ethnic

diversity and conflict may be a fruitful pursuit for understanding the long tradition of EP events in the Southwest.

Acknowledgements

The authors would like to thank the Bureau of Reclamation, the Ute Mountain Ute Tribe, and SWCA for supporting this research. As with all large projects, the archaeological and bioarchaeological data evaluated in this article was produced over multiple years of excavation, analysis, and reporting by a large team of professionals. We were fortunate to work with so many talented people, and their contributions have enabled us to produce this work. Comments from Charles Bollong, Matt Bandy, Ann Stodder, Ruth Van Dyke, Richard Wilshusen, and one anonymous reviewer on an earlier draft improved the quality of the paper tremendously. Trent Reeder and Jason Chuipka produced the graphics. Any errors of fact or logic remain the authors' responsibility.

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