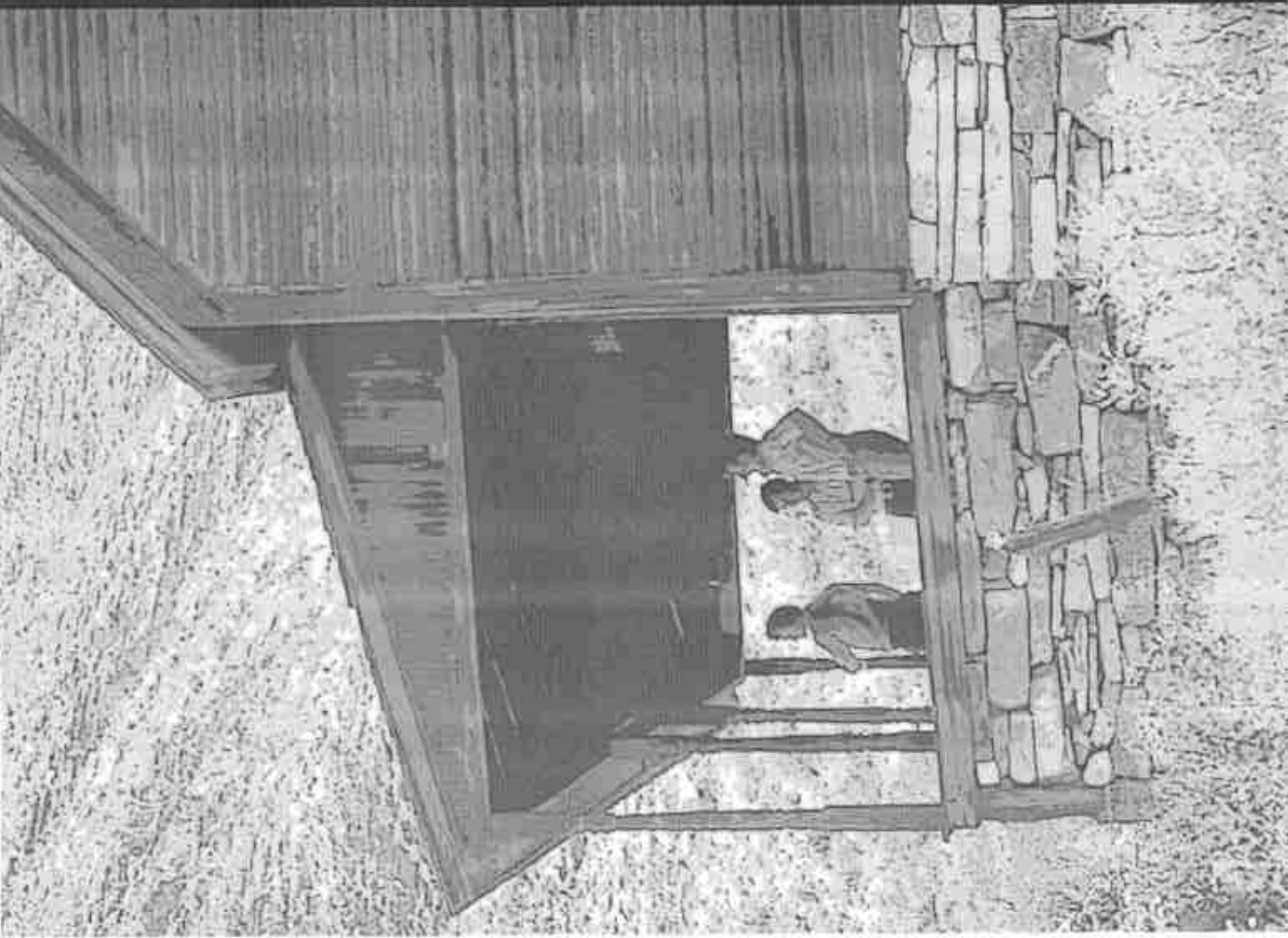
Cultural Resources



Chapter 20

Archaeological Resources of Guadalupe Mountains National Park

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Once around the park
We assume that these mountains were named for the Virgin of Guadalupe, but the Saint Hubert Mountains would have been far more appropriate. Saint Hubert is the patron of hunters and gatherers, and success in these most basic forms of human survival has been the mainstay of this area for at least 10,000 years. Further, the Aztec word HUA-TA-LO-PE, from which the word Guadalupe is thought to derive, means "one who treads on snakes." We know the National Park Service frowns on that kind of thing.

Our travels through the park began in September 1973. The Department of Anthropology at Texas Tech University hired us to conduct an inventory of the new park. There were 2.5 scientists starting projects on the same day. Full-time National Park Service Fire Biologist Gary Ahlstrand got in his Scout and drove it into an arroyo on the west side. Full-time Archaeologist Paul Katz and his half-time assistant Susana Katz climbed up the west wall of McKittrick Canyon to look at a "cave" that turned out to be a shadow. The descent was "easy," consisting of a several hundred foot slide down a ravine, tearing our clothes and ourselves to shreds.

The 2.5 of us met at the end of the day at the Pine Springs Café and pondered the wisdom of our actions. Bertha Glover took one look at Paul, declared that he reminded her of her late husband Walter, the "Little Giant of West Texas," hugged him, and told him to come back as often as he could. Her Chihuahua dog looked up at me, lifted his leg, and peed on my ankle. We learned some important lessons that day: things change appearance with light and distance; a straight line may not be the shortest route from one place to another; and, if you're going near Bertha's dog, wear socks. Thus began our love affair with the Guadalupe Mountains.

We were not the first people to conduct archaeological work in the Southern Guadalupe Mountains, but we were nonetheless data-poor. In 1930, E. B. Howard, noted archaeologist from the University of Pennsylvania, came to the Guadalupes at the request of local residents Livingston and Burnet to search for the remains of "early man." Although he excavated several hearths and a Folsom-like projectile point in Burnet Cave, the associations of man-made materials with extinct animals eluded him. So he went to look at another nearby location, Blackwater Draw. He left behind a student, Mary Ayer, who excavated Williams Cave. This cave produced both Pleistocene fauna and cultural remains, but they were not in association and were not early man. Henry Mera joined the Laboratory of Anthropology in 1930, and soon after he surveyed, described,

The descent was "easy", consisting of a several hundred foot slide down a ravine, tearing our clothes and ourselves to shreds.

and tested sites throughout southeastern New Mexico (and west Texas), including caves on the western escarpment of the Guadalupe Mountains. He named several of our common pottery types and conducted a study of ring midden features.

We took what came naturally to us—every day with our undependable ambulance was an exercise in survival.

That's practically all the published on-the-ground work that took place in this locality until the 1960s. Suddenly, there were small surveys, John Greer's ring midden typology, small excavations in caves in the Lincoln, and an honor's thesis updating Mera's overview written by Barney Burns as an undergraduate at the University of Arizona. (Coincidentally, Barney and Susana were undergraduates together, and Susana actually got to see this rare manuscript, archived in Barney's Mom's garage).

And then the southern Guadalupe Mountains became a national park. Between June 10 and June 20, 1970, the Texas Archaeological Society (TAS) held a field school there. About 10 square miles of the park were investigated by 200 people, recording 150 sites. Harry Shafer, a principal investigator of the field school, along with Dessamae Lorrain provided us with copies of the TAS site forms.

We had other excellent sources of information: Isobel Gilmore, an avid arrowhead hunter and our neighbor in Salt Flat; Bill Balgemann of Carlsbad, an avocational archaeologist who had excavated caves on the New Mexico side; and National Park Service personnel from Guadalupe Mountains and Carlsbad Caverns.

After a few days of putting our limited information together, we sat in our official Texas Tech vehicle and made plans. The truck was a 1954 Dodge power wagon, which saw action as an ambulance in Korea; helicopters from Fort Bliss would hover overhead when they noticed the red cross painted on the vehicle's roof. We took what came naturally to us—every day with our undependable ambulance was an exercise in survival. When the vehicle died, and it did with alarming frequency, we had to know where we could find shelter and water, what to eat, and how to prepare it. Thus, the "intimate ecological approach" to archaeological survey was born.

We were fortunate because although archaeological information was limited, environmental data were not. We had the resources of the Living Desert Museum in Carlsbad, the Carlsbad Caverns research library, and the input from those natural science types from Texas Tech who were all over the park at the same time as us. We became hunters and gatherers. We put together lists of all known plants and animals (living and extinct) in the park, and then compared these with ethnographic accounts of how the same resources were used by native peoples and historical residents of the Chihuahuan Desert and beyond. (Much of this work appears in the Susana's dissertation from the University of Kansas, and the plant data has been incorporated into a volume produced by Human Systems Research of Tularosa, New Mexico.)

Data and definitions

For this discussion, we have taken data from the TAS field school and from three projects that we directed. The latter include the four-month survey conducted by the 1.5 of us in 1973; a field school we taught in the summer of 1974; and the completion of the park inventory in 1976, which concentrated on the high country. We were associated with Texas Tech University for the first two projects and with the University of Texas at San Antonio for the third. In all, we will use data from 261 prehistoric open sites. But wait—caves, rock shelters, and historic sites were recorded, too. However, since the National Park Service distinguishes caves from other sites, and history from prehistory, we have chosen to focus on prehistoric campsites. Nonetheless, we did live in or use historic structures (the Hauser House at upper Pine Spring and Williams Ranch on the west side); we excavated the Pinery in Guadalupe Pass; we examined military activity west of Frijole Ranch; and we recorded prehistoric rock art.

We need to define some terms at this point. The prehistoric chronology for southeastern New Mexico and western Texas is more precise and sophisticated today than it was 25 years ago. Back then, only general time periods were available. That's the way the data were recorded, and so we'll stick with it here.

Paleo-Indian is the earliest stage, with a range from 10,000 to 6,200 B.C. It consists of three periods, Early, Middle, and Late. This is followed, after a hiatus of about a millennium, by the Archaic stage, which dates from 5,200 B.C. to A.D. 500. There are four Archaic periods, Early, Middle, Late, and Terminal. Next comes the Formative stage, from A.D. 500 through 1500, and there are Early and Late Formative periods, followed by the Protohistoric. The Historic stage begins with the arrival of the Europeans.

Artifacts most commonly recognized at prehistoric activity locations in the park include those made of stone (lithics) and clay (ceramics). Some can be used to assign an associated feature or location to a chronological period. Pottery dates to the Formative stage, and painted pottery usually signifies the Late Formative. Plain pottery occurs throughout this stage, but if it is found by itself, it may imply the Early Formative. Arrowpoints are also from the Formative stage, but the larger dart points are generally pre-Formative. Each style or type of point can usually be assigned to a period; for instance, broad, notched points are Middle and Late Archaic, whereas fluted points are Early and Middle Paleo-Indian. Other tools commonly recovered include knives or choppers (bifaces); scraping tools (unifaces); cores, which are left over from making stone tools; and handstones, used to grind something on a grinding slab.

Types of features

We are going to start by looking at the types and distributions of features rather than sites. The site is the place on the ground where the archaeologist locates the features and artifacts associated with the features. Sites are useful, we can't get away from them; but features are fundamental. One other term we'll use is the "component," which refers to the occupation at a site during a specific time period. Single component sites have only one occupation; multicomponent sites have been reoccupied at least once. The most popular feature in the park is the ring midden, or burned rock ring; 75 locations are characterized by one or more rings. This represents 29%, almost one-third, of the 261 site records in our database.

Based on ethnographic analogy, experimental archaeology, and scientific analysis, the ring midden is interpreted as a feature for baking succulent plants. The rocks used in the process are discarded in all directions away from the processing location, thus forming a stone circle. Burned rock rings will conform to their physical setting with respect to three variables: (1) available space, (2) topography, and (3) soil or ground conditions. This conformity applies to both the plan and the profile of the feature.

Concerning available space, it is possible to have either a full circular or oval ring, or a partial ring or crescent. Abbreviated or partial rings are best known on the ledges in front of rock shelters or overhangs.

If the surface of the ground is too hard for the excavation of a baking pit, it is possible to build a "supersurface pit" out of rock. This is common on rocky ledges in the Guadalupe Mountains. Remember, what is integral to the process is a baking chamber; it does not have to be in a subsurface pit.

Another variable which affects the plan of the feature is the degree of concentration or dispersion of the burned rock ring. This is a factor that applies primarily to rings which have been reused many times and have accumulated a considerable quantity of burned rock. If adequate space is available, such as on a broad terrace, the ring may be large and low. If the feature is situated on a small ridge saddle, however, its configuration is more likely to be small and high. The

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same volume of rock may occur in both features, but the morphology will be quite different.

The burned rock ring is the kind of feature that grows old gracefully. Reuse results in a gradual but constant increase in the diameter of the feature and the height of the ring wall, as well as the volume of burned earth and charcoal in the central chamber.

One interesting aspect of burned rock rings is their intersection. In one sense this automatically implies time depth, in that a ring which is intersected by another is probably older than the one that intersected it. There can be several processes that result in intersection, however. One is a function of topography or available space, in that there may simply be insufficient room for multiple features to fully develop. Two central pits may be initially established some distance apart, but over time the intervening space is filled with their respective burned rock debris. Another situation is the use of the exterior ring wall of an existing ring in the construction of a new baking feature.

Burned rock rings have been recorded throughout a range of 5,000 feet—from 3,000 to 8,000 feet elevation. This corresponds to the range of *Agave lechuguilla* in the northern Chihuahuan Desert. The feature has also been recorded in all topographic situations, but its distribution is not even. Furthermore, the associated cultural activities, as indicated by other types of features and by artifacts such as the distinctive chipped stone "agave knife," are not the same at every site that is characterized by a burned rock ring.

Almost all the hearths are located in the lowlands.

A hearth is defined as a tight concentration of burned rock. It is a typical feature in the park, with 70 locations in our database. While there are 35 locations in each county, almost all the hearths are located in the lowlands. Associated stone tools include flakes, scrapers, and knives. Projectile points are not common, nor are ceramics. There are only 19 locations where these artifacts jointly occur with hearths.

Another feature type is the burned rock scatter. Depending on the amount and distribution of burned rock, this feature may be a dispersed hearth, a deflated ring, or a sheet midden. It may also be a feature in its own right with an unsuspected structure and function. There are 12 scatters in the database, but to these should be added another 49 locations that are characterized by an "indeterminate" type of burned rock midden.

The burned rock mound is a rather rare, but unique type of burned rock feature, with only eight locations in the database. These locations are all in wooded areas at high elevations. Their proximity to oak trees suggests a similarity to one of the functions postulated for the much larger and more numerous burned rock mounds of central Texas, that is, acorn processing.

Artifact concentrations and artifact scatters lack the presence or association of any type of feature, burned rock or otherwise. These locations still have a function; they just lack a discernable structure.

Unburned stone alignments, stone walls, stone circles, and stone rooms do occur, but they are rare and poorly defined. Isobel Gilmore remembers seeing a room or small room block on the west side, now covered by sand and silt. The TAS recorded a stone alignment, also on the west side that looked like the foot of a wall; this may be the same feature. Ceramics at about this location includes Casas Grandes types, which are associated with above-ground structures farther west. Pithouse features have been identified in the Salt Flat vicinity, although not in the park.

Distribution of features

The distribution of the features we've mentioned falls into three groups by elevation—low, medium, and high. In previous work, we looked first at lifeszones or ecozones or paleoenvironmental reconstructions. Here, we are letting the burned rocks take the lead. This lead still doesn't change very much because the first group of sites, the largest group, clusters from 3,500 to 5,000 feet. This is

the elevation range of the former and current grasslands. The most common features here are burned rock hearths (41 locations). Indeed, hearths in other locations are quite rare. Sites without any visible burned rock or burned earth, i.e., artifact scatters, are the next most common (37 locations), followed by burned rock concentrations of indeterminate structure. At the bottom of the list are the ring middens, which we found in only 19 locations.

There is a basic toolkit associated with hearth sites: chipped stone flakes, and cutting and scraping tools. Other tools may occur as well, but whatever the hearths on the west side are being used for, these three things are essential to the process. Hearths are strongly associated with arroyos, so proximity to water is also indicated. Hearth sites rarely have good datable artifacts, but those that do are usually assigned to the Late Archaic or Late Formative, with a few Early Archaic and Early Formative sites possible.

The typical geographical situation for lower elevation ring middens is at the toe of an alluvial fan on the west side. They are medium-sized sites, and they are mostly representative of the Early Formative period. The west side has been heavily collected, whereas the rest of the park is in near- pristine condition. The west side has also experienced significant erosion and colluvial action. But from what we can see, if you were an Early Formative period person, you cooked your agave on an alluvial fan on the west side. Most of your forebears and your "futurebears" used the uplands instead.

Now let's go up a bit to the intermediate elevations, from about 5,200 to 6,700 feet, where we have 51 sites. The location and pattern of use becomes more predictable and more spatially restricted. When you look at a map of the distribution of sites, you see that they often coincide with a road or trail. While this makes it look like we did our survey from the ambulance, what it really shows is that today's trails were yesterday's trails. There are a limited number of ways to gain access to the interior country, and these access routes have been used throughout time.

The most popular site is the ring midden, followed by indeterminate burned rock clusters; there are only 11 sites that have nothing but lithic and/or ceramic debris. The sites are most often located on terraces. If there was no terrace, any other kind of flat place was the next choice. Most sites in this group are not dated, with the major exception of sites in upper Dog Canyon, which is predominantly a Formative use area. There are a small number of sites which appear to have Paleo-Indian and Archaic components as well.

Hearths are strongly associated with arroyos, so proximity to water is also indicated.

Elevation group 3, the high country, has 71 recorded locations. This area was always popular. Dated components include four Paleo-Indian, 33 Archaic, and 23 Formative. That the gathering and processing of agave was important here is attested to by the prolific number of ring middens. They even outstrip the number of lithic scatters! The favored place to process agave was in a ridge saddle. This was close to the resource; it was sheltered and it was flat. To a lesser extent, benches and terraces were also used. The high country ring middens have greater time depth and a different toolkit than their lower elevation cousins. Sites will have both Archaic- style points and later points and ceramics. The toolkit has scraping tools as a regular feature, and cores and grinding slabs are more common than at lower elevations.

Remember the predominance of hearths in the lowlands? Here, only one hearth has been recorded. We suspect that a few are shallowly buried, but clearly, the hearth feature is not common. Twelve indeterminate rock concentrations and all of the midden mounds, those solid mounds of burned rock possibly associated with acorn processing, occur at this elevation.

We found 16 "hot spots" in the high country—places where three or more prehistoric components were identified at one site. Fourteen of these are on

travel routes through the mountains. They are on or beside old trails or new trails, and on ridges that run from the bottom to the top of the mountains. Most are associated with portions of McKittrick Canyon; there are even pairs, with one site at the bottom of the canyon and another at the top.

Some concluding thoughts

The archaeological resources of Guadalupe Mountains National Park tell this story:

1. Hunting and gathering activities were undertaken by small groups of people, perhaps even family units. The data leading to this conclusion consist of the small size of the features, the small areas of artifact scatter, and the nature and quantity of the associated tools.
2. These small groups of people returned periodically to the same or similar locations, presumably to carry on the same activities. Supporting data consist of the reuse of ring middens, the multiplicity of features, and multiple periods of activity at the same location (multicomponent sites).
3. Occupation was of a temporary nature. The data consist of the lack of structures and the lack of domestic refuse at most sites.
4. Does small family groups, returning periodically, and staying only a short time sound familiar? Doesn't this define the typical visitor to a national park? May we suggest a marketing line for the park: "10,000 Years of Visitation."

Archaeological resources in Guadalupe Mountains National Park can tell us something about where these visitors came from and where they may have been going:

1. Archaeological investigation in the larger region of southeastern New Mexico provides data about Rocky Arroyo being an important route between the Pecos River and the mountains. It is not hard to imagine travelers gaining access to the present national park and high country from Rocky Arroyo.
2. Another travel route may be indicated by site clusters in the south and southwest portions of the park. This would be a north-south route between the west side of the Delaware Mountains and the east side of the Salt Basin.
3. Travel through the park is identifiable by sites (usually characterized by ring midden features) located: (a) in saddles at the head of ridges that start low and top out, (b) by lines of activity areas along high country ridges, and (c) by sites at the intersections of modern trails.

The archaeological resources of Guadalupe Mountains National Park can and do play a significant role in regional research:

1. For example, evidence of Paleo-Indian activity in the high country provides a dimension that has not otherwise been recognized in southeastern New Mexico.
2. The use of ring middens during Archaic periods is something that was only postulated before archaeological investigations at Brantley Reservoir in Eddy County, New Mexico provided dates. Archaic sites in the park can now be restudied with this new data.
3. In other parts of the Southwest, including southeastern New Mexico, a major distinction between the Early and the Late Formative is made on the basis of architecture: pit houses developed earlier than pueblos. In the park, the absence of architecture allows a more intense scrutiny of subsistence and other aspects of behavior.
4. The large number of features, which are in excellent states of preservation, permits lines of inquiry which crosscut time periods and extend across the region. An example is our personal research into the function of ring middens. We have collected and analyzed data from west of the Salt Basin, over the mountains, across the Pecos Valley, and beyond. The only gap in this extensive data transect is Carlsbad Caverns National Park.

The archaeological resources of Guadalupe Mountains National Park are still there:
For more than 25 years, the National Park Service has protected these cultural resources through avoidance and good management when developing facilities and trails. It's nice to know that we can continue to conduct our research, and we look forward to presenting another paper at the 50th anniversary symposium.

Chapter 21

The Apache Cultural Landscape in Guadalupe Mountains National Park

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Introduction

Cultural ecology is the study of a community's interrelationships with its natural, social, and cultural environments. The result of a cultural ecological study of a community is a model, or a representation of those relationships. The representation may be characterized as a cultural landscape. Cultural ecology and the representation of cultural landscapes have been key interests of anthropology since its beginnings.

Park interpreters have recently popularized the concept of cultural landscape as a unifying theme for interpretation of the cultural and natural tapestry of specific park resources. Often the interpreter's understanding of the complexities of an adequate representation of a cultural landscape is limited. Most of the presentations of cultural landscapes in parks, so far, have been focused on cultural landscape as something "out there" and the "inside" view of the landscape through the cognitive frame, or "the eyes" of the cultural participant has been neglected. I hope that the following discussion will help to expand the dialogue between anthropologists and interpreters on their shared task of adequate representation of cultural landscapes.

In 1912, the famous American linguist and anthropologist, Edward Sapir, wrote:

> It is the vocabulary of a language that most clearly reflects the physical and the social environment of its speakers. The complete vocabulary of a language may indeed be looked upon as a complex inventory of all the ideas, interests, and occupations that take up the attention of the community, and were such a complete thesaurus of a given tribe at our disposal, we might to a large extent infer the character of the physical environment and the characteristics of the culture of the people making use of it.

Edward Sapir (1929) cogently directed us to the fact that, if we hope to adequately represent a cultural landscape, we are responsible for getting "inside" language and cognition:

> Language is a guide to 'social reality' though language is not ordinarily thought of as of essential interest to students of social science, it powerfully conditions all our thinking about social problems and processes. Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of a particular language which has become the medium of expression for their society. It is quite an illusion to imagine that one adjusts to reality essentially without the use of language and that language is merely an incidental means of solving specific problems of communication or reflection. The fact of the matter is that the 'real world' is to a large extent unconsciously built up on the language habits of a group. No two languages are ever

> sufficiently similar to be considered as representing the same social reality. The worlds in which different societies live are distinct worlds, not merely the same world with different labels attached…. We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation.

With this brief preface, let's take a look at the strategy of cultural ecology and the goal of representing an Apache cultural landscape in Guadalupe Mountains National Park. It involves: (1) library and archival research on the natural resources of the Guadalupe Mountains area and the archaeological, ethnographic, and historic records of Apache adaptation to those resources; (2) the reconstruction and mapping of potential plant and animal resources of the Guadalupe Mountains area; (3) actual ethnographic field work with living Apaches who still remember or are still practicing utilization of traditional resources; and (4) the testing of predictions of where prehistoric and protohistoric resource utilization camps and sacred sites should be. The result should be an adequate representation of the Apache cultural landscape of the Guadalupe Mountains area that will help us to understand and interpret the natural and cultural tapestry of Guadalupe Mountains National Park, as seen through Native American eyes.

To provide an adequate representation, we obviously have to go beyond what is "out there" and into the minds of the participants. We must deal with analyses that are linguistic, cognitive, religious, mythological, folkloristic, etc. In other words, we must get into the mental life of the people, we cannot be satisfied with just an external description of economics.

In brief, cultural ecology deals with the following questions: (1) What does nature provide for human thought and action to work with? (2) What do human beings actually do with these resources (how do they select them, categorize them, and use them)? (3) What do human beings think about what they do with these resources? And, ultimately and explanatorily, (4) Why do human beings do what they do with these resources?

Cultural ecology is a very rewarding approach for understanding the human condition. If specific cultural ecological representations of specific cultural groups are done well, they provide one of the most powerful, explanatory, and predictive forms of ethnography.

Because of the limitations of time and space, the following will be a brief summary of the progress of the Mescalero Apache–Guadalupe Mountains National Park cultural ecology project, which has as its objective the development of an interesting and understandable interpretive program and exhibits describing Mescalero Apache adaptation to the environments of Guadalupe Mountains National Park.

The target landscape

The traditional Mescalero Apache nuclear area, as defined by historical and ethnographic records, is the area traditionally utilized by the Mescaleros as indicated by Mescalero place names and intimate knowledge of the land and its resources (Figure 1). The peaks of the Guadalupe, Sacramento, and Sierra Blanca mountain complex represent the "sacred center" of Mescalero Apache territory. Guadalupe Peak is a sacred place of origin, creation, and visionary experience in Mescalero tradition. It is a place where White Painted Woman, the primary Apache deity, taught the ancestors of the Mescaleros the traditions and the ceremonies that make them Mescaleros. This is a place of beginning of Mescalero tradition. From this reference point, the Mescaleros consider their territory to be roughly a circle of approximately 150 miles in radius from their center in the sacred mountains. Beyond this "nuclear area," which was generally uncontested as "theirs," they traveled and had more limited knowledge of the country extending another 50 miles

Figure 1. The traditional Mescalero Apache nuclear area, about 150 miles in radius, is utilized by the Mescaleros as indicated by Mescalero place names and intimate knowledge of the land and its resources. The extended area, also used by neighbors, was about 250 miles in radius.

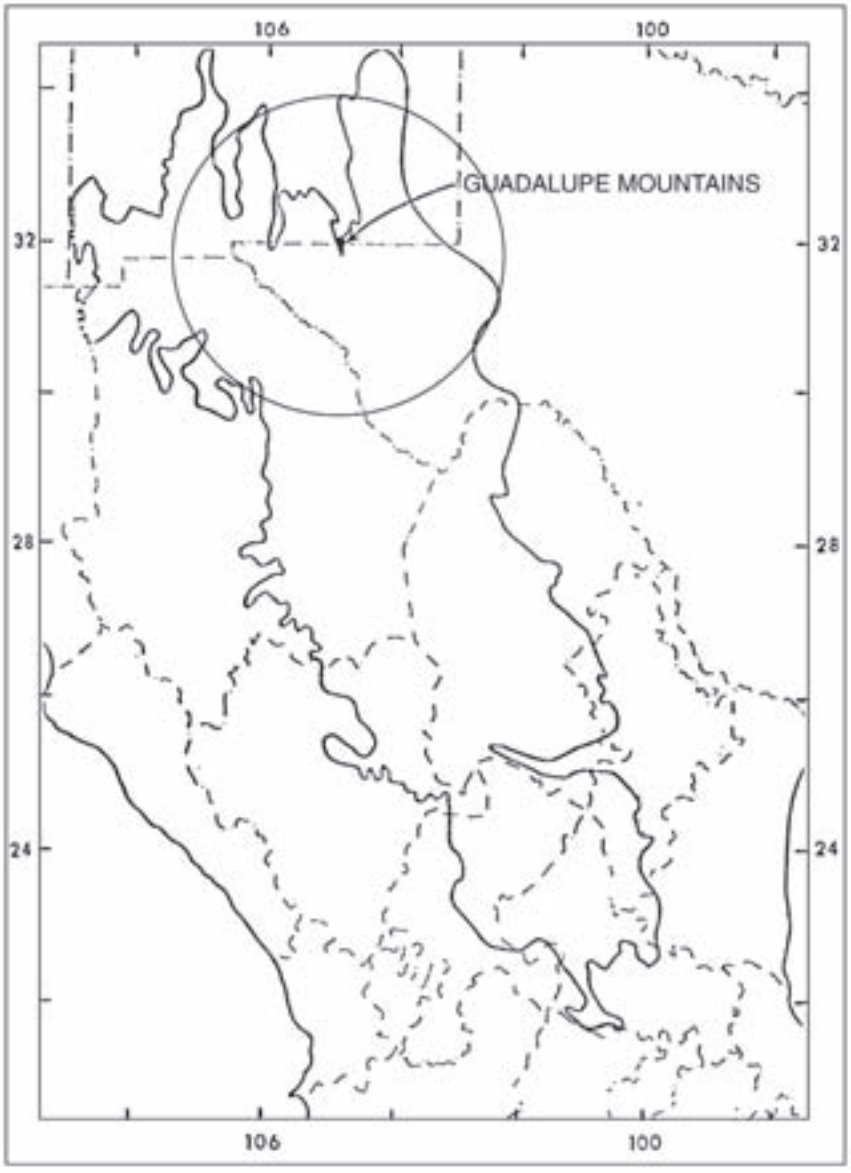
or so to the headwaters of the Pecos River on the north; into the plains of Texas on the east; far into Sonora, Chihuahua, and Coahuila on the south; and into what is generally considered Chiricahua Apache territory on the west. It was recognized that this extended area was mutually utilized with their other neighbors. The general pattern until the recent effects of the pressures of the Spanish-Mexican and Anglo-American frontiers was peaceful joint utilization of the margins of their territory with their neighbors, rather than conflict on their borders.

This circular view of Mescalero Apache territory will be used throughout this paper. It really replicates the model used if one were looking at the landscape

"through Apache eyes" (Figure 2). The Mescaleros have often been characterized as "desert people." However, they prefer to call themselves "mountain people." They are caught in the tangle of problems that scientists continue to be caught in when trying to generalize about such a complex area as the Basin and Range province of arid western America.

It must be understood at the outset that the Basin and Range physiographic province is very complex and within it the mountains are obviously the dominant feature. Also, the generalization of a biotic zone, such as the Chihuahuan Desert region, tends to obscure its internal complexity largely due to the climatic variations related to the altitude variations of the mountains. The Mescalero seasonally utilized the resources in the desert basins and plains grasslands, but the preference was to be in the higher altitudes in wooded uplands and in the mountains. This is where their traditions are, where their gods are, where their ceremonies are,

Figure 2. The circular view of Mescalero Apache territory replicates the model used if one were looking at the landscape "through Apache eyes." Here the nuclear area is superimposed on the boundaries of the Chihuahuan Desert (defined by Johnson 1979).



and where their hearts are. In their yearly circuits they generally moved from mountain range to mountain range, as if they were hopping from island to island. The desert basins were generally viewed as something to get across between the next mountain home, not as places that anyone would want to spend much time in, or live in.

Marshall C. Johnston (1979) has called the Guadalupe Mountains a "chink in the mosaic of the Chihuahuan Desert." It is important to note that although over 50% of the Mescalero Apache nuclear area may be included in the Chihuahuan Desert region, the region itself is studded with mountains that have essentially all of the biotic diversity of the Southern Rocky Mountains and the mountains of the Colorado Plateau. More importantly the sacred center of the nuclear area is in the Guadalupe-Sacramento-Sierra Blanca mountain complex, which is a "finger" of the Southern Rocky Mountains pointing southward into the Chihuahuan Desert. It is very important to notice that the Mescaleros were situated to get the full benefit of the "edge effect." They were situated in a transitional zone including portions of the mountain, wooded upland, plains grassland, and desert basin biotic communities. Much of their territory was classically "ecotonal" and contained a mixed biota overlapping from the contiguous communities and some biota characteristic of or unique to the ecotone. The tendency toward increase in varieties and densities of organisms in these ecotonal communities can only be interpreted as a subsistence advantage for the aboriginal Apaches. It is in such an "edge area" where the greatest diversity and density of both plant and animal resources occur. Such an edge area is also a "genetic bank" with a high potential for hybridization and new speciation. Such a complex area does not yield to quick and easy classification into biotic areas and offers both puzzlement and excitement to ecologists.

According to Northington and Burgess (1979):

The critical message here is an awareness of the uniquely complex vegetational mosaics of this region produced by sudden and extreme topographic and edaphic interfaces in an essentially arid climate. These various floristic elements occur at a crossroads of major biotic assemblages: Rocky Mountain Forest; Chihuahuan Desert Scrub; Great Plains Grassland; and some elements of the Sierra Madrean Woodland (Southwestern Mountains). This geographic position is in a zone of climatic interface which results in temporarily unstable habitats containing unique plant associations. Such complexity is what makes this area so striking and interesting to both the scientist and the general public. Because most of the area in question is part of the Guadalupe Mountains National Park, preservation of these features is more assured as is the opportunity of exposing the public to nature at its heterogeneous best.

So, do not pity the poor desert Apaches! They were the fortunate stewards of a complex area providing an unusual diversity and abundance of subsistence resources. They were undoubtedly much better off than foragers restricted only to mountain, desert, or grasslands. But, please do pity the ecologist or cultural ecologist, who is faced with a baseline landscape that is largely ecotonal and does not yield to mapping in broad strokes.

Also, the environment is so dynamic and so much a mosaic of "temporarily unstable habitats containing unique plant associations" that a meaningful cultural ecology must go beyond the gross macroecological adaptation to generalized large biotic areas and must really become microecological, focusing on utilization of unique plant associations, which the Apache women knew intimately. As we shall see, Apaches were not only macroecologists, but the

women in particular were also microecologists, to the point of knowing each individual stand of subsistence plants, and even knowing the location and the phenology of individual plants "personally." In other words, they were knowledgeable and skilled stewards of their "garden." Keep in mind that, to them, this knowledge was not purely "academic." It meant survival of the group.

The Mescalero Apache view of their environment and the utilization of its resources

The Mescalero Apaches are very perceptive and insightful ecologists. They carry their ecological orientation to the level of religious devotion.

According to Mescalero tradition, the Nde people (their name for themselves in their own language) are the children of Mother Earth, personified by the deity White Painted Woman. She is the primary deity, the creator, and the one great mentality for putting the world in order for the people to come. She continues to be the deity that cares for and nurtures her children.

The Guadalupe Mountains are an abode of White Painted Woman, and, symbolically, the Nde see Guadalupe Peak as representing her as she lay down to rest after the Creation. This is the center of their universe. This is where they were created (they have no myth of migration from anywhere else).

White Painted Woman gave birth to a helpmate, after being impregnated by the sky spirit of thunder, lightning, rain, and water. The offspring, a major Nde "culture hero" is Child of the Water.

The world as first created was inhabited with some troublesome primordial monsters. As soon as Child of the Water was strong enough, White Painted Woman instructed him in how to control these monsters and make the world safe and livable. First, Child of the Water was sent to get power from his father, Lightning. White Painted Woman sent him to the Sacred Mountain of the East, where black lightning struck him; then to the Sacred Mountain of the South, where blue lightning struck him; then to the Sacred Mountain of the West, where yellow lightning struck him; and finally, to the Sacred Mountain of the North, where white lightning struck him.

With all of his lightning father's powers from his vision quests to the mountains of the four sacred directions, Child of the Water then went out to control the monsters. He conquered them all symbolically, by his wits and diplomacy, not by force of arms. These monsters in the process became protectors or tutelary spirits for Child of the Water and the people to come. He went off to the east, the black world, the plains grasslands, and conquered Buffalo. He went to the south, the blue world, the desert basins, and conquered that terrible monster that kills with its eyes, Antelope. He went to the west, the yellow world, the wooded uplands, and conquered the monstrous giant guardian of that domain, Grizzly Bear. Then, he went to the north, the white world, the mountains, and conquered Eagle, the Lord of the Highest.
The sacred landscape of the Mescalero Apaches as put in place by the work of White Painted Woman and Child of the Water, the archetypic mediator, is sometimes equated with Coyote in the traditions, and equated with Jesus Christ by missionized Apaches (Figure 3).
This sacred view of the landscape provides a model for human action, a core paradigm for Apache belief and values. And, notice that it provides an ecological model, as sophisticated as the macroecological model that our modern scientists have given us.

The result is a view of Earth divided into four quarters, which match the four seasons, or divisions of the solar calendar, the solstices and the equinoxes. Four is a sacred number, five if you count center. Their sacred land is bounded by the Sacred Mountains of the Four Directions. Each sacred mountain and quarter of the land was assigned a sacred color and the subdued monster of each quarter became the patron or "boss" of that domain.

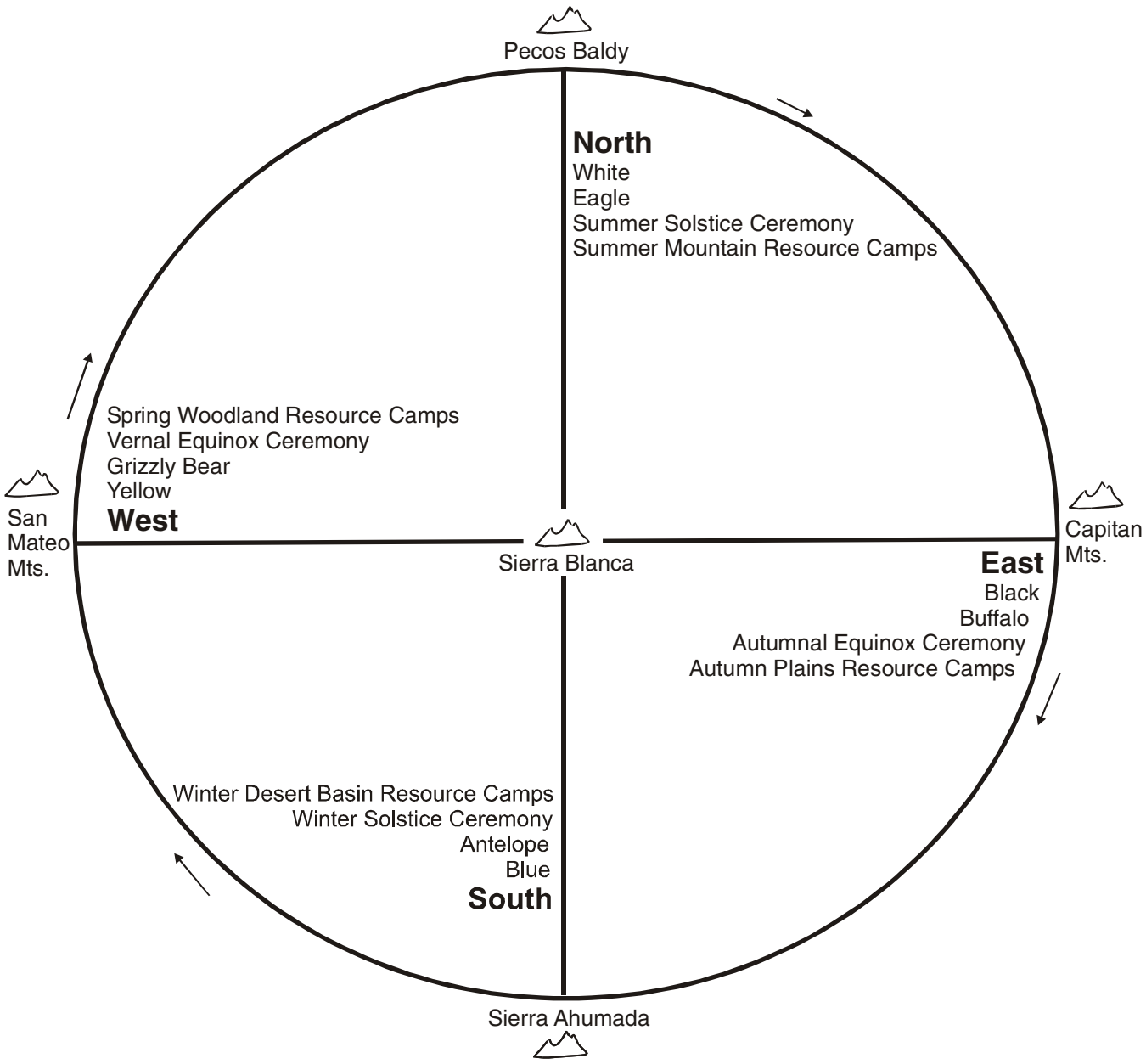


Figure 3. Sacred land of the Mescalero Apaches (Mescaleria). The sacred sunwise circle is the harmony of the universe. Four is the sacred number; five, if you count the center.

The sacred landscape model also demands action and stewardship. It mandates a general pattern of movement of the people over their landscape according to the sacred plan. Movement into each quarter of the year and the land (time and space) was ritualized with a ceremony. Movement into the plains grasslands and into the eastern reaches of the Sacred Land was appropriate just after the autumnal equinox and was signalized by propitiation of Buffalo. This opened Buffalo hunting season and piñon-pine nut gathering. Movement into the desert basins and into the southern reaches of the Sacred Land was appropriate just after the winter solstice and was signalized by propitiation of Antelope. Movement into the wooded uplands and into the western reaches of the Sacred Land was appropriate just after the vernal equinox, and was signalized by propitiation of Grizzly Bear, with a spring bear ceremony. Movement into the mountains and into the northern reaches of the Sacred Land was appro-

priate just after the summer solstice and was signalized by a ceremony dedicated to Sun and his surrogate Eagle. This ceremony sanctioned hunting in the mountain meadows, and a special focus on bighorn sheep and elk.

So, the sacred landscape model provides the impetus for the pattern of transhumance of the Apaches. They ideally moved in a generally clockwise circle from autumn camps in the plains grasslands, southward and downward to winter camps in the desert basins, northward and upward to spring camps in the wooded uplands, and on northward and upward to summer mountain camps. Then the cycle repeated, as regularly as a sacred liturgy. It was sacred and it was practical. This model provided their general pattern for the utilization of their resources in the general macrobiotic zones of their territory. Besides this general pattern, however, survival depended upon more detailed microecological knowledge that pragmatically modified or introduced complex variations on the general adaptive pattern.

Microecological example

A pragmatic modification was necessary for utilization of the mescal agave (*Agave neomexicana*). The mescal is, of course, the plant that the Spanish settlers of the area referred to when they named the Nde people the Apaches Mescaleros or "mescal eating Apaches." This was one of the staple and sacred plant foods of the Apaches of the Guadalupe Mountain area. There were actually four sacred plant foods, the mescal, the datil or banana yucca, the mesquite, and the piñon-pine nuts. Ideally, all four of these sacred foods are still eaten on important ceremonial occasions.

The mescal agave was harvested just as it was ready to send up its flowing stalk, which marked its maturation and subsequent death of the individual plant immediately after flowering. The plant propagates itself primarily asexually by sending out rhizomes that produce clusters of clones. These clusters of clones often form extensive stands of ten to 20 or more plants on well-drained rocky slopes. The Apache women recognize the clonal nature of these clusters and refer to them as the "mother and her children." The pattern is reminiscent of our familiar garden variety succulent "hen and chicks."

In any of these clusters the individual plants mature sequentially depending primarily upon their age. The Apache women pass on the traditional knowledge of where these stands are and the predictions about how productive each stand will be in the coming year, based upon intimate knowledge of each agave "family." When an individual plant is ready to mature the central bud begins to swell as it accumulates very nutritious nectar to be dedicated to the growth of a flowering stalk, which may grow to a height of 20 feet. The trick is to know exactly when the right time is to harvest the individual plant, just before it sends up the stalk.

The Apache women carefully inspect each plant and only harvest those that are ready. In their inspections, they are helped by the "ant people" who rushed to the maturing plants as they begin to exude their sweet nectar. The immature plants are considered "male" and "bitter" and are not harvested. If they were baked with the mature or "female" plants they would make the whole batch bitter and inedible.

So, in a very real sense, the Apache women tend their gardens of agave and come to know each plant "personally." Also, since the plants reproduce primarily by cloning and they are only harvested when they are mature and at the stage of fruiting and dying, the species is conserved. The resource was not destroyed but carefully nurtured.

Gentry (1982) has expressed concern that the Apaches probably "made large depletions in the agave population" and he even praised the Comanches for keeping the Mescaleros from harvesting the extensive stands of agaves along the eastern bajada of the Sierra Guadalupe by constant warfare. Such a statement demonstrates a gross lack of under-

standing of the careful stewardship of this sacred resource by the Apaches. They had the wisdom not to "kill the goose" that provided this resource.

Harvesting of the plant also required a pragmatic microecological adjustment to the general pattern of movement. The mescal agave has made a very interesting adjustment to the Guadalupe Mountains ecotonal community. It is found from the southwestern bajada in the Chihuahuan Desert zone from below 5,000 feet (where I have seen it growing beside the lecheguilla agave, a dominant of the zone) to the mountain forest zone above 8,000 feet (where I have seen it growing beside Douglas-fir, a dominant of that zone). The resource begins flowering on the southwestern bajada in early May and flowering continues upslope through August in the mountain forest zone. So, this important resource was available and was utilized by the Apaches in the Guadalupe Mountains from May through August; they moved upslope and used the resource appropriately through these months.

Summary statement

I have outlined the general strategy of the Mescalero Apache–Guadalupe Mountains cultural ecology project and some of the major features of representing a Mescalero Apache cultural landscape in Guadalupe Mountains National Park.

I have briefly outlined the problems of adequately pursuing the objectives of the project on both the macroecological and microecological levels. The details and complexity of an adequate representation of the Mescalero Apache cultural landscape will take many years.

Please accept this presentation as a brief progress report that essentially sets the questions and projects the strategy. The blanks will be filled in the next few years, resulting in a detailed report that will be useful both to the National Park Service and to the Mescalero Apache Nation.

References

Genoways, H. H., and R. J. Baker, editors. 1979. Biological investigations in the Guadalupe Mountains National Park, Texas. Proceedings of a symposium held at Texas Tech University, Lubbock, Texas. Transactions and Proceedings Series number 4. National Park Service, Washington, D.C.

Gentry, H. S. 1982. Agaves of continental North America. The University of Arizona Press, Tucson, Arizona.

Greenbie, B. 1981. Spaces: dimensions of the human landscape. Yale University Press, New Haven, Connecticut.

Johnston, M. C. 1979. The Guadalupe Mountains: a chink in the mosaic of the Chihuahuan Desert? Pages 45–49 in H. H. Genoways and R. J. Baker, editors. Biological investigations in the Guadalupe Mountains National Park, Texas. Proceedings of a symposium held at Texas Tech University, Lubbock, Texas. Transactions and Proceedings Series number 4. National Park Service, Washington, D.C.

Northington, D. K., and T. L. Burgess. 1979. Summary of the vegetative zones of the Guadalupe Mountains National Park, Texas. Pages 51–57 in H. H. Genoways and R. J. Baker, editors. Biological investigations in the Guadalupe Mountains National Park, Texas. Proceedings of a symposium held at Texas Tech University, Lubbock, Texas. Transactions and Proceedings Series number 4. National Park Service, Washington, D.C.

Sapir, E. 1912. Language and environment. American Anthropologist New Series 14:226–242.

_____. 1929. The status of linguistics as a science. Language 5:207-2.

Chapter 22

Historical and Archaeological Investigations of Apache War Sites, Guadalupe Mountains National Park

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Historical background of the Cushing Campaign

Few who visit the Guadalupe Mountains today realize that this majestic landscape was the setting for cultural conflicts during the 19th century. Prior to European contact, several bands of Mescalero Apaches camped in these mountains. Following the Mexican-American War the Mescaleros used the Guadalupe Mountains as both a sanctuary from punitive U.S. Army expeditions and as a place to prey on travelers that used the nearby Butterfield Overland Trail.

In the span of six weeks—November 18 to December 30, 1869—the Guadalupes were the setting for three cavalry-Mescalero confrontations.[1] These actions typified most Indian War confrontations on the western frontier, which usually involved small-scale cavalry units that attacked and destroyed the winter camps of the Indians. Usually in these attacks most of the Indians would escape but in the process lose all their possessions. Unlike Civil War battlefields, which have been preserved and marked, few Indian War fight locations in the West have been found, let alone memorialized. Through historical analysis, archaeological reconnaissance, and a little luck, at least two such sites in the Guadalupes have recently been located.

The three confrontations that took place in the Guadalupes during November and December 1869 are commonly referred to as the Cushing fights, named after First Lieutenant Howard Bass Cushing, the leader of the small cavalry unit that dared to enter the Apaches' winter stronghold.

Cushing's punitive expedition originated from Fort Stanton, a military post located in the Sierra Blanca Range near present-day Ruidoso, New Mexico. Built to curb Mescalero raids, the post had been abandoned at the outbreak of the Civil War. In 1862 it was re-garrisoned as the base of operations during Colonel

Figure 1. First Lieutenant Howard B. Cushing. Photo taken circa 1870.

Christopher "Kit" Carson's campaign to subdue the Mescaleros.[2] After having been defeated in several skirmishes the Mescaleros were placed on the bleak, God-forsaken Bosque Redondo Reservation in eastern New Mexico. Consolidated with and tormented by the Navajos, the Apaches bolted from the reservation in November 1865 and returned to the Sierra Blanca, Sacramento, and Guadalupe mountains.[3]

Free again, the Mescaleros renewed their raiding on settlements in New Mexico and west Texas. In September 1867 warriors struck Fort Union's livestock herd near Mora. Captain Francis Wilson, Company D, Third U.S. Cavalry, tracked the Apaches south into Dog Canyon of the Sacramento Mountains, then east to the Guadalupes. The troopers finally caught the Apaches in the Sierra Diablo Range north of Van Horn, Texas. Wilson surprised some 40 warriors, killing six of them and putting the rest to flight. In the ensuing 15-mile chase the cavalry unit found the main Mescalero camp, destroyed it, and killed another 25 to 30 Apaches. Wilson reported one soldier killed and five wounded.[4] But despite Wilson's success, Mescalero raids continued. In March they struck the settlement of Tularosa, New Mexico, killing and capturing several of its inhabitants, and taking 2,200 head of sheep and cattle. Military patrols pursued the raiders as far as the Guadalupe Mountains before aborting their mission.[5]

In July 1868, the Mescaleros scattered a cattle herd at Independence Spring near the Guadalupes.[6] In May 1869, they attacked a wagon train on San Augustin Pass, near Mesilla, killing two soldiers.[7] To counter growing Apache activities, Captain Frank Stanwood led a Third Cavalry troop from Fort Stanton. The month-long expedition covered nearly 500 miles, all the way to Hueco Tanks and Isleta Pueblo.[8] Stanwood made some observations that proved beneficial for future military strategy. He estimated that the Mescaleros could not muster more than 250 warriors, perhaps a few more when occasionally augmented by Lipan Apaches and Comanches. He believed that the Mescaleros operated out of the Guadalupe Mountains and the Sierra Diablos.[9]

Meanwhile, Mescalero Agent Lieutenant Argalus G. Hennisee wrote to his superiors on August 31, 1869, reporting that the Mescaleros desired peace and wanted the establishment of a reservation south of Fort Stanton.[10] Hennisee's words mirrored the remarks of former agent Lorenzo Labadi, who commented in his letter of June 30, 1869 that the delay in establishing a reservation might result in the total ruin perhaps even "total extermination" of the tribe.[11] While government officials pondered their next move, the Mescaleros did not.

Under the cloak of darkness on November 13, 1869 a band of Mescaleros led by José de la Paz (also known as "Peaceful Joe") raided the Robert Casey ranch on the Rio Hondo below Fort Stanton. The warriors were so stealthful that they were able to steal all 300 head of cattle, which were corralled only 30 yards from the ranch house. No one in the Casey family, not even the two watch dogs, realized what had transpired until the next morning.[12] Casey rode to Fort Stanton and informed the commanding officer, Lieutenant Colonel August V. Kautz, as to the theft.

Kautz immediately ordered the 32 men of Company F, Third Cavalry into the field. The column was officered by First Lieutenant Howard B. Cushing and Second Lieutenant Frank Yeaton.[13] Cushing was born in Wisconsin in 1822, but at the outbreak of the Civil War was living in Illinois. He enlisted as a private in Company B, First Illinois Light Artillery. Howard was one of four Cushing brothers, three of whom were decorated for bravery during the Civil War. After the death of his brother Alonzo at Gettysburg, Howard applied for a second lieutenant vacancy in the same unit as his brother, the Fourth U.S. Artillery. Howard Cushing received a commission and served in the Fourth for the remainder of the war. Following the conclusion of the Civil War, Cushing's military career plummeted for his part in attempting to free his commanding officer from

jail. After serving a one year's suspension for his indiscretions, Cushing applied for and was granted a transfer to Company F, Third Cavalry in September 1867. Three months later he received a promotion to First Lieutenant. After brief stints at Fort Union and Fort Bascom, New Mexico and in Indian Territory, Cushing's company was transferred to Fort Stanton. He participated in several scouting missions throughout the spring and summer of 1869. But now, mid-November 1869, he was to have his chance at independent command.[14]

Lieutenant John G. Bourke, who later served under Cushing in Arizona, described him as slight of frame, sinewy, and standing about 5-feet-7-inches tall. Piercing blue-gray eyes topped by a shock of light-brown hair highlighted a nervous temperament. Bourke wrote that, "His bravery was beyond question, his judgement, as I had good reason afterwards to learn, was not always to be trusted. He would hazard everything on the turn of the card."[15] Cushing's junior officer, Second Lieutenant Frank Yeaton, was new to the regiment.[16]

Cushing's troop, which included several civilian guides, accompanied Casey to his ranch where they camped for the evening.[17] On the 15th, the troop followed the Rio Hondo, discovering the arrow-shot remains of several head of cattle. On the 18th they surprised a Mescalero camp on the northern slopes of the Guadalupe Mountains, in Last Chance Canyon. This site has been located by Forest Service archaeologists, yielding numerous artifacts associated with the November 18th conflict. The troopers recovered most of Casey's livestock and captured 30 head of horses and mules belonging to the Indians. Cushing's casualties amounted to two wounded. Indian losses were about the same; however, they were now destitute, having lost virtually all their food and belongings just as winter weather was beginning in the Guadalupes. On November 23rd, Cushing returned to Fort Stanton, having completed a successful campaign that covered 370 miles in rugged terrain.[18]

Kautz permitted his energetic lieutenant to conduct another expedition against the Mescaleros. Because of the smallness of Cushing's command—only 35 enlisted men comprised Company F—Kautz augmented this force with 28 citizen volunteers.[19] On December 19, Cushing departed Fort Stanton with a pack train laden with 20-days worth of rations and extra ammunition. The troop retraced their November route during a winter snowstorm and subzero temperatures. On Christmas Eve Cushing's command re-entered Last Chance Canyon and marched southeastward, beyond the Apache camp that they had destroyed in November. A maze of diverging trails eventually became one heavily used trail, which ultimately led Cushing over the Guadalupes. From Christmas Day through the early morning of December 26th, the troop passed by several recently abandoned Apache camps.

From a point high in the Guadalupes, Cushing followed the tracks of one pony. Ten miles later, the solitary tracks grew to 20. By 11 a.m. the troop entered a wide canyon. At 12:30 p.m., sensing that an Apache camp lay nearby, some of the troopers dismounted, formed a skirmish line, and slowly advanced. An hour later Indian ponies were spotted grazing on the slopes, which caused Cushing to place additional troopers on the skirmish line just ahead of the mounted men. An Apache camp, formerly concealed by the undulating ground, suddenly came into view.[20] The camp consisted of 40 to 50 skin and brush-covered structures that sheltered some 200 persons, including a fighting force of about 80 warriors.

The warriors attempted to blunt the advancing troopers, filling the air with arrows and bullets. Some of the troopers' horses were wounded, and Lieutenant Yeaton went down with arrow wounds to his wrist and breast. He was the only person in the punitive force that was hit during the fight. Warrior firepower came too little, too late; within minutes the troopers controlled their camp. The Mescaleros scattered in several directions, making pursuit both difficult and

dangerous; however, destruction of the lodges and their contents ensured Cushing's victory. For the next several hours the troopers burned large supplies of tanned and untanned buffalo, deer, antelope, and beef hides; some 20 thousand pounds of mescal; and 15 thousand pounds of jerked and packed beef. Everything else of value—clothing, weapons, and cooking utensils—went up in flames or were smashed to pieces. As to Indian losses, Cushing's report is vague, stating that "a good many Indians were killed". He also noted that "no particular effort was made to take any prisoners".[21]

After dark, the troopers and volunteers rode southwest for a mile and camped for the night. On the morning of December 27th, Cushing retraced his route, riding past the burned-out Apache camp and continued along his old trail. For the next three days his troop continued its trek through the Guadalupes, heading in a northwesterly direction as if returning to Fort Stanton. But this was a ruse; the young lieutenant was not done with the Apaches yet. On the early morning of December 30th, Cushing cut loose from his slow-moving packtrain. He picked 40 well-armed men, rationed them for four days, then proceeded south to continue to seek out and destroy Mescalero strongholds. The packtrain and remaining men, including the wounded Yeaton, were ordered to travel down the Rio Azul (now named the Black River) to the Pecos River, then march up the latter stream to near its confluence with the Rio Peñasco, and to wait there for Cushing's return.[22]

Twenty-five miles after splitting from his packtrain, Cushing's forces began to see numerous pony tracks. Shortly after 2 p.m., the soldiers watered their horse at Ojo Sutalosa, which may be the present junction of Nickel and Lamar creeks. The mouth of a major canyon lay five miles beyond. When they were about a mile from the canyon's entrance they spotted a thin plume of smoke, which indicated that the target had been discovered. Due to broken terrain it took the troopers and volunteers considerable time to negotiate the last mile. Almost too late, the Apaches spotted the approaching attackers. Some of the warriors fought a delaying action while the

Figure 2. Entrance into McKittrick Canyon, looking west. Near this location, Cushing and his troops saw a "thin plume of smoke," about one-half mile inside the mouth of the canyon, on December 30, 1869.

rest of their band scattered in several directions away from the advancing skirmish line of their enemy. Except for some of their horses, the Apaches had abandoned everything.[23] This Apache camp was smaller than the one destroyed four days earlier, numbering only 25 to 30 lodges. Nonetheless, it contained an unusually large number of inhabitants for its size, which suggested to Cushing that it consisted of refugees from the previously destroyed camps.[24]

Cushing posted men around the perimeter of the camp in order to hold back the warriors that massed above the troopers on the rocky slopes. The remaining troopers and civilian volunteers busied themselves with destroying the contents of the camp. With approaching darkness Cushing had his men round up the captured livestock then retraced their route to Ojo Sutalosa, reaching it in the early hours of December 31st.[25]

The attack column rejoined its packtrain near the Rio Peñasco, the reunited command then headed back to Fort Stanton. Cushing was proud of his accomplishments. In just 19 days he and his men had traversed more than 530 miles, negotiating some of the most rugged terrain in the Southwest under severe winter conditions, fought and won two fights, and proved to the Mescaleros that they were not safe even in their most remote haunts. Lieutenant Colonel Kautz, who initially had held a low opinion of Cushing, now admitted that the energetic lieutenant was an unusually skillful Indian fighter: he produced concrete results where others had failed. Kautz endorsed Cushing's report of the campaign, and added a recommendation that both Cushing and Yeaton receive brevet promotions.[26]

For the Mescalero Apaches, the Cushing campaign of November-December 1869 represented the most recent clashes in what was to become a series of military maneuvers designed to force the Apaches into submitting to reservation confinement. Just two weeks after Cushing's foray into the Guadalupes, another column of troopers—this time six companies of Ninth Cavalry "Buffalo Soldiers" out of Fort Davis, Texas—struck another Mescalero encampment in the Guadalupes near the headwaters of Delaware Creek. Captain Francis S. Dodge, the commanding officer, reported killing or wounding 50 Apaches, capturing livestock, and torching all their winter supplies.[27]

The destruction of the Apache camps in the Guadalupe Mountains forced the Mescalero leader Cadete and his followers to seek shelter with their sometime allies, the Comanches on the Llano Estacado. Meanwhile, Apache Chief José de la Paz, worn down physically and emotionally by the unrelenting military strikes, brought a few of his followers to Fort Stanton in February 1870. In turn, José de la Paz was sent as a peace envoy to Cadete to induce the Mescalero leader to surrender. La Paz returned in April with about 30 refugees and word from Cadete that the remaining Mescaleros would surrender, which they eventually did in the summer of 1871. On May 29, 1873, the U.S. government established the Mescalero reservation.[28]

The Cushing fights were not mammoth struggles that shaped the course of destiny. Nonetheless, combined with other military and non-military events of the period and region, they brought to a close the freedom of the Mescaleros while also permitting non-Indian settlement of the Guadalupe Mountains. The punitive tactics employed by Cushing contributed to the growing ethical dilemma that emerged during the latter half of the 19th century, specifically regarding military strikes that resulted in the deaths of women and children, as well as warriors. The Apache camps that Cushing destroyed on November 18, December 26, and December 30, 1869, should not be forgotten or lost; rather they should be found, recorded, and protected so that those who fought for their mountain homeland will also be remembered.

Archaeological investigations of the Cushing Campaign

Shortly after its creation in 1972, Guadalupe Mountains National Park commemorated the Cushing fight of December 30, 1869, by placing an interpretive sign at Manzanita Spring. Manzanita Spring is a permanent pool of water that is an oasis within an otherwise forbidding high desert landscape, and there is archaeological evidence indicating that the spring was a focal point for humans for thousands of years. Undoubtedly, various Apache bands also utilized it when they roamed through the Guadalupe Mountains during the 19th century. The historian who conducted research for the park regarding the Cushing campaign assumed that during the late fall of 1869 the Apaches must have camped in the immediate vicinity of Manzanita Spring.

There is only one problem with this assumption: the December 30th fight was reported by Lieutenant Cushing as being just inside the mouth of a narrow, steep-sided canyon. Yet Manzanita Spring is not within a narrow canyon; rather, it is at the base of the south-facing slopes of the Guadalupe Mountains. There is, in fact, only one canyon in the general vicinity that possesses similarities with Cushing's rather sketchy descriptions of the fight, McKittrick Canyon, which is located some five miles east of Manzanita Spring, and extends for several miles into the otherwise virtually impassible front range of the Guadalupes. To this day the narrow confines within the upper reaches of the canyon hold the basic needs of the 19th century Apache: there are several permanently flowing springs here; an extensive forest for providing food, fuel, and construction materials; and game animals including deer and elk are present year round. For the Apaches, the canyon's numerous side drainages also provided escape routes if a military force should ever have succeeded in finding them in their mountain stronghold. Cushing reported that his command was about a mile south of the canyon entrance when they first saw a thin plume of smoke rising from a point just beyond the entrance. Some 30 years ago two Spencer cartridge cases were found a few hundred feet east of the entrance of McKittrick Canyon, near the present-day visitor contact station. Both cartridge cases, which are in the park col-

Figure 3. Location of the Apache camp that was attacked by Cushing's troop on December 30, 1869. Artifacts associated with this attack were found just above the limestone slickrock, left of center. Photo looking south-southwest.

lection, are significant to this study because the Spencer carbine was a regulation firearm used by cavalry troopers from about 1863 up until the early 1870s. Thus, one would expect to find Spencer cartridge cases at the location of the December 30, 1869, fight. Both cartridges have headstamps that date their manufacture prior to 1869.

We also learned that Mark Rosacker, a southeastern New Mexico historian who has been researching Cushing's 1869 campaign for the last 10 years, had reached the same conclusion some years ago: that McKittrick Canyon was probably the actual location for the December 30th fight. Mark also graciously shared his research regarding Cushing's 1869 campaign.

With this information we presented our theory to Superintendent Larry Henderson, who gave his enthusiastic support for an archaeological survey within the upper reaches of McKittrick Canyon. Our area of investigation was a segment of canyon measuring approximately one mile-long and one-third-mile wide.

Our survey crew members were all volunteers; several of them are skilled metal detector operators who have assisted us during our investigations of other sites of battles in the Southwest. In addition, the park provided us with a global positioning unit for determining provenience information for any discovered artifacts. The crew members, spaced approximately 10 feet apart, walked a series of parallel transects. On the first day we worked along the south-facing escarpment of the second terrace: we were looking for evidence of a skirmish line, that is, where a line of troopers may have initially positioned themselves when they fired into the Apache camp. A rough linear scattering of Spencer cartridge cases would indicate where the troopers formed their initial skirmish line. Unfortunately, we did not expose such an artifact patterning along the second terrace, but we did find physical evidence where a metal arrow point had been manufactured, consisting of a clustering of discarded metal snips that were cut or chiseled from a piece of barrel band. This evidence, albeit meager, suggested to us that an Apache camp had been in the general vicinity.

We then surveyed the first terrace on the south side of the canyon; it was here some 30 years ago that the two Spencer cartridge cases had been found. The first terrace, we believed, appeared to be a good location for the placement of an Apache camp—the ground is level and free of large rocks and boulders, with water and wood close by. We believed the camp location would be indicated by widespread scatterings of fired bullets and cartridge cases—evidence of the final phase of the troopers' attack—intermixed with personal belongings of the Apaches.

Our work here did, in fact, produce a few artifacts that are appropriate to the time period: an unfired Spencer cartridge round, a Spencer cartridge case that had been intentionally split opened and flattened, an iron button of the type used on uniform pants of this era, a cinch ring for a saddle or horse pack, and two Henry cartridge cases. Henry cartridges were intended for use in the Henry rifle but could also be used in the Model 1867 Winchester rifle. Neither of these two firearm models was issued to cavalry troopers, who would have all been armed with Spencer carbines. It is, therefore, more likely that the weapon that fired the Henry cartridges was the personal possession of one of the civilian volunteers that had accompanied Cushing's force; it is also possible that one or more of the Apaches were armed with Henry or Winchester rifles.

Although encouraging, these few artifacts found within a 5-acre area did not conclusively prove that we had found the Apache camp. We then expanded our survey westward, towards the canyon where it becomes quite constricted and the terrace narrows to only a few feet wide on the south side of the canyon wash. It was within this constricted area, just upslope from the slickrock, that we began to find more artifacts: a fired Spencer bullet, two Spencer cartridge cases, two brass cinch rings of a

type used on 19th century military equipage, a crushed gunpowder flask, a fired percussion cap, a uniform pants button, and a fragment of a cast iron kettle.

Opposite this artifact concentration and on the northern side of the wash we found a .44 caliber pistol bullet that had been fired, a piece of lead that had been pounded into a sheet, and another pants button. The two Spencer cartridge cases have headstamps indicating that they were manufactured prior to 1870. We believe that the gunpowder flask and percussion cap reflect at least one type of weapon that the Apaches possessed, that is, a muzzle loader. The gunpowder flask was found directly under a large rock, the kettle fragment found nearby. This reflects the general destruction of the Apaches' belongings by the troopers. The buttons could have been lost by the troopers, by their civilian volunteers, or even by the Apaches.

Why didn't we find more artifacts? It is quite possible that most of the terrace edge in this location of the canyon has eroded away since 1869, thereby removing the location where the troopers piled up and burned the Apaches' belongings. Lieutenant Cushing noted that since he had lost the element of surprise, most of the Apaches had already fled their encampment and made their escape up the steep flanks of the canyon. This might explain why so few cartridge cases and bullets were found—the troopers, when they reached the canyon bottom, had few targets at which to shoot. Finally, the fight did not result in any known casualties, which is another reason for the scarcity of spent ammunition.

A few months after the successful completion of this survey, we attempted to find evidence of the Apache escape route that led out of the canyon bottom. Lieutenant Cushing stated in his report that the Apaches fled up the steep, boulder-strewn slopes overlooking their camp, that several of the Apaches' ponies had slipped and rolled down the slopes, and that the Apaches used boulders for cover when they fired their weapons at the troopers. Using this very general description, the most likely location of their escape route is the minor drainage and boulder-strewn, east-facing slope on the south side of the canyon entrance.

Unfortunately, our survey of the slope did not result in our finding any artifacts appropriate for this action, such as percussion caps, dropped rifle or musket balls, and spent Spencer bullets fired by the troopers. We then continued our survey some distance farther up the canyon and did locate one fired bullet, but its damaged condition prevented a determination as to type and caliber. Although negative information was abundant, this does not necessarily disprove our theory as to the location of the escape route: dense brush obscures much of the slope surface, and the slope itself becomes too steep at higher elevations to safely inspect it for artifacts.

In response to a previous request by the park superintendent, the following day we shifted operations to a location southeast of Lower Pine Spring and east of the park headquarters. It has long been known by local ranchers and park personnel that during the 1870s and 1880s various troops of Fort Davis' Ninth Cavalry—the famous "Buffalo Soldiers"—had established a base camp at this location. Park managers wanted us to determine the approximate areal extent and internal complexity of this camp. The survey involved metal detector sweeps of three, 15-feet-wide sample transects, the immediate area around a rifle pit, and around each of 21 rock piles. The rock piles, each one representing a formal camp hearth, are in rough alignment and are spaced between six and 10 feet apart.

Forty-eight artifacts were recovered from the sample sweep, and include uniform buttons, eight penny box nails—which were the nail size used to construct ration and ammunition boxes—10 penny framing nails, both whole and fragmented horseshoe nails, horse tack, and personal possessions such as a fragment of a silver locket, a padlock key, a fish hook, fragments of a baking powder can, and bottle fragments. None of the

artifacts were collected. Artifacts found below surface were reburied within their original locations. Most of the artifacts occur within a 120-by-60-foot area that is bisected lengthwise by the linear array of rock piles/hearths.

Of some note were the discoveries of four Spencer cartridge cases, a .44 caliber round ball fired from a lever action/percussion cap-type pistol, two .58 caliber musket balls, and one .52 caliber ball that had been fired. As previously noted, the Spencer carbine was the regulation cavalry firearm when Cushing led his troop through the Guadalupes, some eight years before the Ninth Cavalry operated in these mountains. The Spencer had been an obsolete cavalry weapon for several years when the Ninth Cavalry troopers occupied Lower Pine Springs during the 1870s and 1880s; therefore, the presence of Spencer cartridge cases raises the intriguing possibility that Pine Spring was the location of Cushing's December 26, 1869, fight.

If the site dates to the winter of 1869–1870, then it would also explain the presence of the pistol, musket, and rifle balls. By the late 1870s a trooper would have had revolvers that used metallic cartridges, probably of .45 caliber. A military pistol that used percussion caps, for example the .44 caliber, lever-action Army Colts and Remingtons of the Civil War era, had been obsolete as a military sidearm for years. Thus, the .44 caliber pistol ball could have been fired in 1869–1870 by an Apache armed with an obsolete militarily percussion cap pistol; the same applies for the two .58 caliber musket balls and the one .52 caliber rifle ball, which would have been fired from a muzzle loader. Muzzle-loaded firearms of these calibers had been obsolete U.S. military weapons since the mid-1850s when the Army adopted the .69 caliber (and later, the .58 caliber Minie conical bullet). This suggests that the musket and rifle balls had been fired by Apaches. On this admittedly scanty evidence we have reason to suspect that Pine Spring is also the site of an Apache Wars fight: perhaps the Cushing fight of December 26, 1869; or possibly this is the location of a fight known to have taken place somewhere along the southern front range of the Guadalupes in 1867.

The late 1870s–early 1880s encampment had been occupied off-and-on by several hundred troopers; therefore, the number of recovered artifacts seemed rather sparse. We suspected that the troopers had policed their living area of most of its trash then deposited the trash some distance away from the camp. Accordingly, we surveyed along the edge of an arroyo located to the south and west of the camp. In one location alongside the arroyo we did find quantities of subsurface artifacts: food and baking powder cans, bottle fragments, a Spencer cartridge case, a .45/70 Springfield cartridge case, and a uniform button. The Spencer cartridge case may have ended up in the dump as a result of policing the encampment by Tenth Cavalry troopers. The .45/70 cartridge case was used in the Springfield Model 1873 carbine, thereby an artifact reflecting the latter years of camp occupation.

We believe that more work is warranted around Lower Pine Spring. Intensive metal detector sweeps, covering a much broader area might produce evidence of skirmish lines and of the Apaches' possessions wrecked by Cushing's men when they destroyed the camp. The excavation of a number of test units within the dump would also provide a fascinating insight into what the Buffalo Soldiers took with them during their campaigns through the Guadalupe Mountains.

Note: At present (2003), NEIL C. MANGUM is the superintendent at Chiricahua National Monument in Arizona.

Endnotes

1. Adjutant General's Office, *Chronological List of Actions, etc. With Indians from January, 1837 to January, 1891*, Introduction by Dale E. Floyd (Fort Collins, Colorado: Old Army Press, 1979), 43–44; Headquarters Military Division of the Missouri, *Record of Engagements with Hostile Indians within the Military Division of the Missouri from 1868 to 1882, Lieutenant-General P. H. Sheridan, Commanding* (Fort Collins, Colorado: Old Army Press, 1972), 25.

2. Robert W. Frazer, *Forts of the West* (Norman: University of Oklahoma Press, 1977), 103; Robert M. Utley, *Frontiersmen in Blue: The United States Army and the Indian, 1848–1865* (Lincoln: University of Nebraska Press, 1981), 235–237.

3. Utley, *Frontiersmen in Blue*, 245–247.

4. Leo Oliva, *Fort Union and the Frontier Army in the Southwest* (Santa Fe: U.S. Department of the Interior, National Park Service, 1993), 353–355; also found in excerpts from Fort Union National Monument, Box 184, 39–40, Fort Union National Monument historical files.

5. *Record of Engagements*, 7.

6. Alpine Avalanche, April 3, 1913.

7. *Record of Engagements*, 19.

8. Kenneth A. Randall, *Only the Echoes: The Life of Howard Bass Cushing* (Las Cruces: Yucca Press, 1995), 49; *Record of Engagements*, 23.

9. Albert H. Schroeder, *A Study of the Apache Indians, Part III, the Mescalero Apaches* (New York: Garland Publishing Company, 1974), 72.

10. House Executive Documents, 40th Congress, 1st session, no. 1, part 3, 689.

11. Ibid., 687.

12. James D. Shinkle, *Robert Casey and the Ranch on the Rio Hondo* (Roswell, New Mexico: Hall-Poorbaugh Press, 1970), 76; Andrew Wallace, "Duty in the District of New Mexico: A Military Memoir," *New Mexico Historical Review* 50 (July 1975), 244. There is a discrepancy in the number of cattle stolen. Casey' son places the number at 300 while Lt. Col. Kautz noted in his diary that Casey had 115 head of cattle lifted.

13. Wallace, "A Military Memoir," 244; Dan L. Thrapp, *Encyclopedia of Frontier Biography*, 3 volumes. (Glendale, California: The Arthur H. Clark Co., 1988), 362; John P. Wilson, "Lt. H. B. Cushing: Indian Fighter Extraordinary," *El Palacio* 76 (Spring 1969), 40–46.

14. Biographical sketches of Cushing can be found in the following: Theron W. Haight, *Three Wisconsin Cushings: A Sketch of the Lives of Howard B., Alonzo H. and William B. Cushing, Children of a Pioneer Family of Waukesha Co.* (Madison, Wisconsin: Democrat Printing Company, 1910); Donald N. Bentz, "Sword of Revenge," *Golden West* 8 (January 1972); Randall, *Only the Echoes*; Thrapp, *Encyclopedia of Frontier Biography*, 361–362; and Wilson, "Lt. H.B. Cushing: Indian Fighter Extraordinary," 40–46.

15. Lansing B. Bloom ed., "Bourke on the Southwest II," *New Mexico Historical Review* 9 (January 1934), 46–47. Bourke's remarks were well founded. The dashing but reckless Cushing was killed May 5, 1871, in the Whetstone Mountains of southeastern Arizona by Apaches under Juh. See Dan L. Thrapp, *The Conquest of Apacheria* (Norman: University of Oklahoma Press, 1967), chapter 6, 63–78.

16. Bentz, "Sword of Revenge," 40.

17. Shinkle, *Robert Casey*, 77.

18. Wilson, "Lt. H. B. Cushing," 4041; *Record of Engagements*, 25; Wallace, "A Military Memoir," 244.

19. Wallace, "A Military Memoir," 244–245; Calvin Horn, *New Mexico's Troubled Years: The Story of the Early Territorial Governors* (Albuquerque: Horn & Wallace, 1963), 143.

20. Information of the Cushing fights of December 26 and 30 is taken from Lt. Cushing's official report dated "Fort Stanton, N.M., January 8, 1870," found in Wilson, "Lt. H. B. Cushing," 41–44. Cushing's report is also found in Letters Received, District of New Mexico, RG 98, National Archives; see also W. C. Jameson, *The Guadalupe Mountains: Island in the Desert* (El Paso: Texas Western Press, 1996), 25–38.

21. Ibid., 41–42; The unlucky Yeaton survived his return trip to Fort Stanton. Badly wounded, he spent time in the post hospital. In November 1871, Yeaton retired from the U.S. Army with the rank of Captain. Less than a year later, August 17, 1872, he died of "consumption" as a result of the gunshot wound received in the Guadalupe Mountain fight of December 26, 1869.

22. Ibid., 42–43.

23. Ibid., 43.

24. Ibid., 43; Wilson, "A Military Memoir," 245.

25. Ibid., 43.

26. Wilson, "A Military Memoir," 246.

27. Letters Sent, volume 2, Fort Davis, Captain John W. French, 25th Infantry to Acting Assistant Inspector General, Dept. of Texas San Antonio, Fort Davis, January 28, 1871. Photocopy in Fort Davis National Historic Site files marked "Utley Scrapbook."

28. C. L. Sonnichsen, *The Mescalero Apaches* (Norman: University of Oklahoma Press, 1973), 150, 151, 157.

Chapter 23

Celebrating the Historic Architecture of Guadalupe Mountains National Park

BARBARA ZOOK was an historical architect with the National Park Service Southwest Regional Office and is now a private architectural consultant in Santa Fe, New Mexico. She completed and was involved in the stabilization report for the Grisham-Hunter Line Cabin, the window repair project design for Williams Ranch, re-roofing of Ship-on-the-Desert, preliminary condition assessment of Frijole Ranch structures, preliminary condition assessment of the Bowl Cabin, and the stabilization design for the Pinery ruins in Guadalupe Mountains National Park.

It is an honor and a privilege to be here, particularly since I understand that the roof on the Wallace Pratt Lodge is leaking. I am also honored to share this session with Dwight [Pitcaithley]. When I first started with the National Park Service in 1988, my project was to survey the ruins of Fort Union and determine the type and rate of deterioration; Dwight's historic structures report served as a baseline of information for me.

We heard from Dr. Pray and others yesterday that Guadalupe Mountains National Park was established in order to offer the public an understanding of the geological values together with scenic and other natural values. In my talk today I want to highlight the concept of cultural landscapes, because as Dwight just mentioned, we start to look at our cultural resources as being integrated with the landscape. For Guadalupe, Wallace Stegner expressed it very well: "In the West it is impossible to be unconscious of or indifferent to space. Out in the boondocks it engulfs us. And it does contribute to an understanding only if because of the vast emptiness people have lived with dignity, of rareness and must do much of what they do without help, and because of self-reliance and its social imperative, being all part of the code."

In the sessions this morning and yesterday we have been introduced to the powerful individuals who have passed through the park and who have researched the park, mined the park, farmed it, and ranched it. My presentation is going to focus on how these wonderful remaining architectural features celebrate these individuals. Quite often, of the 34 features, we have lost some. Dwight mentioned the 1972 work by Texas Tech. About 13 structures no longer exist. As historical architects, historians, landscape architects, and people on the maintenance crews and the preservations crews, what we are trying to do is extend the life of these structures that exist here in the park. Yesterday Dr. Pray said Guadalupe Mountains wouldn't exist without the rock. Well, a lot of these structures would also not exist without the rock. We are fortunate that they are not adobe; they do tend to last longer. We that are trying to extend their lives have a somewhat easier job than if we were just dealing with adobe structures.

There have been many reports prepared in the last 10 years for the park. In 1994 Peggy Froeschaur completed a cultural landscape report of Frijole Ranch, and there are many more cultural landscape reports that need to be done here at the park: Williams Ranch, Grisham-Hunter Line Cabin, Wallace Pratt Lodge, Pratt's Ship-on-the-Desert. The National Park Service has been working very hard with limited resources to maintain all these sites. First, I am going to talk a little bit about the themes of these architectural symbols as background. Then I am going to talk a little bit about what the National Park Service is doing to preserve each of these sites and what we can do in the fu-

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—Wallace Stegner

Often they would put their vegetables in the back of their carts, cover them with wet cloths, and travel all night long to markets in the nearest destinations.

ture. Of course, the eight major themes are ranching, commercial use, mining, military conquest, recreation, research, exploration, and farming. As you have heard over the last couple of days, ranching is probably the most prominent theme; many people acquired small ranches within the area of the park because of the 1862 Homestead Act. People like the Smiths, the Glovers, and the Williams acquired property in the ranch, and as we well know, Judge J. C. Hunter then consolidated the ranch into over 72,000 acres—one large operation along with his brothers who also drilled oil wells. The remnants of the ranching period not only include the wonderful sites like Frijole Ranch or Williams Ranch, but also the water systems and the landscape features that made ranching possible in the area. In fact, mohair wool production was viable until 1963, and we are so fortunate to have so many remnants of the ranching period and many more to be surveyed.

Another theme is commercial use. I think one of our best remnants was the Glover property, which once consisted of as many as nine structures. The Glovers moved in structures; they adapted other building materials to construct buildings that they used for their operation, which included the café, gas station, a dance hall that was also a dining hall, a store, and corrals. Unfortunately, the Glover buildings had to be demolished because they had become so deteriorated that they were no longer able to be maintained by the park. Fortunately, we have extensive documentation of the site. Farming was also prevalent in that the Glovers had a truck farm, and across the valley the Taylors raised vegetables and had an orchard. All these families would have to go to Van Horn to sell their products, so you can understand how rigorous this must have been. Often they would put their vegetables in the back of their carts, cover them with wet cloths, and travel all night long to markets in the nearest destinations. In Frijole there are extensive water systems, an orchard and fields and farming areas that the Smiths farmed along with their root cellar and spring house, using very innovative techniques in this hot, dry climate to make their lives in such a remote and isolated area.

We also have recreation, and we heard this morning about Wallace Pratt and his use of the canyon. J. C. Hunter also stocked his ranch with American elk and wild turkey and encouraged hunting. We have continued research. Then we have the military conquests that were described by Charlie Haecker yesterday. Then there's exploration. We heard this morning about the many people passing through the mountains along Butterfield Trail, the Pinery Station, and the California Gold Rush.

An older structure in the park that is representative of the exploration period is the Pinery. I think what is important to point out to you is that the Pinery ruins are constructed of stone in mud mortar. The mud mortar washes out, water penetrates, the water freezes, and then thaws and cracks the mortar, so there is an ongoing cycle of maintenance required. Eventually, what happens are the top stones fall off, and the veneer stones fall off. Once the detachment of the veneer stones occurs, the wall begins to lean. Since Guadalupe Mountains has been a national park, a struggle against these natural forces to maintain this site has been ensued by the park maintenance staff and the regional preservation crews. For instance, at the Pinery at one point the wall was leaning and it was pushed back into place. Various amendments have been studied to extend the life of the mortar, like using a product that is an acrylic-based product by the name of Roplex. We find it does extend the life. The best thing is ongoing routine maintenance, repointing the joints, and unfortunately as you well know, staff resources are limited and money is limited, so we are constantly faced with how to maintain the site.

Frijole Ranch includes the first two rooms built by the Rader brothers and then later added onto by the Smiths. There is also the spring house which has the wonderful flow of water through it that cooled vegetables and fruits that were placed there. In fact, the National

Park Service is still watering the lawn using the irrigation ditches that existed. Now with the wonderful new information provided by Peggy Froeschaur's landscape report, we can potentially interpret the original orchards and garden areas. Ranch structures also included the root cellar and the school house. What happens with wood, as you well know, is moisture rots the base. The National Park Service has repaired the base of the school house walls, installing a new sill plate that was pressure treated. The windows had to be repaired, the building's roof was replaced, and there's an ongoing cycle of applying stain to the exterior. New facilities are often needed. The National Park Service added a barn in a place where a barn previously existed. Adjacent to the fields and the garden that Peggy identified in her cultural landscape report are corrals and stone walls. Many of these are really hard for park visitors to see. Often, we are dealing with public use of the area. A new handicapped access ramp, which was installed about five years ago, now enables all visitors to access the ranch.

At Williams Ranch, Dolph Williams lived there until the early 1940s. It is distinguished because it is more of a high-style design representative of local vernacular architecture, and it is one of the few structures remaining that is made out of milled lumber. Here we have had to repair the roof with wood shingles; we have had to repair the windows and cover them for further protection because it is such an isolated site; we have had to rebuild the stone foundation. We need to do a historic structures report to identify associated landscape features like this tank and water source for the ranch. We have lost some buildings. Here is an out building that no longer exists.

In McKittrick Canyon, the Grisham-Hunter Line Cabin has been repaired in the last year or so. A tree grew too close to a corner wall; the tree was removed, and stone had to be relaid. The roof had to be repaired and has been replaced. Evident here is stone laid in mud mortar and deterioration of windows and door elements. An associated structure is a generator building and garage. It is interesting because we were so fortunate to have the 1972 baseline documentation in studying the rate of deterioration on this site; we had very good photographic documentation and measurements taken by Texas Tech students. It is interesting because the roof of this building is pretty much gone now. It helps us to know what our expectations can be, as far as the life of these buildings.

At the Wallace Pratt Lodge; the entire building is constructed out of stone except for the roof structure. As you heard this morning, the roof was carefully removed, all the stones numbered and replaced in their original locations. Unfortunately, it is leaking, and I think we have to investigate new materials to help prevent further deterioration. We are probably going to use a rubberized membrane. There are associated buildings to the Wallace Pratt Lodge as well as picnic areas. We haven't begun to interpret many of these as part of the park's interpretive program yet. Again, a cultural landscape report is needed to identify these important features and how to retain them.

The cabin at the Bowl is in a very isolated location. You hike up the mountain to visit it. It is a tribute to the people who worked as ranchers for Hunter and hand- adzed the wood and laid the wood. In this case where water is our main agent of deterioration, the sill logs are rotted and extensive work is required to repair it. The ranch hands made built-in interior furnishings.

We're constantly struggling with the roof at the Ship-on-the-Desert, which is flat decking, trying to maintain that design and keep moisture out. Fortunately back in 1988 when it was re-roofed, we looked at a lot of the documentation available in the park for the installation of a roof that failed, and tried to determine why joints and flashing were failing. We tried to design something that would last longer. Again, at Ship-on-the-Desert there are so many wonderful associated landscape features that we haven't even begun to identify, locate, and map. We are again replacing the roof.

Williams Ranch is distinguished because it is more of a high-style design representative of local vernacular architecture, and it is one of the few structures remaining that is made out of milled lumber.

The National Park Service has been constantly, every year, tackling preservation methods and materials. We want to prevent any further buildings from falling or having to be demolished. It is important that we continue to look at not only the natural resources that make Guadalupe Mountains such a wonderful place, but the architectural and archaeological features that are tributes to the people who passed through and lived in the Guadalupe Mountains. The stock tanks, the wells, the stone walls, and dams are all features here.

Where are we headed for Guadalupe Mountains National Park? As I mentioned, there has been much work over the past years: a historic structures report and a cultural landscape report each completed on Frijole Ranch. We unfortunately have lacked the resources to complete historic structures reports on the Ship-on-the-Desert, Wallace Pratt Lodge, Grisham-Hunter Line Cabin as well as cultural landscape reports for these sites. Ethnographies are needed of the people who have been so wonderfully associated with the park. Time is passing and some of these individuals are no longer here, so it is imperative for us to conduct these oral histories, to identify interior furnishings (Ship-on-the-Desert has many original interior furnishings of the Pratts), and treatment of these furnishings. Identifying circulation patterns and how to maintain the roads have been so important with the Butterfield Trail. In fact, by identifying the location of the Butterfield Trail, the highway was moved and part of it was preserved because of knowing where it originally was. Many of these structures need to be mapped using GIS. We need to record, document, and photograph these features that we can't maintain. Perhaps we need to look at the cultural landscape as part of our interpretation of this site so that we can honor those individuals who have observed, studied, and enjoyed the park as we do today.