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NATIONAL REGISTER OF HISTORIC PLACES  
MULTIPLE PROPERTY DOCUMENTATION FORM

This form is used for documenting multiple property groups related to general historic contexts. See instructions in How to Complete the Multiple Property Documentation Form (National Register Bulletin 16B). Complete each item by entering the requested information. For additional space, use continuation sheets (Form 10-900-a). Use a typewriter, word processor, or computer to complete all items.

New Submission       Amended Submission

A. Name of Multiple Property Listing

Ring Midden Sites of the Guadalupe Mountains, New Mexico AD 700 - 1900

B. Associated Historic Contexts

Ring Midden Sites of the Guadalupe Mountains, New Mexico AD 700 - 1900

C. Form Prepared by

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organization USDA - Lincoln National Forest

Date March 15, 1995

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state New Mexico

zip code 88310

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. (  see continuation sheet for additional comments.)

*Gwan D. De Cloos*      Historic Preservation Officer  
Signature and title of certifying official

7/26/95  
Date

Forest Service  
State or Federal agency and bureau

I, hereby, certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

*Patrick Anders*  
Signature of the Keeper of the National Register

11/24/95  
Date

Ring Midden Sites of the Gualalupe Mts, NM 700-1900

Otero County, New Mexico

Name of Multiple Property Listing

County and State

NPS Form 10-900-a  
(8-86)

OMB No. 1024-0018

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Continuation Sheet

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As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

  
\_\_\_\_\_  
New Mexico State Historic Preservation Officer

6/6/95  
\_\_\_\_\_  
Date

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**E. Statement of Historic Contexts**

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## Ring Middens of the Guadalupe Mountains AD 700-1900

Introduction

Mescal pits, ring middens, roasting pits, and midden circles are terms used to describe a significant and unique feature associated with food processing in the Guadalupe Mountains of New Mexico between AD 700 until the early 1900s. Only general information is available about the culture history of this area and little is known about specific interrelationships between different nomadic inhabitants of the region. It is believed that various groups likely interacted and shared subsistence strategies in an attempt to survive in an often harsh desert mountain environment.

Perishable remains from rock shelters (Ferdon 1946, Howard 1930 and 1932, and Mera 1938) in the area suggest that prehistoric diets were based on a wide variety of small game and wild plant foods. Agave (mescal) was an abundant source of food and is known to have been highly exploited by nomadic groups in the area. Numerous ring midden features, scattered across the landscape, attest to the importance of this food to the previous inhabitants of the mountains. Further examination of ring midden features and their association with food production could lead to a better understanding of the social, economic and political forces that helped shape the culture of the prehistoric and historic inhabitants of the Guadalupe Mountains.

The ring midden generally consists of burned limestone cobbles mixed with ash and dirt usually in the form of circle with a depressed center. Often one side is higher than the other and frequently the features take on the form of a crescent shape. Some sites exhibit one such feature while other contain over a dozen. Size and shape are variable and can be in excess of 15 meters in diameter and up to two meters high. Artifacts recovered from excavation of the actual features include a variety of charred fragmented bone, charcoal, ceramic fragments, and fragmented fresh water mussel shells from the Pecos river. Mera reported secondary use of several middens as human burial sites (1938:19). Based on ethnographic data and limited excavations, the ring middens appear to be used primarily for roasting agave. To date, approximately 850 ring middens have been recorded in the Guadalupe Mountains on lands managed by the Lincoln National Forest and additional sites are known to exist on adjacent Bureau of Land Management and National Park property.

Previous Research

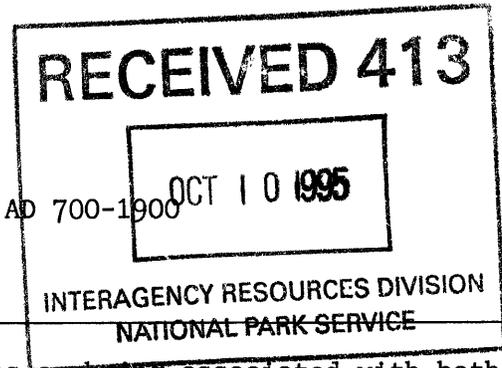
Previous scientific research in the Guadalupe Mountains is scarce. Early work in the 1920s and 1930s focussed primarily on the dry caves and rock shelters of the area with research being conducted by Burnet 1937, Ferdon 1946, Gladwin and Gladwin 1934, Howard 1932, Jennings and Neumann 1940, and Roberts 1929. In the early 1930s, H.P. Mera organized an expedition to the Guadalupe Mountains and conducted a reconnaissance of the southern portion of the mountains and excavated a number of caves. While much of the early work was descriptive in nature, it provided information important to our understanding of the prehistory of the area. Based on information gathered, it became evident that the Guadalupe Mountains had been used extensively by prehistoric peoples. Subsistence strategies could be reconstructed from the remains recovered in many of the dry shelters and it became evident that the people adapted to the environment by exploiting a wide variety of plants and animals. One of the plants that frequently appeared in archeological remains at a variety of sites was agave.

Ring midden features were sometimes reported by early researchers in the area. E.B. Howard made a brief mention of the feature when describing several caves, "In front of these....caves are what are known locally as mescal pits composed of mounds of burnt rock with circular

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depressions" (1932:8). Mera reported ring midden features as being associated with both open-air and cave sites and devoted several pages of description to what he termed midden-circles (1938:15-20). Mera made a distinction between mescal pits which are sunk below ground level and mounds (midden circles) which are erected on the surface of the ground. He suggested that the surface feature may have had alternative uses other than the cooking of mescal and, based on excavations, considered them to be a specialized form of a refuse heap.

Mera defined three general types of midden circles (1938:16-20). Type 1 consisted of symmetrically circular mounds with a widely depressed center. These were considered the most common and were found along the tops of ridges as well as in the bottoms of canyons. Their average size ranged from 30 to 45 feet in diameter and around three feet high. Type 2 consisted of elongated middens found primarily along narrow terraces. Length varied greatly, however they were primarily between 30-45 feet with varying height. Type 3 consisted of semi-circular mounds found in front of many of the caves and dry rock shelters and their size was dependent upon the amount of space available. Mera believed that all three types were simply variants of the midden feature.

In 1965, John Greer published A Typology of Midden Circles and Mescal Pits. In the paper, Greer attempted to classify a variety of midden features into types. Using the types originally defined by Mera (1938) Greer expanded the types to include different forms. The paper described the different forms but unfortunately, the feature must be excavated to determine if it fits into the categories of mescal pits or surface midden circles. Based on associated artifacts recovered by Mera (1938), Greer suggests occupation of the sites to begin around AD 1150-1300 and possibly extend into historic time. The paper also provides several ethnographic accounts from throughout the southwest and portions of Mexico which detail the preparation and use of mescal by native populations.

In 1967, Greer reported information from the excavation of eight ring midden sites in Texas, five from the Guadalupe Mountains of New Mexico, and one from Colorado. From these 14 ring midden sites, 18 radiocarbon dates were run through the Radiocarbon Lab at the University of Texas at Austin. The dates on sites from the Guadalupe mountains ranged from AD 900 to 1465. A variety of pottery was found in association with the sites with El Paso Brown being present at all of them. Greer determined that the tested sites were all associated with the Jornada branch of the Mogollon. He further postulated that middens possessing the attributes of small fragmented rocks, considerable ash, and gently rolling surfaces predate those characterized by steep, ash-free rims of larger rocks. He also hypothesized that actual mescal pits (sub-surface pits) are generally later than midden circles, but, there is presently not enough data to support such a finding (Greer 1967:43).

Additional research on ring middens has been conducted by a number of individuals. John Roney (1985) examined the occurrence of ring middens in or near various plant communities and determined that their location was not most commonly associated with agave communities, but rather on the fringe of pinyon communities. He suggested the location may have provided a compromise between proximity to firewood and proximity to agave (Roney 1985:v). Roney also made

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a generalization that based on associated artifacts, ring midden sites were more likely to be associated with the ceramic period rather than the Archaic. He does note however, that the features were used in late Archaic times (1985:53), however, data to back this up was not provided. A distinction was not made between Jornada Mogollon and Apache use of ring middens.

Susanna Katz (1983) discusses ring middens in her dissertation, Late Prehistoric Period Environment and Economy of the Southern Guadalupe Mountains. Katz believes that middens with subsurface pits as well as the larger ring middens are likely associated with the Apache. While the smaller types were probably associated with earlier groups. This hypothesis was based on the assumption that the Apache had horses and possibly larger populations. They would have been able to process larger amounts of the plants which could then be carried back to their campsites with the aid of the horses (1983:133).

Susan Applegarth (1976) also examined ring middens in her thesis, Prehistoric Utilization of the Environment of the Eastern Slopes of the Guadalupe Mountains, Southeastern New Mexico. Applegarth tested a number of ring middens to determine the presence or absence of a subsurface pit. None of the sites excavated showed any sign of a subsurface pit. Applegarth makes an obvious yet often overlooked observation regarding the absence of subsurface pits characteristic of many ring midden features:

...none of the circles were constructed in an area which such a pit could have been constructed easily. In many cases, the limestone or bedrock ridge on which the site was constructed was within a few feet of the surface and the ground is stoney with thin soil. It thus seems likely that the variation of construction observed is a function of the nature of the area rather than of purpose (1976:159).

This observation contradicts those made by Katz, Greer, and Mera who attempted to make clear distinctions between mesquite pits and surface midden rings. Applegarth notes that midden rings and mesquite pits are functionally the same suggesting the type of midden does not necessarily indicate which prehistoric group may have used it nor does it indicate temporality. Applegarth's data also contradicted that of Roney's in terms of distribution of sites. Applegarth found that approximately 85% of a sample of 219 ring middens occurred within the optimum growing area for both mesquite and sotol.

All of the sites Applegarth tested contained El Paso Brownwares with other ceramics also being present in lower concentrations. The ceramics were all of the types defined as being diagnostic to Jornada Mogollon sites. A radiocarbon date from a site east of the Guadalupe Mountains in west Texas was reported at AD 790+/-70 (1976:178), representing one of the earliest dates yet associated with a ring midden.

Inconsistent results from previous research as well as differing interpretations regarding the use, distribution, and temporality of ring middens indicates that further research should be conducted in order to scientifically address how these features fit into the social, economic, and political aspects of prehistoric and historic occupation of the Guadalupe Mountains.

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Ethnographic Data

The general assumption that ring middens were used in cooking mescal can be partially attributed to numerous ethnographic accounts of the Mescalero Apache using them for such a purpose. C. L. Sonnichsen (1958) describes the importance of mescal to the people and as being the source of their name, Mescalero, meaning "mescal maker." He provides a description of gathering and preparing the plant in his book, The Mescalero Apaches.

At the proper season - usually in May or June, when the massive red flower stalks began to push upward in the mescal patches - the Apache women would arm themselves with hatchets and four-foot pinyon sticks flattened and sharpened at one end, and sally forth. In very early times, when raiding war parties might be encountered, some of the men might go along to provide protection, but it was their job to range far afield hunting and scouting, and they did not show up in camp much. In later times a mescal party would consist of twenty or thirty people, including a few men and all the big boys the women could induce to come along. The bigger the boys, the harder it was to persuade them.

The mescal is rather finicky about where it grows. Sometimes it was necessary to travel many miles to find a good supply, and the party might be out two or three weeks. And it was dawn-to-dark labor for those Indian women every day. They were furious workers at such a job.

Once they had located a mescal field not too far from water and a supply of wood, the action started. First the big leaves were cut off as close to the heart as possible. Then the Apache woman would use her pinyon stick like a chisel to cut the roots, hammering on the end with her hatchet. When she finished, she had an ivory-white bulb sometimes two or three feet in circumference all ready to cook.

It was a hard way to make a living, but the worst was still to come. The cooking pit had to be dug in the dry, rocky soil, and it had to be big enough and deep enough to hold a ton or so of the bulbs. If an old pit was handy, the women cleaned it out; otherwise they dug a new one somewhere between four and fifteen feet long and close to four feet deep. The bottom they covered with stones.

When everything was ready, they built a fire on top of the stones in the pit and kept it going from sunrise to noon - longer if necessary. Then the raw mescal was put in and covered with a thick layer of grass. On top of that they piled dirt and rocks to keep in the heat and steam. A number of detached leaves were allowed to protrude above the cover to be used for later testing.

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In this crude but efficient pressure cooker the steaming went on all day and all night, or until the test leaves came out of the cooking pit done. Then the mescal feast began, and everybody had a sticky, happy time eating the syrupy mess which the cooking had produced. What was not eaten was spread into thin sheets, dried on a flat rock, and taken home for storage. It would keep practically forever and played an important part in the economy of the tribe. They carried it as a sort of hardtack or C-ration when they were on the move, and sometimes they used it for barter when they had any to spare. It was about the only thing they had which could be used for trading purposes. (1958:19-20).

Greer (1965) collected several ethnographic accounts from various sources, one of which is noted below from Hough (1959:846).

It was roasted in pit ovens and became a sweet and nutritious food among the Indians of the states on both sides of the Mexican boundary. Mescal pits are usually circular depressions in the ground, 6 to 20 feet in circumference, sloping evenly to the center, a foot to 3 feet in depth, and lined with coarse gravel. A fire was built in the pit, raked out after the stones had become hot, and the mescal plants put in and covered with grass. After two days' steaming the pile was opened and the mescal was ready for consumption.

H. D. Harrington discusses the use of agave in a book on native plants (1967:110-111).

The smaller agaves and the larger southern ones were at one time extensively utilized by the Indians for food and drink. They were used at any time, but especially when the flower stalks were just arising from the leaf clusters. The centers of the plants were dug out by using pry-shaped piece of wood. These centers contained the buds, short stalks, and some of the leaf bases; the whole structure in the larger species of agave was said to be up to 2 feet in diameter. These were placed in circular pits about 6 to 20 feet in diameter and 1 to 2 feet deep. Stones were placed in the pit and a fire was laid upon them. The mescal butts were then placed in the pit, covered with grass or weeds, and finally with dirt. The plants were roasted in this way for 1 to 3 days. The product had a pleasantly sweet taste but contained fibers that had to be spit out when chewed. It could be pounded flat and dried in the sun in thin sheets and transported long distances as a future food supply. The roasted material could be soaked in water and a drink prepared by fermentation of the liquid. Also the large southern species could be treated by boring a cavity in the center of the plant and taking the sap out. This was fermented and often distilled, the resulting product being called "mescal, pulque, or tequila." The Mescalero Apaches owe their name to their use of this plant; the presence of the old roasting pits throughout New Mexico and Arizona testify as to the past importance of agave in the diet of the Indians.

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Physical Environment

The Guadalupe Mountains are situated between two major physiographic provinces. To the north and east lie the southern extension of the high plains known as the Llano Estacado. To the south and west of the mountains is what is described as the Basin and Range province. The Mountains themselves run in a north-south direction for approximately 50 miles and are about 25 miles wide east-west. Along many of the steep canyons, portions of the ancient Permian Reef are exposed. Limestones, sandstones and dolomites are found in marine deposits behind the Permian Reef complex. The topography along the ridges and canyons is littered with rock shelters and numerous caverns. A unique process involving the chemical reaction of hydrogen sulfide gas and limestone has resulted in the development of thousands of miles of underground passages.

Vegetation in the area varies from a pine-spruce forest at higher elevations to a pinyon-juniper woodland at lower elevations. Other vegetation includes Texas madron, algerita, scrub oak, skunkbush, and a variety of grasses. Numerous cacti are present at lower elevations and include prickly pear, cholla, ocatillo, lecheguilla, agave, sotol, and yucca. A wide variety of game inhabits the area and includes deer, cats, coyotes, rabbits, reptiles, and a wide variety of bats.

The climate in the Guadalupe is defined as semi-arid. Winter months are generally mild with little precipitation. Springtime in the mountains is characterized by high winds which blow predominantly from the west-southwest. The summer months are marked by hot days and cooler evenings, with the majority of precipitation falling during the summer. Very little permanent water is available in the mountains as the majority of the drainages carry water only intermittently.

Culture History

The Guadalupe mountains are in a unique geographic area situated between the great plains and basin and range culture areas. There is ample evidence of prehistoric use of the mountains, however, limited information is known about the prehistoric inhabitants. The earliest occupation of the area probably began during the Paleo-Indian period sometime after 10,000 B.C. During this time, the climate was much cooler and wetter, allowing the environment to support a variety of mega-fauna including mammoth. An emphasis on big game hunting supplemented by wild plant foods is characteristic of the nomadic groups during this era. The fluted projectile point is the most diagnostic artifact associated with this time period. Evidence of Paleo-Indian occupation of the Guadalupe is scarce. Edgar Howard (1932) claimed to have unearthed a "folsom-like" Paleo-Indian point in Burnet's Cave in the Guadalupe Mountains, but no conclusive evidence of Paleo-Indian occupation of the area has ever been identified.

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By around 5500 BC, a gradual climate change resulted in the disappearance of big game and a change in the subsistence strategies of the nomadic peoples. The Archaic tradition developed with nomadic groups exploiting a wide variety of wild plants and game. Numerous caves in the Guadalupe Mountains have been dated to the Archaic period. Material remains include perishable artifacts preserved in dry caves including a variety of baskets, sandals, woven mats, and cordage.

Between 300 BC and AD 700, regionally distinctive cultural traditions began to develop throughout the greater southwest (Spoerl 1983). It is sometime during this period that ring middens came into use. The Mogollon tradition emerged out of the Archaic, and represented a more sedentary lifestyle with a greater reliance on cultigens. Lehmer (1948) defined the Jornada variant of the Mogollon based on work in the Tularosa Basin and developed phase sequences for different temporal periods under the Jornada Mogollon tradition. His earliest phase, the Hueco, begins around AD 100 and is present in the southern portion of the Jornada Mogollon area. Kelly (1966) developed similar phase sequences for the northern portion of the Jornada Mogollon region. Her earliest phase, Glenco, begins around AD 900 in the Sierra Blanca Mountain area. The Guadalupe Mountains are located along the southern fringe of the area Lehmer described as Jornada Mogollon. Originally, the area was not included due to lack of habitation sites.

The Jornada variant of the Mogollon tradition represents the transition from an Archaic adaptation of nomadic groups with a widely varied subsistence base to a more sedentary adaptation with a strong emphasis on cultigens. The more sedentary lifestyle resulted in a need for semi-permanent shelter. The emergence of pit houses, jacal structures, kivas, and small pueblo villages are characteristic of Jornada Mogollon sites. Ring middens may be associated with Jornada sites in the Guadalupe Mountains. The appearance of several pottery types including Jornada brown, Lincoln Black-on-red, Chupadero Black-on-white, El Paso Polychrome and Three Rivers Red-on-terracotta along with arrow points in the later periods is also characteristic of the Mogollon. While several habitation sites are present in the northern portion of the Lincoln National Forest, primarily in the Sierra Blanca Region, no such sites have been identified in the Guadalupe Mountains. Sites in the Guadalupe Mountains do however, contain artifacts similar to those associated with Jornada Mogollon sites. Additionally, the mountains offer a unique topography with numerous dry caves that show ample evidence of prehistoric occupation. The availability of these dry shelters may have eliminated the necessity for the open air habitation sites common to the Mogollon.

By AD 1400, the southwest region, as a whole, showed a major decline in village and habitation sites. While some interpret this decline to an abandonment of the area, it is likely that it represents a subsistence change resulting in groups reverting to a more nomadic lifestyle. The Jornada Mogollon probably remained in the mountain areas of southeastern New Mexico, however, their mode of subsistence would have been altered in response to the changing climate. A shift from a sedentary existence back to a nomadic could explain the lack of habitation sites during this time. Additionally, the return to a more mobile existence focussing on a variety of plants and game would leave physical evidence difficult to distinguish from earlier prehistoric nomadic groups (Spoerl 1983).

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Occurring immediately prior to and during this transition is the first appearance of the Apache. Migrating south from Alaska and Canada, these nomadic descendants of the Athabaskin, are thought to have entered the southwest by AD 1400. Apache subsistence was based on a variety of game and wild plant foods supplemented by periodic raids on nearby groups. Apache sites are often difficult to distinguish from other nomadic sites, specifically Jornada Mogollon. The confusion stems in part from similar artifacts and features being associated with both sites. Ring middens, for example, are known ethnographically to have been used by the Mescalero Apache but, most have been C-14 dated to the Jornada Mogollon or late Archaic period. Additionally, raiding as well as possible trade and interaction between groups are a likely cause for the similarities.

By the 1700s the Sacramento Mountains to the north and west had become the homeland of the Mescalero Apaches. The group dominated the south-central and southern portions of New Mexico and frequently utilized the Guadalupe Mountains. Their presence hindered historic development by Anglos. By the late 1800s, settlement on the Mescalero Reservation increased and permanent anglo occupation occurred.

Currently the Guadalupe Mountains in New Mexico are managed by the Lincoln National Forest. Recreation, grazing, fuelwood harvesting, and hunting are some of the current uses of the area today.

Property Types

For this multiple property nomination, archeological properties represented in the historic context and known to exist within the property area will consist of food processing sites exhibiting one or more ring midden feature and may or may not be associated with artifacts. Section F provides a more detailed discussion on property types.

Research Questions

The research value of Ring Midden sites in the Guadalupe Mountains is significant. Very little is known about the sites as the majority of the limited research in the Guadalupes has concentrated on the rock shelters and caves. Generally, discussions on ring midden features are limited to descriptive characteristics often noting just the size and shape. Function has generally been assumed and little conclusive research has been conducted on temporality or cultural affiliation.

Important information available or likely to be available from sites within the nomination area includes information on seasonality of use and resource utilization (which may be obtained through study of plant remains and pollen associated with the middens), settlement patterns (which may be obtained by in depth study of site distribution as well as additional survey data), material culture and trade patterns (which may be obtained from artifacts recovered in association with the ring middens), chronology (which may be obtain through radiocarbon dating of charcoal and other deposits contain within the midden), and cultural affiliation (which may be obtained through artifact analysis and temporal association with other sites).

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Information obtained from ring midden sites in the Guadalupe Mountains may be used to provide answers to several research questions. In the research questions outlined below, several interrelated areas of inquiry are emphasized including cultural affiliation, temporality, subsistence and population.

Were ring middens used solely by one culture group? Was there contact between groups, if so, was information shared? Is it possible to determine if the middens are associated with Jornada Mogollon or Mescalero Apaches? Ethnographic data confirms the use of ring middens by the Apache. Existing radiocarbon dates indicate that some ring middens predate Apache occupation of the area. Artifacts found in association with ring midden sites are similar to those found on Jornada Mogollon sites. Preliminary data supports the use of ring middens in food processing by the Apache and the Jornada Mogollon, however, it is difficult to distinguish which sites are related to which group. Additional information obtained from ring midden sites could be used to examine possible relationships between nomadic groups. Artifact analysis, extensive radiocarbon dating, geographical location, and a study of different ring midden forms could provide information that would enable one to distinguish Apache sites from Jornada Mogollon as well as indicate if some sites were used by both groups.

Were ring middens used seasonally? What are the dates of use for ring middens in the Guadalupe? Do sites that contain more than one midden indicate larger groups utilizing the resource or repeated use of the area over time? Can population density be estimated by the amount of ring middens at a given site or in a defined geographic location? Sonnichsen (1958) and Greer (1965) discuss several ethnographic accounts which indicate that agave was harvested in May or June at the time when the plant produces tall stalks. Radiocarbon dates indicate that ring middens were used as early as AD 700 up to the 1900s. Intensive radiocarbon dating at sites exhibiting more than one midden could provide information on re-use of a particular area. Dates could also provide information on periods of use which could aid in establishing population estimates for a given area within a specific time period.

How dependent upon mescal were the inhabitants of the Guadalupe Mountains? What other foods may have been important and were they processed in a similar way? Could the abundance and wide spread use of agave contribute to the lack of horticulture in the area? With approximately 5% of the Guadalupe Mountains surveyed and over 850 recorded ring midden features, it is apparent that agave did play a significant role in the subsistence strategies of groups inhabiting the area. Pollen analysis of deposits contained within the ring middens could provide information on the types of plants that may have been prepared using similar processes. Lack of horticulture could be attributed to several factors including geographic location and proximity to reliable water sources, however, the abundance of agave and its ability to be preserved for long periods of time may have been a contributing factor.

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Is the location of a ring midden dependent on topography? Proximity to water? Proximity to resources? Ridge tops verses canyon bottoms? Previous research on geographic location of ring middens has been inconclusive. Some data suggests proximity to resources while other suggests topography. The majority of existing surveys occur along roads or areas judgementally determined. A random sample survey could provide a variety of data which would allow for statistical analysis of well developed, structured research questions regarding site distribution. These results combined with radiocarbon analysis could provide information on changes in site distribution through time which could indicate cultural differences.

Before any of the research questions can be sufficiently address, additional information would need to be obtained. Intensive radiocarbon dating and pollen analysis of material obtained from within ring midden features will provide information to answer a variety of research questions. Additional survey data would provide a better data base to approach questions relating to site distribution, prehistoric adaptation to the environment and possibly aid in establishing cultural affinity and population densities.

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**F. Associated Property Types**

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(Provide description, significance, and registration requirements.)

Name of Property Type

Food processing sites exhibiting one or more ring midden feature which may or may not be associated with artifacts.

Description

Ring middens generally consist of burned limestone cobbles mixed with ash and dirt usually in the form of a circle with a depressed center. Often one side is higher than the other and frequently the feature takes on the form of a crescent shape. Some food processing sites exhibit one such feature while others may contain over a dozen. Size and shape are variable and can be in excess of 15 meters in diameter and up to two meters high. Ring middens are generally circular or crescent shape, however, depending on the location they may be more linear or be represented by a mound with an associated depression. A ring midden must have some type of purposeful form. A concentration of scattered fire cracked rock would not be considered a ring midden.

Frequently, there are no artifacts associated with the feature. When artifacts are present they can include charred fragmented bone, charcoal, ceramic fragments, ground stone, mussel shells, lithic debitage, whole and fragmented projectile points and other lithic tools.

The boundary of a site will include all ring midden features and any other associated features and artifacts. Ring midden sites have been identified in a variety of geographic locations including ridge tops, slopes, and canyon bottoms. Frequently sites are located at the confluence of intermittent drainages. Existing radiocarbon dates suggest these sites were occupied between AD 700 to the early 1900s. Groups known to have inhabited the area during this time were the Jornada Mogollon and later, the Mescalero Apache.

Significance

Ring midden features are significant examples of food processing sites in the Guadalupe Mountains of southern New Mexico with agave playing a major role in the subsistence of nomadic inhabitants of the area. Information from the ring middens can provide a vast amount of data relating to past use of the area, cultural affiliation, temporality, subsistence strategies, and population densities. This information could be used to gain a better understanding of the social, economic and political forces that helped shape the culture of the prehistoric and historic inhabitants of the Guadalupe Mountains.

Registration Requirements

Evaluation may take place at the local, state or national level to determine significance under criterion D, as the sites may yield information important to the prehistory and history of the Guadalupe Mountains of New Mexico. To qualify the site must possess one or more intact ring midden feature. Much of the information presented in the research questions listed in Section E of the Multiple Property Documentation Form can be address with the aid of radiocarbon dating, therefore, all sites nominated under criterion D must be sufficiently intact to provide samples adequate for dating.

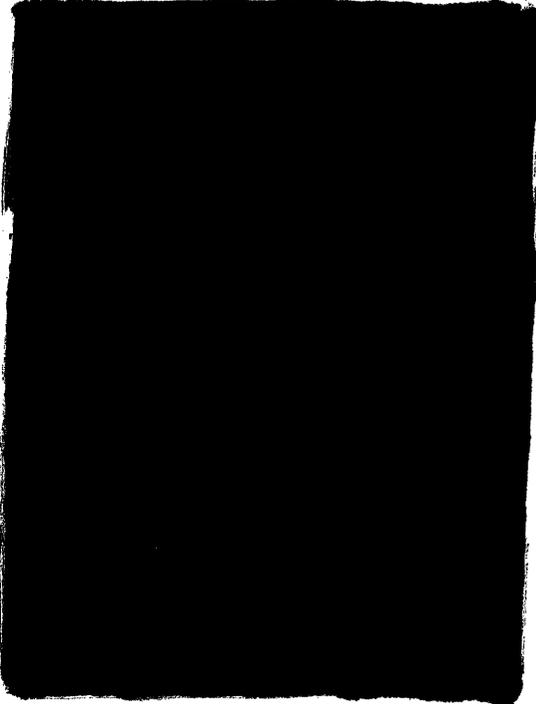
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G. Geographical Data

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Legal Location

The Guadalupe Mountains are located in south-eastern New Mexico and portions of west Texas. The area covered by this nomination includes portions of the Guadalupe Mountains located in New Mexico and administered by the Lincoln National Forest (Figure 1). Various sections in the following townships and ranges are represented in this nomination.



The only other ownership in this area consists of scattered isolated blocks of privately owned land. The properties included in this nomination are located within Chaves, Otero, and Eddy counties. This geographic area represents only a portion of the area where ring middens are found and is intended to provide a bounded area within which to study aspects of ring midden sites.

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**H. Summary of Identification and Evaluation Methods**

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(Discuss the methods used in developing the multiple property listing.)

All ground disturbing projects conducted on the Lincoln National Forest are surveyed by professional archeologists prior to initiation of project activities. Survey methods consist of intensive systematic pedestrian coverage of the areas included in the proposed undertakings. Cultural resource sites are often encountered during the course of these surveys. The sites are recorded on Forest Service and Laboratory of Anthropology sites forms, mapped, and in some cases a collection of significant artifacts is undertaken. One of the most common site types identified from surveys in the Guadalupe Mountains are ring middens. To date, over 850 ring middens have been documented with only approximately 5% of the area having been surveyed. This multiple property nomination does not include all documented ring midden sites. It is structured to allow for additional previously recorded and newly recorded sites to be added for listing provided they meet the criteria listed in Section F.

The historic context was developed based on the presence of ring midden features during a period in the cultural development of nomadic groups inhabiting the area between AD 700 to 1900. The period of time in which the historic context is represented was determined by consolidating a variety of existing C-14 dates reported by different agencies and individuals. The geographic boundary was defined to include all lands in the Guadalupe Mountains managed by the Lincoln National Forest. It is not considered to be all inclusive as ring middens are known to exist on lands adjacent to the Forest as well as in other parts of region.

The research questions were structured to illustrate the need for additional study of the area in order to gain a better understanding of the prehistoric and historic use of the Guadalupe Mountains. This nomination is significant as the sites included represent a unique and specialized form of subsistence which greatly influenced the cultural development of nomadic groups inhabiting the area between AD 700 and 1900.

The sites initially included in this nomination are located throughout the Guadalupe Mountains and have been previously recorded and monitored. The sites were re-examined prior to nomination and site forms were updated. A variety of undertakings including road maintenance activities and range projects have been conducted in the vicinity of the sites, however, no ground disturbing activities have occurred within the site boundaries. These sites represent a small percentage of ring middens known to exist in the area. They were chosen for nomination because they represent excellent examples of the types of ring middens one would expect to encounter when conducting research in the Guadalupe Mountains.

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United States Department of the Interior  
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

RING MIDDEN SITES OF THE GUADALUPE MOUNTAINS, NEW MEXICO AD 700-1900

SECTION NUMBER I PAGE 2

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| <input checked="" type="checkbox"/> | State historic preservation office | <input type="checkbox"/> | Local government |
| <input type="checkbox"/>            | Other State agency                 | <input type="checkbox"/> | University       |
| <input checked="" type="checkbox"/> | Federal agency                     | <input type="checkbox"/> | Other            |

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