CULTURAL RESOURCES

OVERVIEW

Guadalupe Mountains National Park contains important cultural resources related to human use over time by prehistoric and historic peoples. The Cultural Resource Distribution Analysis map identifies the locations of cultural resources within the park.

Cultural resources range from the prehistoric Paleo-Indian and American Indian periods, through the historic American Indian period, into the European American periods of 19th century exploration, military operations, and settlement, which was typified by small-scale ranches. Twentieth century ranching operations consolidated and grew in size. Two of the larger-scale ranchers and landowners fostered conservation efforts that culminated in the park's establishment.

Human occupation over time in the park has witnessed a change in climate from a wetter to a more arid environment and has contributed to a change in some of the vegetation from grasslands to creosote bush and similar plants, which expanded their coverage when overgrazing occurred. Today, grazing continues around the park, except in some of the area around Dell City where underground aquifers make the irrigation of cotton and other crops possible.

ARCHEOLOGICAL RESOURCES

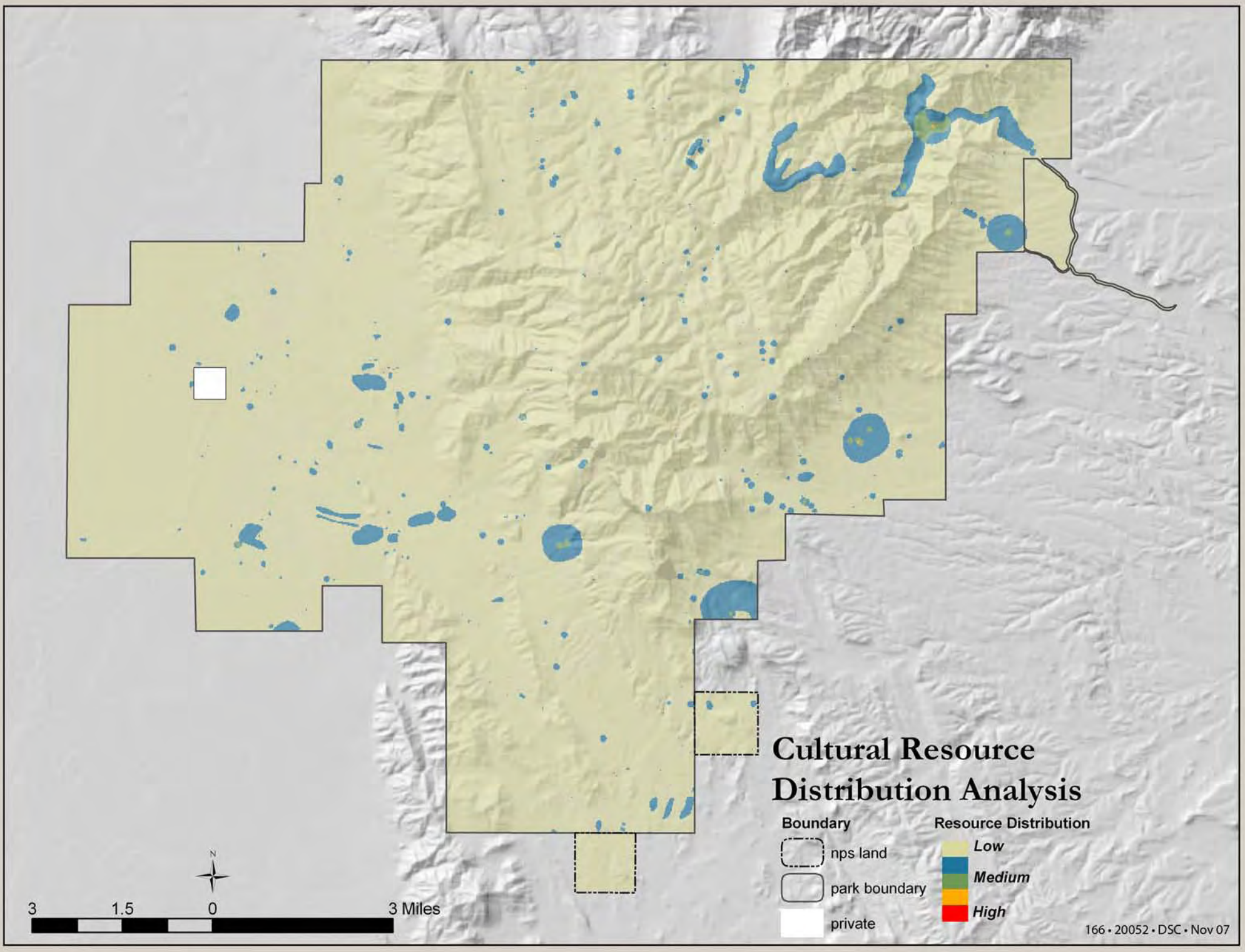
The presence of humans in what is now Guadalupe Mountains National Park may go back as far as 12,000 years. Paleo-Indians constitute the earliest known humans venturing into the Guadalupe Mountains region; the Paleo-Indian period is about 10,000 BC to 6,000 BC. Outside the park, a projectile point found in association with extinct Pleistocene mammal bones is strong evidence of the presence of these people.

Perhaps around 8,000 BC, Paleo-Indian people entered the Guadalupe Mountains area. These hunters followed the large game that gathered around the numerous springs and water courses that existed in that period, which was moderately wetter than today. They also exploited smaller wildlife and a diversity of plants found in the area's grasslands, canyons, ridges, and high country.

A Clovis projectile point was found in Burnet Cave north of the park in what is now the Lincoln National Forest. It is evidence of humans in direct association with late Pleistocene fauna, such as extinct species of antelope, bison, camel, and horse. A related hearth was radiocarbon dated at 7,500 years BP (before present). Similar Pleistocene species were found in the park in Williams Cave but not in direct association with humans. A Plainview-style projectile point associated with the Paleo-Indian period was discovered in a 2000-2001 archeological survey.

Pictograph at Devils Hall

About 400 archeological sites are known in Guadalupe Mountains National Park and have been recorded with the Texas Historical Commission. These range from the prehistoric Archaic Period (circa 6,000 BC to


Cultural Resource
Distribution Analysis
Boundary
nps land
park boundary
private
Resource Distribution
Low
Medium
High
N
3
1.5
0
3 Miles
166 • 20052 • DSC • Nov 07

AD 1) through the late prehistoric but mostly historic Mescalero Apache Period (before European contact to late 19th century) into the historic European American Period of exploration, military scouting, and settlement (16th and 17th centuries to early- to mid-20th century). The sites consist of

- lithic scatters; cooking pits, hearths, rock shelters, and caves suggesting encampments or habitations
- pictographs and petroglyphs
- traces of exploration, military scouting, and settlement, including stagecoach and ranching roads, remnants of equipment, and other traces of human occupation and habitation

Archeological resources represented in the park begin with the Archaic Period (circa 6,000 BC to AD 1). Generally in the Guadalupe Mountains, the Archaic Period is represented by various styles of lithic projectile points, scrapers, drills, and choppers, and by fire drills, digging sticks, atlatls, darts, and combs of wood. The material culture was further enriched by bone awls, rope of braided hair, and beadwork of trade seashells and local seeds. There were woven articles such as yucca mats and baskets. Sandals, netting, cloth, and cordage were woven or entwined from different plant fibers. Some of these have been found in the park.

Apache camp

The Mescalero Apaches occupied the Guadalupe Mountains as part of their traditional territory before European contact. Evidence of the Mescalero Apaches includes the many cooking pits in the park, where hearts of agave plants were roasted in pits that were covered with wet leaves and earth. Roasted agave hearts were a staple, so much so that the Spanish appellation, derived from *agave* or *mescal*, became part of the name by which the Mescalero Apaches were known. They also dried this nutritious food for mobile use.

European contact could have occurred as early as AD 1528–36. Recent historical research indicates that Don Diego de Vargas, then governor of Mexico, visited the Salt Flats and, it is believed, the Guadalupe Canyon area of the Guadalupe Mountains in 1692.

Following the Mexican War and the signing of the Treaty of Guadalupe Hidalgo in 1848, the 1849 California gold rush prompted expeditions for exploration, military mapping, and scouting and the search for railroad routes in the Guadalupe Mountains. Examples are those of

- Colonel John S. Ford and Major Robert S. Neighbors in 1848
- Captain Randolph B. Marcy in 1849
- Mister John R. Bartlett in 1850
- Captain John Pope in 1854
- Captain James Longstreet in 1855

The military mapping by Marcy apparently influenced the 1858-59 routing of the Overland Mail Company (also known as the Butterfield Stage after its founder John Butterfield) through Guadalupe Pass. In the park, ruins of the Pinery stagecoach station (discussed below in the section on "Historic Structures") are near the pass, and traces of the Butterfield Stage route are clearly evident to the northwest. Archeological artifacts could be associated with the station and the route.

Jose Maria Polancio, a guide for Longstreet, is buried south of Guadalupe Pass just outside the park's boundary, on private land.

His headstone says that he was killed on February 1, 1855, apparently by Apaches.

Using the horse, which had been introduced by the Spanish, the Mescalero Apaches regularly raided the American settlements that they viewed as encroachments. U.S. Army expeditions turned to war campaigns, some of which were conducted against the Mescaleros in the park (discussed below). American forces chased Victorio, a well-known Apache war leader, into Mexico where the Mexican army shot and killed him in October 1880. He and his band were renegades from the 1873 Mescalero Apache reservation north of the Guadalupes in New Mexico.

American military action akin to total war against the Apaches occurred in what is now the park at Dog Canyon and McKittrick Canyon under Lieutenant Howard B. Cushing. In 1869, he destroyed and burned two Mescalero villages with vital food caches for the winter, the loss of which was very damaging. Evidence of the fighting and devastation that took place might still be found through archeological work. Archeological work has documented evidence of encampments of the Buffalo Soldiers or African American units of the Ninth and Tenth Cavalry who set up at Pine Spring in 1878 and 1879 and at Manzanita Spring in 1879. An associated rifle pit has been discovered at Pine Spring. The Buffalo Soldiers under Colonel Benjamin Grierson cut Victorio off from critical water sources, causing him to flee to Mexico in 1880. This strategy was made possible by way of Buffalo Soldier mapping expeditions from their Pine Spring and Manzanita Spring encampments in what is now the park.

10th Cavalry

The McKittrick Canyon Archeological District was listed in the National Register of Historic Places on September 26, 1991. The McKittrick Canyon Archeological District is known to represent the Late Archaic (circa 1500 BC to AD 1), Formative-Transitional (AD 1 to AD 800), and Mescalero Apache Periods (AD 800 to AD 1880).

The district has many of the types of habitation, encampment, and cooking pit sites found elsewhere in the park and illustrates the continuum of human occupation in what is now the park. The district includes sites related to

- the successors to the Paleo-Indians
- the pre-horse ancestors of the Mescalero Apaches
- the hunting and raiding Mescalero Apaches, who became superb horsemen
- the coming of the Texas and Pacific Railway in the early 1880s to Van Horn, Texas, the end of the Mescalero Apache period

As noted above, McKittrick Canyon was a major home base of the Mescalero Apaches. It was a seasonal, nomadic base they were forced to leave for reservation life farther north in New Mexico.

HISTORIC STRUCTURES

Properties Listed in the National Register of Historic Places

Four historic properties in the park have been listed in the National Register of Historic Places. They include the Frijole Ranch,

Pinery Station, Wallace Pratt Lodge, and McKittrick Canyon Archeological District. The latter property is described above in the section "Archeological Resources." The other listed historic properties are described below.

Frijole Ranch House and Outbuildings. Frijole Ranch (also known as the Guadalupe Mountain Ranch) was listed in the National Register of Historic Places on November 21, 1978. The Frijole Ranch house once served as headquarters for the Guadalupe Mountain Ranch. Family names like Walcott, Rader, Herring, and Smith are associated with the site of the Frijole Ranch. Local tradition says that a Mister Walcott excavated and constructed a four-room dugout for his family in the 1860s. If so, this was the earliest Anglo dwelling in the region. Local tradition further indicates that two brothers surnamed Rader built the original portion of the Frijole Ranch house, consisting of two rooms of stone, in 1876 to operate a small cattle ranch. Detailed historical research indicates that John B. Rader is listed as a property owner in El Paso County, Texas, in 1879. Culberson County, Texas, was created from part of El Paso County in 1911.

A family named Herring lived at Frijole Ranch after the Raders moved on toward the end of the 19th century. After that, the property (with additions to the ranch house, outbuildings, and landscape configurations) evolved under the ownership of John Thomas Smith. Beginning in April 1895, he applied for a homestead grant. That grant contains a reference to an original application on March 7, 1867 by an unknown, unnamed grantee. A series of applications followed in 1906 by J. T. Smith under the heading "Application to Purchase Additional Land to Home Heretofore Purchased."

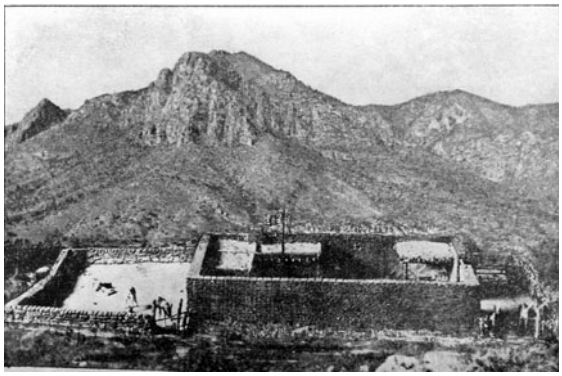
The 1920s was a period of expansion by Smith and his wife, Nella May Carr Smith, who he married in 1889. They were married for 63 years, had 10 children, and made a living by raising cattle, horses, pigs, and chickens and by growing apples, peaches, apricots, plums, pears, figs, pecans, blackberries, strawberries, currants, and some corn. The fresh produce would be sold in Van Horn, Texas, some 60 miles south after a two-day trip in wagons.

Much of the historic fabric of the Frijole Ranch remains in its integrity and variety. Therefore, Frijole Ranch represents the most complete and substantial remnant of early ranching in the Guadalupe Mountains.

Frijole Ranch and the Smith family

The succession of ownership of the Frijole Ranch is important in the establishment of the park. J. T. Smith sold the ranch to Judge Jesse Coleman Hunter, Sr., and his partners, Matthew and Thomas Grisham, on December 27, 1941. The property became known as the Guadalupe Mountain Ranch and was a commercial operation that raised cattle, sheep, and goats and provided recreational hunting of stocked elk and wild turkey to invited guests. Some parcels were leased for oil and natural gas exploration. The Frijole Ranch house became the home of the ranch foreman, Noel Kincaid. In 1969, through the influence of Jesse Coleman Hunter, Jr., who had conservation values like his father, the Grisham-Hunter Corporation sold its land holdings of 72,000 acres to the National Park Service. These lands became the majority of Guadalupe Mountains National Park, which was authorized by Congress in 1966 and established in 1972.

Pinery Station. Pinery Station was listed in the National Register of Historic Places on October 9, 1974. This property, called The Pinery for the historic stand of trees in the area, includes the local limestone ruins of a stagecoach horse-changing station. The ruins include a substantial wall several feet high. The station was established at the site because water was available nearby at Pine Springs.



Pinery Station, 1858

Apparently, Captain Randolph Marcy came across the springs in 1849 while leading a U.S. Army exploration unit. In 1857, John Butterfield, a businessman who founded the American Express Company, won a federal government contract to connect the growing country with regular mail service. Under this contract, he established a stage line, called the Overland Mail Company, from St. Louis to San Francisco.

In a historic rendezvous, on September 25, 1858, in the vicinity of The Pinery (actually a few miles west of Guadalupe Pass), the first two stages passed each other in transit at sunset. One was westbound, the other eastbound. The Pinery operated as a stage stop through August 1859. Despite some harassment by Mescalero Apaches stealing horses and mules, the Overland Mail Company was remarkably dependable and on time. In 1859, a more southerly route was chosen because it had more water sources and was closer to military forts like Fort Stockton and Fort Davis.

After 1859, The Pinery remained a stopping place for people trekking west along what became known as the Emigrant Trail. Marked by Guadalupe Peak from land and air, American Airlines in 1958 considered reconstructing (but never did) Pinery Station in honor of this westward route. Preservation and interpretation of this stage station was a major reason for including the 240 acres surrounding the station within the park.

Wallace Pratt Lodge. The Wallace Pratt Lodge, also known as the Pratt Stone Cabin or Pratt Cabin, was listed in the National Register of Historic Places on March 26, 1975. In 1921 Wallace E. Pratt, a professional geologist in search of oil-bearing formations in the region, came to what is now the park. He was a scientist and conservationist as well as a businessman who became a vice president of the Humble Oil and Refining Company, now the Exxon-Mobil Corporation. He appreciated the scenic beauty and geological significance of McKittrick Canyon, named for Captain Felix McKittrick, an early rancher. Pratt acquired land in McKittrick Canyon, and in 1931 and 1932 he authorized the design and construction of a getaway home he called the Stone Cabin, which was located about 2.5 miles up McKittrick Canyon.

Pratt Cabin

Pratt and his wife lived full-time in the Stone Cabin upon his retirement in 1945. However, because of the occasional flooding of McKittrick Canyon, Pratt built a more modern, less rustic home called Ship-on-the-Desert (described below) outside the canyon.

Beginning in 1958, Pratt donated land and property to the National Park Service. These holdings included some 5,000 acres and both buildings, and became a nucleus of the park.

Properties Eligible or Potentially Eligible for Listing in the National Register of Historic Places

The following historic structures have either been determined eligible or need a determination of eligibility for listing in the National Register of Historic Places. Those that have been determined eligible have been placed on the park's list of classified structures and are managed as if they were listed. National Park Service will continue to manage those still requiring a determination of eligibility as if they were listed and will continue to work toward preparing a determination of eligibility and placing them on the park's list of classified structures.

Bowl Cabin (also known as the Cabin in the Bowl). The Bowl refers to the area of dense remnant coniferous forest in the high country northeast of Guadalupe Peak and just north of Hunter Peak. This cabin of log construction with a corrugated metal roof was built in the Bowl sometime between 1920 and 1935. It was a working line cabin of the Grisham-Hunter Corporation for ranching operations and served as a hunting retreat for important guests. Joe Plowman, an experienced ranch hand of the corporation, may have built it. Nearby are two water tanks, one of metal and the other of concrete. Water was pumped up the slopes via pipes into the high country. The cabin has been determined eligible for listing in the National Register of Historic Places and is on the park's list of classified structures.

Felix McKittrick Dugout. Stone remnants of this dugout structure mark the initial dwelling of pioneer rancher Captain Felix McKittrick. The canyon he lived in bears his name. He was one of the earliest Anglo settlers in what is now the park during the latter part of the 19th century. The potential could exist for archeological resources. Pending evaluation, it is being treated as eligible for listing in the National Register of Historic Places and could be placed on the park's list of classified structures, once a determination of eligibility has been made.

Dog Canyon Copper Mines. An assessment has been done and the National Park Service is recommending that the mining features at Dog Canyon be declared eligible for listing in the National Register of Historic Places. A determination of eligibility still needs to be completed and, once done, could result in the addition of the area to the park's list of classified structures.

The Dog Canyon copper mines include a vertical shaft, three prospect pits, and one adit that were filled in for safety reasons. There are four horizontal adits remaining that have been gated for human safety while still allowing access by bats, two unaltered horizontal prospects, and scattered mining equipment and waste-rock piles. A wooden mining cabin built by a man surnamed

Buffington in the 1930s northwest of the mine along the Tejas Hiking Trail burned down in 1994 in a wildfire. The cabin's location and other parts of the district could contain artifacts of historical importance. Also see the discussion on these mines under "Cultural Landscapes."

Hunter Line Cabin

Hunter Cabin (also known as the Hunter Line Cabin). The Hunter Cabin was built in 1928 of native limestone and mud daub construction with a metal roof. It is a mile or so up McKittrick Canyon from the Wallace Pratt Lodge, mentioned above. It was part of the holdings of Jesse Coleman Hunter, Sr., and his partners, Matthew and Thomas Grisham. The Guadalupe Mountain Ranch holdings of the Grisham-Hunter Corporation became the core of Guadalupe Mountains National Park.

The cabin was used as a line cabin and hunting retreat. It represents the combination of ranching, oil, and conservation interests that ultimately led to the establishment of the park. It has been determined eligible for listing in the National Register of Historic Places and is on the park's list of classified structures.

Segura Dugout. This initial family abode of Geronimo Segura was part of the operations of Williams Ranch. It is mentioned below in the discussion on Williams Ranch. The dugout is being treated as eligible for listing in the National Register of Historic Places. Once a determination of eligibility is completed, it could be placed on the park's list of classified structures.

Williams Ranch House. Local tradition calls attention to a woman who, as a young bride, was so uncomfortable about the isolation of what became known as the Williams Ranch house on the western slope of the Guadalupe Mountains that she refused to spend more than one day and one night there. It is unclear who had the house built (with lumber hauled from Van Horn, Texas). However, Henry Belcher, his wife Rena, and daughter Bernice seem to have been the first people to live there, raising as many as 3,000 head of cattle. Water came from nearby Bone Spring in Bone Canyon.

Williams Ranch House

Belcher sold the property to James Adolphus "Dolph" Williams, a cowboy from Louisiana, who arrived in 1917. He remained a bachelor and partnered with Geronimo Segura, an American Indian with a wife and eight children who lived about 3.5 miles away from the ranch house in the Segura Dugout, which was excavated into the wall of Guadalupe Canyon. Williams and Segura switched from cattle to sheep and goats, which are hardier and were better suited to the varied climate and geography of the Guadalupes. Williams ranched there until 1941 and then moved to New Mexico where he died in 1942.

The Williams Ranch house, of frame construction with a gabled roof, and surrounding property constitute a prime example of the relatively small ranching operations in the Guadalupes towards the turn of the 19th into the 20th century. During this period,

ranchers had to adapt to changing conditions. This was achieved by switching from cattle to sheep and goats, as mentioned above; by reducing the number of livestock when it was drier; and by piping water from springs.

In general, the turn of the century was wetter and lusher than subsequent years. There was more wildlife with greater diversity, including the last of the native bison on the grasslands. Overgrazing by longhorn cattle and the droughts that began to prevail in the late 1910s led to the replacement of grasses by creosote bush, mesquite, and acacia.

The Williams Ranch house has been determined eligible for listing in the National Register of Historic Places and is being managed accordingly. It is on the park's list of classified structures.

Ship-on-the-Desert. Wallace Pratt constructed this home between 1941 and 1945 to coincide with his retirement from the oil industry. Ship-on-the-Desert was the second home he built in what is now Guadalupe Mountains National Park. Pratt and his wife lived in the building until 1960 when they moved for health reasons to Tucson, Arizona.

The house has been evaluated for its architectural significance and for its association with Wallace Pratt, who was nationally important as a geologist in the development of the oil industry and as a conservationist in the establishment of Guadalupe Mountains National Park. The state historic preservation office, Texas Historic Commission, concurred with the determination of eligibility for this structure and the associated components to be nominated for the National Register of Historic Places. Architectural significance and association have been established and the structure is on the park's list of classified structures. Nomination to the national register is pending.

Ship-on-the-Desert

Portion of Butterfield Stage Route / William Ranch Road

Butterfield Stage Route / Emigrant Trail. This stage route of the Overland Mail Company is discussed in the next section under "Cultural Landscapes" and in the previous discussion of Pinery Station. Traceable segments of the route and trail have been determined eligible for listing in the National Register of Historic Places and have been placed on the park's list of classified structures.

Remnants of Historic Ranching Activities. Dates and names like 1869 and Captain Felix McKittrick and 1876 and two brothers surnamed Rader mark the beginning of a cattle ranching presence, and later that of goats and sheep, in what is now the park. Small ranching or farming operations were typical.

In the 1920s and the 1930s, the era of the large rancher and landowner came to the

Guadalupe Mountains. Judge Jesse Coleman Hunter, Sr. of Van Horn, Texas, and his partners, Matthew and Thomas Grisham, consolidated vast amounts of land, built structures and facilities throughout their ranch for operational purposes, and developed an extensive watering system for livestock.

The remnants of the high-country watering system consist of pumps, metal and concrete water tanks, and a metal pipeline. Such tanks, previously mentioned in conjunction with the Bowl Cabin, were part of a pipeline system that conveyed water 2,000 feet up the escarpment to a large metal tank that still exists. From there, the water flowed down by gravity to other tanks in the Bowl area. Guadalupe Mountain Ranch employees built the Bear Canyon Trail into the Bowl in the 1930s to lay the pipeline, remnants of which still parallel the trail. The pipeline provided water for high country livestock. In addition to the pipeline, several of the water storage tanks, both metal and concrete, are largely intact for hikers to discover. Equipment left behind could constitute some of the landscape features and would show how the ranchers adapted aspects of the physical geography to their operations.

Other cabins and structures, like Cox Cabin and the Marcus sheep pens, are located within the park boundaries. Aeromoter windmills and associated watering facilities also dot the landscape. Other remnants of historic ranching activities include interior fences, corrals, gathering pens, and sheep dips.

CULTURAL LANDSCAPES

Cultural landscapes are geographic areas, including both natural and cultural resources, that the National Park Service manages as cultural resources for their historical significance. They may be associated with historic structures or be independent of a specific structure.

Twelve cultural landscapes have been identified at Guadalupe Mountains National park and are listed in the NPS Cultural Landscape Automated Inventory Management system. Two have been inventoried and reports are completed.

- A cultural landscape report was completed for the Frijole Ranch in 1995 (NPS 1995a).
- A cultural landscape inventory was completed for the Pinery Station in 1999 (NPS 1999a).

The other ten cultural landscapes in the park remain to be inventoried and so are considered potential cultural landscapes until documentation can be completed.

Many of the cultural landscapes are associated with historic structures that either are listed in, or are potentially eligible for listing in the National Register of Historic Places. Relevant related aspects for these properties were described previously in this chapter under “Historic Structures.”

Frijole Ranch Cultural Landscape

The Frijole Ranch with its historic structures and accompanying lands comprises a cultural landscape that is the most complete and substantial remnant of European American settlement in the southern Guadalupe Mountains. The Frijole complex shows the development and evolution of the region’s settlement via a continuum of diverse agricultural use. It dates from the last quarter of the 19th century into the mid-20th century and includes cattle ranching, other forms of animal husbandry, and small-scale commercial fruit growing. Together they formed the base of the Frijole farmstead’s practices and products characteristic of raising cash and subsistence crops in a remote area of west Texas.

The Frijole Ranch developed around a spring and a continuously flowing stream in conjunction with other nearby springs such as Manzanita Spring. Along with wells and irrigation channels, these provided water for animals, crops, and people.

Prior to European American settlement of the area, Manzanita Spring was a seasonal camp for the Mescalero Apache people. Here, they roasted agave plants in cooking pits, often called mescal pits.

Walnut trees at Manzanita Spring are part of the landscape, as are many original structures of stone and wood at and surrounding the main ranch house to the southwest of Manzanita Spring. The character-defining features of the Frijole Ranch cultural landscape include a schoolhouse, springhouse, bathhouse, bunkhouse, barn, stone wall, stone retaining wall, flagstone walkways, irrigation channels, and the main ranch house. In the latter's vicinity, as part of the landscape, are oaks whose acorns provided food for hogs brought to the enclosed front yard of the ranch house to feed and fatten.

Military Encampment / Activity Areas

Places in the park like McKittrick Canyon, Dog Canyon, Pine Springs, and Manzanita Spring were mentioned under archeological resources in association with U. S. Army incursions and encampments related to exploration and military campaigns against the Mescalero Apaches. These are important in American history because the Indian Wars campaigns changed the American Indian way of life to life on reservations and because of their association with African Americans who served effectively in the army as Buffalo Soldiers. (This name is generally believed to be a Lakota appellation reminiscent of the soldiers' curly hair and that of the curly manes of bison.) Landscape features would relate to how the soldiers negotiated and adapted various aspects of the physical geography toward their mission.

Pine Springs Store / Café

Walter Glover purchased land near Pine Springs as early as 1913. He and his wife, Bertha, developed a stop for tourists that included a gas station, store, café, and guesthouse with cabins for overnight stays. The National Park Service acquired the Pine Springs Café and outbuildings in 1972.

A life estate was granted to the owners, Walter and Bertha Glover. After their deaths, a daughter, Mary Hinson, was authorized by Secretary of the Interior Donald Hodel to continue the operation until January 1, 1992.

For safety reasons, the structures of this site were razed in February 1994 after the extension to operate expired. What is left of the site as a cultural resource is not a landscape with historic buildings, but rather a potential site for historical archeological work and interpretation.

Bowl Cabin (also known as the Cabin in the Bowl)

The Bowl Cabin was identified above under "Historic Structures" as needing a determination of eligibility for listing in the National Register of Historic Places. The cabin is associated with ranching in the high country during the first third of the 20th century and with the associated placement of facilities in the Bowl among the characteristic ponderosa pine, southwestern white pine, and Douglas-fir. Landscape features could include equipment left behind that shows how the ranchers used the high country in their operations.

Butterfield Stage Route / Emigrant Trail

The route of the Overland Mail Company, also known as the Butterfield Stage, is readily

apparent running northwest-southeast on the western side of the park. Its alignment, which is shown on the Existing Conditions Map, is marked by occasional ruts and a coach-wide trace slightly depressed in the ground,

The "Historic Structures" section provided information regarding the stagecoach company and its stop, the Pinery Station, in what is now the park. Landscape features could relate to the course and conditions of and scenery along the route. Designation of such a cultural landscape would help visitors imagine what it was like to travel in a light, "celerity" stagecoach at four to five miles an hour, day and night, between St. Louis and San Francisco. This route remained in use by people trekking west along what became known as the Emigrant Trail after August 1859 when the Overland Mail Company switched to a more southerly route.

Dog Canyon Mining Landscape

The Calumet and Texas Copper Mines (commonly called Calumet Mine) operated from the 1880s through the 1930s and into the 1960s when tests were done to estimate the value of the mineral rights for sale to the federal government as part of the park's establishment. Operation was often sporadic and related to copper prices. Names of individual mines included Hardscrabble Number 1, Good Hope, and Valley.

Landscape features associated with mining included one vertical shaft, three prospect pits, and five adits (also known as horizontal passages or tunnels into a mine) plus equipment scattered on the ground and waste-rock piles. One adit was filled in for safety, and the other four have been fitted with bat gates to keep humans safely out and while allowing access by bats. This area is also discussed in the "Historic Structures" Section.

Hunter Cabin (also known as the Hunter Line Cabin)

This limestone and metal-roofed cabin is discussed in the section on "Historic Structures." The cabin as evidence of ranching could figure into the landscape features.

McKittrick Canyon Archeological District

This district is discussed above under "Archeological Resources." The types of archeological sites reflect prehistoric and historic American Indian ways of life. Archeological resources could include landscape features that reflect habitation styles and subsistence practices.

Wallace Pratt Cabin

This limestone structure is discussed in the "Historic Structures" Section. The Stone Cabin, as Wallace Pratt called it, along with the associated outbuildings with rock walls, paving stones, surrounding landscaped terraces, and other landscapes features, would all be part of the cultural landscape in this unique scenic setting in the midst of McKittrick Canyon. This setting and the important geological context with the Permian Reef was an integral aspect of geologist Wallace Pratt's view of the canyon.

Ship-on-the-Desert

The second limestone home, completed by Wallace Pratt in 1945 in what is now the park, is discussed above under "Historic Structures." In the designated cultural landscape, landscape features could include limestone walls, landscaped terraces, paving stones, stone picnic tables, an irrigation system, native plantings such as Texas madrone, and the pleasing harmony of the soft gray and brown rock tints of the native limestone with the surrounding hills and the building (designed by New York City architect Newton Bevin to resemble an oil

tanker), which is symbolic of Pratt's status as a world-renowned petroleum geologist.

Williams Ranch

This sturdy, isolated, but functional, frame dwelling, with a prominent early 20th century gabled roof, is discussed in the previous section on "Historic Structures." Landscape features would include the layout of stone corrals to the house, the pumping and storage of water (in metal tanks) from nearby Bone Canyon in the escarpment, and the stark beauty of the setting. Striking contrasts abound, with salt flats in one direction and, in the opposite direction, gently rising bajadas or slopes and then the sharply rising western escarpment of the Guadalupes.

ETHNOGRAPHIC RESOURCES

Ethnographic information has been collected from ethno-historical works, interviews, and American Indian consultations conducted by the park staff. Ethnographic resources relate to particular places or areas that contemporary peoples link to their traditional way of life and cultural heritage. Although no ethnographic resources have been identified as traditional cultural properties eligible for listing or listed in the National Register of Historic Places, such nominations are still possible.

Ethnographic landscapes are generally larger in area and broader in scope than the vernacular or designed historic landscapes that are often considered under the category of cultural landscapes. Ethnographic landscapes are important ethnographic resources. Two ethnographic landscapes are mentioned. One involves the Mescalero Apaches, and the other involves the Tigua Indians of Ysleta del Sur Pueblo. Components of these landscapes would be ethnographic resources.

Our Lady of Guadalupe

Catholic Christians come to the vicinity of the park to see the image of Our Lady of Guadalupe on El Capitan. Family pilgrimages to see this image are particularly common among Catholics of Spanish American heritage. The full-face image is viewable at just the right angle from the visitor turnout on the highway through Guadalupe Pass. Our Lady of Guadalupe is the patron saint of the Americas, and her personage is part of Catholicism as practiced in the southwestern United States.

White Painted Woman

El Capitan and Guadalupe Peak, on the southern end of the Guadalupe Mountains, form a prominent park landmark that is visible from more than 50 miles away. When looking at the mountains from a distance, the recumbent profile of White Painted Woman can be seen along the ridgeline. The story of White Painted Woman as a beneficent being is related to the origin of the Mescalero Apaches set in the heart of the Guadalupe Mountains. The Guadalupes are their traditional homeland and place of origin. White Painted Woman forms a clear and distinct landscape that is very important culturally to the Mescalero Apaches.

White and Red Sand Dunes

The Tigua Indians of Ysleta del Sur Pueblo have traditionally used the Salt Basin Dunes and the Salt Flats on the western side of the park for hundreds of years. They indicate that the white and red dunes are culturally important today.

American Indian Traditional Plant Gathering

What is now Guadalupe Mountains National Park is part of the traditional homelands of the Mescalero Apache, now of New

Mexico; the Tigua Indians of Ysleta del Sur Pueblo near El Paso; and 11 other American Indian tribes with cultural affiliation to the park. They occupied these lands both before and after European contact, through most of the 19th century.

Members of the Mescalero Apache and the Tigua, as well as members of other tribes as they moved through and occupied the Guadalupes, used the resources of the mountains and gathered plants and other resources. Gathering of plants and the fruit of plants, like agave, piñon nuts, and sumac berries, were a traditional use of these lands by American Indians. Based on this traditional plant-gathering practice, the whole park could be considered an ethnographic resource. Some areas, however, may have been more heavily used than others or may have more cultural importance. Because of the ties to the cultural heritage and identity of the American Indians who used these resources, any traditional plant-gathering areas should be regarded as an ethnographic resource.

MUSEUM COLLECTIONS

The park's museum collections total about 210,000 specimens, including those catalogued and uncatalogued. About 143,000 specimens are stored in the park. The other 67,000 are stored in other NPS facilities or are on loan to universities and oil companies. NPS facilities storing specimens from Guadalupe Mountains National Park include

- Carlsbad Caverns National Park in New Mexico
- Harpers Ferry (Interpretation) Center in Harpers Ferry, West Virginia
- Intermountain Support Office in Santa Fe, New Mexico
- Western Archeological and Conservation Center in Tucson, Arizona

The universities include

- Sul Ross State University at Alpine, Texas
- Texas A&M University at College Station
- The University of Texas at Austin
- The University of Wisconsin at Madison
- The University of Manchester in the United Kingdom

The oil companies include the Exxon and British Petroleum Corporations.

A 19th century stagecoach that is part of the park's collections is on loan and display in Carlsbad, New Mexico, at the Carlsbad Museum and Fine Arts Center.

Specimens and artifacts relate to geology, zoology, botany, archeology, ethnography, and history. The latter include historic photographs and material cultural items from archeological and historic sites. Basket fragments and braided hair for rope are examples of ethnographic artifacts. The collections include archival materials documenting the objects.

The collections in the park are protected by a modern detection and security alarm system. The collections are housed in part of the visitor center and administration building that has limited access. Only authorized personnel may enter. A dry-pipe, overhead sprinkler system with heat-sensitive thermocouplers activates localized flow of water only in the location of a fire. Some collections are stored in other facilities, because of the lack of space in the headquarters facility.

VISITOR UNDERSTANDING AND EXPERIENCE

One of the fundamental purposes of the National Park Service is to providing for visitor enjoyment, understanding, and stewardship. Many actions proposed in this general management plan could affect patterns of visitor use and the type and quality of visitor experiences. Components of the visitor experience include, but may not be limited to, visitor access, scenic views, orientation and interpretation, recreation activities and destinations, and visitor services.

The category of visitor understanding and experience includes what park visitors learn (cognition), feel (attitudes), do (behavior), and sense (experience). Interpretation includes personal and nonpersonal services that communicate park interpretive themes (the essential concepts, relationships, and stories associated with the park) and help visitors establish personal and emotional connections with the park.

- Personal services include interpretive talks and guided walks, and informal services such as information desk attendance and roving contacts.
- Nonpersonal interpretation is accomplished through exhibits, audiovisual programs, wayside (outdoor) exhibits, publications, and websites.
- Educational services are structured programs conducted with scheduled groups such as schools, universities, and organizational groups. Program objectives relate both to school curricula and to park themes and objectives.
- Orientation services inform visitors about park resources and experiences. Orientation services include information encouraging proper, safe, low-impact behavior. Orientation is provided through personal and nonpersonal services.

Interpretation, education, and orientation are provided both onsite and offsite.

The current interpretive program at Guadalupe Mountains involves a variety of facilities, interpretive media, and services. Together, they provide opportunities for visitor understanding and appreciation of park themes and significance.

A 1996 to 1997 survey of visitors to Guadalupe Mountains National Park was conducted by the University of Texas at El Paso (1997). The survey collected data during spring, summer, and fall. In descending order, the five most desired experiences in this park are seeing wilderness and scenery, hiking, viewing nature, seeing wildlife, and experiencing solitude or quiet. Preferences for seeing the scenery vary according to many factors, especially visual and topographic characteristics of the scenery and visitors' personalities, attitudes, and expectations.

VISITATION

Recent visitation is summarized in table 8. Annual recreational visitation to the park has averaged about 200,000 for the past decade. Spring often is the busiest season, with substantial visitation in summer and fall. Winter brings the fewest visitors. Most visitors enter the park at the Pine Springs visitor center.

A visitor survey showed that 55 percent of visitors were from Texas, 35 percent were from out of state, and 10 percent were from other countries (University of Texas at El Paso 1997). Families were the most common group type.

HIKING

Guadalupe Mountains National Park features more than 80 miles of hiking trails, with outstanding opportunities for both day hiking and overnight trips. Hiking is a popular visitor activity. More than half the park is designated wilderness, and there is no water or other visitor services beyond the trailheads.

Most trails are rated moderate to strenuous. Many lead to the top of the escarpment, which can be accessed from just a few points below. Trails are well defined and graded. Off-trail hiking is discouraged because it can be dangerous and damaging to the resources.

The Guadalupe Peak Trail is one of the more popular of the strenuous hikes. It begins near the Pine Springs visitor center and climbs 4.2 miles to the summit of Guadalupe Peak. There is a designated campsite about a mile from the summit, but many hikers accomplish the round-trip hike in a day. Views from the top are magnificent. The hike requires considerable stamina and moderate expertise.

Table 8: Recreational Visitation in 2000-2006

	2000	2001	2002	2003	2004	2005	2006
January	11,704	14,032	10,880	11,005	10,961	10,681	11,031
February	13,505	12,379	12,344	10,441	9,524	9,646	10,526
March	24,991	23,395	27,689	20,533	21,998	23,586	22,156
April	20,291	19,693	20,069	17,016	17,345	17,345	16,446
May	18,296	21,264	19,152	17,691	18,676	16,724	16,145
June	18,273	18,780	18,087	16,124	15,898	13,736	14,344
July	17,340	22,244	20,100	16,390	16,487	16,218	14,255
August	16,383	17,042	15,083	13,157	14,032	10,742	11,318
September	14,151	15,441	14,658	11,982	12,976	10,159	12,178
October	18,052	24,600	18,435	20,658	21,055	15,173	19,707
November	14,720	21,425	15,585	15,439	13,570	15,085	16,506
December	11,056	12,012	10,829	10,921	9,829	11,288	9,545
Total	198,762	222,307	202,911	181,357	182,351	170,383	174,157

Moderate to easy day hikes are available on the Frijole and Foothills Trails and at McKittrick Canyon, the Pinery, Smith Spring, and Dog Canyon. The McKittrick Canyon Trail is one of the most popular trails in the park, and is accessible to almost all hikers. The Dog Canyon trailhead is accessible by road from the north. There is a ranger station and a campground near the trailhead. The Tejas and Bush Mountain Trails begin at the Dog Canyon trailhead. Both trails wind across the top of the escarpment through a variety of vegetation zones and landscapes, and afford great views.

Guadalupe Canyon historically was the primary access point to hike Guadalupe Peak. To make the hike less difficult, the National Park Service built a trail from Pine Springs Canyon. Access to Guadalupe Canyon and this portion of the national park has always been across a narrow strip of private land by an informal trailhead, with parking along the highway right-of-way. Historically, the landowner has allowed public access across this strip of land, and many visitors and visiting geologists access the park via this route.

BACKPACKING

There are 10 backcountry campgrounds in the park. Backpacking requires a free permit, available at the Pine Springs visitor center or the Dog Canyon ranger station. Backpackers must camp in designated locations to reduce impacts to resources. Campers seldom perceive backcountry sites as crowded, and only 2.5 percent reported feeling crowded in the survey conducted by the University of Texas at El Paso (1997). Water must be packed in.

WILDERNESS

In 1978, Congress designated 46,850 acres, or more than half of Guadalupe Mountains National Park, as wilderness. A wilderness, in contrast with areas where man and his works dominate the landscape, is recognized as "an area where earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain" (Wilderness Act 1964).

The high peaks, deep canyons, and abundant wildlife and plant life of the Guadalupe Mountains Wilderness are all integral parts of a dynamic, diverse natural system. In this wilderness, park visitors can have a primitive and unconfined experience that is primarily affected by natural forces and provides opportunities for solitude, inspiration, and experiencing and observing nature.

CAMPING

Two campgrounds, at Pine Springs and Dog Canyon, are accessible by motorized vehicle. The Pine Springs campground is in a mostly open desert area just off Highway 62/180 near the visitor center. Water, wheelchair accessible restrooms, a service sink, and pay telephone are available, but no showers. There are 20 sites for tents and 19 sites for recreational vehicles. The recreational vehicle sites are defined by painted lines and numbers on the parking lot pavement. There are no hookups or dump stations. One recreational vehicle site is wheelchair accessible. Crowding is an issue, and 21 percent of visitors surveyed felt crowded (University of Texas at El Paso 1997).

The Dog Canyon campground is in a secluded, forested canyon on the north side of the park. Because of the higher elevation it remains cooler than the Pine Springs campground in the summer. The campground has nine tent sites and four recreational vehicle sites, but no hookups or dump stations. Restrooms have sinks and flush toilets but no showers.

HORSEBACK RIDING

The park offers diverse riding opportunities. About 60 percent of the trails are open to horses. Riders must bring their own stock, because there are no horses or pack animals for hire near the park. There are stock corrals near the trailheads at Dog Canyon and Frijole Ranch; each has four pens and will accommodate up to 10 animals. All stock trips must start and end at one of these trailheads.

Riding is limited to day trips only. A free backcountry permit is required for all stock trips.

SIGHTSEEING AND SCENIC DRIVING

The key management-related provision of the Organic Act (16 *United States Code*, Section 1) is the statement that the National Park Service "shall promote and regulate the use of the Federal areas known as national parks, . . . which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

In Guadalupe Mountains National Park, much of this "scenery" is a direct or indirect result of the geology of the park. The Visual Resource Distribution Analysis map identifies the park's scenic resources. The prime scenic experience for most visitors is the Capitan Reef and the adjoining peaks of the Guadalupe Mountains. These features are visible from many miles away as one approaches the park.

Few roads extend into the park. Roads primarily include the approaches to the Pine Springs, Frijole Ranch, McKittrick Canyon, Dog Canyon, and Salt Basin Dunes areas. The Williams Ranch road is recommended only for four-wheel-drive, high-clearance vehicles, and a key must be obtained at the visitor center for the gate.

The scenery from park roads includes the Capitan Reef and surrounding landscape. Although no great elevations are achieved, the open west Texas landscape and the looming reef offer dramatic panoramas.

Often called the "most photographed spot in Texas," the view of the Guadalupe Mountains from Highway 62/180 through the park and through Guadalupe Pass seldom fails to impress observers. The massive face of El Capitan towers 3,000 feet above Guadalupe Canyon. One of the prime scenic experiences for most visitors is this spectacular view from Guadalupe Canyon and Guadalupe Pass. For visitors who will not be hiking the trails because of time or physical constraints, this is the best close-up view of the mountains they will have. Together with the expansive views to the west of the Salt Flats and the lower elevations below the pass, this constitutes the primary scenic route of the park.

Visibility monitoring at Guadalupe Mountains National Park was conducted using photography from a 35-millimeter camera from 1983 through 1995. From 1988 through 2006, visibility monitoring was involved the use of a light extinction transmissometer.

Visibility at Guadalupe Mountains averages 80 miles and can exceed 155 miles on the clearest days. Dust, particularly during the spring windy season, historically has been a source of decreased visibility. Additionally, visibility is being adversely affected by increasing pollution from the region's metropolitan areas, power plants, and smelters. Haze has reduced visibility at times to less than 50 miles, and maximum visibility currently occurs only 1 percent of the time, with a 50 percent reduction in visibility occurring half the time. The result has been a measurable reduction in visibility, which is of paramount importance to visitor appreciation of the park's scenic vistas from both lowland and high country locations.

INTERPRETIVE PROGRAMS

Formal interpretive programs are primarily evening illustrated talks (slide shows) at various park locations. These programs are given daily from Memorial Day through Labor Day. Other illustrated talks are given in March (during spring break) and during fall color season.

NATURE STUDY AND BIRD WATCHING

Visitors enjoy observing the park's diverse plant and animal life. Many visitors are casual viewers, enjoying plants and animals seen while hiking. Others are more systematic and come to the park for specific wildlife viewing opportunities or maintain life-lists of birds seen and identified. Many of the park's wildlife are nocturnal or secretive and hard to see.

Because one of the main focal points of the park is hiking, roving interpretation is extensively done on park trails, especially in McKittrick Canyon. Four self-guided nature

trails with interpretive brochures include the Pinery Trail, McKittrick Canyon Nature Trail, Permian Reef Geology Trail, and Indian Meadow Trail at Dog Canyon.

Outreach programs are given to regional educational and community groups, and other interested parties.

- Onsite orientation programs are given to educational groups.
- Educational activities for students are available both onsite and offsite. Most onsite school programs occur during spring and fall.
- The park has a web page that is frequently updated.
- Both Junior Ranger and Senior Ranger programs are available.
- Site bulletins covering a variety of topics are available as handouts and mailings.
- The park staff organizes several college credit seminars each year.

VISITOR FACILITIES AND OTHER DEVELOPED AREAS

Pine Springs Visitor Center

The Pine Springs visitor center is the park's primary visitor center and the initial point of entry for most visitors. The building also includes park headquarters.

The natural history of the park is interpreted at this facility. Interpretive media include an introductory slide program (with large-format images) and exhibits on geology, flora, and fauna. A bookstore operated by the Carlsbad Caverns Guadalupe Mountains Association offers theme-related publications and other items. Rangers and volunteers at the information desk provide interpretation, orientation, and visitor assistance. The center is open year-round.

Pine Springs Visitor Center and NPS headquarters

Pine Springs Campground and Trailhead

Pine Springs is the location of recreational vehicle and tent campgrounds and a picnic area. At nearby Frijole Ranch, there are public stock corrals (available by reservation) for horseback riding. The park's main trailhead and parking lot at Pine Springs provide access to most park trails, which offer hiking, backpacking, and nature viewing opportunities.

The Pinery

The crumbled remains of walls mark the site of the 1858 Overland Mail Company (also called Butterfield Stage) station. It is easily reached by a paved, wheelchair-accessible trail from the Pine Springs visitor center or from U.S. Highway 62/180. A guide to the history of the Pinery is available at the visitor center.

McKittrick Canyon

McKittrick Canyon cuts into the Guadalupe Mountains, is framed by 2,000-foot-high limestone walls, and features longest only permanent stream in the park. It is one of the prime attractions in the park for day visitors. Although it is famous for its spectacular fall foliage, the canyon attracts thousands of hikers in all seasons. McKittrick Canyon is designated only for day use.

At the trailhead is the McKittrick Canyon contact station, which is open year-round, as staffing permits. Visitors can obtain a trail guide describing resources and features along the 2.3-mile-long trail to the Pratt Cabin. Outdoor exhibits and a slide presentation are also available at the contact station.

Pratt Cabin was built of local limestone by Wallace Pratt, an early park supporter who later donated land to create the national park. The cabin has been furnished and is open when volunteers are available. Picnic tables are available outside the cabin. The trail extends past Pratt Cabin along the stream to the Grotto, Hunter Line Cabin, and up to McKittrick Ridge, which leads to the top of the escarpment.

A self-guided interpretive nature trail (0.9 miles long) with wayside exhibits starts at the McKittrick Canyon contact station. The Permian Reef Geology Trail also begins at the McKittrick Canyon contact station. Visitors can obtain a trail guide for the 2.5-mile-long hike into the Capitan Reef geological formations and another 2 miles to the top of the ridge. Excellent fossil exposures are found along this trail.

A power line was installed in the canyon to Pratt Cabin after the National Park Service acquired the property. It initially was determined necessary to operate the cabin as a residence and ranger station. The need for daily power no longer exists.

McKittrick Canyon from the Notch

Frijole Ranch

The rehabilitated 1870s ranch house at this site is equipped with exhibits of frontier life at the ranch and in the area, and serves as a cultural history museum. The wheelchair-accessible building is open only intermittently when volunteer staffing is available. Other ranch buildings include a barn, one-room school house, pump house, bath house, bunk house, and spring house. The proximity of Frijole Ranch to several springs makes it an excellent location for birding.

Outside the cultural landscape, visitor facilities currently are being developed in the vicinity of the trailhead for the Foothills, Frijole, and Smith Spring Loop Trails. These include a parking lot, picnic area, new interpretive and trailhead signs, a vault-type toilet, and improved access for people with impaired mobility. The public stock corral is located on the ranch access road.

View from the Williams Ranch Porch

Wliams Ranch

The Williams Ranch house was built in 1908, and its exterior has been rehabilitated. Although it is accessible only via a four-wheel-drive, high-clearance road (which also can be used by mountain bikes), this area offers excellent views of the western side of the Guadalupe Mountains, a close look at the arid reaches of Chihuahuan Desert landscape, and an encounter with the stark historic presence of a lonely, isolated ranch house, well preserved by the dry desert air. Visitors to Williams Ranch must check in at the Pine Springs visitor center to obtain a key and information brochures. Williams Ranch is designated as a day use area. It also is the terminus of El Capitan Trail from Pine Springs.

Dog Canyon

Visitors must travel 60 miles from major highways to reach the solitude and beauty of Dog Canyon. It is located in the north part of the park near the New Mexico state line. Dog Canyon has a ranger station, picnic area, tent and recreational vehicle campground, and stock corrals (by reservation) for horseback riding. Trails leading from Dog Canyon offer excellent hiking, backpacking, and bird watching opportunities.

Dell City Contact Station

The Dell City contact station is located on Main Street in Dell City. It provides an orientation and information point for park visitors, with a particular focus on the Salt Basin Dunes. The contact station is infrequently staffed, but its information is always available and it provides a location to drop off the key to the Salt Basin Dunes parking area, saving visitors a 120-mile-long round trip back to park headquarters at Pine Springs.

Salt Basin Dunes

The Salt Basin Dunes are the second largest gypsum dune field in North America. The Salt Basin Dunes are accessed via a dirt road leading from Farm-to-Market Road 1576 out of Dell City. Parking is available at the park boundary, and visitors can walk the 2 miles to the dunes. Visitors who obtained a key at park headquarters in Pine Springs can drive a little more than a mile inside the park boundary to a small parking area, where a 0.75-mile-long trail leads to the dunes. The key can then be dropped off at the Dell City contact station.

THE SOCIOECONOMIC ENVIRONMENT

The National Environmental Policy Act requires an examination of social and economic impacts caused by federal actions. Jurisdictions that most likely would be affected by this general management plan include

- Culberson and Hudspeth Counties, Texas
- Dell City and Van Horn, Texas
- Eddy County, New Mexico
- Whites City, Queen, and Carlsbad, New Mexico

REGIONAL SETTING

Guadalupe Mountains National Park is in a remote, arid, sparsely populated area of west Texas. It is about 110 miles east of El Paso, Texas, and 55 miles southwest of Carlsbad, New Mexico. Carlsbad Caverns National Park is about a 45-mile-long drive to the northeast of the park.

Most of Guadalupe Mountains National Park, including all major facilities and trailheads, is in Culberson County. The western portion of the park, including the Salt Basin Dunes that were added in 1988, is in Hudspeth County. Culberson County is about 3,812 square miles, ranking as the fifth largest county in Texas in land area. Hudspeth County covers 4,571 square miles and is the state's third largest county.

The Texas/New Mexico state line forms the northern boundary of the park, and Eddy and Otero Counties in New Mexico are just north of the park. Eddy County is readily accessed via U.S. Highway 62/180, which passes through the southeast portion of the park and is the area's primary highway. New Mexico Highway 137 through Eddy County provides access from the Carlsbad area to the Dog Canyon area. The park has few road connections to Otero County, which is west of Eddy County, and, therefore, has limited socioeconomic effects on that county. Therefore, Otero County was not considered here or in the analysis of impacts in Chapter 4.

Texas Highway 54 intersects U.S. Highway 62/180 just south of the park and connects to Interstate-10 in Van Horn, about 55 miles to the south. Van Horn is the county seat of Culberson County and is home to more than 80 percent of the county's residents. In addition to the regional service centers of El Paso and Carlsbad, other communities near the park include Dell City, about 9 miles west of the park's western boundary, and the unincorporated community of Queen, located about 16 miles north of the Dog Canyon campground.

ECONOMIC CONDITIONS

Park features that affect economic conditions include its remoteness; rugged topography; arid climate; and rich but relatively limited recreational, historical, and cultural resource inventory. Annual park visitation ranks approximately in the middle (185th of 359) among NPS units (NPS 2006a), with 174,157 visitors in 2006 (see table 8). Most visitation is day use concentrated at or near the visitor center and other developed activity areas along the U.S. Highway 62/180 corridor.

The park annually accounts for more than $10 million in annual economic stimulus in the surrounding, multi-county region. However, its socioeconomic contributions are not readily apparent because the effects are dispersed over a large area.

The two largest metropolitan centers near the park are at El Paso and Odessa-Midland.

Both have experienced economic and population growth. Closer to Guadalupe Mountains National Park, the population is dispersed and economic development has been limited. As shown in table 9, population in the three counties is stable or declining, and limited growth is expected in the populations of Culberson, Hudspeth, and Eddy Counties between now and 2030.

Employment and income information is provided in tables 10, 11, and 12. The economies of Culberson and Hudspeth Counties are small, undiversified, and have not experienced much growth. As shown in table 10, employment dropped in both counties between 1990 and 2000. In contrast, employment in Eddy County increased by more than 10 percent during the period.

More recent data show these patterns are continuing. Based on information from the U.S. Census Bureau (2007), private, nonfarm employment decreased between 2000 and 2005 by 4.3 percent in Culberson County and by 19.9 percent in Hudspeth County. In Eddy County, private, nonfarm employment rose by 12.4 percent during this period.

The economy of the region depends heavily on natural resource extraction, particularly oil and gas. Agriculture, travel, tourism, and the public sector also contribute to the local economy. Per capita incomes, shown in table 12, are behind state and national averages by substantial margins, and unemployment generally exceeds state averages.

Unemployment in the region for year 2000 averaged 3.5 percent in Hudspeth County, 10.2 percent in Culberson County, and 6.6 percent in Eddy County. These averages compare to statewide averages of 3.6 percent for Texas and 4.9 percent for New Mexico.

Agriculture in the region consists of livestock ranching and farming. Cattle ranching occurs on the wide expanses of private rangeland. The Census Bureau's *Census of Agriculture* lists 92 farms covering nearly 1.57 million acres in Culberson County and 147 farms with 2.5 million acres in Hudspeth County. Eddy County has 467 farms covering nearly 1.28 million acres. Before the establishment of the park, lands now in the park were used for ranching.

Crop production involves only a small share of the local agricultural land because it relies on pumping ground water for irrigation. In the three counties, the percent of land that is irrigated ranges from less than 1 percent to about 3.5 percent. However, the value of crops raised on these lands is disproportionately high, representing a large part of the annual value of agricultural products sold. The farming activity is concentrated in a few locations, including the Dell City area near the park's western boundary.

The lack of economic diversity in Hudspeth and Culberson Counties is evident in table 11. As shown, self-employment and government employment accounts for about a third of all employment in both Culberson and Hudspeth Counties. Statewide in Texas, those sectors account for just a fifth of the total employment. In Eddy County, New Mexico, about a quarter of the total employment occurs in these sectors.

Public sector employment includes military, federal civilian, state, and local government employment. County governments account for most of the public sector employment. State government employment primarily includes highway maintenance facilities, including a Texas Department of Transportation facility adjacent to the park's residential and services complex. Federal employment includes Department of Energy staff associated with the Waste Isolation Pilot Project, a nuclear waste disposal facility near Carlsbad; U.S. Forest Service personnel; Bureau of Land Management office staff; and NPS personnel associated with Guadalupe Mountains National Park and Carlsbad Caverns National Park.

Table 9: County Population with Projections Through 2030

COUNTY	2000	2006	2010	2020	2030
Culberson, TX [a/]	2,975	2,525	3,351	3,596	3,703
Hudspeth, TX	3,344	3,320	3,815	4,146	4,314
Eddy County, NM [b/]	51,658	51, 815	55,274	58,514	61,066

a/ Source: Texas Water Development Board 2006.
b/ Source: New Mexico Bureau of Business and Economic Research, 2004

Table 10: County Employment, 1990 and 2000

	CULBERSON COUNTY, TEXAS	HUDSPETH COUNTY, TEXAS	EDDY COUNTY, NEW MEXICO
1990 [a/]	1,419	1,173	18,649
2000 [a/]	1,293	1,127	20, 591
Difference 1990 to 2000	-126	-46	1,942
Percent change	-8.9	-3.9	10.4

a/ Source: U.S. Census Bureau 2007

Table 11: Employment by Worker Class, 2000

EMPLOYMENT CATEGORY	CULBERSON COUNTY	HUDSPETH COUNTY	EDDY COUNTY	TEXAS, STATEWIDE
Self employed and unpaid family	59 (4.6%)	85 (7.5%)	1,808 (8.8%)	684,865 (7.4%)
Private wage and salary workers	890 (68.8%)	695 (61.7%)	15,310 (74.4%)	7,202,769 (78.0%)
Government workers	344 (26.6%)	347 (30.8%)	3,473 (16.9%)	1,346,738 (14.6%)

a/ Source: U.S. Census Bureau 2007

Table 12: Per Capita Income

COUNTY	1990 [a/]	2000 [b/]	2005 [c/]	PERCENT OF 2005 U.S.
United States	$14,420	$21,587	$34,471	100.0
Texas, Statewide	$12,904	$19,617	$32,460	94.6
New Mexico, Statewide	$11,246	$17,261	$27,889	80.9
Culberson County, TX	$7,632	$11,493	$17,727	51.4
Hudspeth County, TX	$7,994	$9,549	$14,804	42.9
Eddy County, NM	$10,490	$15,823	$29,132	84.5

a/ Source: U.S. Census Bureau 1990.
b/ Source: U.S. Census Bureau 2007.
c/ Source: Bureau of Economic Analysis 2007.

Local employment in the retail trade and services industries is supported in part by highway travelers. This employment sector originated with stagecoach travel through the area, and evolved over time to include widely spaced clusters of gas stations, cafes, and small motels along the highways. The closest highway-travel-oriented services to the Guadalupe Mountains National Park visitor center are more than 30 miles distant, in Whites City, New Mexico. Overnight lodging is available in Van Horn and El Paso, Texas, and Whites City and Carlsbad, New Mexico. In Eddy County, travel and tourism is a mainstay of the local economy, with more than 11,500 jobs reported in retail trade and services in the year 2000 census.

Oil and gas development and production is an important segment of the natural resources industry, particularly in Eddy County, New Mexico. After years of weakness brought about by lower energy prices, active exploration and development is again occurring in the area. Other natural resource development in the region consists of scattered sand and gravel operations and limited-scale mineral mining in Culberson County.

PER CAPITA INCOME

Per capita income trends in the three counties mirror differences in their sizes and diversities, and also are affected by general inflationary trends and governmental transfer payments to individuals. As shown in table 12, per capita incomes in all three counties have risen over time but are substantially higher in Eddy County than in the two Texas counties. Per capita income levels are substantially lower than those of the state of Texas and the United States.

Below average personal incomes translate into local poverty levels that are substantially above the national average. According to the U.S. Census Bureau (2007), 12.7 percent of the nation's population lived in poverty in 2004. For the same period, the poverty levels in Culberson(22.0 percent), Hudspeth (26.6 percent), and Eddy (16.4 percent) Counties were all higher than the national value and the New Mexico (16.7) and Texas (16.2) statewide rates.

POPULATION

As shown in table 13, the population in Culberson County has declined since 1970, but population has increased in Hudspeth and Eddy Counties. During this period, the population of the United States increased by 47.3 percent, from 203 million in 1970 to 299 million in 2006.

Recent trends by community are shown in table 14. Culberson and Hudspeth Counties are sparsely populated, as is Eddy County outside the metropolitan areas of Carlsbad and Artesia. Except in Culberson County, where population declines occurred in all areas, the populations in communities were stable or declining, with population increases in unincorporated areas.

Population projections prepared by the respective states were included in table 9. Despite recent stable or declining populations, substantial growth has been predicted over the next 25 years. Projections include a 47 percent increase in Culberson County, a 30 percent increase in Hudspeth County, and an 18 percent increase in Eddy County by 2030.

Table 13: Population, 1970 to 2006 [a/]

COUNTY	1970	1980	1990	2000	2006 (ESTIMATED)	CHANGE 1970 TO 2006
Culberson County, TX	3,420	3,333	3,407	2,975	2,525	-26.2 percent
Hudspeth County, TX	2,392	2,774	2,915	3,344	3,320	38.8 percent
Eddy County, NM	41,013	47,855	48,605	51,658	51,815	26.3 percent

a/ Source: U.S. Census Bureau 2007 and previous years.

Table 14: Regional Population, 1990 to 2006 [a/]

AREA	1990	2000	2006 (estimated)	CHANGES 1990 TO 2006 People	Percent
Culberson County, TX					
Van Horn	2,930	2,435	2,108 [b/]	-822	-28.0
Balance of County	477	540	417 [c/]	-60	-12.6
Total Population	3,407	2,975	2,525	-882	-25.9
Hudspeth County, TX					
Dell City	569	413	411 [b/]	-158	-27.8
Balance of County	2,346	2,931	2,909 [c/]	563	24.0
Total Population	2,915	3,344	3,320	405	13.9
Eddy County, NM					
Carlsbad	25,320	25,625	25,410 [b/]	90	0.4
Artesia	10,775	10,692	10,597 [b/]	-178	-1.7
Balance of County	12,510	15,341	15,808 [c/]	3,298	26.4
Total Population	48,605	51,658	51,815	3,210	6.6

a/ Population data are from U.S. Census Bureau (2007) unless otherwise noted.
b/ Source: City-Data.com 2007
c/ Calculated based on information from the above two sources.

HOUSING

Most of the housing in the three-county area is concentrated in or near the communities. Many of the remaining units are associated with local ranch and farm operations dispersed throughout the rural portions of the counties.

The total housing listed in the 2000 census included 1,321 units in Culberson County, 1,471 units in Hudspeth County, and 22,249 units in Eddy County. These totals represented increases of 35, 183, and 2,115 units, respectively, compared to 1990. Vacancy rates in the region, ranged from 12.9 percent in Eddy County to 25.8 percent in Hudspeth County. Some of the vacant units are second homes used for seasonal occupancy or recreation, but most were for sale or rent.

The nearest concentrations of homes to the park are in Dell City, Texas and the unincorporated community of Queen in Eddy County. Only a few private homes are near the park, and primarily include farm residences to the north in Eddy County.

Over the years, several plans to develop large-tract rural subdivisions to the west and

southwest of the park have been announced. Little infrastructure development has occurred, except the grading of a street system and installation of some telephone cables. Consequently, only a couple of homes, midway between Dell City and the park's western boundary, have been built.

NEARBY COMMUNITIES

Guadalupe Mountains National Park's visitor facilities and onsite personnel housing are all some distance from nearby communities. Consequently, the park must be self-sufficient in many respects. For instance, the park operates its own water and wastewater treatment systems, and fire trucks and an ambulance are garaged in the park's developed area. However, important economic, social, and public service links exist between the park and nearby communities.

Carlsbad, about 55 miles northeast of Pine Springs, is the nearest urban area offering a wide range of shopping and services for consumers and businesses. Many park personnel live in the Carlsbad area. Amenities for residents and visitors include a large base of overnight lodging for visitors to Carlsbad Caverns National Park and Guadalupe Mountains National Park, scheduled commercial air service, the 131-bed Carlsbad Medical Center, and the Carlsbad Community Branch College campus of New Mexico State University.

El Paso is about 110 miles west of the park and has a population of more than 560,000. This city provides comprehensive services similar to those available in major metropolitan areas nationwide. The city of Juarez, Mexico, across the international border from El Paso, has a population of about 2 million people. Many park visitors are Mexican citizens who live in the Juarez area.

An important relationship exists between the park and Fort Bliss, which is near El Paso. Under the Military Assistance to Safety and Transportation (MAST) program, military medical personnel, air ambulances, and other helicopters can provide support to civilians and other federal agencies during emergencies. Over the years, personnel and aircraft based at Fort Bliss have provided rescue and emergency medical transport services for the park.

The farming community of Dell City has limited overnight lodging, but provides essential retail and service functions for residents of the town and surrounding region, including park employees and their families. Some of these include public schools, with a total enrollment of about 100 students in grades kindergarten through 12; a post office; several churches; a local newspaper; grocery stores; and cafes. Two Hudspeth County sheriff's deputies are stationed in Dell City.

Van Horn is the Culberson County seat and the primary local government entity in relation to the park. Local government, travel-oriented services, and retail trade are mainstays of the local economy. In addition to the services described for Dell City, Van Horn has motels, a bank, and the 25-bed Culberson Hospital. School system enrollment in Van Horn totals about 750 students.

A number of mining and energy companies are located near the park. These include Windpower Partners, which operates the Delaware Wind Project located between Van Horn and the park.

Other nearby communities that have socioeconomic ties to the park include the unincorporated communities of Queen and Whites City in New Mexico.

- Queen is about 16 miles north of the Dog Canyon campground. The store and café offers groceries, ice, and gasoline for visitors using the Dog Canyon campground and trailhead.
- Whites City is near the entrance to Carlsbad Caverns National Park along

U.S. 62/180 between the park and Carlsbad. Its service station, motel, campground, and retail stores are the closest services to travelers east of the park.

SOCIOECONOMIC CONTRIBUTIONS OF THE PARK

Guadalupe Mountains National Park, its staff, their households, and the visitors to the park are integral parts of the region's economic and social structure. Some of the key dimensions of the park's role are described below.

Authorized staffing at the park is currently at 40 full-time-equivalent employees. That number represents more than 2 percent of all employment in Culberson County. The park's staff is supplemented by seasonal campground hosts and other volunteers, and occasionally by firefighters deployed to manage wildfires at the park, construction contractors, and others who contribute to employment in the county.

The budget for Guadalupe Mountains National Park in fiscal year 2000 was nearly $2.06 million. Since its establishment, about $48 million in direct operating and capital construction expenditures have been made in association with the park. This includes about $30 million in operating costs and $18 million in capital construction expenditures.

About 80 percent of the park's annual operating budget is salaries, wages, and fringe benefits paid to park personnel. The remainder pays for items such as utilities, office supplies, supplies for vehicle and facility maintenance, and travel. Substantial portions of the annual expenditures circulate through the regional economy in the form of consumer and business purchases, yielding indirect economic impacts.

Spending by park visitors provides an even more important contribution to the local economy. The most recent estimate is that the three-county area receives about $8.4 million in annual visitor spending.

The total annual contribution of Guadalupe Mountains National Park to the area economy is about $10.6 million annually. An estimated 177 jobs in the regional economy are attributable to the presence of the park. However, the park's impact is not readily apparent because of the very large geographic area in which they occur.

PARK OPERATIONS, FACILITIES, AND EQUIPMENT

PARK OPERATIONS

Guadalupe Mountains National Park is administered by a park superintendent and several division chiefs who are headquartered at Pine Springs. The superintendent is responsible for managing all areas within the park boundaries, directing park staff, and interacting with other government agencies, tribes, private interests, and the general public. In 2006 there were 40 full-time-equivalent park staff positions. The park uses participatory decision making to engage its employees in managing the park.

Park operational activities are organized into the Management, Administration, Visitor Protection and Resource Management, Interpretation, and Maintenance divisions. Staff members are stationed primarily at the Pine Springs headquarters building and maintenance facility, with a small number stationed on the north side of the park at Dog Canyon. There is intermittent staff presence at other public park facilities, including the McKittrick Canyon visitor contact station, the Frijole Ranch museum, and the Dell City contact station. In addition to NPS personnel, staffing is supplemented by donated labor through the park's Volunteers in Parks (VIP) and Student Conservation Association (SCA) programs.

Management and Administration Divisions

The Management Division is responsible for park communications, external affairs, park planning, human resource planning, information technology, financial management, and park leadership. The Administration Division provides procurement, contracting, fiscal support, and human resource services. In 2006, there were four full-time-equivalent employees in the Management and Administration Divisions.

A critical activity for park management is maintaining ongoing relationships with external stakeholders. The park is surrounded by private lands and lands managed by other federal and state agencies. It is a major priority for management to communicate and interact with neighbors, local and state agencies, and other federal agencies. In addition, 13 American Indian tribes have traditional ties to the park, which results in ongoing government-to-government consultations on a variety of issues.

Some administrative functions, including the division chief and personnel services, are shared with Carlsbad Caverns National Park and stationed at an administrative building in the town of Carlsbad, New Mexico. The sharing of administrative staff saves costs, improves communications, and enhances services for both parks. The town office and staff is base-funded by Carlsbad Caverns National Park.

Resource Management and Visitor Protection Division (including Museum Collections)

The Resource Management and Visitor Protection Division is responsible for the safety of visitors and protection of park natural and cultural resources. The chief ranger coordinates these functions. In 2006, there were 16 full-time-equivalent employees in the division, with approximately 6.5 full-time-equivalent employees in resource management and 9.5 full-time-equivalent employees in visitor protection.

The protection ranger staff is responsible for law enforcement, emergency services, issuing permits, and fee collection. The division provides 24-hour protection coverage for

the park's 86,416 acres, more than 82 miles of trails, 30 miles of roads, two frontcountry campgrounds, and 10 backcountry campgrounds. In addition, protection ranger staff members provide emergency responses to wildfires, vehicle and structural fires, search and rescue, automobile accidents, and other emergency medical services. They also issue access permits for scientific research, special uses, and backcountry recreation activities.

The natural resource protection staff conducts resource inventory and monitoring, fire management, resource restoration, park geographic information management, and research. In recent years, resource monitoring has expanded to include air quality, water quality and quantity, noise, and nighttime light pollution. Management actions have concentrated on air and water resources and the protection of plant and animal species and their critical habitats. Fire management staff members suppress wildfires, conduct prescribed burns, perform fuel reduction work, and monitor fire effects on plant communities

Division staff members manage cultural resources, including 400 archeological sites, 18 historic buildings, 12 cultural landscapes, sensitive ethnographic resources, and a museum collection containing more than 143,000 specimens. Management actions for these resources have included inventorying, monitoring, and in some cases, stabilizing. As described in the "Cultural Resources" section the large museum collection is dispersed over a variety of locations, including park headquarters, academic institutions, and other NPS storage facilities. With new specimens being added to the collection continuously, storage and access to the collection is an increasing challenge.

Interpretation Division

The Interpretive Division provides informational programs and media to park visitors, with special outreach to people in neighboring communities. The division's primary functions are to interpret park resources and orient visitors to the park facilities and services. In 2006 the Interpretation division included 5 full-time-equivalent employees.

Division staff members are responsible for the operation of major park visitor facilities, including the Pine Springs visitor center, Frijole Ranch museum, and the McKittrick and Dell City contact stations. Some visitor facilities are staffed by volunteers and are open on an intermittent basis. Interpretive rangers also conduct onsite educational programs, contact visitors on frontcountry and backcountry trails, and manage the volunteer and student intern programs. All park interpretive media, such as site bulletins, bulletin boards, park newspaper, wayside exhibits, and the park's website are developed or coordinated by division staff. Interpretive rangers also develop education curricula and conduct programs in neighboring communities, including Dell City and El Paso, Texas, and Carlsbad, New Mexico.

Maintenance Division

The maintenance division is responsible for the operations and maintenance of all park buildings, roads, utilities, parking areas, campgrounds, and trails. Most division staff members work out of the maintenance facility at Pine Springs. In 2006, the maintenance division had 15 full-time-equivalent employees. The division is separated into two subgroups, buildings and utilities, and roads and trails.

The responsibilities of the building and utilities group include the following:

- maintain, repair, and stabilizing historic and nonhistoric structures
- operate domestic water and wastewater systems

- maintain heating and cooling systems and emergency power generation systems
- carry out plumbing, electrical, and masonry repairs and upgrades
- provide janitorial and waste collection services

The responsibilities of the roads and trails group include the following:

- grade, compact, and chip-seal roads and parking areas
- inspect and repair roads and bridges
- maintain and repair frontcountry and backcountry trails
- install, mend, and replace fences and gates
- repair and replace park signs
- repair and service the park's fleet of more than 50 automobiles, trucks, and pieces of heavy equipment
- maintain pack mule and horse stock for backcountry trail work and rescue

Maintenance at the park is particularly challenging because of the remote location, harsh environment, and widely dispersed park infrastructure. Park buildings, roads, and trails are constantly subject to strong winds, flash floods, strong sun exposure, and wide temperature fluctuations, leading to shortened maintenance cycles and frequent, unscheduled repairs. These challenges require the park maintenance staff to be largely self-sufficient, with wide-ranging proficiencies and specialized materials and equipment.

Volunteers

Volunteers carry out a critical role in park operations. Several visitor facilities, such as the Frijole Ranch cultural museum and the Dell City and McKittrick contact stations, are staffed mainly by volunteers. Volunteers perform some curation activities for the museum collection, and volunteer campground hosts assist with visitor and resource protection at the Dog Canyon and Pine Springs campgrounds. Each season, volunteers improve visitor safety and enjoyment by maintaining and repairing hiking trails. Annually, volunteers contribute more than 15,000 hours to park operation, representing more than $221,000 in net benefits to the park, or almost 10 percent of the annual park budget.

PARK BUDGET

In 2006 the park budget was $2.374 million, which represented about a 3 percent annual growth from 1980. The park budget is supplemented with funds from other sources to meet specific program, operation, or maintenance needs. In 2004, the park received about $420,000 in supplemental funding for projects such as resource management programs and facility upgrades.

In 2003, Guadalupe Mountains National Park implemented an entrance fee program in addition to use fees for the campground. In 2007, the park implemented a park-specific annual pass under the authority of the Federal Lands Recreation Enhancement Act of 2004 (Public Law 108-447). Under this new authority, the park retains 100 percent of these fee revenues. Fees have averaged $88,300 over the past four years, and revenues beyond the cost of collection are used for special projects. Activities that have been supported by fee revenues have involved visitor interpretive and wayside exhibits, cultural resource preservation, accessibility for visitors with impaired mobility, visitor services, and maintenance. Projects that have been completed because of these funds include new wayside exhibits at Dog Canyon and in the west side of the park, new geology exhibits, upgrades of audiovisual projection equipment and audiovisual programs, a new roof for the Williams Ranch house, rehabilitation of the Hunter Cabin, replacement of the septic system at the historic Ship-on-the-Desert, and a new shade structure at the visitor center.

The National Park Service developed a *core operations strategy* in 2006 to identify the core functions necessary to maintain the purpose and significance of the park. The strategy is a tool to help the National Park Service identify more efficient and effective approaches to park operations and management. Implementation of the strategy would provide the superintendent with more operational flexibility to achieve park goals with respect to resource protection and management, visitor opportunities, and park operations.

The organizational structure developed to implement the core operations strategy relies on fewer full-time NPS staff to manage the park. This provides the superintendent with greater flexibility to address park needs, including hiring term or seasonal employees, or contractors as appropriate to complete resource management actions in the field. The operational changes also provide the flexibility to address other park needs as necessary. It is anticipated that implementation of the core operations strategy would provide the park with enough flexibility to initiate actions to support implementation of this general management plan or to address other park priorities, such as deferred maintenance.

VISITOR FACILITIES

Facilities open to visitor use include the visitor center, three contact stations (including one outside the park), a museum, more than 82 miles of frontcountry and backcountry trails, trailheads, two developed campgrounds, historic structures and ruins, 30 miles of paved and unpaved scenic park roads, and parking lots. There also are 10 designated, minimally improved backcountry campgrounds.

Pine Springs Visitor Center and Headquarters Building

Public use facilities are concentrated in the Pine Springs complex.

- The visitor center at, with restrooms, interpretive displays, a small picnic area, and parking lot, is the hub of visitor services.
- An interpretive trail that is accessible to visitors with disabilities goes from the visitor center to the nearby ruins of the Butterfield Stage stop, known as the Pinery.
- A tent campground, another small picnic area, and a trail staging area and parking lot for the system of trails that extends to Guadalupe Peak and the high country plateau are near the mouth of Pine Spring Canyon. A portion of the trailhead parking lot serves as a camping area for self-contained recreational vehicles.
- A comfort station on the perimeter of the trailhead and parking lot area serves trail users and adjacent camping areas.

Frijole Ranch Cultural Museum

A little more than a mile east of Pine Springs is a historic ranch homestead called Frijole Ranch. The ranch house contains exhibits and artifacts and is operated as a museum. Outside the cultural landscape, visitor facilities currently are being developed, and will include a parking lot, picnic area, interpretive and trailhead signs, and restroom. The public stock corral for use by visitors who bring their own horses is located on the ranch access road about a half-mile south of Frijole Ranch.

Ship-on-the-Desert

Northeast of Frijole Ranch is the Ship-on-the-Desert site, the second residence constructed by Wallace Pratt in the area that became part of the park. Constructed in the 1940s, the site is used as an incidental educa-

tion center and meeting facility, and provides quarters for visiting researchers.

McKittrick Canyon Visitor Contact Station

The visitor contact station is at the end of a 3-mile-long, scenic park road near the mouth of McKittrick Canyon. The development area includes a parking lot, ranger contact station, exterior exhibits, picnic area, and restrooms. The facility serves visitors using an adjacent interpretive trail loop and trails leading up the canyon and to the upper plateau. Pratt Cabin is located about 2.5 miles up McKittrick Canyon. This historic residence was built by Wallace Pratt and was used as his first residence in the area. Today, it serves as an interpretive center (when it is staffed) and as a visitor destination. Also in the canyon are the Grotto and the historic remnant of the Hunter Line Cabin, which is maintained as a discovery site that visitors can explore.

Dog Canyon Ranger and Visitor Contact Station

Dog Canyon is a development area on the north side of the park. It includes a ranger contact station, comfort station, tent and recreational vehicle camping sites, and a small picnic area. The area also serves as a trailhead for an interpretive loop trail and other trails that extend into the backcountry and upper plateau. The developed area has a public corral for visitors who bring their horses for trail riding.

Dell City Visitor Contact Station

The National Park Service maintains a storefront contact station in Dell City, Texas, west of the park. The unstaffed station primarily provides information on the Salt Basin Dunes.

Salt Basin Dunes

Visitors can park at the park boundary and hike into the dunes or they can obtain a no-fee permit and gate access key at the Pine Springs visitor center. The key opens a locked gate at the park boundary (accessed by a dirt road from Dell City). Visitors can then drive to a six-car parking area 1 mile inside the park boundary.

Butterfield Stage Route

A segment of the historic Butterfield Stage route transverses the park from the northwest corner by the Salt Basin Dunes to its southeast boundary about a mile from the junction of U.S. Highway 62/180 and Texas Highway 54. Part of the road to Williams Ranch follows the alignment of the stage route.

Williams Ranch

Visitors with a permit can access a locked gate on the park's south boundary, off U.S. Highway 62/180, and travel north on a high clearance (four-wheel-drive) road to the historic Williams Ranch house and site. The cultural landscape includes the exterior of the Williams Ranch structure, adjacent garden site, and corral structures.

Other Historic Structures and Features

Other historical structures include the Bowl Cabin, Cox Cabin, and Segura Dugout. In addition, there are numerous historical remnants, such as abandoned ranching features or mining equipment that are mainly in backcountry and designated wilderness areas. Most need to be assessed for National Register of Historic Places significance.

Roads and Trails

The park has 8.5 miles of paved roads and 21.5 miles of gravel and primitive roads that

provide access to backcountry and designated wilderness areas.

The Williams Ranch road is a gravel and dirt surfaced, high-clearance road extending 7.3 miles north from U.S. Highway 62/180. Major washes along the route are conveyed under the roadbed by metal culverts, and the road surface is rough-graded after heavy rains to maintain accessibility by high-clearance vehicles. Imported gravel is used on the first 1 mile of road, where the road is a shared right-of-way. The remaining 6.3 miles have a native gravel and earth surface.

More than 82 miles of hiking trails provide access to interpretive sites and to the interior of the park. Most trails are designated as horse and hiking trails, but some are limited to use by hikers only. No-fee permits are required for overnight camping in the backcountry and designated wilderness areas.

OPERATIONS FACILITIES AND EQUIPMENT

Operations facilities are used by park staff to support and maintain park operations. The park maintains facilities and utility systems to support administrative and maintenance functions and visitor access, interpretation, and visitor-use opportunities.

Pine Springs Visitor Center and Headquarters Building

The 8,100-square-foot Pine Springs headquarters building and park visitor center is north of Highway 62/180, just southeast of the Pine Springs trailhead and adjacent to The Pinery. In addition to providing visitor center functions, the building houses the headquarters offices and a museum storage area. Currently, there is inadequate space for these functions in the headquarters building, and two park housing units have been converted to administrative use.

Pine Springs Maintenance Facility

The park's maintenance area is south of U.S. Highway 62/180 and east of the Pine Springs visitor center. The maintenance facility includes offices, shops, vehicle bays, fueling, and material storage.

Visitor Protection and Resource Management Operation

The Visitor Protection and Resource Management offices are in two of the three-bedroom houses at Pine Springs. Personnel using this space include the park's natural and cultural resource management staff, geographical information system office, wildland fire management officer, and park law enforcement and resource protection rangers. The Visitor Protection and Resource Management operations at Pine Springs also include the:

- wildland fire cache, which houses two wildland engines and a water tender
- emergency services building, which houses the park's structural fire truck, ambulance, and search-and-rescue cache

Park Housing

The remote location of the park requires some onsite housing to provide for emergency services and after-hours protection. Park housing is at Pine Springs and Dog Canyon. Most of the housing units were constructed in 1982, but a duplex at Dog Canyon was added in 1998.

There are 25 housing units in the park, including 22 at Pine Springs and three at Dog Canyon. Pine Springs housing includes 12 single-family units (three bedrooms each), eight apartments, and two (four-person) dormitories. Two of the single-family units have been converted to administrative uses. At Dog Canyon. the housing includes one single-family unit and a two-unit duplex.

Dog Canyon Ranger Station

The Dog Canyon developed area has a ranger station office and three NPS housing units. The developed area also has a barn/maintenance building and a corral for NPS horses and mules.

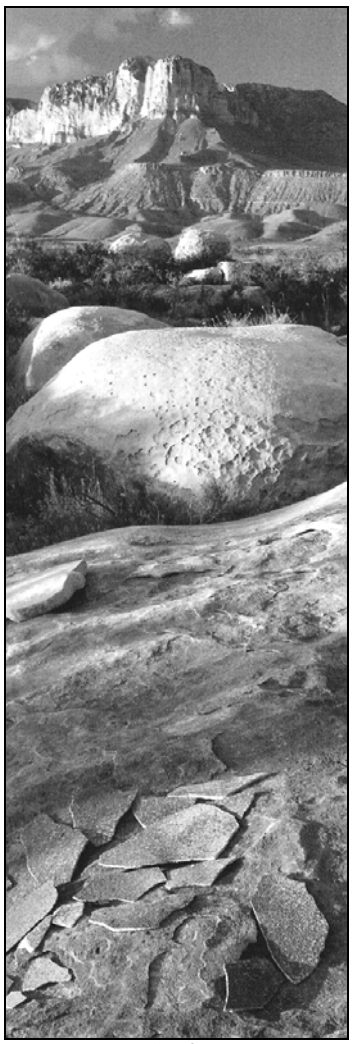
Other Support Facilities and Equipment

Infrastructure located in the developed areas of the park supports visitor services, visitor safety, and park operations.

- Radio facilities. The park staff maintains a park-wide radio communications system to support operations, emergencies, and law enforcement. Two repeaters in the park's backcountry support this communications system and provide needed coverage.
- Electrical and phone services. These services are supplied by commercial sources outside the park. The park maintains emergency generators to provide electricity during outages.
- Water system. Well houses and wells with submersible pumps are located at Pine Springs, McKittrick Canyon, Pratt Cabin, Ship-on-the-Desert, and Dog Canyon. State-certified NPS maintenance staff members maintain these systems.
- Wastewater systems. At Pine Springs there is a large sand filter treatment system with a disposal field for sewage from the visitor center and headquarters building and residences. Septic systems with evapotranspiration fields are at the Pine Springs campground, McKittrick contact station, Dog Canyon, and Ship-on-the-Desert. A vault-type toilet is being installed a Frijole Ranch. State-certified NPS maintenance staff members also maintain these facilities. (Two cesspool systems, one at Pratt Cabin and one at the Frijole Ranch house, did not meet state treatment standards, and the toilet facilities at these locations have been closed.)

Emergency Services

Law enforcement rangers who live onsite in park housing provide 24-hour emergency coverage in the park. The park has one ambulance and one structural fire truck to support emergency operations. Wildland fire engines and a water tender support wildland fire emergencies.



Watermark of El Capitan