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# **Cultural Resources Specialist Report For the Travel Management Environmental Impact Statement**

**USDA Forest Service Southwestern Region  
Apache-Sitgreaves National Forests**

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## Cultural Resources

Cultural resources represent the tangible and intangible evidence of human behavior and past human occupation. Cultural resources may consist of archaeological sites, historic-age buildings and structures, and traditional use areas and cultural places that are important to a group's traditional beliefs, religion or cultural practices. These types of resources are finite and non renewable. The National Historic Preservation Act (NHPA), as amended, and its implementing regulations require that Federal agencies consider the effects of their undertakings on "historic properties". The term "historic properties" refers to cultural resources, both prehistoric and historic, that are listed or eligible for listing in the National Register of Historic Places (NRHP). The Southwestern Region has a programmatic memorandum of agreement (PA) with the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Officers (SHPOs) that stipulates the Forest Service's responsibilities for complying with NHPA. This agreement provides for the development of standard consultation protocols for common or special undertakings, such as the Travel Management Rule. The Southwestern Region has developed a standard consultation protocol for travel management route designation as Appendix I of the PA. By following the procedures of the protocol the ACHP and the SHPOs have agreed that the Forest Service will satisfy legal requirements for the identification, evaluation, and treatment of historic properties. The Apache-Sitgreaves National Forests are complying with the protocol for designating roads, trails and areas in lieu of standard consultation in the PA and the Council's regulations (36 CFR 800)

The protocol states that unless exempted under Section II, the following situations to designate roads, trails and areas require Section 106 consultation:

- Non system roads and trails (old temporary roads, and unauthorized user created routes, unclassified roads and trails)
- Proposed new roads (new construction, reroutes, and realignments)
- Roads or trails that are considered to be historic properties
- Non-system fixed routes or spurs to access dispersed camp sites
- Areas open to cross-country motorized travel
- Allowing motorized use on system roads and trails that are closed to motorized use
- Fixed distance corridors designated for motorized access to dispersed camping (except where previously authorized in past decisions or plans)

Existing system roads and trails and their associated constructed features that are already open for motorized use are exempt from further section 106 review or consultation. The Southwestern Region, ACHP and SHPO's agree that if cultural resources are present on these roads and motorized trails, they were likely impacted by the original construction, maintenance and use. Some level of disturbance from continued motorized use on these existing routes can be accepted.

Questions to be answered in the cultural resource analysis as it relates to travel management are as follows:

How will designating new and non-system roads and trails, fixed width corridors, and open areas for public motorize access or use affect cultural resources eligible for or listed on the National Register of Historic Places.

How will designating system roads that are currently closed to motorized use to roads and trails open for public motorized use affect cultural resources eligible for or listed on the National Register of Historic Places.

How will designating roads, trails, fixed width corridors and areas open for public motorized access and use affect Tribal traditional use and religious areas (Traditional Cultural Properties) and sacred places?

## The Study Area

The forests are located in east-central Arizona and range in elevation from approximately 3,500 feet near Clifton to about 11,000 feet on Mt. Baldy. There are 2,110,134 acres within the current forest boundaries. The forests cover portions of Coconino, Navajo, Apache, and Greenlee counties. The Forests are administratively divided into five Ranger Districts: Alpine, Black Mesa, Clifton, Lakeside, and Springerville.

## Affected Environment’s Existing Conditions

Cultural resources on the Forests indicate a long and enduring human presence beginning in the Late Paleoindian period and continuing into the present. Specific Paleoindian sites have not been recorded, but diagnostic projectile point types such as Folsom and Clovis have been documented as isolated surface artifacts on the forests (ASNF inventory and site files). The Archaic period sites on the forest are represented by dispersed artifact scatters, bedrock mortars, rock-filled roasting pits, rock shelters, and a variety of dart point types such as Pinto, Jay, Elko, and Gypsum. In general, sites dating to this period are located in all vegetation zones. Basketmaker II-III period sites are sparser on the forests. Most of the sites with pithouses are found within the pinyon- juniper woodland. Pueblo I period sites include pithouse villages, above ground habitation structures, and artifact scatters. These sites are generally located within the pinyon-juniper woodland and within the pine-oak forest.

**Table 1. Temporal Periods and Cultural Phases**

Temporal Periods/Cultural Phases			Calendar years
	Anasazi (Pecos)	Highland Mogollon (Haury)	
Paleoindian			9500– 6500 B.C.
Archaic			6500–400 B.C.
Early Agriculture	Basketmaker II- III	Hilltop Cottonwood Forestdale	400 B.C. –A.D. 800
Formative	Pueblo I	Corduroy Dry Valley	A.D. 800–1000
	Pueblo II	Carrizo Linden	A.D 1000-1150
	Pueblo III	Pinedale Canyon Creek	AD 1150-1300
Proto-historic	Pueblo IV		A.D.1300-1540
Historic	Pueblo V		A.D. 1540-Present
			A.D. 1600-Present

Habitation of the forests dramatically increases during the Pueblo II - early Pueblo III period. Approximately 70% of all documented sites on the forests date to this period and are associated with the

archaeological cultures identified as the Mogollon and Anasazi. Some of these sites consist of multiple roomblocks of between 30 and 40 rooms with associated features and artifacts. Several of these large sites include great kivas. The most numerous sites that date to this period are typically one-two room masonry structures, small roomblocks of between 4 to 6 rooms, water control features, and artifact scatters without any surface features.

During the Pueblo III period there is a steep decline in the number of sites on the forests but an increase in the number of rooms per site (Donaldson n.d.). Water and soil-control features are widespread and far more common than in previous times, particularly along the Little Colorado River. Shortly after the beginning of the Pueblo IV period, Bailey Ruin a large 200 to 250 room pueblo appears to have been inhabited no later than A.D. 1325 (Mills et al. 1999:240). Nearby sites, such as Fourmile Ruin, continue to be occupied at least into the mid-1300s. By the mid 1400's the forests were no longer used for permanent habitation but continued to be used on a temporary basis by the Zuni, Hopi and Acoma, descendants of the Mogollon and Anasazi.

Evidence of various Apache tribes using the area suggests that they arrived in the 1600's. Archaeologists disagree on exactly when they arrived and by what route (Perry 1991:145–152; Towner 1999:4–9; Wilcox 1981), few place the Apache in Arizona before the Historic period (Gunnerson 1956; Schroeder 1952: Figure 3.2). However, the Apache themselves believe that they have always been in what is now Arizona. Apache use generally appears to have been seasonal and evidence of their presence includes artifact assemblages, temporary brush structures, and limited activity areas for processing and collecting resources. Areas along Show Low and Eagle Creeks show evidence for relatively long-term intensive use (Donaldson:n.d.). Other known sites occur in the pine-oak forests.

The Coronado Expedition passed through the area in the 1540's. Although no specific sites related to the expedition have been found on the forests, the expedition is believed to have traveled in the vicinity of highway 180. Historic Euro-American use begins in the 1860's and continues to the present. Two military forts were founded in the area, Milligan Fort (Springerville) and Camp Mogollon (Fort Apache) in 1870 (Plog 1981b). General George Crook established a supply and transportation route along the Mogollon Rim between Camp Verde and Camp Mogollon (later Fort Apache) (Jacobs 1980). This transportation and supply route became known as Crook's Road and was used into the early 1900s and is now a designated National Recreation Trail. In the fall of 1871, reservations were established at Fort Apache for the Cibecue and White Mountain Apache living in the White Mountain area, Camp Grant for the San Carlos Apache and those White Mountain Apache living south of the White Mountains, and Camp Verde for the Yavapai and Tonto Apache (Corbusier 1969:60–61; Schroeder 1959).

More Euro-American settlers came to the area after the establishment of the reservations. These settlers developed an extensive irrigation ditch system for farming in the surrounding valley (Plog 1981b). Some of these irrigation ditches are located on the forests and are still in use today. Sheep and cattle herders set up homesteads within the area. At around the same time, Mormon settlers from Utah led by Jacob Hamblin moved to the area in 1877. Mormons established logging camps at Pinedale and Taylor and farming communities were established at Clay Springs and Pinedale (Plog 1981b).

The Atlantic and Pacific Railroad reached Holbrook in 1880 and resulted in an economic boom for the region (Lightfoot 1978). After the arrival of the railroad, sheep and cattle grazing became widespread throughout the Mogollon Plateau. Lightfoot (1978) notes that populations near the settlements of Pinedale, Heber, and Taylor continued to grow until 1900, along with increased tensions between the cowboy and Mormon factions. Remains of homesteads, cabins, and improvements for ranching and farming dating to this period are found across the forests, primarily near communities.

The Black Mesa Forest Reserve was established in 1898, of which, a part became the Apache National Forest in 1908. The Sitgreaves National Forest was established in 1908. By 1917 the commercial logging industry was established on the forests. During the 1920's an extensive network of logging railroads were constructed on the forests, primarily on the Sitgreaves side. By the time the depression was over, logging trucks had replaced railroads as the primary means of transporting timber. Most logging railroads in the forests were not used after 1939 and were dismantled in 1944 (Lightfoot 1978). The remains of logging railroad features with associated camps dating from the 1920s to 1940s are found throughout the forests.

Other historic transportation routes are found within the forests. A 1912 map of Arizona shows several wagon routes passing through the forests between the towns and cities (Keane and Bruder 2003). By the 1920s, most of the roads through the Forests still had not been graded or paved, but by the 1930s several roads had been graveled and U.S. 60, State Route (SR) 77, and portions of SR 260 had been constructed (Keane and Bruder 2003). During the 1930's the Civilian Conservation Corp (CCC) made improvements along the Blue Road and constructed other roads within the forests. Some of these roads are linear historic properties that may be eligible for the NRHP.

During the Civil Conservation Corp era, several CCC camps were established on the forests. Employees of the CCC performed innumerable outdoor conservation projects between the years 1933 and 1942 under the guidance of other federal agencies (Collins 1999:201). Included in these projects were the construction of campsites and shelters, installation of telephone lines, boundary fencing, trail, road, and bridge building, the construction of numerous other buildings, and various forestry endeavors across the forests (Moore 2006:110, 126, 130–132). The CCC also erected seven fire lookout towers. Two administrative sites were built for district rangers at Water Canyon and Pinedale, both are still used today. Remnants of all these activities and events, can be found throughout the forests.

## **Previous Research and Surveys**

Heritage research in the area of the forests began with the first explorations and discoveries on the late nineteenth to early twentieth century (Bandelier 1892; Hough 1903; Spier 1919a, 1919b). A few small survey projects were conducted on the forests up until the 1970s (e.g., Grebinger and Bradley 1969; Lindsay 1969; Vivian 1969), but it was not until 1971 that a larger-scale systematic research project in and near the forests was conducted (Plog et al 1976). The Chevelon Archaeological Research Project (CARP) surveyed a large area to the south of Chevelon Creek. Other large surveys projects were conducted for the Little Colorado Planning Unit and the Mollogon Rim Planning Unit that produced enough data to allow for development of a typological system of sites and to provide management recommendations for site types found on the forests (Lerner 1979; Plog 1981a, 1981b).

Since the conclusion of the CARP project, other research survey projects on the forests have been completed (Ciolek-Torello 1981; Lightfoot 1978). Both Lightfoot (1978) and Ciolek-Torello (1981) focused their studies on the relationship between environmental factors and site location near Pinedale. According to Lightfoot (1978), the majority of sites can be found in the pinyon-juniper community below 6,800 feet above mean sea level (amsl). Dosh (1988) excavated 18 sites dating to A.D. 1000–1150 west of Show Low. The University of Arizona conducted a field school starting in 1993 in the Silver

Creek drainage for the Silver Creek Archaeological Research Project (Herr 2001; Mills et al. 1999b). The project excavated several great kiva sites and habitation sites. In 2003, a survey of approximately 19,000 acres was conducted in the Black Mesa and Lakeside Ranger Districts to assess the impact of the Rodeo-Chediski Fire on the Forests (North et al. 2003).

In addition to the academic research and the Rodeo-Chediski survey, hundreds of cultural resource surveys have been conducted for land management activities, primarily for timber and fuelwood sales and hazard fuels reduction projects (ASNF inventory records). As of 2010, approximately 1,091,498 acres of the forests have been sampled surveyed, of which 376,863 acres have been intensively surveyed for cultural resources (ASNF heritage GIS data base). Most of Alternative B's (the modified proposed action) area of potential effect has been previously sampled or intensively surveyed for cultural resources. In Alternative B, approximately 658 miles of the system roads and trails are proposed with fixed width-corridors, of which 402 miles are adequately surveyed. Of the 5 areas proposed open for motorized use, three have been completely surveyed. Surveys need to be completed on two areas on the Black Mesa Ranger District (321 acres). All of the proposed new ATV routes and the existing non-system routes used to access disperse camping will be surveyed by the end of the calendar year. Surveys of these areas began in 2009 and will finish in 2010. No changes are proposed to the transportation system for Alternative C, except for distance restrictions for motorized big game retrieval. In Alternative D, approximately 2034 miles of the system roads and trails are proposed with fixed width corridors, of which 974 miles have been adequately surveyed. In Alternative D, the same five areas as stated in Alternative B are proposed to be open for motorized use. In Alternative E, 118 miles of system roads and trails are proposed with fixed width corridors, of which 50 miles have been adequately surveyed. No open areas are proposed in Alternative E. Presently, the forests are in the process of conducting the necessary surveys based on a survey strategy following the stipulations of the protocol.

The proposed areas, corridors, roads and trails that need to be surveyed for cultural resources would not be put on the motor vehicle use map (MVUM) until the Section 106 compliance process has been completed, except for situations stated in the protocol. Results from these surveys may identify sites that are highly susceptible to damage from motor vehicle use or current damage is occurring to sites that may preclude certain roads, trails and segments of corridors from being designated for motorized use. Depending on the nature of the damage and/or potential impacts, some of these areas, corridors, roads and trails could be designated with implementation of certain mitigation or protection measures.

At present, a total of 6,314 archaeological sites are recorded on the forests (ASNF inventory and site files). Many of these sites are eligible for listing on the National Register of Historic Places. According to current forest GIS data, as many as 2,107 previously identified sites are within 300ft of forest system roads and trails (open and closed) and as many as 5,228 sites are within one mile of proposed open system roads and trails. The following provides information on site types, site densities, and traditional cultural places within the area of potential effect for the alternatives.

## **Site Types**

Archaeological sites on the forests range in size and function. Plog (1981a, 1981b) lists 13 types of prehistoric sites; while he does not list specific types of historic sites, he gives lists of traits and features found at sites associated with certain activities. Prehistoric site types include the following (summarized from Plog 1981a, 1981b,1981c):

**Figure 1: Archaeological Prehistoric Site Types**

Type	Description
Low-Density Artifact Scatters	Low-density artifact scatters consist of few artifacts spread over a large area (1 artifact per 10 m <sup>2</sup> ). These scatters often do not meet the accepted definition for sites and usually lack the potential to provide significant information.
Lithic Scatters	Lithic scatters are artifact scatters containing only flaked and/or ground stone artifacts.
Ceramic Scatters (a.k.a sherd scatters)	Ceramic scatters contain only ceramic sherds and are the results of activities that require the use of ceramic vessels such as carrying water or storage.
Artifact Scatters	Artifact scatters contain both lithic and ceramic artifacts. These scatters can be the result of activities that require both lithic and ceramic artifacts at resource procurement sites, habitation sites with either ephemeral or buried structures, or by the reuse of sites by individuals with different artifact types at their disposal.
Petroglyphs and Pictographs	Petroglyphs and pictographs are created images found on rock faces, often on rock outcroppings or in rock shelters. Petroglyphs are images pecked, incised, or carved into the rock's surface, while pictographs are painted images.
Water Control Devices	Water control devices such as check dams, grids, and terraces are designed to control the flow of water and/or facilitate the retention of soil moisture for agriculture. These features may or may not be associated with permanent or semi-permanent habitation sites or fields.
Shrines	Shrines are usually small circular or rectangular structures, often occurring at high elevation. Artifacts, such as beads or ceramics, are sometimes associated with these features.
Rock Shelters	Rock shelters are natural occurring cavities or overhangs in rock formations that were used by people primarily for habitation. Many rock shelters were used by groups or individuals of several cultural periods and have multiple, successive layers of occupation. Rock shelter sites are a primary source of perishable artifacts such as basketry and textiles that are normally absent from open air sites.
Pithouse Sites	Pithouse sites are habitation sites that predominantly date prior to A.D. 1000 and may consist of a single pithouse structure or multiple pithouses organized as a village. Pithouse range in size, depth, and construction, but they are all structures dug into the ground with a superstructure of wood branches and/or beams and dirt or adobe walls.
Pueblo Sites	Pueblo sites are habitation sites constructed of aboveground masonry that dominate the settlement system after A.D. 1000. Three different types of sites are categorized under the label "pueblo sites": field houses that are commonly evidenced as a boulder pile over a small area; U-shaped structures with one or two rooms; and pueblos with four walls consisting of two or more rooms.
Great Kivas	Great kivas are large circular ceremonial structures commonly evidenced on the surface as a circular depression. Great kiva sites may contain this feature type singly or can be associated with a larger pueblo site.
Compounds	Compounds are walled enclosures measuring up to 100 m <sup>2</sup> . The function of these sites is unclear, but they often have a very different artifact assemblage from neighboring sites
Defensive Sites	Defensive sites are characterized by defensive walls and locations with restricted access such as a hilltop.

Plog (1981a) also discusses potential types of historic age sites in the Forests. Figure 2 is a list of these site types by activity.

**Figure 2. Historic-Age Activities and Possible Site Types**

Historic Period Activity or Context	Site Types
Protohistoric (Apache) occupation	Temporary camps      Sweat lodges



	Fields Ramadas/shades	Storage pits Processing pits
Military	Forts Camps Trails	Battlefields Blazed trees Roads
Settlements	Houses Outhouses Barns Graveyards	Corrals Public buildings Trading posts
Farming	Homesteads Fields Irrigation Fence lines	
Sheepherding	Sheep crossings Temporary camps Sheep dipping vats	Sweat houses Water troughs
Ranching	Ranch houses Barns Corrals Outhouses	Temporary camps Line Shacks Fence lines
Lumbering (a.k.a. Timber harvesting/ Logging)	Camps Landings Railroad beds	Sawmills
Forest Service and CCC	Cabins Fire towers Roads	Ranger stations Camps

### Site Distribution and Probability Areas

The majority of sites in the forests are found between 6,000 and 7,000 feet amsl. In the area of potential effect (APE) for all alternatives, excluding the motorized big game retrieval (MBGR) areas, 74.8 percent of the heritage sites are found between 6,000 and 7,000 feet (Table 2) (see below for APE definitions). The next largest percentage is for sites between 7,000 and 8,000 feet with 12.8 percent. Very few sites are found below 6,000 feet and above 8,000 feet. Corresponding to the 6,000- to 8,000-foot elevations, sites predominantly fall into either the pinyon-juniper woodland (41.0 percent) or the ponderosa pine-oak forest (12.8 percent). The location of sites confirms what previous researchers have concluded (see Figure 3). Donaldson (n.d.) found that within natural drainage basins there is a strong correlation of prehistoric site frequency and elevation. A majority of sites in the middle Little Colorado drainage basin fall between 6100-7200 feet amsl. The majority of sites within the upper Little Colorado drainage basin are located between 7100-8400 feet amsl, and the majority of sites within the Salt-Gila drainage basin are found below 7200 feet amsl.

The Rodeo-Chediski Fire survey conducted in 2003 found that most prehistoric sites on the Black Mesa Ranger District and Lakeside Ranger District were found below 6,800 feet and that 58 percent were found in ponderosa pine forest (North 2003:55); however, site type was a determining factor in site location. More artifact scatters were located on the ponderosa pine forests, more pithouse sites were located in the pinyon-juniper woodlands, and more pueblo sites were located in the mixed ponderosa pine and pinyon-juniper forests (North 2003:58).

The 2003 study also found that prehistoric sites are found most often on ridges or hills and least often on floodplains, as opposed to historic sites which are most often found on floodplains (North 2003:57). Pueblos and pithouse sites were located primarily on ridges or hills, while artifact scatters were found both on ridges/hills and on floodplains. Another important correlation was the distance of sites to nearby water; most sites in the Rodeo-Chediski Fire study area were found within 500 m of a perennial or seasonal drainage. This is especially true of pueblo sites; more than 80 percent of room block sites in the study area were within 500 m of the nearest drainage (North 2003:66).

Recent analysis of site location data in relation to terrestrial ecosystem system units (TES) has also revealed patterns that can be used to predict where sites are most likely to be located in order to understand potential impacts to cultural resources. Based on heritage GIS data, fifteen TES units have areas of high site density ( $\geq 1$  site per 20 acres). This data can be used to determine where previously unrecorded sites may be located within the APE.

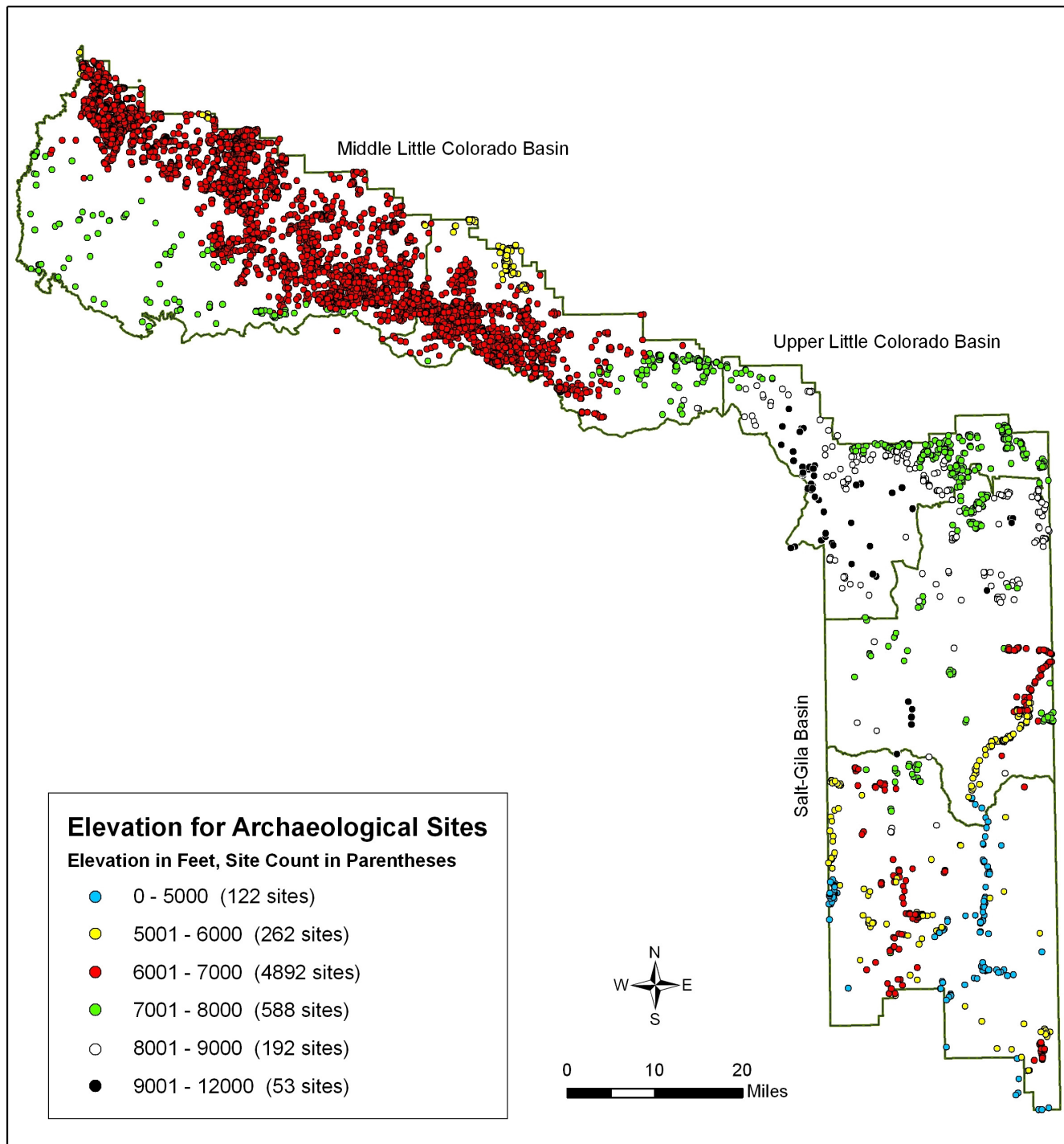
**Table 2. Number of Sites by Elevation**

<b>Elevation (feet)</b>	<b>Number of Sites</b>	<b>Percentage*</b>
3,500–4,000	7	0.3
4,000–5,000	33	1.4
5,000–6,000	108	4.7
6,000–7,000	1,737	74.8
7,000–8,000	297	12.8
8,000–9,000	112	4.8
9,000–10,000	27	1.2
10,000+	1	0.04

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\* Percentage of the total number of sites does not equal site density per elevation range. Site density is dependent on the amount of acreage within each elevation range and how much of that acreage has been surveyed.

Figure 3. Elevation data for all known archaeological sites on the forests in 2009.



## Traditional Cultural Properties (TCPs)

TCPs are properties associated “with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community” (National Park Service [NPS] 1998). TCPs can range from mountains and other landforms to plant gathering locations to communities. With regard to the Forests, TCPs are most often associated with American Indian cultures. Five American Indian tribes represented by nine separate tribal governments have traditional ties to lands within the forests: Western Apache, Zuni, Hopi, Navajo and Yavapai. Forest Service consultations with appropriate members of each tribe can identify the Tribe’s historic and present day traditional uses and sacred places of the area. The lands, resources, and the archaeological sites within the forests are considered traditionally significant to all affiliated tribes and in some cases certain resources or areas are considered sacred to a specific Tribe/s.

There are known traditional use areas and cultural places located within the forests; however, according to current information and consultation no known traditional use areas or cultural places will be adversely affected by the proposed action or alternatives. Many of the Tribes consider archaeological sites occupied by their ancestors to be TCPs. Tribes have expressed concerns regarding the continuing impacts from looting and vandalism to archaeological sites.

## Previous Impacts

Forest use has impacted cultural resources throughout the forests. Of the 6,255 recorded sites on the forests, 5,229 sites have the potential to be affected by the modified proposed action. To assess the existing condition of known cultural resources, site records for 2,107 of the 5,229 sites were reviewed to determine the existing condition of sites. The list of 2,107 sites was selected by overlaying the forests heritage GIS site location data with a 300 foot buffer over the forests GIS transportation system data. This created a list of known sites within a 600ft wide corridor along all system roads and motorized trails. The amount of information in each site record was variable, and many records had not been updated since the 1970s and 1980’s. In addition, approximately 400 of the 2,107 site records were missing; however, enough information was present to be able to summarize some of the previous impacts to these sites. Table 3 summarizes previous impacts to sites on the forests.

Accurate data for NRHP eligibility status for all 5,228 sites was unavailable. However, NRHP eligibility status for the 2,107 sites for which the records were reviewed indicated that many of the sites are eligible for listing or unevaluated for the NRHP, six are listed on the NRHP, and 38 have been determined ineligible for the NRHP with SHPO concurrence.

**Table 3. Summary of Previous Impacts to Archaeological Sites**

Type of Activity	Direct and Indirect Effects	Number of Sites Affected
System Roads (most roads constructed for Timber harvesting)	Displacement , alteration and damage to features and artifacts Compaction Erosion	626
Grazing	Disturbance by cattle or sheep Trampling, crushing, compaction	112

Type of Activity	Direct and Indirect Effects	Number of Sites Affected
	Pushing and chaining damage to features and artifacts Erosion	
Fire and fire-related activities	Destruction, alteration and damage to features and artifacts Refiring, melting, spalling Erosion	198
Timber Harvesting (saw timber, pulpwood, fuelwood, temporary roads)	Displacement, alteration and damage to features and artifacts. Removal of artifacts Erosion	191
Recreational Activities	Unintentional Vandalism (clearing features and artifacts from area for camping, reuse of features and masonry for camping activities),	44
Looting and Vandalism	Removal of artifacts, displacement, alteration and damage of features and artifacts. Destruction of features	98
Motorized Big-Game Retrieval	None noted	Unknown

## Transportation

Currently, 1,624,246 acres of the forests' 2,110,135 acres are open to motorized use. However, not all of the 1,624,246 acres are accessible by motorized cross-country travel; approximately 247,438 acres have a slope greater than 40% and in other areas vegetation limits cross-country travel. Presently, there are 2,832 miles of national forest roads open to motorized use, 156 miles of motorized trails, and 3,591 miles of roads closed to motorized use that are kept in storage for future management use and an unknown number of unofficial or user created roads. Many of the closed roads and user created roads are used by visitors regardless of the road's status (see Table 1 in Bielecki 2008 for a list of closed areas and their corresponding Forest Plan Management Area or Forest Order No.). At present, approximately 475 miles of roads classified as closed/or decommissioned in the database that are regularly used by the public for motorized use. Although, many of the national forest roads were created to access and manage timber; public recreation has become one of the primary uses of forest roads today.

During the 20th century a large network of roads were created to access, harvest and transport timber (see Timber Harvesting). Road construction, use, and maintenance have been a major source of human impacts to sites. Roads have partially damaged or completely destroyed site features and cultural materials by the excavation or grading away of soil material. Of the 2,107 site records and heritage GIS data, 626 sites have been impacted by road construction. Based on the forests heritage GIS data and existing site records, over 100 sites have been directly and/or indirectly impacted by non forest system roads (temporary logging roads, unclassified roads, or user-created roads). While the construction and use of roads (both official and user created) in and near sites have obviously directly impacted sites, the presence of roads in and near sites also can indirectly affect site condition as well. The most important of these impacts is intentional vandalism (looting). Ease of access to sites creates conditions where individuals can pick up artifacts on the ground surface, dig for artifacts below surface, and intentionally deface or destroy features and structures (see Looting and Vandalism).

## **Ranching**

Grazing activity has occurred on the forest since the 1880's. Ranchers built homesteads and range improvements such as fences and water catchments. The lands that were selected for homesteads and construction of water catchments were often located in the same areas utilized prehistorically. Direct and indirect impacts from livestock have occurred to sites on the forests. Forest permits dating to the early 1900's reveal that large numbers of sheep, cattle and horses grazed and crossed forest system lands. Forest records show that 112 sites have been affected by grazing. Most of those sites are located in the Black Mesa Ranger District (55) and Lakeside Ranger District (24). The remaining 33 sites are almost evenly split between the Alpine, Clifton, and Springerville Ranger Districts. Livestock grazing, can negatively impact sites directly by trampling, artifact breakage, soil compaction, soil removal, toppling masonry walls and other types of damage to features as livestock walk through a site. Grazing can also indirectly impact sites through loss of ground cover, which in turn leads to erosion. Current grazing management practices have reduced the potential of these types of impacts to cultural resources.

## **Fire**

Most of the lands within the forests are located in a fire-adapted ecosystem. Evidence that prehistoric sites and TCPs have been repeatedly burned (prior to active fire suppression), is demonstrated by fire scarred trees and thermally (fire) altered masonry structures and artifacts. Records indicate that 780,862 acres of the forests lands have burned (1956-2009). Generally, low intensity fires have not adversely impacted prehistoric sites that are not fire sensitive or composed of combustible material. Conversely, most historic sites are either combustible or include combustible cultural material. These sites are very vulnerable to adverse impacts from fire. The aggressive suppression management practices prior to 1970 resulted in changes to the forest structure. Over time dead and down materials increasingly grew thicker on forest floors and the forests became dense with stands of regenerated young trees. These unnatural conditions have created more frequent high intensity wildfires that have had permanent adverse impacts to archaeological sites (i.e. Dude, Rodeo-Chediski Fire). These impacts include but are not limited to, historic sites completely burned down, prehistoric rock structures spalling apart from exposure to very high temperatures, the refiring of ceramic material, melting obsidian artifacts, and the accelerated erosion of site features caused by hydrophobic soils, denuding of the ground surface exposing cultural materials.

In 2002, 167,215 acres of the Forests was burned by the Rodeo-Chediski Fire (North et al. 2003). Of the 2,107 sites, 198 sites had been previously impacted by fire. Of those, 128 sites were specifically impacted by the Rodeo-Chediski Fire: 99 sites in the Black Mesa Ranger District and 29 sites in the Lakeside Ranger District. Fire suppression and/or heavy machinery associated with fire suppression also impacted 41 sites. Although 198 sites were affected by fire in some capacity, impacts to sites after the Rodeo-Chediski fire were "generally benign" (North et al. 2003). The fire did have more permanent impacts in the high intensity burn areas, impacts mainly consisted of burned artifacts and masonry, and spalling and discoloration of rock outcroppings with rock art. Like grazing, the indirect impact of increased erosion from loss of ground cover was the biggest impact to site condition (North et al 2003). The loss of ground cover increased sheet wash potential, which mainly affected artifact location but in some cases also damaged structures.

## **Timber Harvesting**

Logging on the forests can damage sites by direct impacts caused by construction of hauling roads and landings, movement of heavy equipment across the ground surface, skidding of trees and indirect

impacts from over-harvesting, which can lead to erosion. Commercial timber and fuel wood harvesting has occurred across the forests since the late 1870's. By 1917 the commercial logging industry was established on the forests. During the 1920's an extensive network of logging railroads were constructed on the forests, primarily on the Sitgreaves side. By 1939 roads had replaced most of the railroads to transport timber. Existing records indicate that impacts from road construction have caused the most damage (ASNF GIS heritage database, ASNF site files). Presently 626 sites are known to be directly impacted by forest system roads. Based on existing forests' records approximately 1,204 miles of road were present on the forests in 1964 (USDA Forest Service 1941, 1961, 1962, 1964). Although many roads were constructed prior to 1960, the network of roads dramatically increased over the next two decades to support timber harvesting: 1963-1987. The 1987 forest management plan states that 8,040 miles of constructed roads existed on the forests. Of the total 8,040 miles of road, 2,340 miles were system roads open for motorized use and the other 5,700 mile roads were closed to motorized use, of which 3,000 were planned for obliteration (USDA Forest Service 1987). During the last two decades from 1987-2007 the forests added 427 miles to the forest transportation system as open to motorized use, for a total of 2,767 miles. An additional 3,388 miles of road are part of the forest system, but are not open to motorized use (Bielecki 2008). These roads are kept in storage and closed until they are needed for a second entry timber harvest, fire management activities or other management related activity.

Besides impacts from logging saw timber, impacts from commercial and non-commercial fuelwood harvests have occurred. Available GIS data for fuelwood treatments show 17,283 acres were harvested prior to 1990. Permit records indicate that a majority of the forests' non-commercial fuelwood permits have allowed for travel off system roads to collect fuelwood. Direct and indirect impacts to sites caused from fuelwood harvesting are similar to those caused from OHV impacts and logging. Some of the user-created roads have been created from this activity. Sites in the Black Mesa and Lakeside Ranger Districts have been the most impacted by logging and logging-related activities. This is due to three factors: the presence of saw timber, the topography allows for easier access, which led to more harvesting, and the higher density of sites on these two ranger districts. The comments reviewed on existing site records documented impacts from timbering, logging, wood cutting, and thinning. While the terms "logging" and "timbering" can be assumed to be related to logging activities, the terms "wood cutting" and "thinning" may be in reference to other activities, such as obtaining wood for fuel and forest thinning for fire prevention; however, for the purposes of this study, since these are all related activities, they will be treated under logging.

In the Black Mesa Ranger District, 64 sites have been impacted by logging, 28 by wood cutting, and 12 by thinning for a total of 104 sites. In the Lakeside Ranger District, 66 sites have been impacted by logging, three by thinning, and none by wood cutting. In the Alpine, Clifton, and Springerville Ranger Districts combined, 21 sites have been impacted by logging, four by timbering, one by thinning, and none by woodcutting. It was unclear from the records how many of these impacts were from older logging activities vs. newer.

## **Recreation**

According to the 2002 National Use Monitoring Results for the Apache-Sitgreaves National Forests (Kocis et al. 2002), 1.98 million individuals visited the Forests and visited an average of 1.2 recreation sites. A sample of 1,630 people was interviewed about their visits to the forests. Of that sample, 35.7 percent camped in developed campgrounds, 19.4 percent camped in non-developed areas, 62.2 percent went hiking or walking, 53.3 percent drove for pleasure on roads, and 11.3 percent participated in off-highway vehicle (OHV) use. Eleven percent visited heritage sites.

The interviewees were also asked about which facilities or designated areas they used while visiting the Forests. About one-half (52.4 percent) interviewed said they used “other forest roads” as opposed to only 3.0 percent who used “Designated Off-Road Vehicle areas.”

The data from the 2002 study indicate that a large number of visitors use forest roads for travel and recreation. With the population growth in the counties surrounding the Forests (Figure 3), it can be assumed that the number of visitors to the Forests has increased since 2002. An increase in number of visitors to the Forests would result in an increased demand on the Forests’ roads and facilities.

**Figure 3. Population Growth in Counties Surrounding the Forests**

Location	Population*			% Change	
	1990	2000	2007	1990–2000	2000–2007
Apache	61,591	69,423	75,496	12.7	8.7
Gila	26,554	33,489	37,338	26.1	11.5
Graham	8,008	8,547	8,394	6.7	–1.8
Greenlee	8,008	8,547	8,394	6.7	–1.8
Navajo	77,658	97,470	107,420	25.5	10.2

\* Source: Arizona Department of Commerce (2008a–2008e).

The forests have historically managed some of the forest system roads for motorized recreation including dispersed camping. From 1961-1976, forest management allowed and provided for motorized dispersed camping along specific roads open to the public. These roads had a corridor 200 feet wide along each side of the road for dispersed recreation. These corridors were defined as “roadside zones” (1961 Forest Service Recreation Plan Map). Recreational use of the forests has impacted archaeological sites. Cross-country OHV use and camping all may impact sites both directly and indirectly. As discussed above, OHV use has impacted some sites by user-created roads, or in areas where there are no roads.

Ease of access to these sites that OHV use creates may also be a contributing factor to looting and/or vandalism to sites. The heritage inventory report data base (INFRA) was queried for OHV damage reports, the results produced three records related to OHV use. All three reports listed damage caused by user-created routes and associated looting of sites. These user-created routes allow easy access to sites and can increase both casual and serious looting.

Camping and hiking have also impacted sites on the forests. Fifteen sites of the 2,107 sites are on or near forest trails; 12 of these sites are in the Black Mesa and Lakeside Ranger Districts. Hiking trails, once established, do not themselves pose a large threat to sites; it is more likely that, like roads, easy access to sites facilities vandalism, casual surface collection, and looting. Camping has impacted 33 of the 2,107 sites: one site on the Alpine Ranger District, 14 sites on the Black Mesa Ranger District, five sites on both the Clifton and Springerville Ranger Districts, and eight sites on the Lakeside Ranger District. Camping, too, can lead to looting and unintentional vandalism of sites. Sites that are near camping areas



can be damaged by campers exploiting rock materials from structures and features for fire pits and for other camping activities, digging holes for latrines or trenches for discharging gray water; surface collecting and rearrangement of artifacts into piles, using pieces of collapsed wooden historic structures as firewood, and clearing of space for tents and other equipment. Some site records document damage from individuals removing stones from masonry structures to construct fire rings.

## **Looting and Vandalism**

Looting and vandalism have been discussed as indirect effects of motorized and OHV access; however, they can and should be addressed as direct effects as well. Intentional looting and vandalism of sites on public lands is a problem throughout Arizona. Some of these activities are conducted for recreation and others for illegal gain. When a site is looted significant contextual information and parts of our history are stolen and destroyed. As transportation technology has advanced (i.e. four wheel drive) a greater number of roads have provided access to remote areas. The increasing number of roads provides access to remote sites and provides looters a convenient method to easily transport heavy, awkward or delicate archaeological items and/or larger quantities of those items that previously would have been difficult to remove from the backcountry.

Studies conducted in the late 1970's and early 1980's on the behavior and impacts by looters documented that these individuals prefer small to large prehistoric masonry sites that are accessible by maintained roads, within a driving distance of 1-20 miles, and do not require walking more than a few hundred yards (Nickens, Larralde and Tucker 1981). Lightfoot and Francis (1978) conducted studies on the forests. They documented that unimproved jeep roads and trails within the Little Colorado Planning Unit appeared to have no other purpose than to provide access directly to sites. Lightfoot (1978) found there is a correlation between the amount of illegal surface collecting of artifacts from sites and the distance and visibility of the site from a road. Francis (1978:130) determined that the degree of casual collection appears to be the most severe on sites that are located within 150m (492ft) of unimproved roads such as 4-wheel drive jeep trails.

A recent study conducted in 2006 to assess site condition and vandalism in Arch Canyon, San Juan County Utah, documented vandalism and impacts from ORV use (Spangler 2006). Recent comments from the public have indicated that the results and recommendations from this study should be considered in designating the routes open on the forests for motorized travel. Arch Canyon is a well known destination to view archaeological sites and for off-highway vehicle (OHV) recreation. Although some of the impact types noted in study may be found on the forests, most of the areas on the forests with moderate to high site density do not have similar intensity of use or visitation like Arch Canyon. Most of the forests known high intensity use areas, proposed fixed width corridors and motorized trails are located in areas of very low to moderate site density (i.e. mixed conifer-pine forests, southwest area of the Black Mesa Ranger District). The majority of sites on the forests are located within the pinyon juniper woodland which tends to have less intensive recreational use. In the few areas where user-created OHV roads/trails are being used in higher site density areas, the forest is proposing designated motorized trails to minimize and manage the potential impacts from OHV use. Where current trails have been established on the Lakeside Ranger District, it appears that OHV users are staying on the established trails and not causing inadvertent disturbance and damage to archaeological sites.

Of the site records reviewed, 98 sites documented impacts by looting and vandalism. Looting/pot hunting is listed for 73 sites, and surface collection for 13 sites. The Black Mesa and Lakeside Ranger

Districts had 19 and 29 sites, respectively, that were “pot hunted.” One site was pot hunted in the Alpine Ranger District, 11 in the Clifton Ranger District, and six in the Springerville Ranger District. Pot hunting is used to describe when someone by hand or, in one case, with a backhoe, excavated structures or other features in search of artifacts. Vandalism, which can represent the removal of artifacts or intentional damage, was listed for 17 sites. One site that consisted of a historic C.C.C. explosive storage building in Saffel Canyon was blown up by a small bomb by individuals trying to enter the building.

Of the 98 sites that have been looted; 38 sites are within 30ft of the road, and 63 are within 100ft of the road. Almost all of the looted sites are located along unmaintained (closed) and high clearance roads (maintenance level 2). Records document additional sites that are farther than 300ft of a system road that have been looted, damaged and accessed by user created roads (Taylor 2006; Mahalic 2005; Schroeder 2009). Most of the sites that have been looted are near communities.

### **Motorized Big-Game Retrieval**

No data were available for previous impacts to sites due to MBGR. Information is available about permits and successful hunts. Table 4 provides information about harvest numbers of elk, mule deer and bear within Game Management Units (GMUs) associated with the Forests: 1, 3A, 3B, 3C, 4A, 4B, 27 and 28. Data were available for several species, but only the data for species being considered for MBGR in the alternatives is being analyzed. Site densities within GMUs vary from 0.45 to 4.74 sites per square mile (see Table 5). The GMUs with the highest site densities, 3C, 4A, and 4B, all are within the Black Mesa and Lakeside Ranger Districts. These GMUs are the most vulnerable to OHV impact from MBGR.

However, as seen in Table 4 and 5, few animals would need to be retrieved using an OHV, the game units cover large areas, and in general the potential impact to sites is widely dispersed and unpredictable. In addition, not all hunters use motorized vehicles to recover game. There is no existing quantifiable data for impacts to sites caused from MBGR on the forests, but thousands of acres of forests lands have been surveyed for cultural resources and archaeologists have not noted any impacts to sites specific to motorized game retrieval. At present, the impacts from cross-country motorized travel for MBGR have been negligible and are not known to have caused adverse effects to the character and use of cultural resources.

**Table 4. Site Density by Game Management Unit (based on acreage in each unit)<sup>†</sup>**

<b>GMU</b>	<b>Number of known Heritage Sites within the Unit</b>	<b>Unit Acres within the Forests</b>	<b>Unit Square Miles within the Forests</b>	<b>Site Density per Square Mile</b>
1	506	430,512	673	0.75
3A	46	17,662	28	0.61
3B	301	128,978	202	0.67
3C	2,377	321,117	502	<b>4.74</b>
4A	1,047	207,649	324	<b>3.23</b>
4B	1,261	199,423	312	<b>4.04</b>
27	555	788,114	1231	0.45
28	16	15,997	25	0.64
<b>Total</b>	<b>6109</b>	<b>2,109,451</b>	<b>3296</b>	

\* Site density was calculated based on total number of acres within each GMU, not on number of acres surveyed per unit. Depending on the percentage of acreage surveyed for each GMU, site density could be higher than what is stated in Table 4.

**Table 5. 2005-2008 Harvest Data For General, Archery, Muzzleloader, and Junior Hunts(AGFD 2009)**

<b>SPECIES/GAME UNIT</b>	<b>Harvest Numbers 2005</b>	<b>Harvest Numbers 2006</b>	<b>Harvest Numbers 2007</b>	<b>Harvest Numbers 2008</b>
<b>UNIT 1, and UNIT 1/2B/C</b>				
Mule Deer	51	56	36	71
Elk	306	65	48	56
Elk (1/2B/2C)	521	463	501	559
Bear	13	23	12	19
Total	<b>891</b>	<b>607</b>	<b>597</b>	<b>705</b>
<b>UNIT 3A/3C</b>				
Mule Deer 3A/3C	43	59	68	139
Elk 3A/3C	404	411	568	576
Bear 3A	0	0	0	0
Total	<b>447</b>	<b>470</b>	<b>636</b>	<b>715</b>
<b>UNIT 3B</b>				
Mule Deer	9	0	0	9
Elk	142	173	128	46
Bear	9	13	3	3
Total	<b>160</b>	<b>186</b>	<b>131</b>	<b>58</b>
<b>UNIT 3C</b>				
Elk	49	67	66	72
Bear	4	3	2	3
Total	<b>53</b>	<b>70</b>	<b>68</b>	<b>75</b>
<b>UNIT 4</b>				
Mule Deer 4	14	20	20	33
Total	<b>14</b>	<b>20</b>	<b>20</b>	<b>33</b>
<b>UNIT 4A</b>				
Elk	405	363	302	313
Bear	1	8	4	3
Total	<b>406</b>	<b>371</b>	<b>306</b>	<b>316</b>
<b>UNIT 4B</b>				
Elk	132	136	170	221
Bear	5	1	2	4
Total	<b>137</b>	<b>137</b>	<b>172</b>	<b>225</b>
<b>UNIT 27</b>				
Mule Deer	221	215	281	317
Elk	265	282	299	387
Bear	26	30	29	26
Total	<b>512</b>	<b>527</b>	<b>609</b>	<b>730</b>
<b>UNIT 28</b>				
Mule Deer	9	4	19	19
Elk	0	0	3	5
Total	<b>9</b>	<b>4</b>	<b>22</b>	<b>24</b>

## Relevant Laws, Regulations and Policies

The primary legislation governing cultural resource management is the National Historic Preservation Act (NHPA) of 1966 (amended in 1976, 1980, and 1992). Section 106 of NHPA requires that federal agencies take into consideration the effects of their undertakings on historic properties, which are defined in 36 CFR 800.16(l) as any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP. The “Section 106 review process,” entails five steps: 1) determining whether the proposed action is an undertaking that has the potential to affect historic properties); 2) identifying historic properties; 3) evaluating the significance of historic properties; 4) assessing effects; and 5) consulting with interested parties (including Native People), the SHPO, and the ACHP. Section 110 (Federal Agencies’ Responsibility to Preserve and Use Historic Properties) of the NHPA provides direction to federal agencies to establish programs and activities to identify and nominate historic properties to the NRHP and to consult with tribes. The Southwestern Region has a programmatic agreement with the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Officers (SHPOs) that stipulates the Forest Service’s responsibilities for complying with NHPA.

Important laws and their accompanying regulations that affect the forests’ management and treatment of cultural resources include the following:

- Organic Act of 1897\_(Title 16, United States Code (U.S.C.), section 473-478, 479-482, 551)
- Antiquities Act of 1906 (34 Statute 225, 16 U.S.C. 431-433), Uniform regulations at 43 CFR part 3 implement the act.
- National Historic Preservation Act (NHPA) of 1966 as amended, (16 U.S.C. 470) Uniform and departmental regulations at 36 CFR part 800 implement NHPA.
- National Environmental Policy Act of 1969\_(NEPA) (42 U.S.C. 4321-4346). The act is implemented by the Council on Environmental Quality (CEQ) regulations at 40 CFR 1500-1508.
- Archaeological Resources Protection Act of 1979\_(ARPA) (16 U.S.C. 470aa *et seq*). Uniform regulations and departmental regulations at 36 CFR part 296 implement ARPA.
- Archeological and Historic Preservation Act of 1974 (16 U.S.C. 469-469c-2)
- Federal Land Policy and Management Act of 1976 (FLPMA), (43 U.S.C. 1701)
- American Indian Religious Freedom Act of 1978 (AIRFA) requires federal agencies to consider the impact of their actions on tribal traditional cultural practices and access to cultural sites.
- Executive Order 11593, Protection and Enhancement of the Cultural Environment (13 May 1971),
- Executive Order 13007, Indian Sacred Sites (24 May 1996),
- Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (6 November 2000),
- Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation (48 CFR 44716)

The Forest Service Manual 2360 provides the basis for specific Forest Service Heritage Resources management practices. The Apache-Sitgreaves National Forests Plan 1987 with amendments provides the following guidelines related to cultural resources and ORV/OHV use:

- Establish ORV use areas and closures as needed to meet demand and other resource objectives. Manage ORV use to provide ORV opportunities while protecting resources and minimizing conflicts with other users.
- Off-Road Vehicle activities will be managed to minimize conflicts with other uses, to prevent interference with the management of other resources, to prevent general environmental degradation, while providing a range of ORV opportunities.
- Existing, as well as additional ORV closures are implemented when one or more of the following situations or areas exist, and ORV use is likely to occur that would result in significant adverse effects:
  - Areas of cultural or religious significance with proven historical significance to Native Americans.
  - Areas with a high concentration of archeological and historical sites, or areas with especially significant sites.
- The preferred management of sites eligible, or potentially eligible, for the National Register of Historic Places (NRHP) will be avoidance and protection.
- Significant or potentially significant inventoried sites will be managed to achieve a “No Effect” finding, in consultation with the SHPO and ACHP (36 CFR 800). Where resource conflicts make this impossible, management will achieve a “No Adverse Effect” finding
- Specific sites or areas may be closed to ORV use and withdrawn from mineral entry
- General Crook National Trail: Use of motorized vehicles on any portion of the route not specifically designated and designed for motorized vehicle travel is prohibited. Emphasize protection for the historic value of the trail route. Manage 200 foot corridor to preserve evidences of historic roadway and landscape character, including related historic trees, markers, gravesites, and water holes.

(USDA, Forest Service 1987: pg 15, 34-35, 37, 39, 40)

## Summary of Alternatives and Mitigation Measures

Five alternatives are being considered for the implementation of the Travel Management Rule (TMR) Environmental Impact Statement (Table 7). The table below highlights the major differences among the alternatives in comparative form. Alternative A is the No Action Alternative; it allows cross-country motorized travel across much of the Forests and is not in compliance with the TMR of 2005. Alternative B is the modified proposed action. Alternative C would be the same as Alternative A, except cross-country travel would largely be prohibited, it would designate 31 miles of existing user-created roads/spurs to access areas frequently used for dispersed camping. Alternative D in general, would increase motorized access, adding the most fixed width corridors and Alternative E proposes less fixed width corridors than Alternatives B and D, and does not provide for MBGR. For all of the alternatives most of the proposed corridors and changes are located in very low to low site density areas.

## Mitigation Measures

The protocol provides a list of protection measures that the forests can draw from to ensure that adverse effects to cultural resources are avoided or minimized. These measures include but are not limited to:

- dropping proposed motorized road, trail or area designations to avoid or reduce direct or indirect effects on historic properties
- re-routing or modifying designated roads or trails to protect historic properties. Rerouting or modifying roads will be subject to Section 106 compliance prior to ground disturbance, as provided for in the Programmatic Agreement
- use of temporary emergency closures, if needed, while unacceptable effects on historic properties are addressed
- revision of designations, if determined necessary to protect historic properties from adverse effects
- monitoring to ensure that impacts to historic properties are not occurring or that protection measures are working
- leaving roads, trails, areas off the map distributed to the public until after all Section 106 compliance needs are met.

Other protection measures that can be effective to minimize impacts from motorized use to cultural resources include: plating the surface of the site with several feet of material or the intentional burying of sites; using barriers (boulders, vegetation, logs) or fencing and signage, patrolling, and public education. During the development of the alternatives approximately 944 miles of fixed width corridors and proposed open areas (~5,489 acres) located within areas of high site density that were being considered were removed. This eliminated the potential and predictable direct adverse affects to many sites, and assisted in creating alternatives that comply with the protocol and the forest plan.

## **Methodology and Analysis Process**

The following discussion and recommendations resulted from a review of the various descriptions of the alternatives and an assessment of the potential impacts each could have to cultural resources on the forests. Applicable maps generated through geographic information system (GIS) analysis were consulted to determine which cultural resources were within the APE. The criteria used for establishing the APE for cultural resources was based on the protocol and the existing conditions:

- Miles of new roads to be opened with a 30 meter buffer (98.4ft).
- Miles of fixed width corridors for motorized access to dispersed camping (600-foot total width)
- Number of acres open for proposed MBGR (¼ mile, 1 mile, or no distance restriction from roads)
- Acreage of open areas designated for cross country motorized use

Subsequently, each alternative was regarded relative to each other and in respect to potential for direct and indirect adverse effects on cultural resources. The results of this analysis are presented in the following sections. Two alternatives, Alternative A and C, effectively have no change to the current forest service transportation system. Alternative C differs from Alternative A, by proposing 31 miles of non-system roads to be added to the system for motorized access to dispersed camp sites and allows MBGR. These Alternatives are only briefly considered here, since the existing road system under the protocol is exempt from Section 106 consultation.

## Effects Analysis

The ASNF are complying with the protocol for travel management for designating roads, trails and areas (Appendix I of the Programmatic Agreement) in lieu of the Council's regulations (36 CFR 800). Per the protocol existing, formally established system (classified) roads and trails, already open to motor vehicle travel, generally need not be re-evaluated for purposes of this rule. Their designation on a motor vehicle use map will not generally be considered an undertaking for the purposes of NHPA and not subject to Section 106 review. The protocol further defines the following designations as an undertaking with the potential to affect historic properties

- Non system roads and trails (old temporary roads, and unauthorized user created routes, unclassified roads and trails)
- Proposed new roads (new construction, reroutes, and realignments)
- Roads or trails that are considered to be historic properties
- Non-system fixed routes or spurs to access dispersed camp sites
- Areas open to cross-country motorized travel
- Allowing motorized use on system roads and trails that are closed to motorized use
- Fixed distance corridors designated for motorized access to dispersed camping

Under the regulations an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. Specific examples of adverse effects cited in statute include (36 CFR 800.5):

- Physical destruction of or damage to all or part of the property.
- Removal of the property from its historic location.
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance.
- Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features.

Before the implementation of the selected alternative, the ASNF will comply with the procedures stated in protocol. Until the necessary surveys and/or analysis are completed and the Arizona State Historic Preservation Officer has concurred with the ASNF determination that the proposed action will have no adverse effect on cultural resources the proposed routes, corridors or areas would not be published on the Motor Vehicle Use Map (MVUM). The surveys will be conducted using standard archaeological techniques following the forests survey strategy for travel management.



**Table.7 Summary of changes to transportation system by alternative**

	<b>Alternative A</b>	<b>Alternative B (Proposed Action)</b>	<b>Alternative C</b>	<b>Alternative D</b>	<b>Alternative E</b>
Miles of closed NFSRs proposed to open for motorized use (note:~475 miles are not physically closed and being actively used as open)	No Change	358	No Change	415	220
Miles of unauthorized roads to be added to access dispersed camping	No Change	28	28		64
Miles of 300' corridors added for motorized access to dispersed camping	No Change	658	No Change	2,034	118
Miles of NFSRs closed	No Change	493	No Change	479	559
Miles of open NFSRs converted to administrative and permitted use only	No Change	78	No Change	5	5
Miles of closed NFSRs converted to administrative and permitted use only	No Change	7	No Change	11	1
Miles of proposed unauthorized and new trails to be added to NFST's for motorized vehicles	No Change	36	No Change	63	21
Miles of NFSRs converted to NFST's for motorized vehicles	No Change	76	No Change	83	28
Motorized Big Game Retrieval	Currently authorized forest-wide except where motorized restrictions exist  (~1,624,246 acres)	Authorized within 1 mile of NFSRs and NFSTs and on forest lands adjacent to open roads managed by other agencies  (~1,259,886 acres)	Authorized within 1 mile of NFSRs and NFSTs and on forest lands adjacent to open roads managed by other agencies  (~1,259,886 acres)	Authorized within 1/4 mile of NFSRs and NFSTs and on forest lands adjacent to open roads managed by other agencies  (~711,332 acres)	Not Authorized
Number of Acres open to cross country motorized use	existing ~1,624,246	459	0	459	0

If the proposed route, corridor or area has the potential to adversely affect cultural resources, protection measures (including but not limited to rerouting, barriers, temporary closures, eliminating the route, monitoring) would be required prior to the route, corridor or area being open for motorized use and published on the MVUM. If protection measures cannot be applied and/or the proposed route, corridor or area will have an adverse effect on cultural resources (as defined in 36 CFR 800) the ASNF will follow Section VII of the Programmatic Agreement and shall resolve adverse effects following the procedures in 36 CFR 800.6. The ASNF will amend its decision if necessary to disclose the effects.

The ASNF will continue practicing responsible stewardship through the investigation and prosecution of intentional vandalism and by providing public education about the protection and preservation of cultural resources on the forests.

The following assumptions apply to all cultural resources within the forests for all alternatives:

- All laws applicable to cultural resource management and protection will be followed.
- All ASNF closures and motorized travel restrictions will be adhered to by visitors.
- All reroutes and new roads and trails that require ground-disturbing activities will follow the procedures in the PA for section 106 consultation.
- Appropriate measures, including stabilization or restricted access, may be undertaken to protect threatened cultural resources.

## **Effects Common to All Alternatives**

Each of the five alternatives has the potential to affect cultural resources located on the ASNF. These alternatives include direct and indirect affects to cultural resources.

### Direct Impacts

The general public and Tribes have been collecting and harvesting forest resources for decades, in some cases, centuries. Prior to the 1940s, motorized vehicles were not commonly used to access forests lands and resources. The use of motorized vehicles to access resources has substantially increased from then to the present. Motorized use within and on travel routes and corridors can directly impact archaeological sites by displacing soil and rutting that causes alteration and damage to the artifacts and features; by removing or changing the context of cultural materials; and breakage and damage of artifacts from crushing. Potential for these impacts to occur increases depending on the site type, soils, and season of travel (wet v.s dry). Sites located on non-sensitive soils are less likely to be impacted from motorized vehicles. Generally the forests restrict motorized travel during the winter and early spring to prevent damage to roads, this also assists in preventing damage to archaeological sites. In areas where previous disturbance has occurred (i.e. pushing, disking and chaining), motorized disperse camping is not expected to cause additional adverse impacts to cultural resources.

Opening the closed roads is not expected to cause additional adverse direct impacts. At present approximately 475 miles of currently closed roads in the data base that are proposed to be open for motorized use have been and are regularly used by the public. Many of these roads are

located in areas with a low to moderate site density. Based on existing site data and the current public use, the formal designation of the road as open to motorized use is not expected to cause adverse effects to sites. If additional data indicates adverse impacts are occurring, protection measures will be implemented from the options stated above.

### Indirect Impacts

Motorized use within and on travel routes and corridors can cause indirect impacts to archaeological sites by creating ruts and compaction resulting in changes to the water flow that may create rills and gullies accelerating the removal of soil and displacement of cultural materials. Sites located on routes, corridors or in open areas that include sensitive soils would have a higher potential to be indirectly impacted by erosion. Increasing motorized access also increases the potential of indirect adverse effects to remote sites by unintentional and intentional vandalism. Vandalism of sites includes intentional activities like illegal excavation (looting), damage or destruction to extant standing architecture or rock art, and collection of surface artifacts. Motorized use may remove vegetation that protects and covers archaeological materials. When these materials are exposed and visible on the surface of visited sites, the more decorative artifacts and/or collectable historic objects tend to disappear as a result of illegal collecting. When a site is looted significant contextual information and parts of our history are stolen and destroyed.

Current forest recreation management allows cross-country motorized use forest wide (excluding areas with restrictions). Some motorized cross-country travel is used to access user created dispersed camp sites. Dispersed camping activities may cause unintentional vandalism to sites. Campers have taken rocks from prehistoric structures to build camp fire rings and wind breaks; used and rearranged rocks from features as tent weights; dug holes for latrines or buried garbage; collected pieces of wood from collapsed wooden structures for campfires; and rearranged artifacts into piles. These impacts have an adverse affect to sites by altering, damaging or destroying the characteristics that contribute to the sites' significance. Sites located in areas where frequent camping occurs may continue to experience unintentional vandalism. To minimize and/or prevent indirect adverse impacts, protection measures may be implemented from the options stated above.

### **Alternative A**

Alternative A, the "No Action" Alternative, proposes no change to the current travel management plan and would include unrestricted travel off of authorized routes except where explicitly prohibited. Alternative A is not in compliance with the TMR and cannot be selected. MBGR would continue to be allowed and existing restrictions to motorized routes would remain in place. Under this alternative, there will be no change to the existing forests transportation system. According to the protocol designating existing forests road system for motorized use is exempt from Section 106 review; therefore, the alternative is not considered an undertaking. However, sites currently on or near user-created or unauthorized roads will continue to be impacted by OHV use. Motorized access to dispersed camping would continue to be allowed under the terms of the current forests management plan. Cross-country motorized travel is allowed, increasing the potential to adversely impact sites within non-restricted areas. In addition, since no restrictions are placed on MBGR. Sites in non restricted areas have the potential to be impacted by MBGR. However, no adverse impacts have been documented to sites

on the forests from MBGR and any potential impacts are expected to be negligible based on the amount of expected trips for MBGR and the existing site condition information.

**Alternative B**

Alternative B, the “Modified Proposed Action” has the potential to impact cultural resources (Table 8). Designation of non-system roads, new roads and trails, and fixed width corridors to the current transportation system could have direct and indirect impacts to 252 sites. Most of the sites that could be affected are within the fixed width corridors (153 sites). Approximately 402 miles of the corridors are adequately surveyed. The remaining 256 miles will be surveyed within the next year following the forests travel management survey strategy. All of the proposed new ATV trails and the existing non-system routes used to access disperse camping will be surveyed by the end of the calendar year. Surveys have been completed for the Alpine, Clifton, and Springerville Ranger Districts. Trails and roads still need to be surveyed on Lakeside and Black Mesa Ranger Districts. Of the five areas proposed open for motorized use (total 459 acres), three have been completely surveyed. Presently, no known sites are located within the proposed open areas. The remaining areas to be surveyed are located on the Black Mesa Ranger District (321 acres) in low site density areas. The proposed open areas are expected to have no direct or indirect impacts on cultural resources.

**Table 8.** Alternative B Changes to forest road system and sites within the APE

Description	Proposed change to existing system	# of known cultural resources within APE
Miles of unauthorized routes, added to the motorized road system open to the public (roads)	28	45
Miles of closed roads opened for motorized use	358	45
Miles of system roads with 300-foot corridors designated for motorized access to dispersed camping	658	153
Miles added of motorized trails designated for motor vehicles 50 inches or less in width (from currently closed or open roads)	76	3
Miles added of motorized trails designated for motor vehicles 50 inches or less in width (from non-system routes includes 2 miles of new construction)	36	3
Open Areas (acres) where motorized use would be designated	459	0
Motorized big-game retrieval	1 mile on either side of designated route	5,228

Direct Impacts

Impacts would be the same as discussed under impacts common to all alternatives with the addition that mitigation measures may need to be implemented to sites located along some of the proposed motorized trails. There are known sites that are being impacted or at risk of being adversely impacted by the proposed motorized trails. For these areas natural barriers will be installed to prevent current or future intrusions on the sites. In some cases the non-system route will need to be relocated to avoid the impacted site.

The designation of 1 mile on either side of designated roads for MGBR, could impact up to 5,228 sites. However, no adverse impacts have been documented to sites on the forests from MBGR and any potential impacts are expected to be negligible based on the amount of expected trips for MBGR and the existing site condition information.

Indirect Impacts

Impacts would be the same as discussed under indirect impacts common to all alternatives Cultural resources could continue to be impacted by unintentional and intentional impacts of motorized travel activities, but these effects would likely be less than for those alternatives that propose greater access (Alternatives A and D).

**Alternative C**

This alternative is similar to Alternative A, but eliminates cross-country travel and adds approximately 31 miles of non system routes to the road system for motorized access to existing dispersed campsites (Table 9). Alternative C allows MBGR within 1 mile on either side of designated roads. Eliminating cross-country motorized travel greatly reduces the potential of direct and indirect adverse impacts on cultural resources. Also no currently closed roads to motorized use are proposed to open. Not opening currently closed roads could reduce the potential for additional direct and indirect impacts to cultural resources. This alternative provides more protection to cultural resources than Alternatives A, B, D, and E. The changes proposed in this alternative would have no adverse effects to cultural resources.

**Table 9.** Alternative C Changes to forest road system and cultural resources within the APE

Description	Proposed change to existing system	# of known cultural resources within APE
Miles of non-system roads added to the motorized road system open to the public	28	10
Miles of system roads with 300-foot corridors designated for motorized access to dispersed camping	None	None
Miles of non-system routes and system roads designated for motor vehicles 50 inches or less in width	None	None
Open Areas (acres) where motorized use would be designated	None	None
Motorized big-game retrieval	1 mile on either side of designated route	5,228

Direct and Indirect Impacts

Impacts would be the same as discussed under impacts common to all alternatives except for the addition of MBGR. The designation of 1 mile on either side of designated roads for MGBR, could impact up to 5,228 sites. However, no adverse impacts have been documented to sites on the forests from MBGR and any potential impacts are expected to be negligible based on the amount of expected trips for MBGR and the existing site condition information.

### **Alternative D**

Alternative D proposes to designate fixed width corridors along approximately 2033 miles of system roads and trails, of which 974 miles have been adequately surveyed. The remaining 1059 miles of corridors would be surveyed following the forests travel management survey strategy. Based on the forests current and future funding, it may not be possible to complete the necessary surveys for all 1059 miles within three years of the decision. A total of 368 known sites are located within the proposed fixed width corridors (Table 10). In Alternative D, the same five areas as stated in Alternative B are proposed to be open for motorized use. As with Alternative B, two of the areas have been completely surveyed and 321 acres remain to be surveyed. No known sites have been located within the proposed open areas. The unsurveyed open areas are located in very low site density areas. The proposed open areas for motorized use are expected to have no effect on cultural resources. Approximately 83 miles of system roads (closed and open) would be converted to motorized trails, and another 63 miles of unauthorized trails would be added to the system (one mile of motorized trail would require new construction )(Table 13). A total of 415 miles of currently closed roads would be opened for motorized travel and 1 mile of non system routes would be designated to the system. MBGR would be allowed ¼ mile from designated routes.

### Direct Impacts

Impacts would be the same as discussed under impacts common to all alternatives with the addition that mitigation measures may need to be implemented to sites located along some of the proposed motorized trails and roads. There are known sites that are being impacted or at risk of being adversely impacted by the proposed motorized trails and new roads. For these areas natural barriers will be installed to prevent current or future intrusions on the sites. In some cases the non-system route will need to be relocated to avoid the impacted site.

Alternative D proposes 2,033 miles of fixed width corridors that has the potential to impact 386 known sites. Most of the proposed corridors are located in areas of low site density. Based on existing site condition data and existing survey data, impacts from motorized dispersed camping is expected not to have an adverse impact to cultural resources. Motorized vehicle users on the forests would benefit from the highest level of access under this alternative. Accordingly, the potential for direct adverse impacts to cultural resources is greater than Alternatives B, C, and E. In addition, the designation of ¼ mile on either side of designated roads for MGBR, could impact up to 2,949 sites. However, no adverse impacts have been documented to sites on the forests from MBGR and any potential impacts are expected to be negligible based on the amount of expected trips for MBGR and the existing site condition information.

### Indirect Impacts

Impacts would be the same as discussed under indirect impacts common to all alternatives. Alternative D proposes the largest amount of fixed width corridors resulting in the highest

potential for intentional and unintentional vandalism, illegal collection of surface artifacts and indirect impacts from erosion caused by OHV use near sites.

**Table 10.** Alternative D Changes to forest road system and cultural resources within the APE

<b>Description</b>	<b>Proposed change to existing system</b>	<b># of known cultural resources within APE</b>
Miles of unauthorized routes, added to the motorized road system open to the public (roads)	1	0
Miles of closed roads opened for motorized use	415	60
Miles of system roads with 300-foot corridors designated for motorized access to dispersed camping	2,033	386
Miles added of motorized trails designated for motor vehicles 50 inches or less in width (from currently closed or open roads)	83	8
Miles added of motorized trails designated for motor vehicles 50 inches or less in width (from currently unauthorized routes or new construction)	62	18
Open Areas (acres) where motorized use would be designated	459	0
Motorized big-game retrieval	¼ mile on either side of designated routes	2,949

**Alternative E**

Alternative E proposes 118 miles of fixed width corridors for motorized access to dispersed camping, open 220 miles of roads currently closed for motorized use; designate, convert 28 miles of system roads to motorized trails, add 21 miles of new motorized trails from unauthorized routes (including 1 mile of new construction). This alternative would also add 64 miles of unauthorized routes to the system, of which 34 miles to access existing dispersed camp sites. (Table 11). A total of 50 miles of the 118 miles of proposed fixed width corridors have been adequately surveyed. The remaining 68 miles of corridors would be surveyed following the forests travel management survey strategy. Approximately 475 miles of roads identified in the data base as closed are regularly used by the public. Formally designating those system roads as open for motorized use is not expected to cause additional adverse impacts. No open areas or MBGR are proposed in Alternative E. Changes to the current road and trail systems under Alternative E could impact 239 sites and the designation of camping corridors could impact 242 sites; however, as discussed above these impacts would likely be minimal.

**Table 12.** Alternative E Changes to forest road system and cultural resources within the APE

<b>Description</b>	<b>Proposed change to existing system</b>	<b># of known heritage</b>
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		<b>resources within APE</b>
Miles of unauthorized routes, added to the motorized road system open to the public (roads)	64	57
Miles of closed roads opened for motorized use	220	45
Miles of system roads with 300-foot corridors designated for motorized access to dispersed camping	118	35
Miles added of motorized trails designated for motor vehicles 50 inches or less in width (from currently closed or open roads)	28	1
Miles added of motorized trails designated for motor vehicles 50 inches or less in width (from currently unauthorized routes and 1 mile of new construction)	21	3
Open Areas (acres) where motorized use would be designated	None	N/A
Motorized big-game retrieval	None	N/A

### Direct and Indirect Impacts

The frequency and severity of current and potential direct and indirect adverse impacts to remote archaeological sites accessible by cross-country OHV use would be reduced and in areas stopped. Direct and inadvertent damage from OHV use to sites by recreational users and for resource procurement would minimally occur in permitted areas.

Similar to Alternatives B and D, motorized vehicles would be allowed to travel up to 300 feet from the centerline of all designated routes in dispersed camping corridors. However this alternative has less fixed width corridors than Alternatives B and D, thus reducing the potential of inadvertent vandalism to sites. Alternative E has the least potential to have direct and indirect impacts to cultural resources

## **Cumulative Effects**

The cumulative effects on cultural resources should take into account all surface-altering actions that have occurred or are likely to occur within the forests. Many recorded sites on the forests are at least regionally significant, and some are nationally significant. This regional or national importance of some sites within the forests reinforces the need for protecting significant local cultural resources that may be affected from cumulative impacts of management activities within the forests and region.

Current and previous Forest Service management activities, public resource procurement and recreational use and natural processes have impacted cultural resources. During the 19<sup>th</sup>-20<sup>th</sup> centuries logging activity had extensive impacts to forest lands caused by the construction of networks first of logging railroads and then of roads and trails used to access and transport timber. At the time timber companies did not have to consider the presence of archaeological sites when they constructed the roads and trails, and this resulted in hundreds of sites being adversely affected by the displacement, removal or destruction of cultural materials.



Grazing activity has occurred on the forests since the late 1800s. Direct and indirect impacts from livestock grazing have occurred to sites on the forests. In the past, Forest managers noted direct impacts to sites accessible by cattle from trampling, soil removal, and rubbing where large numbers of livestock were grazed in constricted areas with high densities of sensitive prehistoric sites (i.e. above ground structures, rock shelters with middens, pictographs). Current grazing management practices and allotment management plans have minimized these types of impacts so they have negligible to no adverse effects to cultural resources.

Most of the lands within the five forests are located in a fire-adapted ecosystem. Evidence that prehistoric sites and TCPs have been repeatedly burned (prior to active fire suppression), is demonstrated by fire scarred trees and thermally (fire) altered masonry structures and artifacts. From the 1930s through the 1970s public land managers aggressively attempted to suppress all wildland fires and reduce the geographic spread of fires by creating roads and fire breaks. The aggressive suppression management practices resulted in changes to the forest structure. The forests are actively trying to restore the natural fire regime into the ecosystem and reduce unnatural fuel loading. Until the fuel loading and forests are restored to a more natural condition, archaeological sites could be exposed to high intensity fires and may be adversely effected. In general, low to moderate intensity fires do not have an adverse effect to archaeological sites. The following are wildfires (>5000 ac) that have occurred on the forests within the last eight years: Durfee Fire (2009) 6,800 ac, Hot Air Fire (2008) 8,300 ac, Chitty Fire (2007) 15,000 ac, Potato Fire (2006) 6,292 ac, Three Forks Fire (2004) 7,905 ac, KP Fire (2004) 16,092 ac, Thomas Fire (2003) 10,644 ac., Steeple Fire (2003) 6,105 ac., Rodeo-Chediski Fire (2002) 173,273 ac.

The physical remains associated with historic logging, mining, ranching and the transportation routes are considered significant to our understanding of local and national history. Since 1972, archaeological sites and more recently, TCPs, have generally been avoided while conducting management activities when their presence has been known.

The recent rapid increase in personal motorized vehicle use on the forests poses a threat to cultural resources. In addition, burgeoning human populations in communities within and surrounding the forests are correlated to increased damage to archaeological and historical resources. Potential impacts from illegal excavation (looting) and collection from archaeological sites located on forests would continue in accessible areas. Significant contextual information and parts of our history will be stolen and destroyed by looting and collecting. As transportation technology advances and more roads are constructed, a greater number of people will have the ability to visit undisturbed sites farther from the main transportation routes increasing potential incidents of looting. Implementation of the travel management rule will designate and restrict access of off-road motorized use, reducing future impacts to more remote undisturbed sites by intentional vandalism, looting, and artifact collecting, and unintentional, impacts from recreational cross-country travel by motorized vehicles. The cumulative effects of increased visitation due to accessibility are commensurate with the growing popularity of OHV use. These factors have the potential to result in further damage to cultural resources on the forests. Cumulative damage imparted on archaeological sites, historic properties, and TCPs through years of visitor impacts results in the outright loss of these resources or diminished integrity. Limiting off-road motorized use to designated areas and the designated road system would

reduce the amount of existing and potential impacts to cultural resources from off-road motorized use.

Within the Forests, other planned or reasonably foreseeable activities that may affect cultural resources are listed below. Present and reasonably foreseeable activities within the analysis area are listed in Table 13. This table was developed from the Schedule of Proposed Actions for the ASNFs and professional knowledge of the analysis area. It is not intended to be an exhaustive list of all present and reasonably foreseeable activities in the analysis area, but a thorough representation of known actions. For this analysis, the cumulative effects analysis area is the planning area (boundary of the Apache-Sitgreaves National Forests).

Prior to any actions or ground-disturbing activities that have the potential to affect the character or use of cultural resources, the ASNF ensures compliance with the NHPA by following the stipulations of the PA. If cultural resources are located within the project areas, avoidance or appropriate mitigation measures are implemented to achieve a determination of no effect or no adverse effect to cultural resources. If two proposed land exchanges go through, they will have an adverse effect to cultural resources. The adverse effects are expected to be mitigated through data recovery in consultation with the ACHP, AZ SHPO and culturally affiliated Tribes.

**Table 23. Past, Present and Reasonably Foreseeable Future Actions**

<b>Project or Activity Name</b>	<b>Activity or Project Type</b>	<b>Status</b>	<b>Location</b>
<b>Prescribed Fire</b>			
Campbell Flat RX Burn	Fuels reduction	Foreseeable	Alpine Ranger District
R-C Prescribed Burn	Prescribed fire	Foreseeable	Lakeside Ranger District, Black Mesa Ranger District.
Alpine RD Campbell Flat Rx Burn	Prescribed burn	Foreseeable	Alpine Ranger District.
<b>Wildland Urban Interface</b>			
Campbell Blue WUI	Wildlife habitat and riparian restoration	Foreseeable	Alpine Ranger District.
Beaver Creek Wildland Urban Interface (WUI) Project	Fuels treatment	Foreseeable	Alpine Ranger District.
Rim Lakes Forest Health Project	Fuels reduction	Foreseeable	Black Mesa Ranger District.
Show Low South Fire Risk & Fuel Reduction	Fuels reduction	Foreseeable	Lakeside Ranger District.

<b>Project or Activity Name</b>	<b>Activity or Project Type</b>	<b>Status</b>	<b>Location</b>
Big Lake Wildland Urban Interface Fuels Reduction Project	Fuels management	Foreseeable	Springerville Ranger District.
Greens Peak Wildland Urban Interface Hazardous Fuels Reduction	Fuel treatment	Foreseeable	Springerville Ranger District.
<b>Trail Construction, Reconstruction and Maintenance</b>			
Bear Fire Trail Restoration	Trail realignment	Foreseeable	Alpine Ranger District.
Leopold Commemorative Trail/Green Fire Trail	Trail construction	Foreseeable	Alpine Ranger District.
OHV Trail Heber-Overgaard North	OHV trail maintenance and reconstruction		
Rim Vista Trail #622 Paving Project	Trail maintenance and reconstruction		
Snowmobile Trail Re-alignment	Snowmobile trail maintenance and reconstruction		
White Mountain Trail System Modifications	Trail maintenance and reconstruction	Foreseeable	Lakeside Ranger District.
<b>Water Development</b>			
Water diversions		On-going	
Overley Spring Box Collection	Permitted spring boxes on the Forest	Foreseeable	Alpine Ranger District.
Black Canyon Dam Improvement Project	Modifications to meet current dam safety requirements and recent reclassification of the dam to "High Hazard".	Foreseeable	Black Mesa Ranger District.
<b>Land Exchanges</b>			
Black River Land Exchange – Rancho Alegre (1 of 2 parcels)	Land exchange - 79.76 acres, 0.25 mile along west fork of the Blue River, 3 acres of wetland	Foreseeable	Alpine Ranger District

<b>Project or Activity Name</b>	<b>Activity or Project Type</b>	<b>Status</b>	<b>Location</b>
Black River Land Exchange – Blue River Ranch parcel (2 of 2 parcels)	Land exchange	Foreseeable	Alpine Ranger District
Camp Tatiyee Land Exchange	Land exchange	Foreseeable	Lakeside Ranger District.
Show Low South Land Exchange	Land exchange	Foreseeable	Lakeside Ranger District.
<b>Fisheries Habitat Management</b>			
Fish Barriers	Fish habitat improvement	Foreseeable	Clifton Ranger District.
Southwestern Region Fish Barrier Maintenance, Repair, and Reconstruction	Maintenance, repair, and reconstruction of existing fish barriers	Foreseeable	Alpine Ranger District, Springerville Ranger District.
<b>Road Management</b>			
Transportation System	Road maintenance	On-going	Forest wide
Road maintenance	Road Maintenance	Ongoing	Forest wide
FR 281/CO Rd 67004 annual road maintenance	Road maintenance	On-going	Alpine Ranger District
FR 281 road improvements	Road maintenance and reconstruction	Foreseeable	Alpine Ranger District
Lower Blue Road FS281 Maintenance	Road maintenance	Foreseeable	Alpine Ranger District.
Unauthorized motorized use	Travel management	On-going	Forest wide
Eagle Creek Road Maintenance		Past	
Heber-Overgaard Non-motorized Trail System	Trail construction	Foreseeable	Black Mesa Ranger District.
NFRS 161 Re-alignment	Road realignment		
FR 129 Paving	Road paving project	Foreseeable	Lakeside Ranger District.
<b>Minerals, Energy Development, Oil and Gas Leasing Activities</b>			

<b>Project or Activity Name</b>	<b>Activity or Project Type</b>	<b>Status</b>	<b>Location</b>
Geothermal Leasing Programmatic Environmental Impact Statement	Geothermal leasing	Foreseeable	11 western states
Pueblo Park Mineral Materials Pit	Materials pit and special use permit.	Foreseeable	Alpine Ranger District.
Minerals Extraction		Ongoing	Forest wide
<b>Other Jurisdictions</b>			
Private property	Private land	Foreseeable	Forest wide
Private property development	Recent new home construction with associated road construction (excavation, switchbacks)	On-going and foreseeable	Forest wide
<b>Livestock Grazing Management</b>			
Grazing Allotments	Livestock grazing management	On-going	Forest wide
Heber-Reno & Morgan Mountain Sheep Driveway	Grazing management	Foreseeable	Black Mesa, Lakeside, and Springerville RDs
Heber Wild Horse Territory Plan	Grazing management	Foreseeable	Black Mesa Ranger District.
Copperas Allotment Management Analysis	Livestock grazing management	Foreseeable	Clifton Ranger District.
Wildbunch Allotment Management Plan (AMP)	Livestock grazing management	Foreseeable	Clifton Ranger District.
Blue Ridge/Johnson AMP	Livestock grazing management		
Cerro Trigo Allotment	Livestock grazing management	Foreseeable	Springerville Ranger District.
Greens Peak Allotment	Livestock grazing management	Foreseeable	Springerville Ranger District.
Hall Allotment	Livestock grazing management	Foreseeable	Springerville Ranger District.
North Escudilla Allotment			

<b>Project or Activity Name</b>	<b>Activity or Project Type</b>	<b>Status</b>	<b>Location</b>
Revised Environmental Assessment for the Molina Springs Allotment	Livestock grazing management	Foreseeable	Springerville Ranger District.
Water Canyon and Murray Basin Allotments	Livestock grazing management	Foreseeable	
<b>Recreation Management</b>			
Developed Recreation Use	Recreation management	On-going	Forest wide
General Recreation Use	Recreation management	On-going	Forest wide
Dispersed Recreation Use	Recreation Management	Ongoing	Forest wide
<b>Land Management Planning</b>			
Apache-Sitgreaves NFs Revised Land & Resource Management Plan	Land Management Planning	Foreseeable	Forest wide
<b>Wild and Scenic Rivers</b>			
Blue River and KP Creek Wild and Scenic Rivers Suitability Study	Wild and scenic river suitability study	Foreseeable	Alpine Ranger District, Clifton Ranger District.
<b>Special Uses Management/Road Easements</b>			
ADOT Maintenance Yard	Special use permit	Foreseeable	Alpine Ranger District.
Alpine RD Blue River Gravel Pits	Special use permit	Foreseeable	Alpine Ranger District.
Cottonwood Gulch Foundation Backpacking Expeditions	Special use authorization	Foreseeable	Alpine Ranger District.
NRCS Weather Station	Assorted SnowTel and Snow Courses located on approximately 65 acres.	Foreseeable	Alpine Ranger District.
Noble Easement	Road easement	Foreseeable	Alpine Ranger District.

<b>Project or Activity Name</b>	<b>Activity or Project Type</b>	<b>Status</b>	<b>Location</b>
Nutriosio Fire Dept. Comms site	Special use permit	Foreseeable	Alpine Ranger District.
Salt River Project Weather Stations	Special use permit	Foreseeable	Alpine Ranger District.
Iverson Access	Road easement		
Heber Youth Group Camp Access	Road easement and special use permit	Foreseeable	Black Mesa Ranger District.
Ryan Ranch Access	Road easement		
Ditch Bill Easement - Little Mormon Lake and associated improvements	Application for irrigation and stock watering easement including operating and maintenance conditions.	Foreseeable	Lakeside Ranger District.
Ditch Bill Easement - Lakeside Ditch	Application for irrigation and stock watering easement including operating and maintenance conditions.	Foreseeable	Lakeside Ranger District.
Hansen Road Easement			
Jacques Marsh Expansion	Expansion of waste water treatment facility.	Foreseeable	Lakeside Ranger District.
Langkilde Road Easement	Road easement	Foreseeable	Lakeside Ranger District.
<b>Wildlife Habitat Management</b>			
Alpine RD Loco Knoll PJ & Grassland Restoration	Habitat restoration	Foreseeable	Alpine Ranger District
National Wildlife Turkey Federation (NWTf) Riparian Restoration Project (multiple sites)	Riparian habitat restoration	Proposal development	Alpine Ranger District.
Rim Lakes Wildlife Habitat and Public Safety	Implementation of wildlife and non-motorized wildlife and hunting opportunities and upgrade of roads for recreation in the Rim Lakes Recreation Area for public safety.	Foreseeable	Black Mesa Ranger District.

<b>Project or Activity Name</b>	<b>Activity or Project Type</b>	<b>Status</b>	<b>Location</b>
South Marsh Antelope Habitat Restoration	Wildlife habitat restoration	Foreseeable	
Mexican Wolf Blue Range Recovery Area Holding Pen	Construction of a permanent pen for temporarily holding Mexican wolves up to 30 days.	Foreseeable	Springerville Ranger District.
<b>Other Vegetation Treatments</b>			
Chitty Fire Salvage	Fuels treatment		Alpine and Clifton Ranger District
Hwy 191 Hazard Tree Removal	Hazard tree removal	Foreseeable	Alpine Ranger District.
Bruno Thinning & Slash Treatment	Fuels treatment		
Integrated Forest-wide Noxious Terrestrial and Aquatic Weed Management Plan		Ongoing	
Rodeo-Chediski Fire Reforestation		Ongoing	
Timber Harvest		Past	
<b>Riparian Improvement</b>			
Riparian Restoration Projects		Foreseeable	

## Conclusions

The forests transportation system plays an important role in preserving cultural resources for future generations. All alternatives discussed above have the potential to impact cultural resources, an expected condition in any land use strategy. However, protection of heritage resources on the forests is best served under Alternatives B, C, or E.



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2007 Appendix I: Standard Consultation Protocol for Travel Management Route Designation of the *First Amended Programmatic Agreement Regarding Historic Property Protection and Responsibilities among New Mexico Historic Preservation Officer and Arizona Historic Preservation Officer and Texas and Oklahoma and the Advisory Council on Historic Preservation and the United States Department of Agriculture Forest Service Region 3*. Southwestern Region, Albuquerque New Mexico.

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## **Sign and Date Report for the Record**

Melissa R Schroeder 5/2010

**Revised Report in Response to Public Comments on Draft**