

Travel Management Tonto National Forest Heritage Resources Report

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Table of Contents

- Affected Environment..... 3
 - Desired Conditions..... 6
- Environmental Effects..... 7
 - Assumptions and Methodology..... 7
 - Unauthorized Routes and Decommissioned Roads..... 13
 - Areas Open to Motorized Cross-Country Travel..... 15
 - Permit Zones..... 15
 - Motorized Big Game Retrieval..... 15
- Alternative A 17
 - Direct and Indirect Effects 17
 - Cumulative Effects 18
- Alternative B 18
 - Direct and Indirect Effects 18
- Alternative C 19
 - Direct and Indirect Effects 19
- Alternative D 22
 - Direct and Indirect Effects 22
- Summary of Direct and Indirect Effects for Action Alternatives..... 25
- Cumulative Effects Associated with the Action Alternatives..... 25
- References 27

Affected Environment

During the past 30 years, Tonto National Forest Heritage Resource specialists, permitted consultants, and volunteers, in compliance with Sections 106 and 110 of the 1966 National Historic Preservation Act (NHPA), as amended, have inventoried approximately 7 percent of nearly 3 million acres that comprise the Forest. Well over 10,000 archaeological, historical, and cultural sites (collectively known herein as cultural resources) have been recorded by that effort. Some inventoried sites date back to as much as 12,000 years ago. These sites range from simple artifact scatters to massive prehistoric masonry structures and cliff dwellings, from barely visible Apache camps to entire historic mining towns. Thirty-two of these sites have been listed on the National Register of Historic Places; thousands more have been determined to be eligible for listing. Based on the number and quality of sites recorded in this small percentage of the Forest, it is apparent that the Tonto National Forest has a very high density of significant archaeological sites overall. Many of these sites are fragile and easily damaged by motorized vehicles running over them and all of them are susceptible to further damage, and even loss, from erosion that often accompanies uncontrolled cross-country motorized travel. In addition to direct physical impacts to archaeological and historic sites, indirect impacts to the environmental context of these sites can result from both cross-country travel and high densities of established routes.

The Forest currently contains 4,959 miles of roads open to the public, many of which, owing to high archaeological and historical site density, have inevitably impacted a variety of cultural resources. Many of these roads originated in the late 19th century and have been in continual use ever since. Many more were built prior to the passage of the 1966 National Historic Preservation Act, and were constructed without regard for their potential impacts to archaeological or historic sites. As a result, hundreds of archaeological sites on the Tonto National Forest have been documented in the inventory as having been damaged by past road construction and maintenance activities. The Southwestern Region Programmatic Agreement between the Advisory Council on Historic Preservation, Forest Service Region 3 and the State Historic Preservation Officers (SHPOs) of New Mexico, Texas, Oklahoma and Arizona (1994, as amended 2003, hereafter referred to as the Programmatic Agreement) recognizes this situation and accepts that continued use and routine maintenance of system roads and motorized trails, even where there are known historic properties or cultural resources, does not necessarily constitute an adverse effect to these properties when the proposed work is clearly confined to previously disturbed contexts and will not increase or expand this disturbance. Any maintenance or modification outside of their existing disturbance area of a road, that is the area that includes the roadbed itself and any ditches, cuts, or fills on either side (the road's "prism") or that would increase the existing disturbance or widen the prism is subject to Section 106 of the National Historic Preservation Act and so must avoid or mitigate any additional effects. Nevertheless, known instances of site damage from use or maintenance will go through the 106 process and adverse effects will be avoided or mitigated.

A nation-wide Forest Service policy for travel management route designation was developed in 2006 with the Advisory Council on Historic Preservation. In addition, Region 3 developed guidance for travel management route designation as Appendix I to the Region's Programmatic Agreement, Standard

Consultation Protocol for Travel Management Route Designation (Protocol) (U.S. Forest Service, 2006a). The protocol was developed in consultation with the New Mexico, Texas, Oklahoma and Arizona SHPOs, the Advisory Council, and tribes. The forests in Region 3 follow the protocol to meet their Section 106 responsibilities. Both the National Policy and the Region 3 protocol hold that a decision to designate a system of already existing roads and trails currently open for motor vehicle use will have little or no potential to affect historic properties. Adding new roads, trails, areas and other vehicular access-related facilities such as parking lots or pullouts and areas not already incorporated into the designated National Forest System of roads, such as unauthorized routes, may have such potential, however, and so must comply with section 106. These unauthorized routes and OHV areas are therefore subject to inventory, evaluation, consultation with those Tribes having cultural or historic affiliation with the Forest and the State Historic Preservation Officer (SHPO), and would need to meet requirements to avoid or mitigate such impacts under Section 106. The Protocol also identifies situations where consultation may or may not be required and establishes appropriate levels of inventory and measures for mitigation of impacts.

In compliance with Travel Management regulations at 36 CFR 212.5 (a) and (b), the development of road and trail additions proposed in the action alternatives were developed in an interdisciplinary manner. The alternatives were initially developed prior to any archaeological survey of unauthorized routes. An archaeological survey was conducted based on the initial description of the proposed action. Additions and deletions to the alternatives were subsequently made throughout the process. As a result, many of the unauthorized routes proposed for designation remain unsurveyed and a number of them that were surveyed have been proposed for designation despite being encumbered by archaeological sites. The decision to continue proposing them for designation was based on the potential to mitigate impacts using the protection measures identified in the Protocol. For cultural resources, then, the application of the rules of the Protocol serves to implement the minimization criteria of the regulations by reducing or eliminating impacts prior to designation and inclusion in the MVUM.

According to the documentation in the archaeological site inventory for the Tonto, many sites on the Forest have already been damaged by OHV cross-country travel and dispersed motorized camping, evidenced by unauthorized roads, trails, tire tracks, fire rings, and trash being present. It is not known to what extent this has taken place, since such data has not been consistently recorded over the past 50 years. And sites have been inventoried by many different individuals and institutions. However, this damage is not uncommon, especially in the more popular camping areas. Some of this damage may also have come from motorized big game retrieval, but without specific evidence, a track through a site can't be differentiated between motorized big game retrieval and any other form of OHV cross-country activity.

Given the known site density on the Forest, it is therefore likely that incorporation of new travel routes may result in additional impacts to cultural resources that would have to be mitigated. Uncontrolled cross-country motorized travel will result in even more, with no mechanism to limit or mitigate those impacts. Restriction of motorized travel to designated routes helps to protect the physical integrity of

historic properties; reduction in route density contributes to preservation of their natural environmental context.

No newly designated route will be open for motorized access until it has been surveyed for cultural resources and any conflicts with those resources have been resolved under the terms of the Programmatic Agreement and the Protocol. The Protocol was developed at the regional level as an appropriate tool for analyzing and resolving the effects of route designation under the Travel Management Rule and was incorporated into the Programmatic Agreement with the review of four State Historic Preservation Officers and the Advisory Council on Historic Preservation and tribes with ancestral ties to the forest. The Regional Forester, SHPOs and Advisory Council signed the protocol, agreeing that it adequately addressed their concerns. By following its guidelines, developing inventory protocols and selection criteria that minimize direct and indirect impacts to cultural resources, and attempting to eliminate cross country OHV travel, the forest will meet its requirements under Section 106.

While it is sometimes perceived that protection of archaeological and historic sites from the public is a goal by land managing agencies, providing public access to cultural properties is a concern. Visiting archaeological sites has long been a popular recreational pursuit on the Tonto National Forest; so that today we also protect sites for the public. The purposes for and attitudes about public visitation have changed drastically over the last few decades. Prior to enactment of the 1979 Archaeological Resources Protection Act (ARPA) and creation of the Arizona Site Stewards volunteer monitoring program in the 1980s, vandalism and looting of archaeological sites in central Arizona was widespread and highly destructive, but was considered acceptable behavior by many Americans who took pride in showing off their looted collections at county fairs and wrote articles about their adventures in the Sunday supplements and outdoor magazines. At least half the archaeological sites in the recorded inventory of the Tonto National Forest have suffered to one extent or another, some to the point of having been virtually destroyed by looters. However, since then, enforcement of the new law and its stiff penalties and the widespread use of the Site Stewards program have decreased vandalism and looting considerably, almost to the point of being eliminated, at least in heavily-visited parts of the Forest. Occasional incidents continue to be reported and investigated, but now tend to be located in more remote parts of the Forest and almost always involve casual, unfocused digging in sites that have already been extensively looted. In addition to the effects of law enforcement and monitoring, public attitudes toward looting and vandalism have changed appreciably as a result of increased education and awareness. Looting sites and desecrating ancient graves is no longer considered to be an innocent hobby or source of income but is recognized in newspaper and magazine articles and in stories presented on the televised news as a criminal activity that robs Americans of their shared heritage. Protection of sites from vandalism follows from that as both a public concern as well as an agency mandate. Many years of working with the state-sponsored Arizona Site Stewards program and Forest Service law enforcement officers have demonstrated that vehicular access near or leading to archaeological sites greatly contributes to their protection, as does frequent visitation by the public.

Vehicular access makes it easier to patrol and monitor and frequent public visitation increases the potential for illegal activity to be reported.

In the past, looters used existing roads for access but often created roads to get to ruins by traveling cross-country, particularly as the availability of four wheel drive vehicles increased dramatically after World War II. As a result of this activity, heaviest in the period between 1950 and 1980, many ruins in proximity to roads were vandalized, looted, and damaged. Site condition in areas accessible by road prior to 1980 is generally poor, though vandalism and looting damage to sites on the Forest is not limited to these areas. Vandalism to sites within a few hundred meters of existing roads continues sporadically, but today many of those same roads, including those originally pioneered by pothunters, are used to monitor and protect those sites from further damage.

Analysis of the amount of damage done over the last 35 years to sites within a sample of 225 sites on the Forest—all Priority Heritage Asset sites and sites with documented damage assessment—shows that there has been a dramatic reduction in the level of vandalism. Prior to 1979, estimates of damage to sites in the sample document a total volume of disturbance equivalent to approximately 24,880 cubic meters. Since that time, inspections and damage assessments for all sites in the sample document only a total of 1,884 cubic meters of disturbance. This is a 92.5 percent reduction in measurable disturbance to sites resulting from all forms of vandalism after 1979 and the passage of ARPA and the development of monitoring practices that include both regular Forest Service inspections, Site Steward monitoring, and reporting by Forest visitors.

An archaeological survey conducted in 2010 under contract for this analysis (Roberts and Mitchell, 2010), has been completed for a 50 foot (15 meters) wide corridor along 170 unclassified, unauthorized routes proposed at that time for designation as system roads and motorized trails, along with three OHV areas proposed for designation on Globe and Mesa ranger districts. This inventory was conducted under the guidelines established by the Protocol. It identified a total of 86 archaeological sites ranging in size and complexity from simple artifact scatters to multi-room masonry structures. Included were several historic sites and one or two that may reflect the use of the area by Yavapai and/or Apache in the last several centuries. But the vast majority of these sites were prehistoric, related to the Hohokam archaeological culture and dating to various times between approximately 800 and 1400 A.D.

Desired Conditions

Management of motorized travel on the Tonto National Forest will protect and preserve cultural resources in their natural environment, provide recreational access for site visitation, provide Tribal access to traditional use and sacred sites, and reduce vandalism while facilitating law enforcement and other forms of protection.

Environmental Effects

Assumptions and Methodology

Analysis of the specific effects to cultural resources related to travel management can be complex and the potential effects may seem contradictory, and the solutions typically reflect that situation. Access can be both beneficial and detrimental depending on what aspects of preservation, management, and use of cultural resources are under discussion. The relationship between cultural resources – archaeological and historic sites, sacred sites and traditional use areas – and motorized access routes has always been one of balancing positive and negative effects. The effects can be direct impacts from the construction or use of a road or trail or they can be indirect, resulting from activities allowed or enhanced by motorized access. In turn, these can be foreseeable and legitimate such as hunting and camping, or unforeseeable and illegal, such as the vandalism and looting of archaeological sites. The benefits are generally indirect, and derive from the enhanced ability to monitor, manage, and protect archaeological and historic sites and provide access for Tribal people to sacred and traditional use sites. Balancing the unforeseeable against the intangible, however, is not a straightforward task and requires continual monitoring to maintain any kind of equilibrium. In many ways, the management of cultural resources on public land is a matter of risk assessment against two competing philosophies and a choice as to whether these resources, the legacy of all Americans, should be accessible to the people who pay for their protection or protected from the public and accessible only to a privileged few.

Cultural resources, depending on their nature and composition, are subject to several different types of impact from activities associated with motorized recreation and transportation. Archaeological and historic sites are irreplaceable and individually unique. Their integrity is wholly dependent on the contextual relationship between artifacts, architecture, and the environment in which they are found, something that cannot be recreated or restored once disturbed. They are also, by their very nature, previously affected, reduced by the transformation processes of erosion and decay from their original pristine state. Any effect to such sites, therefore, is cumulative; they can't grow back and their populations cannot rebound.

Direct effects to cultural resources, especially archaeological sites, can be generally defined as anything that results in removal of, displacement of, or damage to artifacts, features, or stratigraphic deposits of cultural material.

Unrestricted off-road motorized travel involves physical contact of tires or other vehicle components traveling over or through archaeological sites or traditional use areas, altering the ground surface and any archeological materials on the site. Even single episode cross-country excursions may crush, displace, or destroy cultural materials (i.e. artifacts, features, and traditionally-used plants), and damage or destroy significant information that may contribute to our understanding of history. OHV use in areas with sensitive or erosive soils can create tracks and ruts that may in turn lead to rill and gully formations, which could further damage sites. Similar effects can also occur both from the construction and use of designated roads and trails and from the physical closing of such routes, particularly closing established

routes that have already impacted archaeological sites when they were originally constructed. The impacts from physically closing or decommissioning a road that crosses a site can be even more damaging than the road itself, since the process typically involves additional surface disturbance and even sub-surface disturbance to install gates or barricades, to rip the surface for reseeding, or to cut ditches or raise berms. Impacts from use or closure of designated routes, however, are considerably less than those associated with unrestricted motorized travel simply because they are known and defined and their use is confined and subject to laws, protocols, and mitigation. With unrestricted cross-country motorized travel, none of these protections can be enforced.

In the case of cultural resources which are considered eligible for inclusion in the National Register of Historic Places, direct effects can also include alterations of a property's setting or context. Unrestricted and uncontrolled motorized vehicular use off of National Forest System roads that result in erosion and changes in vegetative composition and density is an example of how motor vehicle use can alter the setting and geographic context of sites. In the case of traditional cultural properties and sacred places, additional considerations may include alterations in the presence or availability of particular plant species.

Direct impacts from motor vehicle recreation are generally considered to be those resulting from construction, use, and maintenance of facilities, such as campgrounds, picnic areas, roads, and parking lots. In this context, that would include the designation of an unauthorized route into a designated road and motorized trail system and the use of that route, if it passes through the boundary of an archaeological or historic site or a traditional use or sacred place. It would also include designation of areas, which unlike designated routes, allow cross-country motorized travel. Without some form of protective measures such as those identified in the Protocol, any cultural resource within a designated area would be subject to damage up to and including its total destruction either from the direct effect of vehicular impacts or indirectly from erosion. Given the overall site density on the Forest, any area of any size will likely contain archaeological sites or other cultural resources that would be impacted, if they were to be designated.

Indirect impacts to cultural resources come from activities associated with the use, particularly the recreational use, of roads and the activities people undertake once having accessed their destinations. The most commonly cited indirect effects are site contamination with modern trash and surface artifact displacement associated with camping and site visitation and the actual destruction of features, cultural deposits, and archaeological context by vandalism and looting. Camping and trash disposal are activities associated with roads that can be anticipated and planned for with various ways to minimize their effects. Archaeological site vandalism, looting, and pothunting are criminal activities and as such can be anticipated but not projected or planned, especially given the number of known (approximately 10,000) or projected (100,000+ cultural resources) on the Tonto National Forest and the variety of sites on the Forest that have been impacted by these activities. Basically, every type of site from rockshelters to pithouse villages to single room fieldhouses to multi-room masonry structures to cliff dwellings has been targeted by pothunters at one time or another, though the larger masonry structures, generally thought

to contain more valuable artifacts, have borne the brunt of the damage; even a cursory review of the documentation in the existing site inventory demonstrates this fact. From our experience, no amount of engineering, social or mechanical, will deter a criminal of this sort motivated enough to risk detection alongside an established forest road or to build a road cross-country to get to a ruin or to hike miles into the wilderness carrying shovels and hike back out carrying a load of heavy artifacts. As such, pothunting and other forms of site vandalism and looting remain a persistent problem for managing the cultural resources of the Tonto National Forest.

However, as noted above, evidence and experience clearly show that the social and legal climate has changed regarding this activity since the passage of the Archaeological Resources Protection Act (ARPA) in 1979. What was once considered a harmless pastime or legitimate hobby is now generally recognized by the public, and by informed Forest visitors in particular, as an illegal activity that, at the very least, diminishes the legitimate recreational experience of visiting archaeological sites and robs us all of a part of our shared heritage. In this post-ARPA climate, vehicular access is not so much a threat to cultural resources as it is a means to provide that legitimate recreational experience and a tool for land managers to facilitate the protection and preservation of this resource. The primary threat from vehicular access today – much as it was prior to ARPA – is the physical damage to sites from road construction and uncontrolled cross-country travel.

Vandalism and looting, dating back to the 1880s, has been seen in areas where there has never been motorized access and where no motorized access is allowed, though it can be argued that they are more widespread in association with motorized access since some motor vehicles allow visitors to bring in more trash and remove more resources than they would normally be able to on foot or horseback. It is often stated as an assumption that increased motorized access to an area always results in increased looting and vandalism of archaeological sites. However, vandalism in wilderness and roadless areas – though on-going – is only rarely reported because fewer people are able to visit sites in those areas. The relationship between roads and looting over the last century or so has been neither constant nor straightforward and simple proximity between motorized access and archaeological sites without accounting for the nature of the motorized use or the condition and characteristics of the sites is not an infallible indicator of a threat.

Reporting of vandalism, a key aspect of protection and law enforcement, is often a direct reflection of vehicular access. Forest Service personnel and volunteer monitors from the Arizona Site Stewards program report incidents at sites they can get to. Because of the change in attitudes post-ARPA, Forest visitors also report violations on a regular basis. The direct result of increased visitation and access by heritage professionals, law enforcement officers, volunteer monitors, and a concerned public has been a sharply reduced incidence of looting and vandalism of archaeological sites on the Tonto National Forest since the passage of ARPA in 1979.

And yet the attitude persists that making archaeological sites difficult to find or access is the best way to protect them, even going so far as to suggest that if it is difficult to monitor a site, then it would also be

more difficult for vandals and looters to disturb that site. This is a fundamentally incorrect assumption for two reasons. First of all, pothunters and Site Stewards – the majority of our volunteer monitors, who are generally retired seniors – do not have the same levels of motivation and physical ability. Second, if it is more difficult to observe a site, it is therefore easier for a pothunter to avoid detection at that site. Limiting the ability to monitor sites merely guarantees the pothunter exclusive access to an area where he will have relative assurance of not being observed.

In 2010, a condition and damage assessment of 96 previously recorded archaeological sites on the Tonto National Forest was conducted as a volunteer project for the Forest by the Center for Desert Archaeology (CDA) to provide data for this analysis (Hedquist and Ellison 2010). This analysis was done to investigate the relationship between site damage and proximity to roads on the Tonto National Forest.

The sites selected for this study were primarily what are known as Priority Heritage Assets (PHA), a subset of the 10,000 site Forest inventory of sites that are monitored by the Forest on a regular basis owing to their scientific value, extensive past damage from natural forces and, especially, from vandalism and looting, and their needs for stabilization and repair. The majority of these sites are large masonry ruins, but the list also includes sites with only a few rooms, several rockshelters, and several pithouse villages, sites with little visibility to the average Forest visitor. Nevertheless, while the PHA list makes a convenient starting place to assess the condition of sites on the Forest, it is not actually representative of the entire site inventory. Because all listed PHAs are required to be monitored at least once every five years, all of these sites are adjacent to or relatively close to roads in order to facilitate access; many more comparable sites on the Forest were not listed. Many large vandalized sites located well away from roads were not selected as PHAs simply because of the difficulty involved in accessing them on a regular basis. Also, sites that have not been vandalized, looted, or damaged – even those located adjacent to roads - were not generally included in this list since the need for stabilization and repair is one of the criteria for designating a TCP. To compensate for the bias inherent in using the PHA list as the basis for the sample, the selection process for the CDA inspection initially added a variety of other sites, many of them at some distance from roads and trails, for a total target of 135 sites to inspect. However, due to scheduling and other restrictions, many of these additional sites ultimately were not inspected or added into the analysis.

The CDA analysis showed that over 90 percent of the sites inspected had been, at some time, vandalized or otherwise damaged by human activity, not surprising considering the criteria for selecting PHAs in the first place and the fact that most of the sites inspected were PHAs. It did note that most of the observed vandalism was “decades old,” which suggests that it took place at a time when there was less vehicular activity and less monitoring of archaeological sites. The analysis also indicated that 80 percent of the vandalized sites were located within 200 meters of a Forest System road while those sites inspected that lie over a kilometer from a road were not. The study went on to recognize the mitigative effects of public education, monitoring, law enforcement, and signage and the changes that have taken place over the years relative to vehicular access to archaeological sites. In concluding, it recommended roads and

routes located within 200 meters of a significant archaeological site (e.g. National Register of Historic Places listed property or designated Priority Heritage Asset) should be closed. Should continued use of the road or route be “reasonably justified,” the recommendation was to leave the road/route open for use but expand the use of monitoring and signage to cover all listed National Register properties and PHAs within 200 meters of Forest System roads.

While these appear to be reasonable conclusions based on the sample set inspected by CDA, that sample was biased toward both vandalized sites and sites that are located in close proximity to roads. A more representative data set, all Priority Heritage Asset sites and sites with damage assessments, totals 225 cultural properties, and is over twice the size of the sample analyzed by CDA. This amounts to approximately 2 percent of the total recorded site inventory of the Forest. Like the sites selected by CDA for analysis, the full sample is biased toward large sites that have been extensively damaged and that are easily accessible for monitoring by Forest personnel and volunteers. It also includes those sites specifically assessed for recent damage within the last 30 years. Because of this, 71 percent of the 225 sites in the sample are within 300 meters of an established road and of these 160 sites, 85 percent have been vandalized, in many cases assisted by cross-country vehicular travel and user-made unauthorized roads. As mentioned above, these sites were targeted by the sample. Even so, 15 percent of the sites in the sample that are located within 300 meters of a road have not been vandalized at all. However, in order to be somewhat more representative of the overall inventory, the sample also included 65 sites located over 300 meters from any established road, many of them miles away in wilderness and roadless areas. Of these, 55 sites or 85 percent had been disturbed, the same level of impact seen within 300 meters. Both subsets of the sample include a full range of site types but focused on the more “visible” sites such as large masonry structures and cliff dwellings. This finding corroborates the general impression from the Forest inventory that nearly every site on the Forest over 12 rooms in size and essentially every cliff dwelling and even most large pithouse sites has been vandalized regardless of their motorized accessibility.

Breaking those categories down between damage incurred prior to 1979 and after 1979, the sample documents a total volume of disturbance equivalent to approximately 24,880 cubic meters prior to 1979. Since that time, inspections and damage assessments for all sites in the sample document only a total of 1884 cubic meters of disturbance. This is a 92.5 percent reduction in measurable disturbance to sites resulting from all forms of vandalism after 1979 and the passage of ARPA and the development of monitoring practices that include both regular Forest Service inspections, Site Steward monitoring, and reporting by Forest visitors. Similarly, the number of sites disturbed within 300 meters of a road has gone down by 44 percent. However, the number of sites disturbed beyond 300 meters has only dropped by 30 percent. While overall damage as measured by the volume of disturbed cultural material has declined dramatically, these figures suggest an increased emphasis since 1979 on sites that cannot be easily monitored.

In addition to the damage to sites from pothunting and vandalism, a review of the sample sites reveals that only 11 of the 225 sites (5 percent) have documented evidence of physical damage from OHVs.

Primarily this type of damage involved pithouse sites where there are no surface masonry features impeding vehicular passage. On the other hand, vandalism at 53 of the sample sites (24 percent) was apparently facilitated by the creation of unauthorized cross-country roads for full-sized four-wheeled vehicles. While access to many of these sites today is achieved on smaller OHVs (e.g. ATVs and UTVs) these pothunter access roads, nearly all of which were created prior to 1979, were clearly made by and for jeeps and pickup trucks. While the sample was selected for monitoring pothunting and not specifically for OHV damage, these figures nevertheless demonstrate that a significant contributor to vandalism associated with vehicular access is the user creation of unauthorized cross country routes, one of the specific problems the proposed action seeks to eliminate.

Given that every population center within driving range of the Forest has increased in population since 1979 and that motorized recreation on the Forest has increased along with that population – and now includes classes of vehicles not even available in 1979 – it is clear that increased public access does not necessarily lead to increased incidences of damage to cultural resources.

Looking at the Forest inventory of all archaeological sites for the two Ranger Districts, Cave Creek and Mesa, having both the highest levels of vehicular use and highest density of unauthorized routes combined with extensive Wilderness areas, also indicates that a correlation between vehicular accessibility and vandalism is not as straightforward as the CDA conclusions might indicate.

The archaeological site inventory files for these two districts were examined to identify sites comparable to those listed as Priority Heritage Assets that are located either within designated wilderness or more than a mile from any roads. Fifty-five sites (48 in Wilderness, 7 in non-wilderness locations over a mile from any road) were identified that had sufficient information recorded to assess the degree to which they may have been vandalized or looted. Of these 55 sites, only 12 are recorded as having suffered no vandalism. Twenty five are recorded as having some level of vandalism and 16 are reported as having suffered from extensive vandalism and looting. Even in designated Wilderness areas and in places far from motorized access, as much as 75 percent of those sites have been vandalized. Apparently the key to predicting vandalism and looting is not motorized access per se, but the size and visibility of the archaeological site itself.

One of the worst cases of looting ever on the Tonto took place in the Mazatzal Wilderness some 25 years ago at a site 10 miles from the nearest road. The site was accessed by a dedicated pothunter driving an OHV illegally cross-country. During that same time period (and for decades before) hundreds of sites on the Pleasant Valley District were looted by another dedicated pothunter who drove his OHV cross country to avoid being detected or followed. On Perry Mesa at the western edge of the Forest, there are a number of large, heavily looted ruins with roads leading directly to them, but those roads originated in the 1950s and 1960s as cross-country access by pothunters: they didn't follow the roads to get to the ruins in order to loot them, they drove cross-country to loot them and left the roads behind along with the gutted shells of the sites they dug out. Looters used those same roads into the 1970s, but vandalism activity in that area dropped off drastically after that, due in no small part to the publicity

surrounding the arrest, conviction, and incarceration of a number of pothunters there following a spate of looting activity in 1979. Today those same roads are used by recreationists legitimately visiting ruins and by Site Stewards and Forest personnel who monitor the sites.

Along the Verde River Wild and Scenic corridor, within designated Wilderness, where there has never been motorized access even of the illegal kind – the only ways into this area are by foot, horseback, or river-running watercraft - every large ruin has been looted, some of them quite extensively. Most of this activity appears to have taken place early in the last century, with little or no activity noted in these sites over the last 30 years.

Given this history and the conclusion from the CDA study that most of the vandalism they observed was “decades old,” it would appear that both concepts of accessibility and attitudes toward vandalism and looting archaeological sites have changed over the years. Sites have been looted everywhere on the Forest, even in those areas perceived as inaccessible today, regardless of the presence of motorized access. Likewise, during the period when looting was most rampant on the Forest, the original motorized access to sites was usually cross-country travel to sites that attracted pothunters and thus attracted road building to gain access to them. In the last 30 years, the only new road we have found that was created specifically to access an archaeological site was not created for looting, but for access to a secluded place that just happened to have an archaeological site present. Despite any apparent correlation between roads and vandalism and despite a strong association between the two in the past, the fact remains that cross-country travel has always been and remains a much greater threat to archaeological sites than established roads.

Indirect effects from the closing of motorized routes can include a reduction in the agency’s ability to protect sites from vandalism and looting. They can also reduce accessibility of traditional resources and sacred areas to Tribal people.

Unauthorized Routes and Decommissioned Roads

All action alternatives examined here involve decommissioning some existing routes. Alternatives B, C, and D all include designation of previously unauthorized routes and Alternatives C and D further include authorization of areas where motorized use would be concentrated and not restricted to specific routes.

Under the Protocol, all newly designated roads, trails, corridors, and areas must comply with section 106. If any cultural resources are found, the protection measures identified in the Protocol must be implemented to avoid or mitigate any impacts. Documentation is needed to demonstrate that either the route does not encounter any cultural resources or that any adverse effects have been resolved in compliance with section 106, just like any other ground-disturbing activity under the terms of the Programmatic Agreement. No new route can be designated or displayed on the MVUM without completing this process. Where mitigation is not feasible, the routes cannot be designated as open or included in the MVUM.

Toward this end, a number of unauthorized routes identified for inclusion in what was then the proposed action were surveyed in 2010 (Roberts and Mitchell, 2010). The results of this survey are summarized in Table 1.

Table 1: Archaeological Survey of Unauthorized Routes by Alternative

	Alternative B	Alternative C	Alternative D
Miles of Unclassified Routes Proposed for Designation	50.44	330.16	583.52
Number of Unauthorized Routes Inventoried by Archaeological Survey	3	117	115
Number of Miles Inventoried by Archaeological Survey	1.96	123.59	120.04
Number of Archaeological Sites Identified	3	21	29
Number of Routes Encumbered by Sites	1	13	18
Percentage of Surveyed Routes with Archaeological Sites	33	11.1	15.6
Number of Miles Remaining to be Surveyed	48.48	206.57	463.48

Mitigation of impacts to cultural resources resulting from the designation of motorized routes is best accomplished by avoidance. It can also be achieved by maximizing opportunities to localize recreational activities, especially those involving motor vehicle use, to those areas where cultural resources are least likely to be affected. Specific recommendations regarding particular routes would be developed upon analysis of the survey data and field inspection of site locations; routes may be realigned and relocated to avoid sites or they may, if potential impacts are too great or the terrain does not effectively allow relocation, be dropped from the proposal. Decommissioning unauthorized routes is outside the scope of this analysis and would require separate analyses and decisions.

Protection measures identified in the Protocol are as follows:

- Dropping proposed motorized road, trail or area designations to avoid or reduce direct or indirect effects on historic properties; in fact, routes identified by archaeological survey as having adverse effects on cultural properties would not be identified on the MVUM as being available for motorized use.
- Re-routing or modifying designated roads or trails to protect historic properties. Rerouting or modifying roads would 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.

Implementation of the Protocol would protect cultural resources from direct impacts. Protection from some of the unforeseeable and often contradictory aspects of the indirect impacts that may attach to motorized access requires some additional consideration. Therefore, in addition to specific requirements of the Protocol, known archaeological sites throughout the Forest are monitored periodically during the day-to-day activities of Forest personnel. They would continue to monitor sites throughout the Forest, with priority being given to sites listed on the National Register, sites identified as Priority Heritage Assets, recognized Traditional Cultural Properties, sites subject to high visitation, sites with known erosion problems, and sites near areas of intensive public use such as concentrated areas of dispersed camping. The Arizona Site Stewards also routinely monitor sites on the Forest, reporting to both the Forest Archaeologist and Forest law enforcement officers. Where appropriate and as funding allows, sites may also be signed with ARPA warnings and notices that they are under Site Steward surveillance; such signs are already in place on many sites throughout the Forest.

Areas Open to Motorized Cross-Country Travel

Under the current Forest plan, the southern Ranger Districts, Cave Creek, Globe, Mesa, and Tonto Basin are closed to unrestricted cross-country motorized travel, but it is allowed on the Payson and Pleasant Valley Districts. Under the terms of the Protocol, designation of a specific area for unrestricted cross-country motorized access, like the designation of a previously unauthorized route, requires Section 106 consultation and, unless the specific exemptions under the protocol apply, must be surveyed, evaluated, and any effects to archaeological sites resolved under the protection measures established in the Protocol before they can be added to the MVUM.

Permit Zones

There is currently only one permit zone on the Forest. Since travel in a permit zones is restricted to designated roads and by implementing the Travel Management Rule, motorized travel would only be permitted on designated roads, trails, and areas, the effects associated with permit zones will not be analyzed separate from the current and proposed motorized route system.

Motorized Big Game Retrieval

Although specific documentation of impacts to sites due to motorized big game retrieval is not readily available, it is unlikely that this activity in and of itself would have a significant effect on archaeological sites. The dispersed, short-term and non-repetitive nature of the impact, relatively few permits issued, limited duration of hunting seasons, and typically low hunter success rates on the Tonto National Forest, combined with a natural tendency to avoid riding or driving over difficult obstacles such as collapsed prehistoric masonry walls, suggests that the probability of damage to archaeological sites resulting from

this activity would be low¹. Nevertheless, unrestricted cross-country OHV travel always has a potential for impacting archaeological sites, degrading traditional use areas, and disrupting traditional activities. Though it may be difficult to accurately quantify, authorizing or designating parameters for motorized big game retrieval may be a potential source of impact, especially where it opens up areas to legal cross-country travel that were previously restricted.

Motorized Access for Dispersed Camping

Motorized access to dispersed camping locations, whether they are adjacent to roads and trails or located at a distance, has the same potential to impact cultural resources as any other type of cross country motorized travel. Since this seems to be a repetitive behavior as camp sites are used over and over again, this impact may be significant depending on the type of site and its environmental context. Management of motorized access to dispersed camping locations can be done in several ways: roadside parking without designated camping sites, designated camping sites with designated access routes, and designated corridors for motorized access to dispersed camping.

Roadside parking for access to dispersed campsites adjacent to roads is exempted under the Protocol and allowable under the current Plan on the northern districts where cross-country travel is currently allowed. This has been the traditional way that forest users have camped on all Districts of the Tonto National Forest. Because this activity typically takes place in heavily disturbed areas along edges of existing roads, there are few new threats to cultural resources. Nevertheless, if areas are found during routine monitoring where roadside parking is damaging cultural resources, then those areas may be designated as closed to parking if effects to cultural resources cannot be avoided or mitigated. Unauthorized routes that are to be designated can also be closed to parking, if archaeological inventory identifies the potential for impacts that cannot be resolved under the protection measures established in the Protocol.

Designated camping areas and motorized routes to access them and designated fixed distance corridors along system roads, even exempt roads, both require Section 106 consultation under the Protocol and, unless the specific exemptions under the protocol apply, must be surveyed, evaluated, and any effects to archaeological sites resolved under the protection measures established in the Protocol before they can be added to the MVUM.

Personal Use Fuelwood Gathering

Cross country motorized travel is authorized as part of any permit to collect fuelwood, regardless of whether the District issuing is closed or open to such activity. As a permitted use, it is not considered to be in the same category as unrestricted cross-country travel and the permits include rules for motorized access into the permit areas that are designed to limit environmental damage. Also, firewood permit areas move around to prevent overuse, limiting the potential for repetitive impacts on any given

¹ For more information about hunting rates and hunting seasons, see the Arizona Game and Fish Department Report in the project record.

permitted location. Generally, these permit areas are defined ahead of time and where cross-country travel is restricted, firewood areas may be subject to archaeological clearance, in which case it is common practice to modify permit boundaries to limit the exposure of archaeological sites to vehicular impacts. While the small numbers of permits, low potential for repetitive impacts, and limitations on access built into the permits reduce concerns for damage to archaeological sites, cross-country OHV travel always has a potential for impacting archaeological sites, degrading traditional use areas, and disrupting traditional activities.

Alternative A

This is the No Action Alternative and represents the effects of not implementing travel management on the Tonto National Forest.

Direct and Indirect Effects

Current conditions include a total of about 4,959 miles of Forest system roads open to the public and maintained for both high clearance and passenger vehicles. Cross-country motorized travel is allowed but is restricted to the higher elevation Payson and Pleasant Valley Ranger Districts. There are also about 672 miles of unauthorized routes that have been inventoried across the Forest, many of which are currently in use; there are also many more unauthorized routes resulting from cross-country travel than have been inventoried.

Cross-Country Travel

Continued cross-country travel on Payson and Pleasant Valley Ranger Districts would result in continued damage to cultural resources. Enforcement of restrictions on uncontrolled motorized travel off of system roads on other Ranger Districts would reduce impacts to cultural resources.

Motorized Big Game Retrieval

Although specific documentation of impacts to sites due to motorized big game retrieval is not readily available, it is unlikely that this activity in and of itself as currently experienced on the Forest, where cross-country travel is open on only two Districts, would have a significant effect on archaeological sites.

Motorized Access to Dispersed Camping

Continued vehicular access to dispersed camping on Payson and Pleasant Valley Districts outside the roadside zone covered by the Protocol would not reduce the potential for impacts, especially as many known dispersed camping sites are located well outside the roadside parking zone. Continued cross-country access to dispersed camping on the other districts, though not authorized, would continue to create a potential for impacts to cultural resources.

Personal Use Fuelwood Gathering

Cross-country travel for fuelwood gathering always has a potential for impacting archaeological sites, degrading traditional use areas, and disrupting traditional activities. The effects to archaeological sites may be mitigated somewhat by the conditions applied to all fuelwood permits, but the potential threat remains.

Cumulative Effects

Allowing unrestricted cross-country travel to continue on any part of the Forest would result in an increase in the cumulative effect on cultural resources. Based on the results of the 2010 archaeological survey for this analysis (Table 1), at least one out of every 8 new unauthorized routes arising from cross-country motorized travel would impact at least one archaeological site.

Applying standards and protection measures similar to those in the Protocol and Programmatic Agreement to road management may help to reduce effects of future management but overall this alternative represents a significant increase in cumulative effects to cultural resources on the Tonto National Forest relative to other alternatives.

The capability of the Forest to monitor and protect archaeological sites from vandalism and looting and access to traditional resources and places of significance to Tribes would remain unchanged.

Alternative B

This alternative provides the least amount of access for motorized use and does not allow for cross-country travel for the general public.

Direct and Indirect Effects

Designations of unauthorized routes and proposed cross-country areas are undertakings subject to compliance with the inventory, consultation, and protection requirements of the Protocol. Under the terms of the Protocol, before any route can be added to the MVUM, it must comply with Section 106. Any routes or areas that affect cultural resources and that have not had those effects resolved by protection measures of the Protocol would not appear on the MVUM and thus would not be open to the public.

Under this alternative, approximately 541 miles of the inventoried unauthorized routes would be closed. A total of about 50 miles of unauthorized routes would be added to the system and designated for motor vehicle use. The resulting motorized route system would total approximately 2,560 miles of designated roads and motorized trails open to the public, for a net reduction of 393 miles.

Approximately 1.96 miles (3.8 percent) of 50 foot wide corridors along those unclassified routes proposed for designation as roads or motorized trails in this alternative were inventoried by archaeological survey (Roberts and Mitchell, 2010; Table 1). Since the survey was contracted additional routes have been proposed for designation and some of the routes previously identified were dropped from consideration. Over 48 of the 50 miles of unauthorized routes proposed for designation still require inventory before they can be evaluated for addition to the MVUM. This additional archaeological survey, under the terms of the Protocol, would be phased in as funding becomes available. Of the four routes surveyed, two were encumbered by archaeological sites, the routes passing through them with varying degrees of disturbance. These routes would also be held from inclusion in

the MVUM pending further analysis and the application of protective measures or they would be eliminated from the proposal if no suitable mitigation is feasible.

Areas Designated for Motor Vehicle Use

Compared to the current condition, by prohibiting travel off of designated routes and closing over 540 miles of unauthorized routes, this alternative would significantly reduce direct and indirect effects to cultural resources by restricting cross-country travel and by employing the protection measures identified in the Protocol. Any restriction or reduction of uncontrolled off-road travel would reduce impacts to cultural resources. It differs from the other alternatives primarily by closing nearly all unauthorized routes and eliminating all cross-country travel areas, including motorized big game retrieval.

In terms of the total number and nature of routes, effects on cultural resources from this alternative are significantly reduced compared to the current condition. By eliminating virtually all cross-country travel, including big game retrieval, it affords more protection to cultural resources from the direct effects of unregulated vehicular impacts than any other alternative.

Motorized Big Game Retrieval

Since no motorized big game retrieval would be allowed under this alternative, there would be no effect on cultural resources.

Motorized Access to Dispersed Camping

Under this alternative, motorized access for dispersed camping would be limited to designated campsites and designated access routes. The protocol requires that any such designated areas or routes be subject to consultation and would require archaeological clearance prior to being added to the MVUM. Therefore, motorized access to dispersed camping under this alternative would have no direct effect on cultural resources.

Personal Use Fuelwood Gathering

Under current conditions, cross-country travel is allowed anywhere within the permit area. Under this alternative, such access is permitted only within 300 feet on both sides of designated motorized routes within the permit areas. This would reduce the potential for impacting archaeological sites, degrading traditional use areas, and disrupting traditional activities, but does not eliminate it.

Alternative C

This alternative is a modified version of the proposed action scoped in February 2013.

Direct and Indirect Effects

Designations of unauthorized routes and proposed cross-country areas are undertakings subject to compliance with the inventory, consultation, and protection requirements of the Protocol. Under the terms of the Protocol, before any route can be added to the MVUM, any adverse effects the route may have on cultural resources would need to be avoided or mitigated and compliance with section 106

documented. Any routes or areas that affect cultural resources and that have not had those effects resolved by protection measures of the Protocol would not appear on the MVUM and thus would not be open to the public.

Under this alternative, approximately 342 miles of existing unauthorized routes would be closed. A total of 330 miles of unauthorized roads and trails would be added to the system and designated for motor vehicle use. The resulting motorized route system would total about 3,570 miles of designated roads and motorized trails open to the public for a net increase from the current condition of over 617 miles, but would restrict cross-country travel to designated corridors and areas.

Approximately 124 miles (37.4 percent) of 50 foot wide corridors along those unclassified routes proposed for designation as roads or motorized trails in this alternative were inventoried by archaeological survey (Roberts and Mitchell, 2010; Table 1). Since the survey was contracted additional routes have been proposed for designation and some of the routes previously identified were dropped from consideration. Approximately 206 of the 330 miles of unauthorized routes proposed for designation still require inventory before they can be evaluated for addition to the MVUM. This additional archaeological survey, under the terms of the Protocol, would be phased in as funding becomes available. Of the 117 routes surveyed, 13 were encumbered by archaeological sites, the routes passing through them with varying degrees of disturbance. These routes would also be held from inclusion in the MVUM pending further analysis and the application of protective measures or they would be eliminated from the proposal if no suitable mitigation is feasible.

The actual incidence of damage to sites identified by the survey is fairly low (only about 11 percent of the surveyed routes impacted archaeological sites), with most of the vehicular impacts associated with those routes that began as cross-country ATV and motorcycle trails but have widened over time. Since many of these routes have been in use for years, this does not suggest that their presence has led to any marked increase in vandalism. It is unlikely that designation of the proposed unauthorized routes would have a significant direct impact on cultural resources, particularly once protective measures are applied or the affected routes are dropped from consideration.

Areas Designated for Motor Vehicle Use

Under this alternative, 342 miles of unauthorized routes would be closed and cross-country travel prohibited other than limited motorized big game retrieval, and within four designated OHV areas and four "tot lots" where vehicular access would not be confined to specific routes, and cross country use would be allowed. Designated OHV areas and tot lots are subject to the same archaeological survey and clearance requirements as designated routes. Two of the tot lots have been surveyed and found to contain no cultural resources (Roberts and Mitchell, 2010; Howe and Nez, 2010); the other two remain to be inventoried. The 2010 archaeological survey (Roberts and Mitchell, 2010) examined the proposed Golf Course area and identified no cultural resources. The proposed Bartlett Lake, Roosevelt Lake, and Sycamore OHV areas have not been specifically surveyed for designation but are known to contain archaeological sites. Prior to designation, archaeological survey and additional Tribal consultation would

need to be completed and the protection measures identified in the Protocol applied. Given the presence of known archaeological sites in these areas, there may well also be Tribal concerns. Therefore, it is likely that all of these areas would need to be modified and any necessary mitigation completed before their final designation and inclusion on the MVUM. Archaeological survey, under the terms of the Protocol, would be phased in as funding becomes available and areas added to subsequent versions of the MVUM as they acquire archaeological clearance.

Compared to the current condition, by prohibiting travel off of designated routes and outside of designated areas and by employing the protection measures identified in the Protocol where cross country travel would be permitted, this alternative would significantly reduce impacts to cultural resources.

Motorized Big Game Retrieval

In this alternative, motorized big game retrieval would be allowed under this alternative for retrieving elk and bear within one mile of any designated motorized route, limited only by the presence of other closure orders and designated areas where motorized travel is not permitted. This would authorize limited cross-country travel on several Districts where it is currently prohibited. Specific documentation of impacts to sites due to motorized big game retrieval is not readily available and it is unlikely that this activity would have a significant effect on archaeological sites, given the low numbers of permits issued for these animals on the Forest relative to the large area involved and the short seasons in which it would take place, but the inclusion of authorized cross-country travel corridors for big game retrieval to this alternative diminishes the beneficial effect of extending the restriction of cross-country travel to the entire Forest. It allows the practice to continue on the high elevation Districts, at least within the designated corridors during elk and bear seasons, but while the overall area in acres may be reduced for the Forest as a whole, it allows limited legal cross-country travel on parts of the low elevation Districts that were previously restricted from such use. However, none of the 1,293,178 acres proposed for inclusion in these corridors have been surveyed specifically for this purpose and conducting archaeological survey of this large an area is unfeasible since it is not possible to narrow the survey down owing to the randomness and unpredictability of the location and length of routes that might be used. It is anticipated that only about 209 legally harvested bear or elk² would even be available for motorized retrieval, so the dispersed driving would be very limited. The impacts would be similar to district wide fuelwood gathering that is exempt from further section 106 compliance under the PA. Authorization of motorized big game retrieval under this alternative would result in greater impacts to cultural resources than under Alternatives A and B, but it is not likely to be adverse.

Motorized Access to Dispersed Camping

Under Alternative C, cross-country motorized access to dispersed camping areas would be allowed within a 200 foot corridor (100 feet on each side) along all designated roads and motorized trails. Since designated corridors for dispersed camping access are areas wherein cross-country travel is allowed,

² For more information, see the Arizona Game and Fish Department Report in the project record.

they are subject to the same requirements under the Protocol as the proposed designated OHV areas. As a result, unless the specific exemptions under the protocol apply, they would not be available for inclusion on the MVUM until they have been surveyed and any necessary protective measures are applied and any mitigation is complete or they would be eliminated from the proposal if no suitable mitigation is feasible. Application of the Protocol would prevent impacts to cultural resources under this Alternative, but at present, none of the 91,391 acres proposed for inclusion in these corridors have been surveyed specifically for this purpose. Any additional archaeological survey, under the terms of the Protocol, would be phased in as funding becomes available and corridors would be added to subsequent versions of the MVUM as they acquire archaeological clearance.

Personal Use Fuelwood Gathering

Under this alternative, cross-country travel is permitted only within 300 feet of a designated motorized route within the permitted area, as in Alternative B. This would reduce the potential for impacting archaeological sites, degrading traditional use areas, and disrupting traditional activities, relative to the current condition, but does not eliminate it. Therefore, the potential for impact to cultural resources is the same as for Alternative B.

Alternative D

This alternative allows for the greatest amount of motorized access.

Direct and Indirect Effects

Designations of unauthorized routes and proposed cross-country areas are undertakings subject to compliance with the inventory, consultation, and protection requirements of the Protocol. Under the terms of the Protocol, before any route can be added to the MVUM, it must comply with section 106 and any impacts that route may have inflicted on cultural resources would need to be avoided or mitigated. Any routes or areas that affect cultural resources and that have not had those effects resolved by protection measures of the Protocol would not appear on the MVUM and thus would not be open to the public.

Under this alternative, approximately 88 miles of existing unauthorized routes would be closed. A total of 584 miles of unauthorized roads and trails would be added to the system and designated for motor vehicle use. The resulting motorized route system would total about 4,867 miles of Forest system roads and motorized trails open to the public for a net increase from the current condition of over 1915 miles, but would restrict cross-country travel to designated routes and areas.

Approximately 120 miles (20.5 percent) of 50 foot wide corridors along those unclassified routes proposed for designation as roads or motorized trails in this alternative were inventoried by archaeological survey (Roberts and Mitchell, 2010; Table 1). Since the survey was contracted additional routes have been proposed for designation and some of the routes previously identified were dropped from consideration. Approximately 464 of the 584 miles of unauthorized routes proposed for designation still require inventory before they can be evaluated for addition to the MVUM. This

additional archaeological survey, under the terms of the Protocol, would be phased in as funding becomes available. Of the 115 routes surveyed, 18 were encumbered by archaeological sites, the routes passing through them with varying degrees of disturbance. These routes would also be held from inclusion in the MVUM pending further analysis and the application of protective measures or they would be eliminated from the proposal if no suitable mitigation is feasible.

The actual incidence of damage to sites identified by the survey is fairly low (less than 16 percent of the surveyed routes impacted archaeological sites), with most of the vehicular impacts associated with those routes that began as cross-country ATV and motorcycle trails. Although many of these routes have been in use for years, there is no indication that their presence has led to any marked increase in vandalism. It is unlikely that designation of the proposed unauthorized routes would have a significant direct impact on cultural resources, particularly once protective measures are applied or the affected routes are dropped from consideration.

Compared to the current condition, by prohibiting travel off of designated routes, this alternative would reduce direct and indirect effects to cultural resources by restricting cross-country travel and by employing the protection measures identified in the Protocol, similar to the Proposed Action. It differs from Alternatives B and C primarily by increasing the number of motorized routes open to the public, and by opening up motorized big game retrieval to additional species and hunting units. As with the Proposed Action, any restriction or reduction of uncontrolled off-road travel would reduce impacts to cultural resources.

Areas Designated for Motor Vehicle Use

Under this alternative, cross-country travel prohibited other than that associated with CHAMP permits and within four designated OHV areas and four "tot lots" where vehicular access would not be confined to specific routes, and cross country use would be allowed. Designated OHV areas and tot lots are subject to the same archaeological survey and clearance requirements as designated routes. Two of the tot lots have been surveyed and found to contain no cultural resources (Roberts and Mitchell, 2010; Howe and Nez, 2010); the other two remain to be inventoried. The 2010 archaeological survey (Roberts and Mitchell, 2010) examined the proposed Golf Course area and identified no cultural resources. The proposed Bartlett Lake, Roosevelt Lake, and Sycamore OHV areas have not been specifically surveyed for designation but are known to contain archaeological sites. Prior to designation, archaeological survey and additional Tribal consultation would need to be completed and the protection measures identified in the Protocol applied. Given the presence of known archaeological sites in these areas, there may well also be Tribal concerns. Therefore, it is likely that all of these areas would need to be modified and any necessary mitigation completed before their final designation and inclusion on the MVUM. Archaeological survey, under the terms of the Protocol, would be phased in as funding becomes available and areas added to subsequent versions of the MVUM as they acquire archaeological clearance.

Compared to the current condition, by prohibiting travel off of designated routes and outside of designated areas and by employing the protection measures identified in the Protocol, this alternative would significantly reduce impacts to cultural resources.

Motorized Big Game Retrieval

In this alternative, motorized big game retrieval would be allowed under this alternative for retrieving mule deer, whitetail deer, elk, and bear and would be limited to a specified corridor along all designated motorized routes, one mile on both sides. It would also be limited by the presence of other closure orders and designated areas where motorized travel is not permitted. This would authorize cross-country travel on several ranger districts where it is currently prohibited. Specific documentation of impacts to sites due to motorized big game retrieval is not readily available and while it is unlikely that this activity would have a significant effect on archaeological sites. It is anticipated that only about 550 legally harvested bear, elk, whitetail deer, and mule deer would even be available for motorized retrieval, so the dispersed driving would be very limited. However, the authorization of cross-country travel for big game retrieval under this alternative would diminish the beneficial effect of extending the restriction of cross-country travel to the entire Forest. It allows the practice to continue on the high elevation ranger districts, at least during hunting seasons, and it allows limited legal cross-country travel on parts of the low elevation ranger districts that were previously restricted from such use. Overall, 2,068,208 acres would be open to potential impacts to cultural resources resulting from cross-country motorized travel. Since conducting archaeological survey of this large an area is unfeasible and since it is not possible to narrow the survey down owing to the randomness and unpredictability of the location and length of routes that might be used, authorization of motorized big game retrieval under this Alternative would result in greater impacts to cultural resources than any of the other alternatives. The impacts would be similar to district wide fuelwood gathering that is exempt from further section 106 compliance under the PA. Authorization of motorized big game retrieval under this Alternative is not likely to adversely affect cultural resources.

Motorized Access to Dispersed Camping

Under Alternative D, cross-country motorized access to dispersed camping areas would be allowed within a 600 foot corridor (300 feet on each side) along all designated roads and motorized trails. Since designated corridors for dispersed camping access are areas wherein cross-country travel is allowed, they are subject to the same requirements under the Protocol as the proposed designated OHV areas. As a result, unless the specific exemptions under the protocol apply, they would not be available for inclusion on the MVUM until they have been surveyed and any necessary protective measures are applied and any mitigation is complete or they would be eliminated from the proposal if no suitable mitigation is feasible. Application of the Protocol would prevent impacts to cultural resources under this alternative, but at present, none of the 336,038 acres proposed for inclusion in these corridors have been surveyed specifically for this purpose. Any additional archaeological survey, under the terms of the Protocol, would be phased in as funding becomes available and corridors added to subsequent versions of the MVUM as they acquire archaeological clearance.

Personal Use Fuelwood Gathering

Under this alternative, cross-country travel is throughout the permitted area, and is no change from the current condition. Therefore, the potential for impact to cultural resources is the same as for Alternative A.

Summary of Direct and Indirect Effects for Action Alternatives

All three of these alternatives (Alternative A, B, and C) significantly reduce direct and indirect impacts to cultural resources by restricting cross-country travel and by employing the guidelines and protection measures identified in the Protocol to the designation of motorized routes and areas and the designation of areas and corridors for dispersed camping. Indeed, given that mere proximity of motorized access does not appear to create an impact to cultural resources on the Tonto National Forest. Employment of the Protocol generally makes all three alternatives roughly the same in that regard. It is not expected that the implementation of any of the action alternatives would result in significant adverse effects to cultural resources. Indeed, all of the action alternatives provided, except the No Action Alternative, greatly reduce the risk of damages to cultural resources from uncontrolled and unauthorized cross-country motorized travel.

There is some potential for unforeseeable indirect impact to sites (e.g. illegal vandalism and looting) in all of the action alternatives, but increasing the number of routes available for access also increases the potential for protection based on efficient monitoring of archaeological site condition and law enforcement and increases potential for access to traditional resources and places of significance for Tribes. Alternative D provides the most access and thus the greater potential for efficient site monitoring and Tribal access.

While the potential for impact to cultural resources resulting from motorized big game retrieval is relatively low, by expanding the area open to cross-country travel for that purpose beyond what is feasible to protect under the Protocol, Alternatives C and D (especially Alternative D) diminish the beneficial effect of extending the restriction of cross-country travel to the entire Forest. In this regard, Alternative B is the only one that would eliminate those potential impacts.

Likewise, by restricting motorized access for firewood gathering, Alternatives B and C would reduce – though not eliminate – the potential for impacts to cultural resources from that activity. Alternative D would not.

Cumulative Effects Associated with the Action Alternatives

Past Actions. As previously noted, archaeological sites are, by their very nature, previously affected, reduced by the transformation processes of erosion and decay from their original pristine state. Any effect to such sites, therefore, is cumulative. Many have also been affected by historic and recent human activity, including management activities undertaken by the Forest and resource use and extraction projects undertaken prior to the implementation of Section 106 of the National Historic Preservation Act. Such actions that are known to have affected archaeological sites on the Tonto

National Forest include unrestricted livestock grazing, timber harvesting, road and trail construction, and a wide variety of recreational activities. There were also the decades of essentially unrestricted vandalism and looting. All of these activities have the potential to cause permanent damage to the structures, artifacts, and cultural deposits making up archaeological sites and many sites on the Forest bear the scars of damages resulting from them. The effects of unrestricted motorized cross-country travel have already been discussed in the current conditions.

Tonto National Forest Foreseeable Actions. Reasonably foreseeable actions that can affect cultural and historical and Tribally significant resources represent a continuation of the land use practices of the past: livestock grazing, fuels reduction and forest thinning, timber harvesting, mining, watershed improvements, recreation management (obliteration of social trails and dispersed campsites, construction and designation of trails and campsites), lands special use permits (new issuances and maintenance on existing structures), new road construction, and personal use activities such as fuelwood harvesting that often entail cross-country vehicular access. While these activities can directly and indirectly affect cultural and historical and Tribally significant resources as well as cause destruction or modification to their environmental contexts, these actions must comply with Section 106. They are planned to minimize (and when possible, to eliminate) effects to these properties and have measures designed to mitigate disturbance that may occur from project implementation. By applying the standards and protection measures in the Protocol and by eliminating cross-country travel and reducing the amount of land subject to ground disturbance by vehicle use, it is not expected that any of these alternatives would result in any significant increase in cumulative effects associated with cultural resources on the Tonto National Forest.

Illegal activities such as vandalism and looting by pothunters clearly affect cultural and historical and tribally significant resources. Since these activities are illegal, they cannot be predicted and so in the strictest sense are not foreseeable in any legal sense. Still, since these activities have been reduced in recent years but not entirely eradicated, they can be expected to continue at some level. They can be reduced by monitoring and law enforcement.

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