

# **Four Forest Restoration Initiative, Rim Country EIS**

## **Recreation Report**

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**for:**  
4FRI Rim Country EIS

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## Introduction/Project Information

The Apache-Sitgreaves, Coconino, and Tonto National Forests are proposing to conduct restoration activities within 1.24 million acres of ponderosa pine ecosystem over approximately 10 years. Treatment areas are located on the Black Mesa, and Lakeside Ranger Districts of the Apache-Sitgreaves National Forest, the Mogollon and Red Rock Ranger Districts of the Coconino National Forest, and the Payson and Pleasant Valley Ranger Districts of the Tonto National Forest. Project treatments would occur in the vicinity of Happy Jack, Payson, Young, Heber-Overgaard, Show Low, and Pinetop-Lakeside, Arizona.

### Purpose of and Need for Action

This section analyzes the potential effects on recreation activities of the alternatives proposed for the 4FRI Rim Country Project. The purpose of the Rim Country Project is to reestablish and restore forest structure and pattern, forest health, and vegetation composition and diversity in ponderosa pine ecosystems to conditions within the natural range of variation, thus moving the project area toward the desired conditions. The outcome of improving structure and function is increased system resiliency. Resiliency increases the ability of an ecosystem to survive natural disturbances such as fire, insects and disease, and climate change without changing its inherent function.

This project is needed to: increase forest resiliency and sustainability, reduce risk of undesirable fire effects, improve terrestrial and aquatic species habitat, improve the condition and function of streams and springs, restore woody riparian vegetation, preserve cultural resources, and support sustainable forest products industries.

### Proposed Action

To meet the purpose and need for the Rim Country Project and move the project area toward desired conditions, the Apache-Sitgreaves, Coconino, and Tonto National Forests propose mechanical thinning, prescribed fire, and other restoration activities throughout the project area that would make the forest more resilient to natural disturbances such as fire, insects and disease, and climate change. Restoration activities are needed to maintain or restore forest structure and pattern, desired fire regimes, and watershed and ecosystem function in ponderosa pine, ponderosa pine-Gambel oak, ponderosa pine-evergreen oak, frequent fire mixed conifer (dry mixed conifer), aspen, and grassland cover types, moving them toward conditions within the natural range of variation. Facilitative operations may be needed in other cover types (such as pinyon juniper) to enable or complete treatments in target cover types, by reducing uncharacteristic fire risk, reducing ground disturbance from fireline construction, or improving operability. Restoration activities proposed for the Rim Country project area include:

- Mechanically thin trees and/or implement prescribed fire on approximately 952,330 acres.
  - Mechanically thin trees and implement prescribed fire on approximately 1,260 acres in the Long Valley Experimental Forest (in coordination with the Rocky Mountain Research Station).
  - Implement prescribed fire alone on approximately 45,290 acres.
  - Mechanically thin and/or implement prescribed fire on approximately 68,360 acres of Mexican spotted owl (MSO) protected activity centers (PACs), approximately 128,800 acres of MSO recovery habitat, and approximately 500,940 acres of northern goshawk habitat.
  - Mechanically thin trees and/or implement prescribed fire to restore approximately 40,760 acres of grasslands and meadows (includes 21,550 acres of grassland cover type).
  - Conduct facilitative operations (thin and/or burn) on up to 157,270 acres of non-target cover types to support treatments in target cover types.
  - Planting, burning, and other activities to encourage reforestation on approximately 69,360 acres of understocked areas that were previously forested.

- Decommission approximately 230 miles of existing system and unauthorized roads on the Coconino and Apache-Sitgreaves NFs.
- Decommission approximately 20 miles of unauthorized roads on the Tonto NF.
- Improve approximately 150 miles of existing non-system roads and construct approximately 350 miles of temporary roads for haul access; decommission when treatments are completed.
- Relocate and reconstruct existing open roads adversely affecting water quality and natural resources, or of concern to human safety.
- Restore hydrologic function and vegetation on approximately 9,570 acres of meadows.
- Restore approximately 184 springs.
- Restore function in up to 470 miles of riparian streams and intermittent and ephemeral stream channels (non-riparian).
- Restore up to 360 miles of stream habitat for threatened, endangered, and sensitive aquatic species.
- Construct up to 200 miles of protective barriers around springs, aspen, Bebb's willows, and big-tooth maples, as needed for restoration.

## Relevant Law, Regulation, and Policy

### Federal Laws

Multiple statutes, regulations and executive orders identify the general requirement for the application of economic and social evaluation in support of Forest Service planning and decision making. These include, but are not limited to, the Multiple-Use Sustained Yield Act of 1960 (74 Stat. 215: 16 USC 528-531), National Environmental Policy Act of 1969 (83 Stat. 852; 42 USC 4321, 4331-4335, 43414347), and the National Forest Management Act of 1976 (16 U.S.C. 1600).

- **The Multiple-Use Sustained Yield Act** of 1960 (74 Stat. 215: 16 USC 528-531) requires that economic impacts are considered when establishing management plans or decision that may affect the management of renewable forest and rangeland resources. This report meets the requirements of this law by specifically considering the economic impacts of the implementation of the Travel Management Rule to local communities.
- **National Environmental Policy Act (NEPA)** of 1969 (83 Stat. 852; 42 USC 4321, 4331-4335, 43414347) requires that economic and social impacts of Federal actions be considered through environmental analysis. This specialist report includes analysis on social and economic issues identified during the scoping process to meet the terms of the NEPA and regulations.
- **National Forest Management Act (NFMA)** of 1976 (16 U.S.C. 1600) and regulations require that the economic impacts of decisions or plans affecting the management of renewable resources are analyzed and that economic stability of communities whose economies are dependent on materials from national forest lands are considered. This analysis meets the requirements of the NFMA by specifically considering the economic impacts of the implementation of the 4FRI project and its impacts on local communities and minority populations.
- **Federal Cave Resources Protection Act of 1988** (16 U.S.C. 4301–4309) provides the basis for identifying and managing significant caves on National Forest System lands.
- **National Trails System Act of 1968** (16 USC 1241) provides for establishment and management of national scenic, historic and recreation trails. This specialist report includes analysis of the Arizona National Scenic Trail and General Crook National Recreation Trail.

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- **The Wilderness Act (1964)** – The act dictates that Wilderness is an area of Federal land that will be managed to retain its primeval character and untrammeled setting. It is protected and managed so as to preserve its natural condition and the imprint of man’s work must be substantially unnoticeable.
  - **The Wild and Scenic Rivers Act (1968)** – The outstandingly remarkable scenic values of rivers eligible or suitable to be included in the system must be carefully managed. Any management activities that could negatively impact the scenic resources, where they are an identified outstandingly remarkable value, should not be conducted or mitigated according to the rivers comprehensive management plan.

## Forest Service Manuals

- FSM 2020.5 “Sustainability. Meeting needs of the present generation without compromising the ability of future generations to meet their needs. Sustainability is composed of desirable social, economic, and ecological conditions or trends interacting at varying spatial and temporal scales, embodying the principles of multiple-use and sustained-yield (FSM 1905).”
- 2310.1 - Authority. Recreation planning on National Forest System lands is an integral part of Forest land and resource management planning as required by the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, as amended by the National Forest Management Act (NFMA) of 1976, and described in 36 CFR 219 and FSM 1920. The specific requirements of recreation resource planning are set forth at 36 CFR 219.21.
- 2310.3 - Policy. In addition to general planning policy presented in 36 CFR 219.1, FSM 1903, FSM 1920.3, FSM 1922.03, and FSM 2303.
  - Use the Recreation Opportunity Spectrum (see existing conditions for a summary of the ROS classes) to establish planning criteria, generate objectives for recreation, evaluate public issues, integrate management concerns, project recreation needs and demands, and coordinate management objectives.
- 2350 – Trail, River, and Similar Recreation Opportunities - Policy.
  - Consider trail management in the context of an administrative unit or Ranger District.
  - 2353 Administration of National Recreation, Historic and Scenic Trails
    - 1.b. National Scenic Trails. These extended trails are located so as to provide for maximum outdoor recreation potential and for conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which these trails pass (16 U.S.C. 1242(a)(2)).
    - 1.c. National Historic Trails. These trails follow as closely as possible a route of historic significance, so as to protect the route and its artifacts for public use and enjoyment.
    - 2. Ensure that management of each trail in the National Trails System addresses the nature and purposes of the trail and is consistent with the applicable land management plan (16 U.S.C. 1246 (a)(2)).
  - 2353.11 – Relationship Between National Recreation, National Scenic, and National Historic Trails and NFS Trails



- Manage National Recreation, National Scenic, and National Historic Trails as NFS trails. Administer each National Recreation, National Scenic, and National Historic Trail corridor to meet the intended nature and purposes of the corresponding trail (FSM 2353.31)
  - 2353.41 – Objectives
    - Develop and administer National Scenic and National Historic Trails to ensure protection of the purposes for which the trails were established and to maximize benefits from the land.
- 2370 – Special Recreation Designations - Policy
  - Manage each special area as an integral part of the National Forest System with emphasis on the primary values and resources as directed by the law that established the area.

## Forest Plan Direction

The Coconino National Forest Plan provides management direction for recreation resource as follows:

**Table 1: Recreation direction in the Apache-Sitgreaves Forest Plan (USDA- Forest Service 2015)**

Section	Description/ Management Approach	Landscape or MA Scale Forest Plan Desired Condition (DC), Standards, Guidelines (GL)	Page number
<b>Chapter 2 Forestwide Direction Grasslands</b>	Obliteration and rehabilitation of unauthorized roads and trails may be needed.		56
<b>Chapter 2 Forestwide Direction Interior Chaparral</b>	Since the interior chaparral is the PNVT closest to reference conditions, the management approach is to maintain that condition into the future, primarily by using fire (unplanned and planned ignitions).	DC: A maintained roads and motorized trail system is in place and provides for safety and access for the use (e.g., recreation, minerals, vegetation treatment, fire protection) of the Apache-Sitgreaves NFs.	59- 60
<b>Chapter 2 Forestwide Direction Wildlife and Rare Plants</b>	The management approach is to provide a diversity of habitats, well distributed, with ecological conditions that support native and	GL: Active raptor nests should be protected from treatments and disturbance during the nesting season to provide for successful reproduction. Specifically for northern goshawk nest areas, human presence should be	62-64

	<p>desired nonnative animal species over the long term.</p>	<p>minimized during nesting season of March 1 through September 30.</p> <p>GL: Any action likely to cause a disturbance and take to bald and golden eagles in nesting and young rearing areas should be avoided per the Bald and Golden Eagle Protection Act.</p> <p>GL: Rare, unique habitats (e.g., talus slopes, cliffs, canyon slopes, caves, fens, bogs, <a href="#">sinkholes</a>) should be protected.</p>	
<p><b>Chapter 2 Forestwide Direction Invasive Species</b></p>	<p>Numerous invasive species pose risks to native species and ecosystem function and to the production of forest goods and services. Invasive plants, of which there are over 50 species, are currently (2008) found on at least 30,000 acres of the forests.</p>	<p>GL: Project areas should be monitored to ensure there is no introduction or spread of invasive species.</p> <p>GL: Treatment of invasive species should be designed to effectively control or eliminate them; multiple treatments may be needed.</p> <p>GL: Pesticide use should minimize impacts on nontarget plants and animals.</p>	<p>65-66</p>
<p><b>Chapter 2 Forestwide Direction Managed Recreation</b></p>	<p>The primary management approach is to continue the availability of outdoor opportunities visitors seek and which are not readily available from other public or private entities. These opportunities must be compatible with the environment and other uses.</p> <p>To better understand future recreation needs, supply and demand studies (capacity analyses) may be completed for high use recreational</p>	<p>Overall Recreation Opportunities</p> <p>DC: The Apache-Sitgreaves NFs offer a spectrum of recreation settings and opportunities varying from primitive to rural and dispersed to developed, with an emphasis on the natural appearing character of the forests.</p> <p>DC: Inventoried roadless areas (IRAs) maintain their overall roadless character.</p> <p>DC: Recreation activities occur within the ability of the land to support them and with minimal user conflicts.</p> <p>DC: Recreation enhances the quality of life for local residents (e.g., social interaction, physical activity, connection with nature), provides tourist destinations, and contributes monetarily to local economies.</p> <p>DC: Recreation opportunities provide for a variety of skill levels, needs, and desires in partnership with recreation permit holders, private entities, volunteer</p>	<p>70-71</p>

<p><b>Chapter 2 Forestwide Direction Dispersed Recreation</b></p>	<p>areas and outfitter and guide permits. There is a focus on reducing conflicts between users and resources, utilizing tools such as law enforcement, public involvement, and education. Private ventures and partnerships may be used to help provide recreation opportunities to forest visitors.</p> <p>The recreation opportunity spectrum (ROS) map establishes desired ROS classes for the management areas of the Apache-Sitgreaves NFs.</p> <p>Forest managers recognize the importance and popularity of dispersed recreation and seek to balance the strong desire people have for freedom of choice (in terms of their recreation activity) with adequate protection of cultural and natural resources.</p>	<p>groups, community groups, and State, Federal, and tribal governments.</p> <p>DC: Visitors can easily access information about recreation activities and safe and proper use of the Apache-Sitgreaves NFs.</p> <p>DC: Recreation use does not negatively affect wildlife habitat and populations. Negative interactions between people and wildlife are minimized.</p> <p>DC: The Apache-Sitgreaves NFs are free from vandalism and refuse.</p> <p>DC: Recreation use does not negatively affect the use and character of cultural resources.</p> <p>DC: “Leave No Trace” principles are practiced.</p> <p>GL: Recreation related project level decisions and implementation activities should be consistent with mapped classes and setting descriptions in the recreation opportunity spectrum (ROS).</p> <p>GL: Developed and dispersed recreation sites and other authorized activities should not be located in places that prevent wildlife or livestock access to available water.</p> <p>GL: Food and other items that attract wildlife should be managed to prevent reliance on humans and to reduce human-wildlife conflicts.</p> <p>GL: Constructed features should be maintained to support the purpose(s) for which they were built. Constructed features should be removed when no longer needed.</p> <p>DC: Dispersed recreation opportunities (e.g., hunting, fishing, hiking, camping) are available and dispersed recreation sites (e.g., campsites, trailheads, vistas, parking areas) occur in a variety of ROS classes throughout the forests.</p> <p>DC: Facilities for dispersed recreation activities are appropriate for the ROS class and scenic integrity objective of the location and are designed to the minimum necessary to protect natural and cultural resources.</p>	<p>71-73</p>
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	<p>Focus is on providing quality dispersed recreation opportunities and reducing conflict among recreation users. Where intensive dispersed use—including camping—occurs (e.g., Bear Canyon Lake, south of Big Lake), managers consider the development of a management plan to delineate the intensive use area, address resource concerns, and provide for sustainable recreation.</p>	<p>DC: Wildlife viewing areas are dispersed throughout the forests and provide opportunities to view waterfowl, migratory birds, elk, and other species.</p> <p>DC: Access, parking, regulations, orientation, and safety information are in place to provide safe and enjoyable dispersed recreation opportunities.</p> <p>DC: Water-based settings are available and the associated recreation opportunities (e.g., canoeing, fishing, waterfowl hunting) do not degrade aquatic resources.</p> <p>DC: Winter nonmotorized areas provide a variety of nonmotorized recreation opportunities in a quiet, natural setting (including groomed and ungroomed ski trails). Noise from motorized use is uncommon in areas away from main road corridors.</p> <p>DC: Winter motorized areas provide a variety of motorized recreation opportunities with a variety of challenges including areas open to cross-country, over-snow motorized use, some with groomed or ungroomed trails.</p> <p>DC: Roads and trails provide a variety of opportunities to view natural landscapes and wildlife.</p> <p><b>Objectives:</b> Annually, rehabilitate, stabilize, revegetate, or relocate an average of five dispersed campsites to improve recreation opportunities and/or protect the environment.</p> <ul style="list-style-type: none"> <li>• Within the planning period, work with the AZGFD, ADOT, and other partners to provide at least 10 new wildlife viewing opportunities.</li> </ul> <p><b>Standards:</b> Dispersed campsites shall not be designated in areas with sensitive soils or within 50 feet of streams, wetlands, or riparian areas to prevent vegetation and bank damage, soil compaction, additional sediment, or soil and water contamination.</p> <p>GL: In dispersed areas, the priority for facilities or minor developments should be access and protection of the environment, rather than the comfort or convenience of the visitors.</p>	
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<p><b>Chapter 2 Forestwide Direction Developed Recreation</b></p>	<p>Focus is on maintaining the forest recreation and administrative developments in a safe and sustainable manner while providing for quality opportunities for visitors. As the Apache-Sitgreaves NFs move into the future, the emphasis is to balance new construction with current and future maintenance requirements.</p> <p>Forest managers assess Apache-Sitgreaves NFs recreation and administrative facilities in order to establish a program that is sustainable, realistic, and responsive to public need. Facilities may be redesigned, as necessary, in order to accommodate persons with disabilities, respond to demographic changes, and reduce conflicts with cultural and natural resources as outlined in the recreation facility analysis and master</p>	<p>GL: Timing restrictions on recreation uses should be considered to reduce conflicts with wildlife needs or soil moisture conditions.</p> <p>GL: Dispersed campsites should not be located on or adjacent to archaeological sites or sensitive wildlife areas.</p> <p>DC: Developed recreation sites provide opportunities for people to camp, obtain information, and participate in day-use activities (e.g., picnic areas, fishing piers, scenic overlooks, wildlife viewing sites).</p> <p>DC: Facilities are maintained, accessible, and complement the forests' natural character. Facilities range from primitive to highly developed, with an emphasis on blending the facilities with the landscape.</p> <p>DC: Forest vegetation in developed sites is healthy (species, size, and age) and complements recreational activities, scenery, and human safety.</p> <p>DC: Developed campgrounds are places where structures and human caused vegetation changes may be seen but they do not dominate the view or attract attention (low to moderate scenic integrity). Human activities in the areas visible from campgrounds (foreground to middle ground, 300 feet to 4 miles) should not attract attention or stand out, and the landscapes should appear natural (moderate to high scenic integrity).</p> <p>DC: Developed campgrounds provide roaded natural or roaded modified recreation opportunities.</p> <p>Obj: Within the planning period, reduce the developed recreation deferred maintenance backlog at plan approval by 10 percent.</p> <p>Within the planning period, accessible and wildlife-resistant trash facilities should be provided in all developed sites where trash is collected.</p> <p>Standards: Where trash facilities are provided, they shall be bear resistant.</p>	<p>73-74</p>
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<p><b>Chapter 2 Forestwide Direction Motorized Opportunities</b></p>	<p>plan. Recreation site plans describe the detailed management for each developed recreation area, including vegetation management plans for campgrounds. Future recreational rental designations (e.g., cabins) are considered on a case-by-case basis including administrative and public benefits.</p> <p>The management approach is to enhance opportunities for motorized trail users, relocate trails to reduce conflicts between motorized and nonmotorized users or other resources, and develop management plans for designated motorized use areas.</p>	<p>GL: Developed recreation sites should not be constructed unless validated with a capacity analysis.</p> <p>DC: A maintained road and motorized trail system is in place and provides for safety and access for the use (e.g., recreation, minerals, vegetation treatment, fire protection) of the Apache-Sitgreaves NFs.</p> <p>DC: Users have opportunities for motorized access and travel on a system of designated NFS roads, NFS motorized trails, and motorized areas<sup>25</sup>.</p> <p>DC: The transportation system provides a variety of recreation opportunities including varying degrees of difficulty, from OHV trails to paved scenic byways, while limiting resource and/or user conflicts.</p> <p>DC: NFS roads, motorized trails, and motorized areas are easily identified on the ground (e.g., well marked).</p> <p>DC: The road and trail system is accessible from local communities, State, county, and local public roads and trails.</p> <p>DC: Loop trails exist for motorized trail users.</p> <p>DC: <a href="#">Tread Lightly!</a><sup>®</sup> principles are commonly practiced.</p> <p>DC: The location and design of roads and trails does not impede wildlife and fish movement.</p>	<p>75- 77</p>
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		<p>Obj: Annually, maintain at least 20 percent of the passenger vehicle and 10 percent of the high-clearance vehicle NFS roads.</p> <p>Annually, maintain at least 20 percent of NFS motorized trails.</p> <p><b>Standards:</b>  Motorized vehicle travel shall be managed to occur only on the designated system of NFS roads and motorized trails and designated motorized areas.</p> <p>Unless specifically authorized, motorized cross-country travel shall be managed to occur only in designated motorized areas.</p> <p><b>Temporary road</b> construction shall minimize the impacts to resource values and facilitate road rehabilitation. Temporary roads shall be rehabilitated following completion of the activities for which they were constructed.</p> <p>Road maintenance and construction activities shall be designed to reduce sediment (e.g., water bars, sediment traps, grade dips) while first providing for user safety.</p> <p><b>GL:</b>  New motorized trails or additions to designated trails should include destinations and loops to provide for a variety of opportunities.</p> <ul style="list-style-type: none"> <li>• New roads or motorized trails should be located to avoid Mexican spotted owl <b>protected activity centers</b>, northern goshawk post-fledging family areas, and other wildlife areas as identified; seasonal restrictions may be an option.</li> <li>• New roads, motorized trails, or designated motorized areas should be located to avoid meadows, wetlands, seeps, springs, riparian areas, stream bottoms, sacred sites, and areas with high concentrations of significant archaeological sites. The number of stream crossings should be minimized or mitigated to reduce impacts to aquatic species.</li> <li>• As projects occur in riparian or wet meadow areas, unneeded roads or motorized trails should be closed or relocated, drainage restored, and native vegetation reestablished to move these areas toward their desired condition.</li> </ul>	
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<p><b>Chapter 2 Forestwide Direction Nonmotorized Opportunities</b></p>	<p>Access and opportunities to experience areas through <a href="#">nonmotorized travel</a> are key components of recreation. The Apache-Sitgreaves NFs provide a serviceable and sustainable trail system that meets the need for public access, land management, resource protection, and user safety. Emphasis is on reconstructing or adding nonmotorized trails near population centers or developed</p>	<ul style="list-style-type: none"> <li>• As projects occur, roads or motorized trails that contribute to negative impacts on cultural resources should be closed or relocated.</li> <li>• As projects occur, redundant roads or motorized trails should be removed to reduce degradation of natural resources.</li> <li>• Roads and motorized trails removed from the transportation network should be treated in order to avoid future risk to hydrologic function and aquatic habitat.</li> <li>• Trail markings (e.g., signs) should be designed to complement the character of the surrounding lands.</li> <li>• Roads and motorized trails should be designed and located so as to not impede terrestrial and aquatic species movement and connectivity.</li> <li>• As projects occur, existing meadow crossings should be relocated or redesigned, as needed, to maintain or restore hydrologic function using appropriate tools such as French drains and elevated culverts.</li> <li>• After management activities occur in areas with high potential for cross-country motorized vehicle use, methods (e.g., barriers, signing) should be used to control unauthorized motorized use.</li> </ul> <p>DC: Nonmotorized opportunities are available in a variety of settings that provide differing levels of challenge and seclusion.</p> <p>DC: Blocks of forest land accessible from populated areas are available for nonmotorized opportunities. These areas are free from the sights and sounds of motorized recreation.</p> <p>DC: Opportunities for <a href="#">primitive recreation</a> are available.</p> <p>DC: A maintained and environmentally sound nonmotorized trail network is in place, providing for user safety and access to locations of interest for a variety of uses.</p> <p>DC: Nonmotorized trails are defined and marked.</p> <p>DC: Destination and loop trails exist for nonmotorized users.</p>	<p>78- 79</p>
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	<p>recreation sites to provide additional or enhanced nonmotorized recreational opportunities.</p> <p>Signing, enforcement, public information, seasonal and special closures, maintenance, construction, and restoration take place as appropriate. Emphasis is placed on reducing user conflict and resource damage. Educational techniques (e.g., brochures, signs) enhance visitor knowledge of proper nonmotorized use etiquette.</p> <p>Trail maintenance priorities are based on providing user safety, minimizing erosion, providing appropriate recreation opportunities, and accommodating administrative needs. Partnerships are in place prior to new nonmotorized trail construction to facilitate trail maintenance. The forests work with partners, user groups, and volunteers to maintain trails, including the Adopt-A-Trail Program.</p>	<p>Obj.: Annually, maintain at least 20 percent of nonmotorized trails.</p> <p>GL: Trail markings (e.g., signs, blazes) should be designed to complement the character of the surrounding lands.</p> <p>GL: New nonmotorized routes should avoid meadows, wetlands, seeps, springs, riparian areas, stream bottoms, sacred sites, and areas with high concentrations of significant archaeological sites. The number of stream crossings should be minimized or mitigated to reduce impacts to aquatic habitat.</p> <p>GL: To maintain nonmotorized user opportunities, nonmotorized trails should not be colocated on open motorized routes.</p> <p>GL: New trails and trail relocations should be designed and located so as to not impede terrestrial and aquatic species movement and connectivity.</p> <p>GL: Meadow crossings should be designed or redesigned to maintain or restore hydrologic function using appropriate tools such as French drains and elevated culverts.</p>	
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<p><b>Chapter 2 Forestwide Direction National Recreation Trails</b></p>	<p>The forests have four national recreation trails (NRTs), all designated in 1979: Blue Ridge, General George Crook, Eagle, and Escudilla. NRTs provide a variety of outdoor recreation opportunities and are accessible from urban areas. NRTs are considered a special area by the Forest Service.</p>	<p>DC: The Blue Ridge NRT provides a nonmotorized trail opportunity where visitors can experience the scenic qualities of the area.  DC: The General George Crook and Eagle NRTs provide nonmotorized trail opportunities where visitors can experience the historic and scenic qualities of the area.  DC: The immediate foreground (0 to 200 feet) views from the NRTs vary from natural appearing landscapes where human activities do not stand out (high scenic integrity) to unaltered landscapes where generally only ecological changes occur (very high scenic integrity).</p> <p>Obj.: Within 5 years of plan approval, initiate the process for the regional forester to remove the NRT designation from the Escudilla trail in conformance with Forest Service Manual 2353.57 – Management of National Recreation Trails.</p> <p>Standards: Visual impacts from vegetation treatments, wildland fire, recreation uses, range developments, and other structures will blend with the overall landscape character along national recreation trails.</p> <p>GL: Trail markings (e.g., signs, blazes) should be designed to complement the character of the surrounding lands.  GL: National recreation trails should be managed for nonmotorized or <b>mechanized travel</b> where permitted; however, the General George Crook and Eagle NRTs may have motorized travel where the trail coincides with a designated road or motorized trail.  GL: New developments which do not support use of, or enhance, a national recreation trail should not be placed within the visual corridor of the trail.  GL: The General George Crook National Recreation Trail should be managed to preserve evidence of historic roadway and landscape character, including r</p>	<p>80-81</p>
<p><b>Chapter 2 Forestwide Direction Wildland Fire Management</b></p>	<p>Wildland fire objectives are based on factors such as movement of PNVTs toward desired conditions, fuel conditions, current and expected weather and fire behavior, topography, resource</p>	<p>DC: Human life, property, and natural and cultural resources are protected within and adjacent to NFS lands.</p>	<p>105-110</p>

<p><b>Chapter 3 Management Area Direction General Forest</b></p>	<p>availability, and values to be protected. Social and economic considerations (e.g., smoke) may also affect objectives, as well as adjoining jurisdictions having similar or differing missions and directives.</p> <p>The emphasis of this area is to restore priority 6th level HUC watersheds, restore fire-adapted ecosystems, reduce the threat of uncharacteristic wildfire, and provide forest products. A wide variety of management activities occur and a wide variety of forest products are available within this management area. Lands identified as suitable for timber production have a regularly scheduled harvest of commercial timber.</p>	<p>DC: Recreation opportunities range from semiprimitive nonmotorized to rural.</p>	<p>112</p>
<p><b>Chapter 3 Management Area Direction Community- Forest Intermix</b></p>	<p>Forest managers work toward achieving the goals outlined in the CWPPs for the counties within the Apache-Sitgreaves NFs. A higher degree of temporary ground disturbance may occur. The amount of snags and residual large coarse woody debris is generally lower than in the</p>	<p>DC: There is legal and adequate access to public lands for resource management and recreation.</p> <p>DC: As a result of forest management, most wildfires are low to mixed severity surface fires resulting in limited loss of structures or ecosystem function.</p> <p>DC: Recreation opportunities range from roaded natural to rural.</p>	<p>113- 114</p>

	<p>General Forest Management Area. In addition, forest openings are larger and basal areas are lower than in the General Forest Management Area. The management approach within this management area is to complete initial treatments to reduce fire hazard.</p>		
<p><b>Chapter 3 Management Area DirectionCommunity Wildlife Quiet Area</b></p>	<p>There is an emphasis on improving wildlife habitat and maintaining existing wildlife developments. Management of habitat within WQAs may provide a benchmark for assessing effects of activities on generally undisturbed wildlife populations. The road in the Open Draw WQA is managed as open on a seasonal basis.</p>	<p>DC: WQAs lack disturbance from motorized vehicles, resulting in less stress to wildlife.</p> <p>DC: WQAs provide an undisturbed, nonmotorized hunting experience.</p> <p>DC: WQAs provide semiprimitive nonmotorized recreation opportunities, including relatively quiet recreation opportunities close to or adjacent to intensively used areas.</p> <p>DC: Landscapes in WQAs vary from slightly altered where human activities may be seen but do not attract attention (moderate scenic integrity) to natural appearing where human activities do not stand out (high scenic integrity).</p> <p>DC: Willow Springs Horse Trap and Beaver-Turkey Ridge WQAs provide quiet areas for big game amid the intensive recreation uses on the Black Mesa Ranger District.</p>	<p>119-120</p>
<p><b>Chapter 3 Management Area DirectionCommunity Natural Landscape</b></p>	<p>The management emphasis is to retain the natural appearing character of these areas. Management activities occur mostly for ecological restoration because of natural ecological events or previous</p>	<p>DC: Landscapes vary from natural appearing where human activities do not stand out (high scenic integrity) to natural where generally only ecological changes occur (very high scenic integrity), except as described below.</p> <p>DC: Developed campgrounds, picnic areas, trailheads, and roads passable by passenger cars provide roaded natural recreation opportunities. Landscapes within and immediately adjacent to these features remain scenic.</p>	<p>121-122</p>

<p><b>Chapter 3 Management Area Direction High Use Developed Recreation Area</b></p>	<p>management actions. Management activities may include restoration of ecological conditions or habitat components, soil stabilization, planned and unplanned ignitions, hazardous fuels reduction, and invasive species reduction. Livestock grazing may occur where appropriate</p> <p>In addition to recreation use, other uses (including livestock grazing, timber management, and wildlife management) may occur in combination with surrounding recreation and scenic desired conditions.</p>	<p>They may be slightly altered where human activities may be seen but do not attract attention (moderate scenic integrity) to natural appearing where human activities do not stand out (high scenic integrity).</p> <p>DC: While emphasizing semiprimitive nonmotorized and primitive recreation opportunities, motorized travel may occur on existing roads and motorized trails.</p> <p>DC: Natural landscapes contribute to preserving natural behaviors and processes that sustain wildlife populations.</p> <p>Guidelines:</p> <p>GL Temporary road construction and motorized equipment may be used in order to achieve ecological desired conditions.</p> <p>GL: Existing roads should be maintained to the minimum standard to meet the objective maintenance level.</p> <p>DC: The evidence of management activities is common.</p> <p>Guidelines:</p> <p>GL: Roads, facilities, and signing should be designed to blend with surroundings.</p> <p>GL: Management should focus on operation and maintenance, safety, aesthetics, and control of noxious weeds and nonnative invasive species.</p>	<p>115</p>
<p><b>Chapter 3 Management Area Direction Energy Corridor</b></p>	<p>Energy corridors are generally not managed to provide recreation opportunities. They are managed for very low scenic integrity where vegetation and structural changes may attract attention and dominate the landscape when viewed from nearby.</p>	<p>GL: Within and adjacent to energy corridors, vegetation should be managed similarly to the Community-Forest Intermix Management Area so that facilities stay operational and reduce the hazards of human-caused damage, wildfire ignition, damage from wildland fire, and falling trees.</p> <p>GL: Clearing of vegetation along rights-of-way, facilities, and permitted sites should be limited to that which achieves desired conditions, abates an identified hazard to the facility, or for operational efficiency and weed control.</p> <p>GL: Trees and shrubs in riparian areas should only be removed when there is an imminent threat to facilities and, in these cases, trees should be left for large coarse</p>	<p>116-117</p>

		woody debris recruitment to the stream and riparian system.	
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**Table 2: Recreation direction in the Coconino Forest Plan (USDA- Forest Service 2008)**

Section	Plan Direction	Page Number
<b>Goals</b>	<p>Manage the recreation resource to increase opportunities for a wide variety of developed and dispersed experiences.</p> <p>Preserve and protect non-renewable cave resources so their scientific and aesthetic value does not diminish.</p>	22
<b>Forest-wide and Management Area Standards and Guidelines</b>	<p>Use the ROS inventory to analyze impacts to ROS classes due to management activities such as timber sales, range projects and firewood sales.</p> <p>Surface land management decisions include consideration of potential impacts to all cave resources. Any management activity planned near or within a known cave area is examined for its potential impacts to caves and karst features. Cave entrances and karst features are also not to be used as disposal sites for slash, waste rock or fill materials, and other refuse. Evaluate a 300-foot radius around cave entrances for the effect on cave resources.</p> <p>The Arizona Trail is a state-wide trail of which a portion traverses the Coconino NF. This trail will be a non-motorized pathway.</p> <p>Dispersed Recreation: other areas may be seasonally closed to provide opportunities for recreation in a setting without vehicular disturbance such as temporarily changing the ROS class social and managerial settings toward the primitive end of the spectrum. Initially, the Pine Grove and Rattlesnake areas, or approximately 12,600 and 11,100 acres, respectively are closed annually from August 15 through December 31.</p>	<p>51</p> <p>51-2</p> <p>59</p>

<b>Flagstaff/Lake Mary Ecosystem Analysis</b>	Goals and Objectives: there is a range of recreational setting opportunities for people to enjoy the area’s many scenic and aesthetic qualities. The diversity and quality of recreation opportunities, settings, and experiences are within acceptable limits of change to ecosystem stability and condition.	New page 206-62
<b>Area-wide Goals, Objectives, Standards and Guidelines</b>	Guidelines: ROS objectives guide management. Manage for social encounters, signing, scenery, and a sense of exploration that meets ROS objectives. Management activities should generally comply with the requirements of the adopted ROS classes on the Objectives for Recreation Opportunity Spectrum map. (This includes an increase in opportunities for semi-primitive non-motorized and semi-primitive motorized ROS experiences to better manage the high demand for this type of recreation setting.)	
<b>Goals and Objectives</b>	Camping: dispersed campsites are maintained to protect forest resources and maintain visitor experience.	New page 206-63
	Rock Climbing: rock climbing areas are managed and maintained for appropriate experience, natural settings, attributes and conditions, considering ROS objectives, wildlife, heritage and soil and water resources.	New page 206-66
	Non-motorized Trails: There are opportunities for a variety of trail experiences and challenges that are consistent with protection of sensitive resources, meet the needs of a diverse public emphasize the natural environment, and meet ROS objectives.	New Page 206-67
<b>Guidelines</b>	Roads and off-road driving: conduct obliteration and re-vegetation work as funds become available. When choosing areas to conduct road maintenance and obliteration, focus efforts in semi-primitive motorized and semi-primitive non-motorized areas. Of the semi-primitive motorized and semi-primitive non-motorized areas, consider Lake Mary and Oak Creek Watersheds as priorities for water quality reasons. Also focus work adjacent to the National Monuments.	New page 206-72
<b>Forestry Goals and Objectives</b>	Grass, forbs, and shrubs on the forest floor contribute to the biological diversity of the ponderosa pine forest. Fire should continue to play a natural ecological role within the constraints of human health and safety.	Replacement page 206-75
<b>MA 31 Management Emphasis</b>	Maintain semi-primitive motorized ROS settings throughout the MA, with Roaded Natural corridors in between.	Replacement page 206-84

<b>MA 32</b> <b>Management Emphasis</b>	Progress towards the setting...this includes expanding the current semi- primitive motorized areas...Maintain the roaded natural settings along passenger car corridors and the large KV electric line.	Replacement page 206-88
<b>MA 33</b> <b>Management Emphasis</b>	Reintroduce fire's natural role as much as possible. Balance recreation demands with protection of soils, water and vegetation. Restore natural grasslands...  Expand semi-primitive motorized settings in other areas and continue roaded natural corridors along major roads.  Focus road and trail rehabilitation work on the large cinder cones, in meadows and grasslands where impacts are occurring to soil, plants and cultural sites.	Replacement page 206-91  Replacement page 206-92  Replacement page 206-93
<b>MA 35</b> <b>Management Emphasis</b>	Per the objectives for ROS map, expand semi-primitive motorized areas and maintain roaded natural corridors along major roads. New semi- primitive non-motorized patches should be created on Mormon Mountain in sensitive species habitat.  Continue current seasonal motorized restrictions in the Pinegrove Seasonal Closure Area.  Continue the current non-motorized Arizona Trail corridor through the MA.	Replacement page 206-98  Replacement page 206-99  Replacement page 206-  100
<b>MA 36</b> <b>Management Emphasis</b>	Per the objectives for ROS map, maintain the semi-primitive non- motorized setting in the Dry Lake Hills and expand the semi-primitive non-motorized setting below the waterline Road. Expand semi-primitive motorized settings in the remainder of the MA with roaded natural corridors along major roads.	Replacement pages 103-  104
<b>MA 37</b> <b>Management Emphasis</b>	Provide recreational opportunities. Maintain the quality of the recreation experience throughout this MA.  Expand semi-primitive non-motorized settings on Campbell Mesa, around Walnut Canyon, in the Skunk/Fay Canyon area and northwest of Fisher Point.	Replacement page 206-  108



<b>MA 38</b>  <b>Management Emphasis</b>	<p>Along Woody Ridge there are large tracts of un-fragmented habitat and remote recreation opportunities including semi-primitive motorized and non-motorized ROS settings with roaded natural corridors.</p> <p>Per the objectives for ROS map, maintain semi-primitive non-motorized settings on portions of Woody Ridge, A-1 Mountain and west of A-1 Mountain. In the remainder of NFS lands, maintain patches of semi-primitive motorized habitat with roaded natural corridors along major</p>	<p>Replacement page 206-114</p>
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**Table 3: Recreation direction in the Tonto Forest Plan (USDA- Forest Service 1985)**

Section	Description/ Management Approach	Landscape or MA Scale Forest Plan Desired Condition, Standards, Guidelines	Page number
<b>Management Direction Specific standards and guidelines are found in individual management area prescriptions under decision units 1, 2, 3, 5, 6 A01, A02, A03, A04, A05, A06, A07, A08, A10, A14, A16, A18, A21.</b>	<p>Outdoor Recreation</p> <p>Maintain and enhance visual resource values by emphasizing recreation resource management which will increase opportunities for a variety of developed and dispersed experiences. Provide those developed sites needed to meet most of the public demand and to support dispersed visitor use. Emphasize visual quality objectives in all resource planning and management activities.</p> <p>Conduct inventory, evaluation, nomination, management protection, scientific study, public interpretation, and enhancement of cultural resources in accordance with the</p>	<p>Standards and guidelines to achieve the objectives are found in the Management Prescriptions section. Objectives for the Forest are shown in the following tables. Objectives which must be achieved in the short-term in order to meet projected outputs over the planning horizon (200 years) are shown for Periods 1, 2, and 3. Those which are long-term and are a result of budget emphasis or other resource activity are displayed for Periods 5 and 6.</p> <p><b>Table 2 - Lists program outputs, activities, and costs for the Forest over the first fifty years. A comparison of RPA targets with Period 1 and 5 outputs can be found in Table 65 of the EIS.</b></p> <p>Table 3 - Existing Recreation Site Rehabilitation - Periods 1 and 2.</p> <p>Table 4 - Schedule for Recreation Site Construction - Periods 3, 4, 5, and 6. Table 5 - Trail Construction/Reconstruction Schedule - Periods 1 and 2.</p> <p>Table 6 - Administrative Facilities Construction Schedule - Period 1.</p>	<p>Replacement page 21-23</p>

<p><b>Management Areas 3I, 4D, 5D</b></p>	<p>management prescriptions, and objectives and priorities identified in Appendix H. Coordinate planning for these activities with the State Cultural Resource Plan, and planning activities of the State Historic Preservation Office, and with other State and Federal agencies. Management Prescriptions</p>	<p>Maintain a full service level for visitor information services (VIS).</p>	<p>Replacement Page 39</p>
<p><b>Management Areas All except 3F, 3I, 4D, 5D</b></p>	<p>Management Prescriptions</p>	<p>Visitor information and interpretive service programs will be at a level that <b>encourages</b> basic user safety. This would entail primarily issuance of Forest and recreation maps only and office receptionist service to the public.</p>	<p>Replacement Page 39</p>
<p><b>Management Areas 3F, 3J, 4D, 5B</b></p>	<p>Management Prescriptions</p>	<p>Install interpretive signs at selected locations throughout the Forest, keyed to crucial and/or interesting aspects of multiple use management.</p>	<p>Replacement Page 39</p>
<p><b>Management Areas All</b></p>	<p>Management Prescriptions</p>	<p>Recreation Opportunity Spectrum (ROS) classes will be managed according to the existing inventory (See Appendix E). Commercial recreation special use permits may be issued to qualified applicants whose services are available to all members of the public when the proposed use</p> <ul style="list-style-type: none"> <li>(a) fulfills a demonstrated public need without unduly infringing on the use by the general public, (b) is identified in and is in accordance with an approved implementation plan (where called for), and will not cause the carrying capacity of the involved area to be exceeded, (c) does not serve a function that can logically be provided by private enterprise off National Forest System lands and will provide a type of recreation activity naturally associated with a National Forest, and (d) is complementary to Forest Service and Management Area objectives, programs, and purposes.</li> </ul>	<p>Replacement Page 39</p>

<p><b>Management Areas</b> All</p>	<p>Management Prescriptions</p>	<p>Continue administration of existing recreation special use permits to assure compliance, and to assure that a quality public service is provided consistent with Forest Service and Management Area objectives.</p>	
<p><b>Management Areas</b> 1B, 1C, 1D, 1E, 1F, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D, 3F, 3I, 4A, 4B, 4C, 4D, 4F, 5A, 5B, 5C, 5D, 5E, 5G, 6A, 6B, 6C, 6D, 6F, 6G, 6H, 6J</p>	<p>Management Prescriptions</p>	<p>Use established outfitter/guide allocations contained in the Standards and Guidelines for each Management Area as the basis for all decisions/recommendations (except for the category of "fishing guide" which is unlimited at this time). When unused service days are available, the maximum number of service days per permit may be temporarily increased, so long as the maximum number of permits and total service days per year are not exceeded (this is not allowed with "pool" service days).</p> <p>Continue to cooperate with other agencies and governments to coordinate recreation management. Establish a Forestwide Total Service Day allocation for hunting as shown in table below. Issue priority and temporary permits from this allocation. Require permittees to submit an annual operating plan identifying the desired service days and Management Areas for hunting services.</p>	<p>Replace ment Page 40</p> <p>Replace ment Page 40</p>

## Affected Environment

### Existing Conditions

#### Recreation Trends

The Apache-Sitgreaves, Coconino, and Tonto National Forest provide diverse outdoor recreation opportunities connecting people with nature in a variety of settings. Forest users can hike, bike, drive motorized vehicles, camp, fish, view wildlife and scenery and explore historic and prehistoric places. They enjoy opportunities for year-round recreation activities from birding and wild flower observing in the spring, hiking in summer months, fall color viewing and hunting, to cross country skiing in the winter.

Recreation activities provide physical challenge, require development of skills and inspire wonder and curiosity about the natural world. Recreation contributes to the physical, mental and spiritual health of

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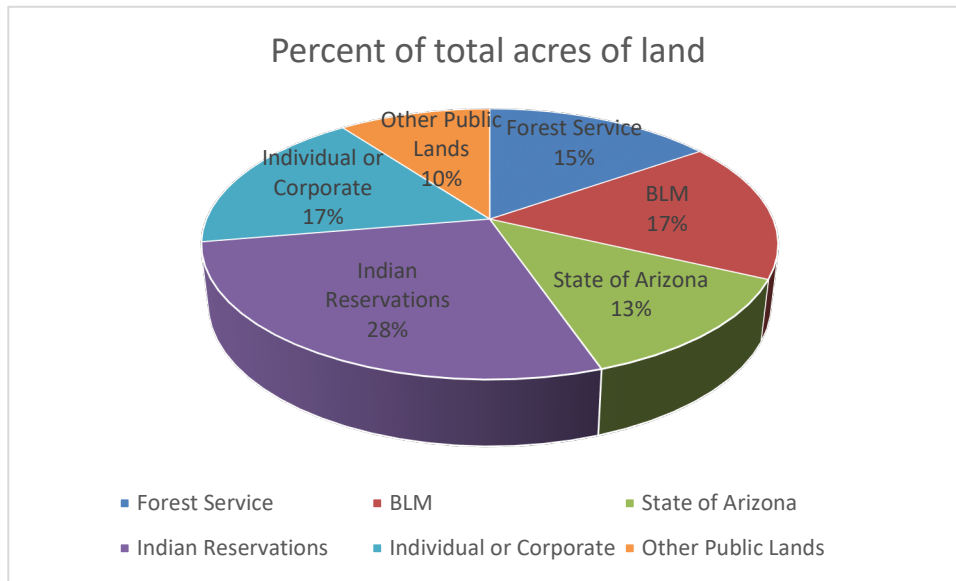
individuals, families, and friends. Outdoor recreation has become a part of American culture (USDA 2010).

Forest users may occasionally experience short term or temporary disruptions in their recreation activities as a result of other groups currently occupying a preferred site, forest management activities such as current thinning or prescribed fire projects, fire restrictions or fire closures due to hot, dry weather and extreme fire danger, as well as natural occurrences such as fallen trees blocking a roadway or trail, and so on. When asked how visitors would react to such disruptions in their plans, they reported in the National Visitor Use Monitoring survey (NVUM) using substitution behaviors such as coming back another time, going elsewhere for a different activity, going elsewhere for the same activity, going to work, some other substitution or staying at home (USDA 2016- 2017). The number one response for all three forests was by far, going elsewhere for the same activity.

Over the last two decades, Arizona has seen a dramatic increase in population (Table 2). The entire state of Arizona has grown almost 75% from 1990 to 2010 (U.S. Census Bureau, 2015), which is more than double the rate of the average population growth in the country. In addition, the last several decades have seen increases in the number of people participating in outdoor activities; between 2000 and 2007, these participants increased by 4.4% (Cordell, et al., 2008).

Demographic shifts and lifestyle changes have affected the demand for recreation opportunities on national forests. Today about 80% of the population lives in urban settings and may not have the same values as rural residents who live closer to or may depend on natural resources for their livelihood (Forest Service 2010). In the West, growth of retirement communities and other population shifts have created urban settings close to public lands. Both of these trends have created challenges to Forest Service recreation managers to meet demands for an ever increasing number of recreation users as well as a diverse number of desired recreation activities.

Arizona has a high percentage of public land compared to private lands. Figure 1 displays land ownership for Arizona (USDA 2010). Private land is notably scarce in Arizona. Residents are more likely to rely on public land for recreation activities due to the lack of private facilities. In addition, public lands provide recreational, environmental and lifestyle amenities. Johnson and Stewart (2007) found that there is overlap between counties that contain national forests and those designated as recreational, high amenity, and retirement destinations. Increase in population density along the forest edge puts pressure on cultural and environmentally sensitive areas, increases the use of recreation facilities and complicates forest management and fire suppression. The researchers also found that counties with more than 10% of their land in national forests (almost 39% of Coconino County) grew by significantly larger margins than other counties (Headwaters Economics 2012).



**Figure 1: Land ownership in the State of Arizona (REFERENCE)**

Arizona’s population was one of the fastest growing in the United States from 2000 to 2010. It grew 24.6% during this time period (<http://www.census.gov/prod/cen2010/briefs/c2010br-01.pdf>). The rate has slowed down in the last years, to 12.3% from 2010 to 2017. The populations of Coconino and Yavapai Counties continue to grow steadily. These counties include attractive cities such as Flagstaff, Sedona and Prescott. As Arizona’s population grows, demand for recreation grows (Arizona State Parks 2008). Rapid development and infill of limited private land also places more pressure on public land agencies to provide open space and recreation opportunities.

**Table 4: Population growth in counties in Rim Country project area, Arizona and the U.S. (U.S. Census 2017)**

Population Change 2010-2017						
Year	Coconino County	Navajo	Arizona	U.S.	Yavapai	Gila
<b>2010</b>	134,421	107,449	6,246,816	303,965,272	211,033	53,597
<b>2017</b>	140,776	108,956	7,016,270	325,719,178	228,168	53,501
Percent Change	<b>4.7%</b>	<b>1.4%</b>	<b>12.3%</b>	<b>7.2%</b>	<b>8.1%</b>	<b>0.2%</b>

An increasing population, along with growing participation in outdoor activities, contributes to increased visitation to the Coconino National Forest according to the most recent NVUM data. However, the Apache-Sitgreaves National Forest shows a dramatic decrease in visits. This could possibly be attributed to staff changes in the implementation of the survey design and/or to the implantation of field interviews. The next NVUM data collection is scheduled for fiscal year 2018. Results will be available in 2019. At that time, a better understanding of the trends for its National Forest visits should be obtainable. National Forest visits for the Tonto were similar for 2013 and 2016. Population growth is expected to continue into the future and will increasingly affect national forest management activities, as well as ability to provide satisfying recreation opportunities.

Participation in recreation activities continues to increase across the country. In 2009 Cordell et al compiled recreation participation data in the US from the 1980's to 2000's. Table 5 displays this information and shows trends in the data over almost 20 years. Recreation activities that occur on National Forests were included in the table, activities such as “attend outdoor concerts and plans” were removed as not applicable to the analysis.

Table 3 provides local recreation information available for the Apache-Sitgreaves, Coconino and Tonto National Forests. All forests have been surveyed several times in the NVUM. NVUM estimates the volume of recreation visitation to National Forests and Grasslands and produces descriptive information about that visitation, including activity participation, demographics, visit duration, measures of satisfaction, and trip spending connected to the visit.

**Table 5: Apache-Sitgreaves, Coconino and Tonto NF visitation comparison by year, site type and forest (USDA Forest Service 2017, 2018)**

Forest	Site Type					Total National Forest Visits
	Day Use Developed	Overnight Developed	Undeveloped Areas	Wilderness	Skiing	
<b>Apache-Sitgreaves 2007</b>	865,000	660,000	206,000	5,000	0	1,173,000
<b>Apache-Sitgreaves 2014</b>	385,000	148,000	204,000	7000	0	520,000
<b>Coconino 2005</b>	2,308,000	148,000	2,700,000	384,000	138,000	3,275,000
<b>Coconino 2010</b>	2,244,000	128,000	1,842,000	501,000	130,000	2,868,000
<b>Coconino 2015</b>	1,312,000	84,000	3,155,000	506,000	121,000	4,390,000
<b>Tonto 2008</b>	800,000	961,000	3,195,000	152,000	0	4,801,000
<b>Tonto 2013</b>	595,000	305,000	1,724,000	340,000	0	2,514,000
<b>Tonto 2016</b>	1,182,000	366,000	1,327,000	169,000	0	2,580,000

The Apache-Sitgreaves National Forest most drastic site type visits are the decrease in day Use Developed and Overnight Developed (campgrounds) sites. The Coconino NF visits show increased in Undeveloped Areas and decreased in Day Use Developed and Overnight Developed over the last five years. The Tonto National Forest displays major changes with an increase in Day Use Developed and a decrease in Wilderness.

According to NVUM, most visitors to the Apache-Sitgreaves, Coconino and Tonto NF use day use developed sites (such as picnic areas, observation points, and trailheads) and undeveloped areas (the general forest area with no developed facilities). The types of activities that people participate in are displayed in the next three tables (4, 5 and 6) displayed by forest.

**Table 6: Comparison of selected recreation activity participation in 2005, 2010 and 2017 for the Coconino National Forest (USDA Forest Service 2017, 2018)**

Activity	Percent Participation 2005	Percent Participation 2010	Percent Participation 2015
Viewing Natural Features	84.2	73.1	83.1
Hiking/Walking	71.2	70.8	74.0
Viewing Wildlife	63.9	48.7	38.8
Relaxing	60.2	62.3	49.1
Driving for Pleasure	51.3	46.1	33.9
Visit Historic Sites	30.9	29.2	10.6
Nature Study	18.2	17	9.7
Picnicking	14.8	21.4	9.3
Fishing	5.8	4.8	2.6
Bicycling	5.7	6.2	5.6
OHV Use	5.6	9.0	1.9
Motorized Trail Activity	5.4	3.8	1.7
Developed Camping	4.4	5.5	2.0
Downhill Skiing	4.4	5.0	2.9
Primitive Camping	4.2	4.2	3.0
Motorized Water Activities	2.6	1.0	0.3
Hunting	2.1	2.1	1.1
Backpacking	1.7	1.4	0.6
Horseback Riding	0.9	1.2	0.2
Cross-country Skiing	0.2	1.2	0.5

The percent of participation in the activities varies by survey year, but the types of activities have not varied. The Coconino NF data shows increase in the amount of people viewing natural features and hiking/walking. Other notable changes include decrease in all other activities but more important decrease in viewing historic sites, nature study and picnicking.

On the Apache-Sitgreaves NF, changes differed as hiking/walking and picnicking increase in the percent participation by activity type between the two survey years. Large decreases can be seen in relaxing, viewing wildlife, and viewing natural features. There are more variations in smaller positive and negative changes.

The Tonto NF saw important increases in OHV, non-motorized water, some other activity and viewing natural features. Other notable changes are important decrease in hiking/walking, relaxing and driving for pleasure. There are similar smaller positive and negative variations in all other activities like on the Apache-Sitgreaves NF.

**Table 7: Comparison of recreation activity participation in 2005 and 2015 for the Apache-Sitgreaves National Forest (USDA-Forest Service 2017, 2018)**

Activ ity	% Participation * 2007	% Participation* 2014
Hiking / Walking	35.8	59.0
Relaxing	80.2	58.7
Viewing Wildlife	68.9	48.2
Driving for Pleasure	44.6	42.2
Viewing Natural Features	64.8	38.8
Fishing	38.5	38.0
Picnicking	20.9	33.5
Developed Camping	34.7	31.0
Nature Study	14.6	15.5
Non-motorized Water	4.9	5.1

Motorized Trail Activity	4.3	5.0
Other Non-motorized	3.9	5.0
Bicycling	7.7	4.5
Nature Center Activities	4.9	4.3
OHV Use	6.8	4.0
Some Other Activity	3.1	3.7
Primitive Camping	3.8	3.6
Gathering Forest Products	8.5	3.3
Visiting Historic Sites	9.2	3.2
Resort Use	2.5	1.6
Motorized Water Activities	7.6	1.4
Hunting	1.7	1.2
Cross-country Skiing	0.1	1.0
Other Motorized Activity	0	0.9
Horseback Riding	1.6	0.0
Snowmobiling	0	0.0
Downhill Skiing	0	0.0
No Activity Reported	0.6	
	0.0	
Backpacking	4.0	0.0

**Table 8: Comparison of recreation activity participation in 2005 and 2015 for the Tonto National Forest (USDA Forest Service 2017, 2018)**

Activ ity	% Participation * 2008	% Participation* 2013	% Participation* 2016
Hiking / Walking	26.3	50.5	29.3
Relaxing	23.4	33.6	22.6
Fishing	23.3	23.2	17.9
Viewing Wildlife	17.7	22.1	25.1
Driving for Pleasure	15.0	19.4	10.5
Picnicking	14.8	15.1	7.7
Viewing Natural Features	14.5	13.8	22.2
Motorized Water Activities	11.0	13.4	12.5
Developed Camping	10.6	8.2	7.9
Other Non-motorized	10.6	6.7	11.1
Motorized Trail Activity	10.4	5.7	3.5
Some Other Activity	8.3	5.5	14.5
Hunting	5.1	4.9	1.5
Nature Center Activities	4.6	4.4	0.7
Primitive Camping	4.3	4.3	4.1
Non-motorized Water	3.5	3.7	14.9
OHV Use	2.9	3.6	27.5
Visiting Historic Sites	2.8	2.5	2.8
Nature Study	2.5	2.3	5.9
Gathering Forest Products	1.1	2.2	0.7
Horseback Riding	1.0	2.1	0.3
Bicycling	0.9	1.7	1.5
Other Motorized Activity	0.8	0.5	0.1



<b>Resort Use</b>	0.7	0.0	0.3
<b>Snowmobiling</b>	0.7	0.0	0.2
<b>Downhill Skiing</b>	0.6	0.0	0.1
<b>Cross-country Skiing</b>	0.1	0.0	0
<b>No Activity Reported</b>	0.0	0.0	0.4
<b>Backpacking</b>	0.0	0.0	0.4

People who participated in the NVUM came from mainly Coconino County, Yavapai County, Maricopa County, Arizona. Table 7 compares all three NF figures regarding residence, and Table 8 presents a comparison of distance travelled on the day that they were interviewed on each forest. Coconino NF has the most international visitors with 21%. About one-third of visitors to the Coconino and the Tonto NF came from Maricopa County (including the Phoenix metro area).

**Table 9: Comparison of visitor origin for Apache-Sitgreaves, Coconino and Tonto NF (USDA Forest Service 2017, 2018)**

Location	Approximate Percent of Visitors of Apache-Sitgreaves NF	Approximate Percent of Visitors to Coconino NF*	Approximate Percent of Visitors to Tonto NF*
<b>Coconino County, AZ</b>	0	33	26
<b>Yavapai County, AZ</b>	0	27	0
<b>Gila County, AZ</b>	0	0	6
<b>Navajo</b>	45	0	0
<b>Pima</b>	4	0	8.6
<b>Apache</b>	6.5	0	0
<b>Maricopa County, AZ (Phoenix metro area)</b>	23	16	55
<b>International</b>	0	21	5.1

When visitors were asked about substitution behaviors for the trip that they were on, more than half of all visitors on each NF reported they would have gone somewhere else to participate in the same activity (USDA Forest Service 2017, 2018). The second preferred option was come back another time for the Coconino and Tonto NF while the Apache-Sitgreaves NF visitors preferred staying home.

**Table 10: Substitution behaviors for forest visitors (USDA Forest Service 2017, 2018)**

Substitution Behavior	Percent Reporting Behavior for the Apache-Sitgreaves NF	Percent Reporting Behavior for the Coconino NF	Percent Reporting Behavior for the Tonto NF
<b>Come back another time</b>	6	18	9
<b>Gone elsewhere for a different activity</b>	5	14	3
<b>Gone elsewhere for the same activity</b>	55	53	80
<b>Gone to work</b>	0	1	0
<b>Another substitution</b>	10	2	3

Stay at home	25	12	5
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The Apache-Sitgreaves and Coconino NF both have more than 50% of their visitors traveling over 100 miles to recreate on the National Forest, 70% and 63% respectively. The Tonto on the other hand, is nearing 50% of their visitors from less than 25 miles from the forest and 74% of visitors from within a radius of less than 50 miles. This indicates that most of the visitors are local. The Coconino NF receives the most visitors traveling more than 300 miles representing 37.2%. This correlates with the relatively high international visitors (21%).

**Table 11: Percent of National Forest Visits by Distance Traveled\* (USDA Forest Service 2017, 2018)**

Distance	Percent for Apache-Sitgreaves NF (2007)	Percent for Apache-Sitgreaves NF (2014)	Percent for Coconino NF (2010)	Percent for Coconino NF (2015)	Percent for Tonto NF (2013)	Percent for Tonto NF (2016)
<b>0-25 miles away</b>	33.8	17.8	30	23	36.2	42.4
<b>26-50 miles away</b>	5.0	6.0	11	6.1	30.9	31.8
<b>51-75 miles away</b>	0.1	1.2	3	2.8	10.9	9.1
<b>76-100 miles away</b>	3.4	4.9	12	6.3	13.1	4.4
<b>101-200 miles away</b>	27.6	50.1	16	16.5	3.8	5.5
<b>201-300 miles away</b>	19.3	17.8	6	8.3	2.0	2.0
<b>300+ miles away</b>	10.7	2.2	22	37.2	3.1	4.7

\*National Forest Visits are defined as the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time. A National Forest Visit can be composed of multiple Site Visits.

Visitation to the Coconino National Forest has increased concurrently with population growth in Arizona. Data on visitation is collected by National Forests every five years and is part of the National Visitor Use Monitoring Program. Data collected in 2015 shows the Coconino National Forest has about 4.7 million visitors per year (USDA Forest Service, 2017). During this time period, the Coconino National Forest had the most visitors of all the National Forests in Arizona followed by the Tonto National Forest, with about 3 million visitors each year. Adjacent National Forests, like the Kaibab, Prescott, and Apache-Sitgreaves had substantially lower visitors; all under 1 million visitors.

The NVUM data highlights the Coconino National Forest is the most popular national forest in the southwestern region, but the data also shows that the forest serves an interesting niche. The Coconino National Forest is heavily used by non-local and international visitors; it is estimated that 60% of the 4.7 million visitors come a long distance (over 100 miles) to visit the National Forest (USDA Forest Service, 2018). While the Apache-Sitgreaves National Forest serves a higher percentage of their visitors coming from more than 100 miles with 70% both forests are visited by about 30% of local visitors. The Tonto is mostly visited by locals with 42% of visitors within 25 miles and about 74% visits coming from less than 50 miles away. Large amounts of visitors come from areas (primarily the Phoenix metropolitan area) to visit the area largely for the change of scenery and ideal climate and relief from extreme summer temperatures in nearby major metropolitan areas. The Country Rim project area covers a wide array of recreationists coming from different places within Arizona and from other states and countries. This reflects the desire of many recreationist to participate in the extensive possibilities of recreation activities in the area.

**Table 12: Region 3 visitation comparison by Forest (USDA Forest Service 2017, 2018)**

Forest	Site Visits (1,000s)*
Apache-Sitgreaves NF, AZ	744
Carson NF, NM	945
Cibola NF, NM	1,815
Coconino NF, AZ	4,715
Coronado NF, AZ	2,912
Gila NF, NM	528
Kaibab NF, AZ	757
Lincoln NF, NM	921
Prescott NF, AZ	806
Santa Fe NF, NM	905
Tonto NF, AZ	3,044

\*A Site Visit is the entry of one person onto a national forest site or area to participate in recreation activities for an unspecified period of time.

### Recreation Activities within the Project Area

There are a number of USFS trails and developed recreation facilities within the Rim Country project area including developed campgrounds. Most of the recreation facilities are located on the Apache-Sitgreaves NF. The Recreation Opportunity Spectrum (ROS) classification within the project area includes Semi-Primitive Non-Motorized (SPNM), Semi-Primitive Motorized (SPM), Roaded-Natural (RN) and Rural (R). The recreation facilities within the Rim Country project area are shown on Figure 2 and are summarized in Table 11. The full list of name of each recreation facilities is displayed in Appendix 1.

**Table 13: Summary of recreation facilities in Rim Country project area**

	Apache-Sitgreaves NF	Coconino NF	Tonto NF
Boating site	4	2	0
Campground	14	5	11
Camping area	15	0	1
Day Use Area	13	0	0
Group Campground	3	2	4
Interpretative Site	3	0	0
Info Site/Fee Station	0	3	1
Interpretive Site		1	
Lookout/Cabin		1	
Observation Site	2	0	2
OHV Staging Area	2	0	0
Organization Site	2	0	2

Other Recreation Concession	2 dump stations	0	0
Picnic Site	2	1	4
Recreation Residence	0	0	2
Trailhead	4	5	14
Wildlife Viewing Site	0	1	0

Rim Country developed recreation sites

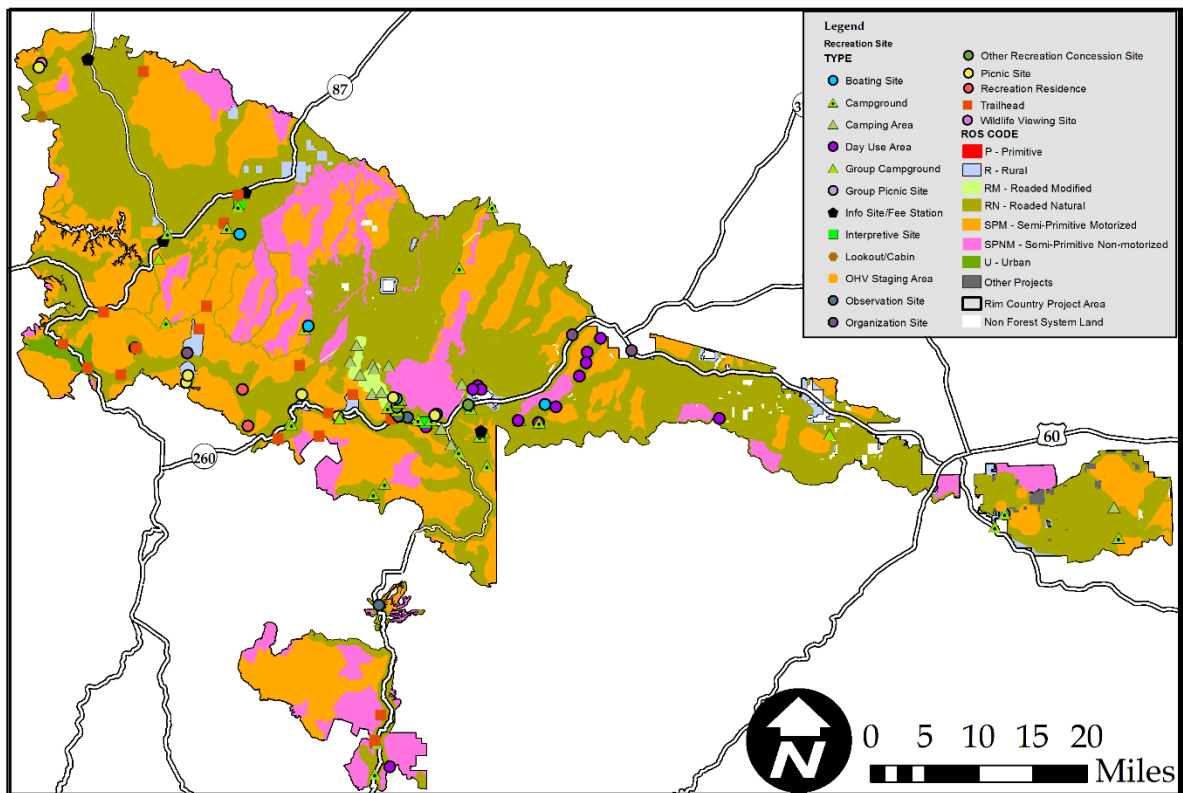


Figure 2 Rim Country Developed Recreation Sites

### Developed Campground

There are a total of 30 developed campgrounds in the Rim Country project area. Campgrounds generally operate from May to October depending on weather. These campgrounds see high use on weekends typically from mid-May to mid-September.

## Trails

There are portions of several Forest System Trails within the project area. There is a total of 728 miles of trails identified in the project area. Table 12 shows the number of miles of trail per trail, class per forest. The Forest Service Handbook (FSH 2353, Section 14.2, Exhibit 01) defines trail classes as general categories reflecting trail development scale, arranged along a continuum. The Trail Class identified for a National Forest System (NFS) trail prescribes its development scale, representing its intended design and management standards.<sup>i</sup> Local deviations from any Trail Class descriptor may be established based on trail-specific conditions, topography, or other factors, provided that the deviations do not undermine the general intent of the applicable Trail Class.

The Apache-Sitgreaves NF contains the most mileage of trails with more than double that of the Coconino and the Tonto NFs. Also, the ASNF is the only forest to have snow trails. It totals 92 miles of snow trails and 359 miles of terra trails.

**Table 14: Mileage of trails per trail class per National Forest within the project area**

Trail class	Typical ROS	Apache-Sitgreaves	Coconino	Tonto	Total miles per trail class
<b>1: Minimally developed</b>	Natural, unmodified Primitive to Roded Natural	0	5	0	5
<b>2: Moderately developed</b>	Natural, essentially unmodified Primitive to Roded Natural	94	76	5	176
<b>3: Developed</b>	Natural, primarily unmodified Primitive to Roded Natural	235	43	123	401
<b>4: Highly developed</b>	May be modified Semi-Primitive to Rural	115	0	9	124
<b>5: Fully developed</b>	May be highly modified Commonly associated with visitor centers or high-use recreation sites Roded Natural to Urban	4	0	0	4
<b>No trail class identified</b>		9	4	7	20
<b>Total</b>		<b>457</b>	<b>128</b>	<b>143</b>	<b>728</b>

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## **Arizona National Scenic Trail**

The Arizona National Scenic Trail (Arizona Trail) was designated a National Scenic Trail by Congress in the Omnibus Public Land Management Act of 2009. It extends approximately 800 miles across the State of Arizona from the border with Mexico to the border with Utah. The ANST is intended to be a primitive, non-motorized, long distance trail that highlights the states topographic, biologic, historic, and cultural diversity. Administration of the Arizona Trail is the responsibility of the Regional Forester. Figure 2 shows the trail alignment within the Rim Country project area.

The Arizona Trail is Arizona’s only National Scenic Trail and provides local hiking opportunities around the Flagstaff area, as well as a recreational experience to long distance hikers, mountain bikers and equestrians. The Arizona Trail corridor represents a connected landscape across the state. As the trail becomes a better known, people from the U.S and internationally are coming to experience a unique cross-section of Arizona that can only be seen by traveling the Arizona Trail.

As envisioned in "Trails for America" report (American Trails 2012) national scenic trails are to be very special trails: "According to the National Trails System Act (1968) national trails “will be extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of nationally significant scenic, historic, natural, and cultural qualities of the area through which such trails may pass". National scenic trails may be located so as to represent desert, marsh, grassland, mountain, canyon, river, forest, and other areas, as well as landforms which exhibit significant characteristics of the physiographic regions of the Nation.

Per 16 USC 1246 Administration and Development of National Trails System, each federal agency is required to select the trail right of way and publish its location. Per Section 2, “Development and management of each segment of the National Trails System shall be designed to harmonize with and complement any established multiple-use plans for that specific area in order to insure continued maximum benefits from the land.” Forest Service Manual 2353.41 also provides guidance “Develop and administer National Scenic and National Historic Trails to ensure protection of the purposes for which the trails were established and to maximize benefits from the land” and in 2353.42 “Administer National Scenic and National Historic Trail corridors to be compatible with the nature and purposes of the corresponding trail.”

The revised Draft Coconino NF Management Plans (2011) provides desired conditions for the trail including “*the Trail will emphasize a semi-primitive recreation experience in a predominantly natural or natural-appearing landscape. Where infrastructure and facilities impact the scenic integrity along the trail, mitigation is applied appropriately. Recreation does not negatively impact cultural and natural resources, or scenic integrity.*”

The Arizona National Scenic Trail (AZNST) traverses 39.7 miles through the project area from South to North on its way from Mexico to Utah. The trail is intended to be a primitive, long distance trail highlighting the state’s topographic, biologic, historic, and cultural diversity. The trail receives use by day hikers and overnight backpackers, as well as by through-hikers attempting to hike or ride all of the more than 800 miles of trail across the state of Arizona. The Arizona Trail Association is an active volunteer organization, which maintains the trail and performs a variety of stewardship actions, including advocacy for the trail.

## **General George Crook National Recreation Trail**

The General Crook National Recreation Trail (GCNRT) traverses 98.4 miles through the project area. The GCNRT traverses both the APSNF (58.5mi) and CONF (36.9mi). The GCNRT follows the historic route of General George Crook of the US Army from Fort Whipple in Prescott, to Fort Apache. The route was

established in the 1870s to serve as a supply and patrol road. Some sections of the trail have been replaced by modern Forest System Roads, but the trail still provides for spectacular views over the Mogollon Rim and invites adventurers to explore this historic route. The Apache-Sitgreaves Forest Plan provides management direction for both the GCNRT and the Blue Ridge National Recreation Trail as the National Trails are considered a special area in the Forest Plan. The desired conditions, objectives and guidelines are found in Table 1.

### *Blue Ridge National Recreation Trail*

The Blue Ridge NRT, located on the Lakeside Ranger District of the Apache-Sitgreaves National Forest is approximately 9 miles long. The trail climbs the west side of Blue Ridge Mountain (7,650 feet in elevation) through a mixture of pines, junipers, and many varieties of wildflowers. The mountain itself is a volcanic remnant. There are scenic views from the summit. The entire trail is in the Rim Country Project area.

### *Highline National Recreation Trail*

The 50 mile long Highline National Recreation Trail is on the Payson Ranger District of the Tonto National Forest. The west terminal of the trail is at 5,360 feet and ends at 6,620 feet. The Dude Fire of 1990 burned portions of the forest along the Highline Trail. The Highline Trail, established in 1870, was used to travel between homesteads and to attend school in Pine. Zane Grey and Babe Haught used the Highline Trail while hunting. The portion of the Highline Trail from Washington Park TH and Pine TH is part of the Arizona Trail. This trail ties to several other trails, providing opportunities for loop hikes and rides. The Highline Trail runs essentially east to west, below the Mogollon Rim and roughly following it.

Rim Country National Scenic and Recreation Trails

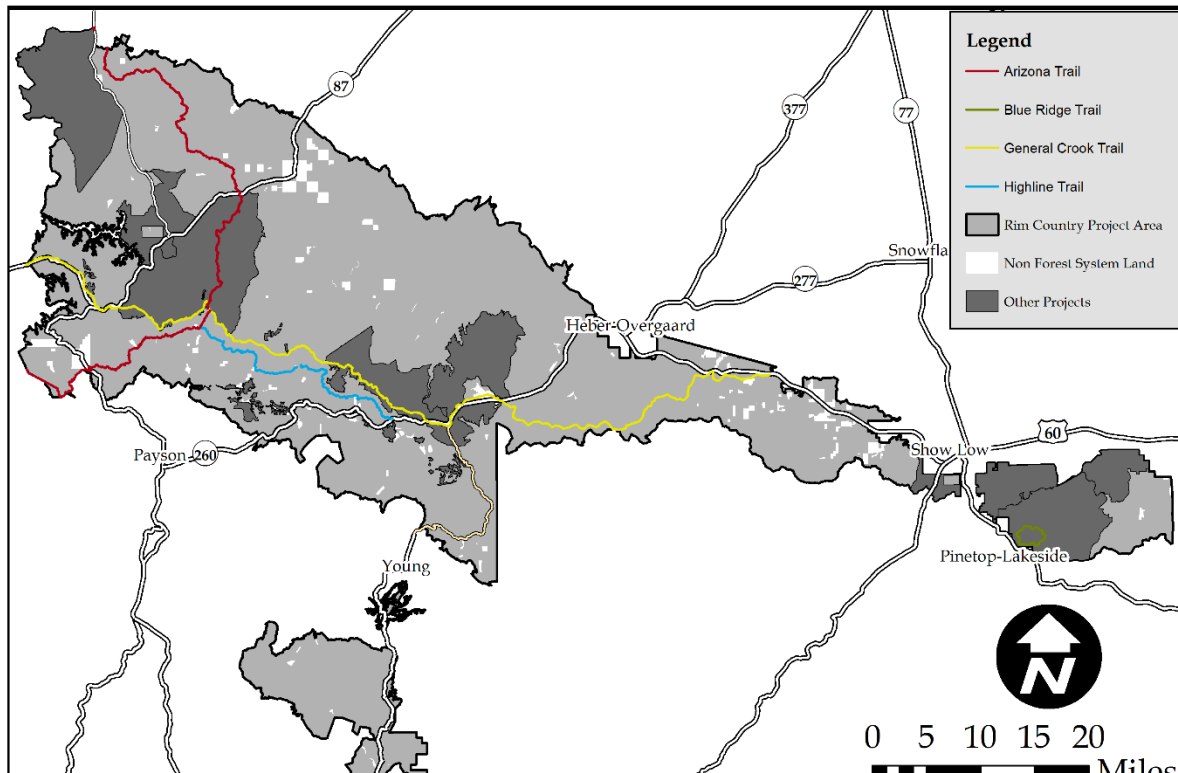
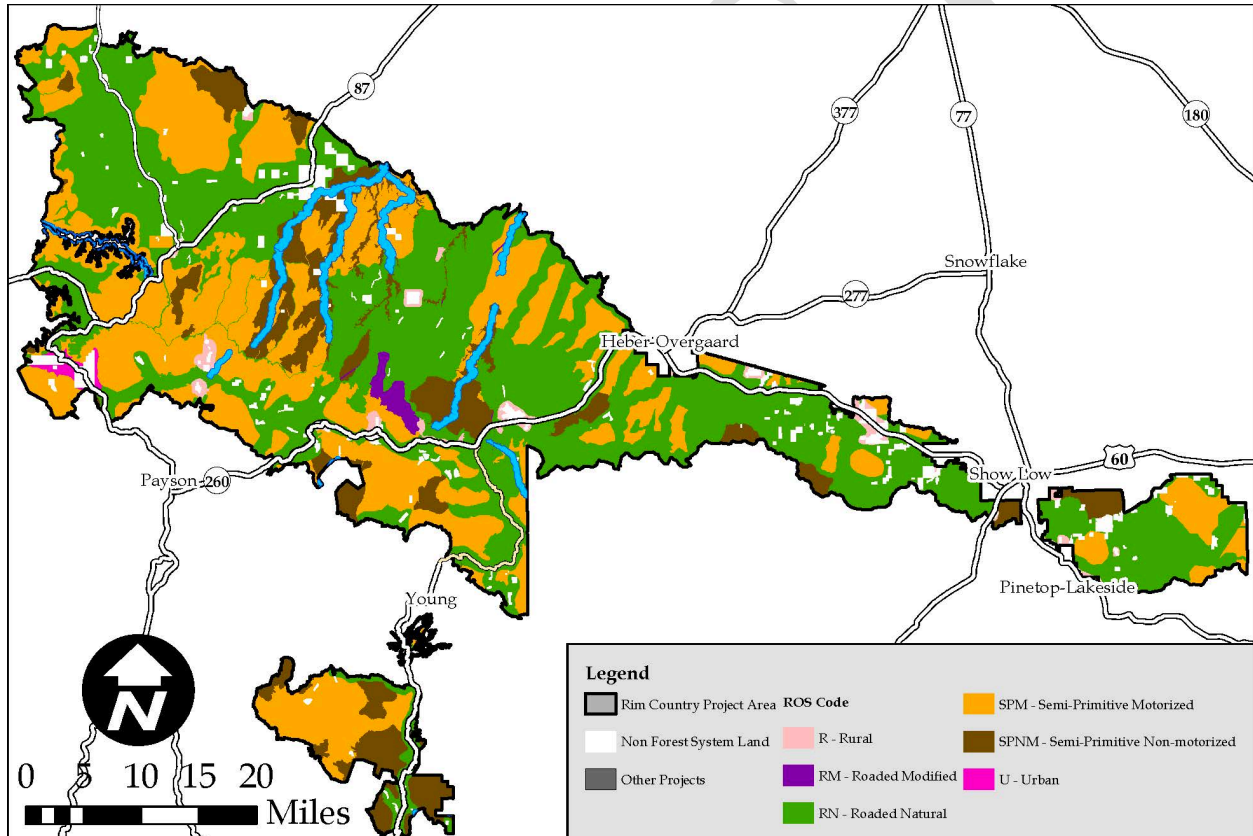


Figure 3 Rim Country National Scenic and Recreation Trails

## Wild and Scenic Rivers

There are currently no designated segments of wild and scenic rivers in the Rim Country project area. There are however, currently 9 segments of eligible wild and scenic rivers on the Apache-Sitgreaves and Coconino National Forest in the project area. In addition, as part of its forest plan revision process, the Tonto NF is completing an updated eligibility report for wild and scenic rivers to replace the existing eligibility report from 1993. To ensure compliance with current forest plan direction, this analysis includes both the eligible rivers reported in the 1993 study, as well as those listed in the current draft eligibility report. The figure below illustrates the locations of the eligible wild and scenic rivers on the Apache-Sitgreaves and Coconino National Forest relative to the project area and the rivers from the 1993 eligibility report and the current eligibility study (ongoing) respectively.

**Table 15 Eligible Wild and Scenic River Segments with Current Tonto Eligibility Study**



## Dispersed Recreation

The Forest Plan defines dispersed recreation as the type of outdoor recreation that tends to be spread out over the land and in conjunction with roads, trails, and undeveloped waterways. Activities are often day-use oriented and include hunting, fishing, gathering of forest products, boating, hiking, off-road vehicle use, cross-country skiing, mountain biking, and rock climbing.

### *Dispersed Camping*



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Dispersed recreation includes the full suite of outdoor nonmotorized and motorized recreation opportunities available throughout the year. Visitors to the area camp using a variety of shelters, including large Recreational Vehicles (RVs), live-in toy haulers, and tents. Many campers come from the Phoenix metro area to escape extreme summer temperatures and enjoy the cool weather provided by the high elevation of the project area.

Dispersed camping requires no additional facilities other than road or trail access, though the relatively unconstrained nature of dispersed camping can cause resource impacts such as soil compaction and erosion, loss of vegetation, increased fire risk, displacement of wildlife, and accumulation of trash and human waste. The number of dispersed campers in the project area is also difficult to estimate.

## Motor Vehicle Use

As Arizona's population has grown, the state has also seen a dramatic increase in ownership and use of personal Off-Highway Vehicles (OHVs). Arizona Trails – 2010 reported a 623% increase in sales of off-highway motorcycles and ATVs in Arizona between the years 1995 to 2006 (McVay et al. 2010). NVUM indicates a particular great increase of OHV use to recreate from 3.6% to 27.5% activity participation for the Tonto National Forest, The Coconino and the Apache-Sitgreaves National Forests show a slight decrease in OHV use (Tables 4-5-6). The growth in ownership and use of OHVs has greatly influenced how users recreate in the project area.

The 2013 Arizona Statewide Comprehensive Outdoor Recreation Plan (SCORP) reports that based on the Arizona Trails 2010 Plan, OHV users represent almost 22 percent of the Arizona population, which includes residents who use motorized vehicles on trails for multiple purposes. Of that, 11 percent of Arizona residents reported that motorized trail use accounted for the majority of their use and are considered “core users.” With Phoenix and surrounding communities being among the fastest growing populations in the State, adjacent forest areas can expect a large increase in visitation.

Visitors are extremely mobile, require large areas for camping to accommodate trailers and toy haulers, and their recreating patterns directly relate to the road system in the project area.

In November 2005, the USDA Forest Service announced new Federal Regulations called the Travel Management Rule (TMR), requiring each National Forest to establish a designated system of roads, trails, and areas by vehicle type and time of year. Designated roads, trails, and areas would then be identified on a Motor Vehicle Use Map (MVUM), made available to the public for free (36 CFR 212.56).

The travel management planning (referred to as TMR). TMR project prohibits cross-country travel and restricts public motorized travel on the forests except on designated roads, trails and areas as per the final TMR rule <http://www.fs.fed.us/recreation/programs/ohv/final.pdf>. It does allow for emergency activities, and limited administrative motorized use of non-designated forest roads, trails and areas. Each forest's motorized vehicle use maps (MVUM) regulate travel management. These include information about authorized motorized activities including designated roads, trails and areas, dispersed camping, motorized game retrieval and fuelwood gathering (USDA-Forest Service 2011a). Non-motorized recreation activities are not included in the travel management MVUM.

In 2010, the Apache-Sitgreaves NF proposed a draft Environmental Impact Statement (DEIS) with a travel management plan and alternatives were released for public comment. Because of the Wallow Fire, the changes to the landscape and species status, and the release of the ASNFs revised Forest Plan in 2015; it was decided to present a modified proposed action to the public for comment in a Revised Draft Environmental Impact Statement (RDEIS). The RDEIS is a continuation of the National Environmental

Policy Act (NEPA) process. The ASNFs Public Motorized Travel Management Plan reinitiated the analysis process. The APSNF is developing the revised proposed action. The 4FRI project will adhere to the TMR decisions for the Coconino, Tonto and Apache-Sitgreaves National Forest.

## Recreation Special Uses

Many authorizations are for reoccurring activities like Outfitting and Guiding and some are for facilities such as Recreation Residences. In addition, four areas have been designated for temporary activities like Recreation Events and Non-Commercial Group Use (NCGU). Appendix 2 compiles the authorized recreation special use permits in the project area.

## Recreation Opportunity Spectrum

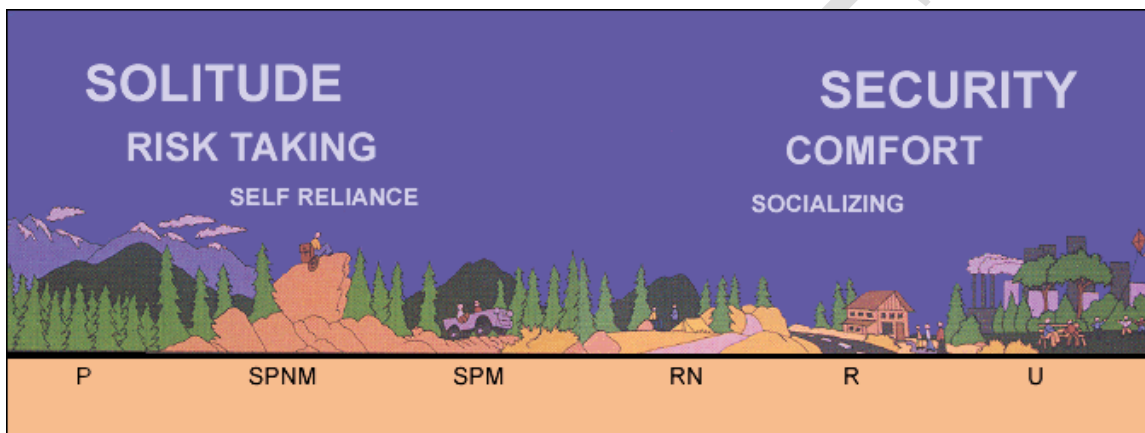


Figure 4: Recreation Opportunity Spectrum, USDA ROS Primer and Field Guide 2011

The Forest Service uses the Recreation Opportunity Spectrum (ROS) to provide a framework for defining classes of outdoor recreation environments, activities, and experience opportunities (USDA Forest Service, ROS Primer and Field Guide 2011). Figure 4 depict the various ROS categories and characteristics of them. The ROS is a land classification system that categorizes national forest land into six classes, each class being defined by its setting and by the desired opportunities and characteristics the setting offers. The six ROS classes are: Primitive (P), Semi-Primitive Non-Motorized (SPNM), Semi-Primitive Motorized (SPM), Roaded Natural (RN), Rural (R), and Urban (U). There are no wilderness or recommended designated wilderness area within the proposed project. Opportunities for experiences along the spectrum represent a range from very high probability of solitude, self-reliance, challenge and risk, to a very social experience where self-reliance, challenge and risk are relatively unimportant (Table 15).

The purpose of the ROS is to identify desired conditions across the Forest so that different parts of the forest may facilitate different recreational experiences. The ROS represents management objectives, which may not always reflect actual user experiences.

Table 16: ROS settings and characteristics (USDA Forest Service, 1986)

ROS Setting	Evidence of Human Contact and Human Use	Social Encounters
Rural and Roaded Natural	Highest contact with other visitors and highest evidence of use compared to other ROS settings	Social encounters are higher within ½ mile of trailheads, paved roads, and residential areas.

<b>Semiprimitive Motorized and Semiprimitive Non-motorized</b>	Lower contact with other visitors and lower evidence of human use than in Rural and Roded Natural but higher levels than Primitive or Wilderness ROS settings.	Social encounters are higher within ½ mile of trailheads and at destination features such as water, natural formations, cultural features, vistas.
<b>Primitive</b>	Lower contact with other visitors and lower evidence of human use than in Semiprimitive Motorized and Semiprimitive Non-motorized but higher levels than Wilderness ROS settings.	Social encounters are higher within ½ mile of trailheads and at destination features such as water, natural formations, cultural features, vistas.

The large majority of the Rim Country project area falls into the SPM and RN classes. Approximately 418,675 acres or 35% of the project area is SPM. RN makes up 418,675 acres or 50%. SPM makes up 13% of the area. With the recent Forest Plan Revision, for the Coconino and the Apache-Sitgreaves National Forests updated ROS maps that represent the desired conditions for ROS classes across the Forest. Not all acres on the Forests currently meet these desired conditions. The desired conditions are meant to guide project design, alternative development, and assessment of potential project impacts. ROS classifications are also used to determine if project activities will help meet or move toward desired conditions for recreation opportunities at the Forest level.

Throughout much of the project area, numerous resource management activities have occurred including vegetation management, road maintenance, developed recreation site construction, trail construction and maintenance, prescribed burning, hazard tree removal, utility corridor clearing and others. In addition, there have been numerous wildfires in the area. Not all projects have met or currently meet the characterizations and mapped ROS classes at this time.

All three national forests in the project area offer numerous developed recreation opportunities as illustrated in Figure 5. The Rim Country project does not include restoration activities in developed recreation sites, special areas, or designated Wilderness. Outside of these areas, many forest users engage in dispersed recreation including hiking, dispersed camping, driving motorized vehicles, rock climbing, cross country skiing, snow play and many other activities. There would be restoration activities in many places where dispersed recreation occurs.

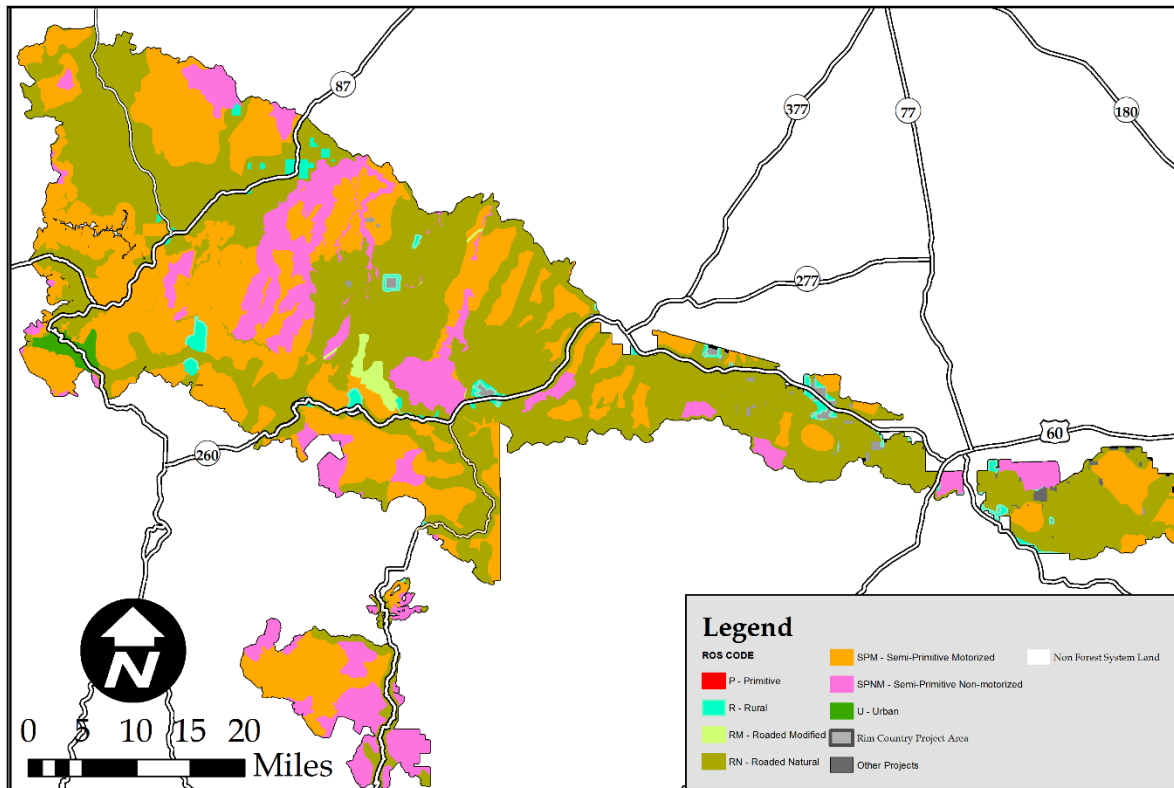
A spectrum of high-quality outdoor recreation settings and opportunities would be available in the project area. Roded Natural and Semi-Primitive Motorized ROS areas would provide high scenic and recreational values and in Semi-Primitive settings would provide more natural appearing settings. The national forest system lands in the project area provide high quality recreation opportunities and settings that compliment and support local communities' tourism industries, and contribute to local residents' quality of life.

Management activities on national forest system lands are consistent with recreation setting objectives that provide opportunities for the public to engage in a variety of developed and dispersed recreational activities, in concert with other resource management and protection needs.

**Table 17: Acres of land by recreation opportunity spectrum in the Rim Country project area**

ROS class	Acres	Percentage (%)
<b>R- Rural</b>	18,309	2
<b>RM- Roded Modified</b>	8,645	1

<b>RN- Roaded Natural</b>	598,346	50
<b>SPM- Semi-Primitive Motorized</b>	418,675	35
<b>SPNM- Semi-Primitive Non-motorized</b>	153,798	13
<b>U- Urban</b>	4,009	0
<b>Total</b>	<b>1,201,783</b>	<b>100</b>



**Figure 5 Rim Country Recreation Opportunity Spectrum Class**

Approximately 50% of the project area is classified as RN. Under this designation:

- ◆ Access in the project area can range from full access via road or trail to neither road nor trail being an available opportunity.
- ◆ Individuals can experience either full remoteness where they perceive themselves as removed from the sights and sounds of human activity (more than 1 ½ hour walk) or in

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other locations where they are not out of sight and sound of other humans.

- ◆ Experiences may range from encountering very few other recreationists, to experiencing moderate to frequent contact with other recreationists in developed sites or when on roads and trails.
- ◆ Some locations will offer on-site information that is noticeable but is presented in a manner that harmonizes with the natural environment, and other locations may not offer any on-site information.
- ◆ Recreationists will find some sites that offer no facilities for user comfort while other sites may offer some facilities that are rustic and built out of native materials. These facilities offer some on-site protection from the natural elements.

As mentioned, 35% of the project area is designated SPM. Under this designation:

- ◆ Access can include non-motorized and motorized trails, and primitive roads.
- ◆ Remoteness is more evident than in areas classified as RN.
- ◆ Human encounters can range from under 6, up to 15 parties met per day, or less than 3, up to 6 parties seen at a campsite per day.
- ◆ Information facilities provided on-site range from very limited to nonexistent.
- ◆ On-site protection facilities range from rustic or rudimentary to nonexistent.
- ◆ SPM management direction stipulates that limited to no site hardening occurs at / on recreation sites and locations that fall within this designation.
- ◆ Visitors' impacts range from unnoticeable with no site hardening to subtle site hardening.

As mentioned, 13% of the project area is designated SPNM- Semi-Primitive Non-motorized. Under this designation:

- ◆ Access include non-motorized trails and existent primitive roads if usually closed to motorized use. Motorized roads are at least 0.5 mile but no further than 3 miles from the designated area.
- ◆ Remoteness is evident and the environment offers challenge and risk.
- ◆ Human encounters can range from under 6, up to 15 parties met per day, or less than 3, up to 6 parties seen at a campsite per day.
- ◆ On-site protection facilities range from rustic or rudimentary to nonexistent.
- ◆ SPM management direction stipulates that limited to no site hardening occurs at / on recreation sites and locations that fall within this designation.
- ◆ Visitors' impacts range from unnoticeable with no site hardening to subtle site hardening.

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## Issues/Indicators/Analysis Topics

Analysis topics identified relative to recreation and lands management resources are based on Forest Plan desired conditions, management approaches, guidelines, and standards. There were very few public comments identifying issues or concerns related to recreation, except for potential effects from treatments on the Arizona National Scenic Trail and its users. Consequently, this resource area was determined to require cursory analysis. The primary issue of concern to recreation resources from the proposed activities is to minimize and mitigate effects on recreation features (e.g., developed campgrounds, signs, trails, and trailheads) and recreation activities (e.g., driving for pleasure, dispersed camping, hiking, mountain biking, equestrian use, hunting, boating, special use events, and developed camping).

## Assumptions and Methodology

This assessment includes use of the best available science, based on relevant peer-reviewed literature, published reports from regulatory and land management agencies, existing resource inventories, field visits, and the professional judgment of interdisciplinary and cooperating agency team members.

The Recreation Opportunity Spectrum (ROS) is the guiding system that the Forest Plan directs the Forest to consider when planning projects to properly manage and balance recreation opportunities. The ROS provides a framework to assist managers in identifying different outdoor recreation environments, settings, activities, and experiences desired by the public, and deciding how to provide these different recreational opportunities over the landscape within the forest (USDA Forest Service, ROS Book, 1986). ROS classifications are identified to distinguish the desired conditions across the landscape. ROS classifications within the project area were referenced to determine if project activities would affect the potential for meeting or moving toward desired conditions identified in the RO classifications.

The Special Uses Database System (SUDS) was used to generate a list of all recreation special use authorizations within the project area. This report was sorted by status. The authorizations were considered part of the existing condition if they had statuses of application accepted, pending signature, or issued.

Data and experiences from both the Four Forest Restoration Initiative (4FRI) and Cragin Watershed Protection Project were used in this analysis because of proximity to the project area, probability that users would recreate in all the project areas, and the similarity of terrain and vegetation.

This specialist report includes analysis of effects and forest plan compliance information for a specific forest resource. In some situations, the EIS may present the information in a summarized or slightly different manner. The final EIS is the instrument used to inform the decision-making process. Specialist reports are still important reference sources for more detailed information on affected environment, methodology, analysis, and forest plan compliance. This is based on the Council for Environmental Quality's NEPA regulations (Section 1508.9), which identifies and Environmental Assessment as a "concise public document" to include "brief discussions" of the proposal, alternatives, environmental effects of the alternatives, and a listing of agencies and persons consulted.

The timeframes for direct and indirect effects would include the potential for up to 20 years of project implementation. The thinning treatments may take up to 20 years to complete, with each thinning contract generally completed within a three-year timeframe. Implementation would include prescribed burning over a 20 year period of time, with multiple burn intervals of two to 10 years across the project area.

## Summary of Alternatives and Resource Protection Measures

Table 18: Design Features, Best Management Practices, Mitigation and Conservation Measures

DF/BMP /M&CM Number	Description	Primary Purpose	Forest Plan Compliance	Specialist Recommendation
RS001	Coordination with the District Recreation Planner, District Trails Specialist, and local trail stewards will occur during prescription or burn plan development, layout, marking, thinning, and burning where any treatment will occur on, adjacent or near National and system trails. This is to ensure that trails and trail infrastructure are considered and protected and effects on scenic qualities are minimized to the extent practicable.	Resource protection	X	X
RS002	Historic trails, roads and trail markers in the project area will be protected during project implementation in accordance with timber sale contract provision BT6.221, and BT6.22 (protection of improvements not owned by the forest service and those owned by the forest service respectively). Additionally, the General Crook Trail, the Arizona Trail, the Highline Trail, and other historic trails, roads and National Recreation Trails will maintain historic and scenic integrity during project implementation.	Regulatory requirement. Compliance with NHPA and Southwestern Region PA with AZ SHPO, forest plan compliance, National Recreation Trails compliance, National Historic Trails compliance.	X	X
RS003	Efforts would be taken to limit forest treatment activities and hauling from rock pits within the project area during high-use weekends and holidays (e.g., Memorial Day, 4th of July, Labor Day, etc.); especially in locations where recreation-based activities (e.g., trails, trailheads, etc.) occur.	Protect public safety, decrease noise, reduce dust and minimize visibility issues on roads during high-use periods	X	X

RS004	<p><b>Fire Control Lines:</b></p> <p>(a) Fire holding lines would be constructed, where ever possible, to reduce the contrast so that they are not noticeable in the middle and background views. Generally restore control lines to a near undisturbed condition in the foregrounds (within 300 feet) of sensitive roads, trails, developed recreation sites and private property. Avoid constructing fire holding lines within the AZT unless no other viable alternatives exist, and follow all requirements for areas with high scenic integrity objectives. If the Arizona Trail must be used as a holding line, both sides of the trail would be treated – a lateral distance to be determined by a scenery specialist;</p> <p>(b) Rehabilitate containment lines by rolling back the soil berm formed during line construction and constructing drainage features as necessary to prevent concentration of runoff. Disguise containment lines to line of sight or first 300 feet, whichever is greater;</p> <p>(c) To hasten recovery and help eliminate unauthorized motorized and non-motorized use of control lines in these areas, use measures such as recontouring, pulling slash and rocks across the line, and disguising entrances, and</p> <p>(d) Do not use motorized equipment on national scenic, historic and recreation trails, or other forest system trails if these are used for control lines. Control lines however should be avoided on these trails under any circumstances unless the trails are co-located on roads. Coordinate with the district recreation staff and the national trail administrator regarding use of national trails as control lines.</p>	Resource protection	X	X
RS005	Where new temporary roads intersect existing roads or trails, native materials such as logs, slash, and/or boulders would be placed along temporary road to line-of-sight or first 300', whichever is greater.	Reduce unauthorized use	X	X
RS007	Skidding activities would avoid National and forest system trails, if possible, except where motorized use is already authorized (trails located on open system and administrative roads). If it is determined necessary that a trail must be used as a skid trail crossing, make perpendicular trail crossings. Trail crossing locations, including those on the Arizona National Scenic Trail and the General Crook and Highline National Recreation Trails would be designated and flagged with input from the District Trails Specialist, Recreation Planner or Archaeologist. The trail would be restored to USFS standards (pre-project condition) following treatment.	Avoid degrading recreation setting and resource protection	X	X
RS008	Mechanical thinning operations shall not damage cairns or markers.	Resource protection and avoid substantial interference with the nature	X	X



		and purposes of the trail. (in compliance with Section 7 (c) of the National Trails System Act).		
RS009	If trails are temporarily closed due to thinning, trails shall be returned to pre-treatment conditions.	Resource protection	X	X
RS010	<p><b>Road, Skid Trail, Log Landing, In-Woods Processing Site Construction:</b></p> <p>(a) Utilize dust abatement methods during haul of logs during the season when dust is likely and funding is available. Coordinate with the appropriate county on the application and timing of application of dust abatement on road segments that have county maintenance responsibilities.</p> <p>(b) Blend temporary roads and skid trails into the characteristic landscape of the surrounding area. Create cut and fill banks to be sloped to accommodate natural revegetation and to reduce sharp contrasts viewed from any distance. Where new temporary roads and skid trails meet a primary travel route, they should intersect at a right angle and, where practicable, curve after the junction, to minimize the length of route seen from the primary travel route.</p> <p>(c) Shape and/or feather the edges of log landings and in-woods processing sites to avoid abrupt changes between treated and untreated areas. Standing trees and shrubs around in-woods processing sites and log landings shall be left in strategic locations to serve as screening to sensitive viewsheds.</p> <p>(d) When possible, in-woods processing sites, log landings, temporary roads, and skid trails should be located out of view of CL1 and CL2 travel routes to avoid observation of management activities. When avoiding these locations is not possible, the evidence of management activities should be restored in a timely manner per (f).</p> <p>(e) In woods processing sites, landings, temporary roads, and skid trails should be minimized within sensitive viewsheds, such as those within eligible or suitable wild and scenic river corridors or next to developed recreation sites, private homes, or communities, and along paved and passenger car level roads and trails;</p> <p>(f) Highest emphasis for slash treatment, temporary road closures and road decommissioning will be placed on eligible or suitable wild and scenic river corridors and national scenic trail corridors; foreground (up to 300 feet) of developed recreation sites, private homes or communities; and Concern Level 1 roads (paved roads and passenger car roads) and trails, especially those designated as national</p>	Resource protection and scenic integrity and avoid substantial interference with the nature and purposes of the trail. (in compliance with Section 7 (c) of the National Trails System Act).	X	X

<p>scenic, historic, or recreation trails. (g) All constructed features including but not limited to fencing, office trailers, sanitation facilities, fuel storage containers or temporary structures shall be designed to blend with surrounding environment. Color of proposed above ground features shall be non-reflective and treated to be forest service brown or for a rusty appearance, or as approved by FS landscape architect or other FS official.</p> <p>(h) In-woods processing sites, log landings, skid trails and temporary roads will be rehabilitated including restoring proper drainage, and reseeded as needed with native species.</p> <p>(i) To hasten recovery and help eliminate unauthorized motorized and non-motorized use of skid trails and temporary roads, use physical measures such as re-contouring, pulling slash and rocks across the line, placing cull logs perpendicular to the route, and disguising entrances;</p> <p>(j) Avoid using FS designated trails as skid trails or for temporary roads.</p> <p>(k) National Scenic, Historic, and Recreation Trails as well as forest system trails (motorized and non-motorized) will not be used for temporary roads or skid trails. It is acceptable to make perpendicular trail crossings. The locations of crossings will be designated. Trail crossings will be restored to pre-project condition after use.</p> <p>(l) Crossing of the Arizona Trail will be done sparingly and only if no other alternative exists. These crossing locations will be coordinated with District Recreation Staff and the national trail administrator.</p>			
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RS011	<p><b>Cull Logs, Stump Heights, and Slash Treatments:</b></p> <p>(a) Cull logs would not be abandoned on landings. Use cull logs for closing temporary roads and decommissioning roads. Cull logs may also be suitable to use as down woody material, but must be scattered away from the landings.</p> <p>(b) Stump heights should be cut as low as possible. In the foreground of CL1 and CL2 travel routes, all trails, recreation sites, private homes/ communities, flush cut stumps, if possible, or cut less than 8-inch above ground (uphill side), where topography and operational safety allows, with 12-inch heights as the exception and rarely occurring.</p> <p>(c) Slash should be removed, burned, or otherwise treated to return the area to its pre-implementation condition in the immediate foreground of sensitive places (e.g., in corridors of eligible or suitable wild and scenic rivers; within 300 feet of the centerline of Concern Level 1 roads, or national trails and sensitive trails; or 300 feet from the boundary of a recreation site or private land/communities). Where whole tree thinning occurs, machine piling may occur toward the back of landings. Prioritize slash burning in these locations within one year or as soon as possible after treatment.</p> <p>If conventional thinning practices are used and trees are delimited and topped in the forest, machine-piled slash should be placed outside of eligible or suitable wild and scenic river corridors and at least 300 feet away from the centerline of roads, national trails, and sensitive trails; developed recreation sites; or private land/communities. In these instances, piles should be burned as soon as possible or within 1 - 3 years. After burning is complete, burn sites that are visible from roads, trails, developed sites, or private dwellings will be covered with natural duff to a minimum of 3 inches to minimize visibility of the burned area. In areas where burning will not occur until after 2 growing seasons: Remove slash within 300 feet from sensitive areas. If scattering is required, scatter slash to 18" or less in depth. Root wads and other debris in sensitive foreground areas and in wild and scenic river corridors would be removed, burned, or chipped. Outside of these areas, it is acceptable to scatter root wads and debris or use them to help close temporary roads or skid trails.</p>	Maintain scenic integrity and avoid substantial interference with the nature and purposes of the trail. (in compliance with Section 7 (c) of the National Trails System Act)..	X	X
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RS012	Coordinate with designated Forest Service representative prior to implementing jackstraw, spring, and road restoration treatments. Do not implement jackstraw treatments within 1,000 feet of National Trails.	Maintain scenic integrity.	X	X
RS013	In Semi-primitive Non-motorized recreation opportunity spectrum classes specifically (occurring on about 13 percent of the approximately 1,240,000 acres): (a) Temporary roads should not generally be built. If they are used, they would be restored to pre-treatment conditions when projects are completed, (b) Strive to make stump heights 8 inch above ground (uphill side) or lower, with 12 inch heights the exception, and rarely occurring, (c) Slash must be treated or removed in these areas, and (d) Use existing barriers (roads) and natural barriers as control lines whenever possible.	Protection of visitor experience	X	X
RS014	<b>Recreation Sites:</b> Proposed mechanical treatments and prescribed fire adjacent to developed recreation sites must be reviewed and approved by the district ranger. Work with the district recreation staff to determine boundaries or no treatment zones around constructed features that need to be protected in campgrounds. Treatments around the perimeter of campgrounds are encouraged. The timing of treatments must be worked out with districts. Treatments would generally avoid summer. Activity slash must be piled in agreed upon locations, and treated as soon as possible. If campgrounds remain open into fall and winter, provide information about upcoming closures and management activities onsite, at FS offices, and on FS Web sites.	Protection of visitor experience	X	X
RS015	Implement road closures, one-way traffic, and area closure restrictions as deemed necessary by forest officials for health and safety concerns during any operation. Signs would be placed at major intersections on hauling routes during periods of active hauling. If it is necessary to close forest roads or areas of the forest, notices and signs would be posted at key locations adjacent to and within the project area, such as along major FS roads accessing the area or on kiosks at trailheads, bulletin boards, electronic sign boards, etc. Closures due to operations would also be posted online and on social media as well as being publicized via news releases. Coordinate with the District Recreation Planner or trails specialist to ensure well marked and publicized detour routes for the Arizona Trail, General Crook Trail, and Highline Trail, and system trails during operational closures within the project. Inform Arizona Trail Association as early as possible but at a minimum of 3 months prior to closure of	Public safety	X	X

	sections of the Arizona Trail and/or closure of trailheads accessing the trail.			
RS016	When mechanical treatment and/or burning are occurring along open trails that are not National Recreation Trails, slash will be pulled back immediately within 100 feet of the centerline of the trail corridor within specified timeframes (coordinate with recreation specialist).	Maintain scenic integrity.	X	X
RS017	Character trees that have unique shape or form along all trails should be retained where feasible within the applicable prescription. Avoid lines of trees; strive to achieve a grouped appearance to avoid abrupt changes in the landscape character along the trail corridor.	Protect visitor experience	X	X
RS018	(a) Prior to blasting activities, nearby landowners or other permitted Forest users near the blasting location would be notified. (b) Standing trees and shrubs would be left in strategic locations along the perimeter of active rock pits to serve as screening to sensitive viewsheds.	To improve public safety by increasing awareness of blasting activities and to minimize effects on scenic resources and wildlife.	X	X
RS019	Trucks hauling materials would be limited to no more than 25 miles per hour on all forest roads, and 10 miles per hour within 0.25 miles of all signed campgrounds and trailheads.	Reduces noise and dust during hauling.	X	X
RS020	Entrances to active rock pit sites would be gated to prevent inappropriate motor vehicle use, dumping, or other activities.	Decrease noise, protect public safety and minimize effects on forest resource in and around rock pit sites	X	X
RS021	All restoration activities within eligible or suitable wild and scenic river corridors will be designed to protect or enhance the free-flowing character and outstandingly remarkable	To protect eligible and suitable wild	X	

	values (ORVs) of rivers, and to maintain the rivers' current inventoried classifications (wild, scenic, or recreational), unless a suitability study is completed that recommends management for a less restrictive classification. This includes the management of fire, which should be carried out using minimum impact suppression tactics, or other tactics appropriate for the protection of identified ORVs.	and scenic rivers		
RS022	Restoration activities within the corridors of eligible or suitable wild river segments on the Apache-Sitgreaves National Forests will not include any tree cutting.	To protect the primitive character of eligible or suitable rivers classified as wild	X	
RS023	Temporary roads will not be constructed within inventoried roadless areas (IRAs) or within the corridors of eligible or suitable river segments classified as wild.  Within corridors of eligible or suitable river segments classified as scenic, avoid constructing long stretches of conspicuous temporary roads paralleling the riverbank.	To ensure that wild river segments and IRAs maintain their primitive characteristics and to protect the largely undeveloped character of scenic river segments	X	

## Environmental Consequences

### Alternative 1 – No Action

#### Direct and Indirect Effects

Under this alternative, recreation resources would be managed as they are currently without any effects from vegetation treatments and prescribed burning proposed in the Rim Country project area. Consequently, active and approved projects will occur.

Although electing the no-action alternative would not result in impacts to these resources from prescribed burning or thinning, this alternative would not reduce the risk of uncharacteristic wildfire that could cause important resource damage, damage to recreation and lands infrastructure, and subsequent flooding. Wildfires ignited by lightning could be managed for resource benefit given conditions allow, however, the use of this strategy to decrease future crown fire risk is unpredictable and unlikely to affect a majority of the project area. Alternative 1 is the point of reference for assessing action alternatives 2 and 3.

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## *Recreation Sites and Uses*

### **Recreation Resources**

The threat of uncharacteristically severe wildfire continues to increase with ongoing, un-managed growth of vegetation. Uncharacteristic wildfire would severely impact recreation values and experiences in the project area. Research has demonstrated the negative effects wildfire can have on recreation activities. Vaux, et al. (1984) found that “intense fires may have detrimental effects on recreation values” (p.1).

Recent wildfires in other areas on the Coconino National Forest (Schultz Fire in 2010 and Slide Fire in 2014), Apache-Sitgreaves (Rodeo-Chediski Fire in 2002 and Wallow Fire in 2011) demonstrate the significant effects of uncharacteristic wildfire on recreation. In all cases, recreation facilities had to be closed to the public, with many remaining closed for months or even years. After the Slide Fire, Slide Rock State Park in Oak Creek Canyon was closed for several months during the period of highest visitation, and eventually opened after a very expensive early warning system for potential flash floods was installed.

During NVUM, visitors were asked what they would do if they were unable to visit this national forest due, for example, to closures related to wildfire damage and rehabilitation. The majority of visitors responded that they would have gone elsewhere for the same activity (Table 10). This suggests that if the Rim Country project area was closed due to wildfire or related effects, visitors would seek alternative locations to enjoy the same recreation activities. This could lead to overcrowding in nearby areas, resulting in resource damage and undesirable recreational experiences.

### **Developed Recreation Facilities**

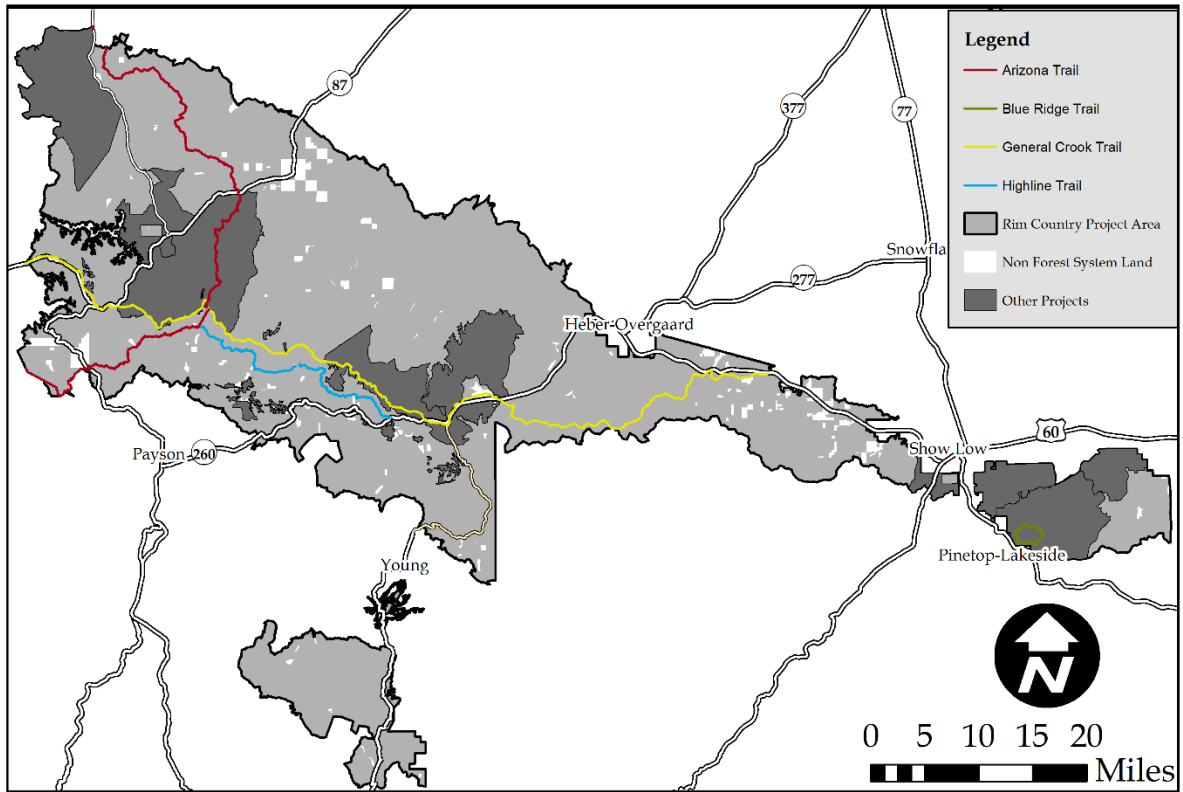
Developed recreation facilities, such as campgrounds and group event sites, could be negatively affected if there is no action to reduce the risk of uncharacteristic wildfire. The changes to landscape character and visual quality following a severe fire would considerably diminish the quality of recreation experiences and activities in affected areas. Effects of severe wildfire on other recreation-related infrastructure such as restrooms, kiosks, bulletin boards, and trail signs, would be substantial and would result in high costs to repair and/or replace damaged facilities. Historic sites such as lookout towers and guard stations could not be replaced if destroyed.

### **Trails**

While the Schultz Fire on the Coconino NF severely damaged several trails, subsequent flooding was more destructive and caused more substantial damage than the fire itself. Large debris flows caused by rainfall on the denuded slopes destroyed major sections of the Little Bear Trail. In other areas, trails sections were rendered unpassable and invisible due to large boulders and tree trunks transported by the floodwaters and debris flows. Much of this flood damage occurred on trails that cross steep slopes or drainages. The economic cost and effort to reopen these trails was immense. Little Bear trail was closed from the fire in 2010 until October 2016. The Deer Hill trail was also closed and only reopened at the end of November, 2017.

The Rim Country project area contains parts of four National Trails: the Arizona National Scenic Trail (70 miles in the project area), the entire Blue Ridge National Recreation Trail (9.4 miles), the General Crook National Recreation Trail (95 miles in the project area miles), and Highline National Recreation Trail (44 miles in the project area). Figure 5 illustrates the location of the national trails in the project area. The Rim Country project area contains 728 miles of trail, ranging from most primitive to fully developed. Some trails in the Rim Country project area share characteristics with the trails

that were damaged in the Schultz Fire. Wildfire and/or flood damage to segments of trails within the project area would require closures of affected sections until they could be properly repaired and determined safe for use. In the interim, potentially lengthy re-routes would have to be established for visitors wishing to hike any affected trails, especially for the statewide Arizona National Scenic Trail.



**Figure 6: National Scenic and Recreation Trails in the Rim Country project area**

Several research papers and lessons from the Schultz Fire reveal that the no-action alternative, which has no vegetation management actions to reduce the risk of wildfire, could have negative and unpredictable effects on trails and trail users if an uncharacteristically severe wildfire occurred in the Rim Country project area.

Overall, trail users respond negatively and show decreased short-term return rates to areas that have experienced uncharacteristic wildfire, such as the Schultz Fire and Slide Fire (Hesseln, Loomis, Gonzalez-Caban, & Alexander, 2003) (Starbuck, Berrens, & McKee, 2006) (Bawa, 2017). In New Mexico, Hesseln, et al. (2003) found that visitation to areas recovering from crown fires, by both hikers and mountain bikers, decreased through time. Similarly, Starbuck, et al. (2006) showed that unrestored areas in the five national forests of New Mexico that experienced uncharacteristic fire were unappealing to bikers and hikers. According to the study's model, decreases in post-fire recreational visitation by hikers and bikers resulted in estimated losses of \$51.65 million in output, \$23.31 million in earnings, and a loss of 1,240 jobs.



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While short-term effects of uncharacteristic wildfires on recreation are almost uniformly negative, longer-term effects may differentially affect certain user groups. Fire-damaged trees can take many years to fall, and it is likely that any affected trail system would experience increased numbers of downed trees across trails for many years, despite routine maintenance. Crossing downed logs on trails is more burdensome for mountain bikers, who must stop, dismount, and lift their bikes over fallen trees, than it is for hikers, who may be able to simply step over these obstacles. Hessel, et al. (2003) found that the value of net benefits for hikers increased during the 40 years following crown fire, whereas the net benefits for mountain bikers declined over the same period. This demonstrates that different intensity fires may affect groups engaged in different recreation activities in different ways.

Overall trail users respond negatively and have a decreased return to forested areas that have experienced uncharacteristic wildfire. “The lack of mature trees and the large numbers of downed trees make the area unattractive to hikers and mountain bikers” (Starbuck et al. 2006, p. 63). So the No Action Alternative which has no vegetation management actions or prescribed burning treatments to reduce the risk of wildfire could have negative effects on trails and trail users if an uncharacteristic wildfire was to occur in the Rim Country project area.

### **Wild and Scenic River**

There would be no effect on the Wild and Scenic Rivers as they would continue their management per the directions in the respective Forest Plans.

### **Dispersed Recreation**

Following the Rodeo-Chediski fire in 2002, dispersed camping in the burned area was prohibited for nearly 7 years. The major reasons for this restriction was to protect visitors and property from damage due to falling trees and flooding, and to reduce recreation effects on fragile fire-damaged soils. The time it takes a fire-damaged tree to fall is unpredictable and depends on several factors including weather, topography, burn-severity, and flooding. Trees that have been killed or damaged by fire may be unstable and parts or all of such trees can easily become dislodged and can fall onto forest visitors, vehicles, or camping equipment.

Dispersed camping is popular in the Rim Country project area and an uncharacteristic wildfire could result in closing a fire area to camping and other activities. This would affect thousands of visitors every summer that visit the project area to camp in the desirable summer temperatures. Even after the initial threat of and hazards of fire damaged trees has passed, visitors may avoid the area because it would be less appealing because of the loss of trees, shade, and desirable dispersed camping locations. Shelby et al. (Shelby, Thompson, Brunson, & Johnson, 2004) found that camping in areas affected by wildfire were universally lower quality levels than those for hiking after the same period. Hence, the No Action Alternative could have adverse effects on dispersed camping. Should a wildfire result in large, long-term closures for safety or resource protection purposes, activities such as camping, hunting, and other recreational uses would be lost or severely degraded during both short-term (1-5 years) and long-term (5+ years) timeframes.

### **Recreation Special Uses**

Although the No Action Alternative would not have any effects from vegetation management or prescribed burning on Recreation Special Use activities, the risk of uncharacteristic wildfire would not be reduced. Uncharacteristic wildfire could impact recreation special uses because sites

(recreation events) would likely be unsafe and less appealing for recreation special use activities after such a fire and would likely result in closures (short-term and long-term) depending on severity.

Effects on recreation residences at Diamond Point and Elison Creek and organization camps including Camp Shadow Pines, Tall Timbers County Park, Arizona Cactus-Pine Girl Scout Camp, and Grand Canyon Council Boy Scout Camp could be extreme. In similar post-wildfire situations, such as after the 2005 Cave Creek Complex Fire on the Tonto National Forest, eleven recreation residences were destroyed by wildfire. After five years of planning, ten residences were approved for reconstruction and the permits for three residences were either revoked or expired without renewal. Thus, this alternative could result in a long-term decrease of recreational use and opportunity in the project area.

### Motor Vehicle Use

Motorized Travel Management implementation in combination with the No Action alternative is expected to have no effects on recreation settings. Present and future activities may result in degradation along heavily used camping corridors, but these will be small and localized.

### Recreation Opportunity Spectrum

ROS will remain within Land Management Plan guidelines unless stand replacement wildfire affects a large proportion of the project area. Locations and results of unplanned fire ignitions are impossible to predict, however, it is fairly likely that an uncharacteristic wildfire would move conditions away from desired conditions for semi-primitive areas where the evidence of humans is meant to be limited (semi-primitive areas). Uncharacteristic wildfire would likely include a number of alterations to the forest environment such as cutting of dead roadside hazard trees, increased signage to warn of post-fire dangers, re-constructed roads, or recently constructed dozer or hand-built fire line. All of these would result in short and some long-term effects that would move conditions away from desired conditions identified for semi-primitive areas.

### Cumulative Effects

The approximate acres of current, ongoing, and foreseeable vegetation management activities within the project area are shown in Table 18.

**Table 19: Approximate acres of current, ongoing and foreseeable vegetation management activities within the project area**

Treatment	Treatment Type	Current Projects Approximate Acres	Reasonable Foreseeable Projects Approximate Acres
	Thinning -Habitat Improvement	89,579	10,975
<b>Mechanical Vegetation Management</b>	Thinning – Fuels Reduction Emphasis	114,570	41,046
	Thinning – Restoration Emphasis	53,578	285
	Savanna/Grassland Restoration	0	39,000
	Salvage	5,678	0
	Range Cover Manipulation	34,701	54,147
	Invasive Plant/Weed Treatment	0	0
	Powerline Hazard Tree Removal and Right of Way	4,580	22,963
<b>Total Mechanical:</b>		<b>302,686</b>	<b>168,416</b>
	Mechanical Fuels Treatment	155,244	49,165

<b>Fuels Treatments (With Mechanical)</b>	Pile and Burn	133,168	5,070
	Broadcast Burn	250,373	59,640
<b>Total Fuels Treatments</b>		<b>538,175</b>	<b>113,875</b>

This alternative would mainly result in indirect effects of increasing risk of loss or degradation of recreational and lands infrastructure and opportunities. Uncharacteristic wildfire could impact recreation because sites (recreation events) would likely be unsafe and less appealing for recreation special use activities after such a fire and would likely result in closures (short-term and long-term) depending on severity. Such a fire would also have severe impacts to permitted lands and could destroy infrastructure, limit access to private lands, and degrade water quality in the reservoir and other waters such as the eligible Wild and Scenic Rivers.

This alternative would cumulatively contribute to these same risks identified as indirect effects. The increased risk of uncharacteristic wildfire resulting from this alternative would contribute to the issue of limited recreational access and opportunities on the National Forest. Over the last several years, there have been a number of large high-intensity wildfires such as the Slide Fire, Wallow Fire, Schultz Fire, General Fire, and others; which have resulted in area closures and loss of temporary access and recreational use. Given an increasing likelihood of wildfire and a greater likelihood of high-intensity wildfire throughout the southwest under predicted climate change scenarios, the increased risk of wildfire under this alternative would cumulatively increase these effects of risk to permitted infrastructure, limited recreational access, and loss of recreational opportunities and access in project area and surrounding areas. This alternative would also cumulatively combine with the increasing risk of high intensity fire from climate change to result in an elevated risk to lands and events managed under short-term or long-term special use permits.

Increasing population growth is also expected to drive increasing recreational demand, which would further result in decreasing recreational access and opportunity. By 2020, the Coconino National Forest is expected to experience an addition 338,000 national forest visits per year compared to current use (English, Froemke, & Hawkos, 2014). Closures resulting from wildfires within or near the project area would combine cumulatively to further reduce the available supply of recreation opportunities and access compared to the demand and would result in fewer visits to the national forests in some cases and increased crowding and degradation of user experiences in surrounding areas that forest users travel to as a substitute recreational experience.

## **Alternative 2 – Modified Proposed Action**

This is the Proposed Action as presented for scoping, with additional detail, clarifications, corrections, and modifications in response to public comments received.

The even-aged shelterwood treatments originally proposed have been replaced with regular restoration treatments. Design features will focus mechanical thinning treatments on addressing dwarf mistletoe infections. Alternative 2, as modified, responds to the Dwarf Mistletoe Mitigation issue.

The restoration activities listed for Alternative 2 include vegetation treatments (mechanical thinning and burning), using the Flexible Toolbox Approach for Mechanical Treatments (see Appendix 3); as well as comprehensive restoration treatments for meadows, springs, streams, riparian habitat, using the Flexible Toolbox Approach for Aquatic and Watershed Restoration Activities (see Appendix 3), wildlife habitat, and rare species restoration (Table 20). Proposed activities include:

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## Alt 2 Mechanical and Fire Treatments

- Mechanically thin trees and/or implement prescribed fire up to 953,130 acres.
  - Implement mechanical thinning and prescribed fire on approximately 517,950 acres including –
    - Approximately 150,790 acres of intermediate thinning
    - Approximately 71,280 acres of stand improvement
    - Approximately 12,510 acres of single tree selection
    - Approximately 283,370 acres of uneven-aged group selection
    - Approximately 63,930 within ½ mile of non-FS lands with structures and critical infrastructure, including –
      - Approximately 16,970 acres of intermediate thinning
      - Approximately 8,560 acres of stand improvement
      - Approximately 38,390 acres of uneven-aged group selection
  - Implement prescribed fire alone on approximately 54,070 acres.
  - Mechanically thin and/or implement prescribed fire on approximately 82,280 acres of Mexican spotted owl (MSO) protected activity centers (PACs) including –
    - Approximately 23,550 acres of mechanical thinning and/or prescribed fire
    - Approximately 58,730 acres of prescribed fire only
    - Approximately 7,180 acres of facilitative operations
  - Mechanically thin and/or implement prescribed fire on approximately 25,290 acres of MSO replacement nest/roost recovery habitat.
  - Conduct facilitative operations in non-target cover types to support treatments in target cover types, including –
    - Approximately 123,400 acres of facilitative thinning and prescribed fire
    - Approximately 1,260 acres of facilitative prescribed fire only
    - Approximately 6,880 acres of facilitative prescribed fire only in PACs
    - Approximately 300 acres of facilitative thinning and prescribed fire in PACs
  - Restore aspen on approximately 1,230 acres, including about 30 acres in PACs.
  - Restore approximately 132,340 acres that have experienced severe disturbance, including about 3,610 acres in PACs.
  - Restore approximately 18,570 acres of savanna.
  - Restore approximately 36,320 acres of grassland, including –
    - Maintaining or restoring montane meadow connectivity in pronghorn corridors.
  - Restore hydrologic function and vegetation on approximately 6,720 acres of meadows.
  - Restore approximately 14,560 acres of riparian areas for aquatic stream habitat.
- Restore approximately 184 springs.
- Restore function and habitat in up to 777 miles of streams, including stream reaches with habitat for threatened, endangered, and sensitive aquatic species.

- Decommission up to 200 miles of existing system roads on the Coconino and Apache-Sitgreaves NFs, and up to 290 miles on the Tonto NF.
- Decommission up to 800 miles of unauthorized roads on the Apache-Sitgreaves, Coconino, and Tonto NFs.
- Construct or improve approximately 330 miles of new temporary roads or existing non-system roads to facilitate mechanical treatments; decommission all temporary roads when restoration treatments are completed.
- Relocate and reconstruct existing open roads adversely affecting water quality and natural resources, or of concern to human safety.
- Construct up to 200 miles of protective barriers around springs, aspen, native willows, and big-tooth maples, as needed for restoration.

**Table 20 Alternative 2 Mechanical and Fire Treatments**

Treatment Type	Treatment Description/Objective	Acres
<b>Intermediate Thin (IT) 10-25</b> (10 to 25% interspace)	Mechanical and fire treatments that thin stands that are up to moderate infection levels of dwarf mistletoe, thins tree groups to an average of 70 to 90 square feet of basal area (BA) in pine cover types and 40-100 BA in dry mixed conifer cover type, and establishes non-forested grass/forb interspace/openings between residual tree groups or individual randomly-spaced trees.  Manages for improved tree vigor and growth by retaining the best growing dominant and co-dominant trees with the least amount of dwarf mistletoe and as many old and/or large trees as possible.	30,210
IT 25-40 (25 to 40% interspace)		53,620
IT 40-55 (40 to 55% interspace)		49,980
IT 55-70 (55 to 70% interspace)		16,970
<b>Single Tree Selection (ST)</b>	Mechanical and fire treatments that leaves fewer tree groups and more randomly spaced trees. Designed to increase or maintain age class diversity and reduce understory brush and shrub response, creating small openings less than or equal to ¼-acre in size where seedlings and saplings are underrepresented and brush cover is greater than 40%. Maintains higher basal area where brush competition is expected to be strong to suppress woody understory response.	12,510
<b>Stand Improvement (SI) 10-25</b> (10 to 25% interspace)	Mechanical and fire treatments that thin young, even-aged stands dominated by trees less than 8.5 inches in diameter. Establishes tree groups and interspace adjacent to tree groups.  Manages for improved tree vigor and growth by retaining the best growing dominant and co-dominant trees within each group and as many old and/or large trees as possible, and establishes non-forested grass/forb interspace/openings between residual tree groups or individual randomly-spaced trees. Begins conversion to uneven-aged structure.	13,660
SI 25-40 (25 to 40% interspace)		34,590
SI 40-55 (40 to 55% interspace)		14,460
SI 55-70 (55 to 70% interspace)		8,560
<b>Uneven-aged (UEA) 10-25</b> (10 to 25% interspace)	Mechanical and fire treatments designed to develop uneven-aged structure and a mosaic of interspaces and tree groups of varying sizes. Thins tree groups to an average of 20-80 BA in pine cover types and 30-100 BA in dry mixed conifer cover type, and establishes non-forested grass/forb	77,820
UEA 25-40 (25 to 40% interspace)		106,210

<b>Treatment Type</b>	<b>Treatment Description/Objective</b>	<b>Acres</b>
UEA 40-55 (40 to 55% interspace)	interspace/openings between residual tree groups or individual randomly-spaced trees. Manages to enhance growing space for younger trees, while retaining as many old or large trees as possible. Establishes regeneration openings where seedlings and saplings are underrepresented. Locates interspace in currently non-	39,490
UEA 55-70 (55 to 70% interspace)		56,850
<b>Prescribed Fire Only</b>	Prescribed burning to improve structure, maintain and develop large trees, and reduce risk of high-severity. Retain old growth attributes, protect large oaks, and ensure snags and coarse woody debris post-fire.	54,070
<b>Aspen Restoration</b>	Mechanical treatment that removes post-settlement conifers within 66 feet (one chain) of the aspen clone. Managed to stimulate suckering by removing aspen, disturbing the ground, and/or applying fire as needed.	1,200
Aspen Restoration in PACs	Accompanied by prescribed fire.	30
<b>Facilitative Operations (FO)</b> Mechanical	Mechanical treatment in non-target cover types to support the use of prescribed fire in cover types targeted for restoration. Includes mastication/chipping; lop and scatter; thinning/limbing; and moving, rearranging, or removal of jackpots or excessive surface fuels.	123,400
FO Mechanical in PACs	Designed to improve safety, improve treatment effectiveness, expand burn windows, decrease undesirable fire behavior and effects, and minimize disturbance from fireline construction. Accompanied by prescribed fire.	300
FO Prescribed Fire Only	Fire treatment in non-target cover types to support the use of prescribed fire in cover types targeted for restoration. Includes broadcast burning, jackpotting, pile burning, and blacklining.	1,260
FO Prescribed Fire Only in PACs	Designed to improve safety, improve treatment effectiveness, expand burn windows, decrease undesirable fire behavior and effects, and minimize disturbance from fireline construction.	6,880
<b>MSO Recovery – Replacement Nest/Roost</b>	Mechanical and fire treatments designed to develop uneven-aged structure, irregular tree spacing, and a mosaic of interspace and tree groups of varying size. Intent is to continue to develop replacement Nest/Roost where possible, and to develop a diverse mix of heterogeneous stand structures and densities to provide for owl dispersal and foraging.	25,290

<b>Treatment Type</b>	<b>Treatment Description/Objective</b>	<b>Acres</b>
<b>MSO PAC Mechanical</b>	Mechanical treatment outside core areas that thins to improve structure, maintain and develop large trees, and reduce risk of high-severity fire in PACs. Designed to increase tree vigor and health, to promote irregular tree spacing, and to create canopy gaps more conducive to fire treatment (reduce fire risk). Retain old growth attributes, protect large oaks, and ensure snags and coarse woody debris post-treatment. Accompanied by prescribed fire.	17,460
<b>MSO PAC Prescribed Fire Only</b>	Prescribed burning to improve structure, maintain and develop large trees, and reduce risk of high-severity fire in PACs. Fire may be implemented in core areas. Retain old growth attributes, protect large oaks, and ensure snags and coarse woody debris post-fire.	50,830
<b>Savanna Restoration (70 to 90% interspace)</b>	Mechanical and fire treatments that restore pre-settlement tree density and pattern by removing encroaching post-settlement conifers. Manages for a range of 70 to 90 percent interspace (grass/forb) between tree groups or individual trees using pre-settlement tree evidence as guidance. Retains all pre-settlement trees and the largest post-settlement trees as replacement trees adjacent to pre-settlement tree evidence (stumps, dead and down).	18,570
<b>Severe Disturbance Area Treatment</b>	Combination of restoration treatments: reforestation, prescribed fire, lopping/scattering, mastication, and other mechanical methods.	128,630
Severe Disturbance Area – MSO PAC	Objective is to identify treatments that would be effective in restoring the fuel structure that produces the types of fire to which ponderosa pine is adapted.	3,610
<b>Grassland Restoration</b>	Mechanical and fire treatments to reduce or eliminate tree encroachment (pines and junipers). Remove trees established since interruption of the historic fire regime.	36,320
<b>Wet Meadow Restoration</b>	Promote and re-establish the historic meadow edge. Retain all pre-settlement trees and leave replacement trees where evidence of historical large trees exist.	6,720
<b>Riparian Restoration</b>	Combination of restoration treatments, including mechanical and fire treatments to maintain riparian vegetation and habitat. Remove encroaching upland tree and shrub species. Remove noxious or invasive plants. Promote, protect, or plant native aquatic or riparian species. Prescribed fire to regenerate riparian species and reduce fuels.	14,560

## Direct and Indirect Effects

### *Recreation Sites and Uses*

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## Developed Sites

Any vegetation treatments or prescribed burning in developed recreation sites would generally occur in fall, winter or spring, which are low use recreational periods. All treatments in recreation sites would be designed to protect and enhance existing vegetative structure, while maintaining the character of the site. Proposed mechanical treatments and prescribed fire adjacent to developed recreation sites must be reviewed and approved by the district ranger. The district recreation staff will help determine boundaries or no treatment zones around constructed features that need to be protected in campgrounds. Treatments around the perimeter of campgrounds are encouraged. The timing of treatments must be worked out with districts. Treatments would generally avoid summer. Activity slash must be piled in agreed upon locations, and treated as soon as possible. If campgrounds remain open into fall and winter, provide information about upcoming closures and management activities onsite, at FS offices, and on FS Web sites (design feature RS014, table 17).

Facilities at developed sites and campgrounds in the project area would be protected from adverse effects from management activities, and such treatments would protect the developed sites from any short or long term risk of uncharacteristic wildfire.

## Trails

Trail use level is not expected to change. The proposed action includes prescribed burning and thinning activities adjacent to the Arizona National Scenic Trail, Highline Recreation Trail and General Crook National Recreation Trail within the project area. Trails within the project area may be temporarily closed during prescribed burning activities; but, throughout the project, trails and trail infrastructure would be considered and protected, and effects on scenic qualities minimized to the extent practicable. Damage to trails or necessary trail maintenance resulting from the prescribed burning or mechanical treatment in the area will be rehabilitated as soon as possible.

In the proposed action, mechanical thinning activities would avoid National and forest system trails if possible. Coordination with the District Recreation Planner, District Trails Specialist, and local trail stewards will occur during prescription or burn plan development, layout, marking, thinning, and burning where any treatment will occur on, adjacent or near National and system trails. This is to ensure that trails and trail infrastructure are considered and protected and effects on scenic qualities are minimized to the extent practicable (design feature RS001). If trails are temporarily closed due to thinning, trails shall be returned to pre-treatment conditions (design feature RS009).

Skidding activities would avoid National and forest system trails, if possible, except where motorized use is already authorized (trails located on open system and administrative roads). If it is determined necessary that a trail must be used as a skid trail crossing, make perpendicular trail crossings. Trail crossing locations, including those on the Arizona National Scenic Trail and the General Crook and Highline National Recreation Trails would be designated and flagged with input from the District Trails Specialist, Recreation Planner or Archaeologist. The trail would be restored to USFS standards (pre-project condition) following treatment (design feature RS007).

There would be no use of motorized equipment on national scenic and recreation trails, or other forest system trails if these are used for control line, the district recreation staff would help coordinate the implementation (design feature RS004). Where new temporary roads intersect existing roads or trails, native materials such as logs, slash, and/or boulders would be placed along temporary road to line-of-sight or first 300', whichever is greater (design feature RS005).

Road closures, one-way traffic, and area closure restrictions would be implemented as deemed necessary by forest officials for health and safety concerns during any operation. Signs would be



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placed at major intersections on hauling routes during periods of active hauling. If it is necessary to close forest roads or areas of the forest, notices and signs would be posted at key locations adjacent to and within the project area, such as along major FS roads accessing the area or on kiosks at trailheads, bulletin boards, electronic sign boards, etc. Closures due to operations would also be posted online and on social media as well as being publicized via news releases. Coordinate with the District Recreation Planner or trails specialist to ensure well marked and publicized detour routes for the Arizona Trail, General Crook Trail, and Highline Trail, and system trails during operational closures within the project (design feature RS015).

## Dispersed Recreation

Vegetation treatments, prescribed burning and fuel treatments, occurring over time and space, would have little effect to the recreating public. Alternative 2 would support the re-integration of low-intensity fire as regulatory process on the landscape. Several cases show low-intensity wildland fires yielding virtually no effects on recreational value and in some instances imparting positive social effects. Both Sanchez et al. (Sanchez, 2016) and Starbuck et al. (2006) show visitations in California and New Mexico increasing under low-intensity fire scenarios. The only anticipated effect that the proposed action alternative will have on dispersed recreation is when prescribed burning coincides with hunting seasons, especially in the fall of the year, or during brief closures of campsites, roads or trails.

There may also be temporary area closures while prescribed burns are being implemented, and less often closures for managed fire activities. Spring burning would affect fewer people using dispersed campsites. In total, the action alternative is not expected to considerably affect dispersed recreation within the project area. Treatments would be planned to be staggered throughout the project area in both time and space, so that even during temporary closures from active treatments, there would be many other places to hunt, camp and recreate. Efforts would be taken to limit forest treatment activities within the project area during high-use weekends and holidays, such as Memorial Day, Independence Day, and Labor Day, especially in locations where concentrated use is expected to occur.

Temporary closures from treatments would result in the temporary loss of recreational access or opportunities and could result in decreased satisfaction of nearby recreational sites where there is overcrowding. This is most likely to occur during high-traffic weekends from Memorial Day through Labor Day, which often includes heavy use of dispersed camping sites within the project area. It can also occur during hunting season.

The transportation system proposed for use under alternative 2 utilizes a combination of existing Forest Service system roads, improved existing non-system roads and new temporary roads. No new permanent roads are proposed. Road use during the project for hauling and prescribed burning would affect dispersed recreational uses such as OHV riding where project activities occur on MVUM open roads. Dispersed camping areas along open roads that are being used for implementation may be affected by noise and dust.

There may be temporary road closures enacted during thinning operations or prescribed burning but these closures would be short term for burning and mainly on forest service administrative use roads. The effects from disturbance and closure would be a minor effect on dispersed recreational uses because they would be of limited duration and there would be many other open areas to camp and recreate during this time period.

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Spring restoration and improvements would improve the resilience of these areas and make them more attractive to dispersed recreationists. Water in the Southwest is a rare feature, and people are attracted to it for recreation activities including hiking, picnicking, camping, scenery, wildlife and wildflower viewing.

### **Recreation Special Uses**

The proposed action would reduce the risk of uncharacteristic wildfire in areas with recreation special uses activities. Coordinated efforts would be made with sponsors of recreational special-use events such as running or mountain biking races, to minimize the effects of such proceedings during Rim Country project implementation activities. Appropriate signage would be used to inform the public of thinning or prescribed burning activities (design feature RS015). The proposed action would allow for continued recreation special uses activities at current levels throughout the project area during and beyond the timeframe of project implementation.

### **Wild and Scenic River**

Proposed treatments would have no effect in either alternative 1 or 2 on the eligible Wild and Scenic Rivers. All possible effects would be addressed as per the design features, best management practices and mitigations per the description in table 18.

### **Motor Vehicle Use**

There would be log truck and other activity related traffic on the designated road system, although not all roads would be used as haul routes. Hauling would not occur on all roads at the same time. Recreationists could expect increased noise, dust and traffic on some haul routes.

Approximately 150 miles of existing non-system roads would be reconstructed or improved as part of project implementation. Road improvement activities are defined as activities that result in an increase of an existing road's traffic service level, expansion of its capacity, or a change in its original design function. Activities included in road improvement include, but are not limited to, widening corners to improve turn radiuses, straightening of road segments to improve haul safety, installing turnouts to improve haul safety, and changing alignments at road intersections to improve site distance and haul safety. These activities may result in limited removal of vegetation. Road relocation may include relocating roads out of drainages, construction of rock riprap, the installation of new culverts, and the construction of low water crossings.

There would be short-term disturbance and temporary changes in ROS classes and roadside recreation settings during road improvement activities. Recreation visitors may be inconvenienced and have to wait during some activities, or roads may be temporarily closed causing displacement. Road relocation would result in a safer road to travel on. It would also result in short term disturbances such as increased bare ground and decreased roadside visual quality in scattered locations. Long-term effects would be improved water quality at stream crossings, and safer and better-maintained roads for forest user enjoyment.

Road decommissioning would occur on approximately 230 miles of existing system and unauthorized roads on the Coconino and Apache-Sitgreaves NFs and approximately 20 miles of unauthorized roads on the Tonto NF. Decommissioning includes applying various treatments, including one or more of the following:

1. Reestablishing former drainage patterns, stabilizing slopes, and restoring vegetation;
2. Blocking the entrance to a road or installing water bars;
3. Removing culverts, reestablishing drainages, removing unstable fills, pulling back road shoulders, and scattering slash on the roadbed;

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4. Completely eliminating the roadbed by restoring natural contours and slopes; and
  5. Other methods designed to meet the specific conditions associated with the unneeded road.

Short-term effects of road decommissioning would include ground disturbance and sedimentation and noise disturbance to recreationists. Short-term effects would last from 3-10 years as the project activities rotate around the project area. There would be a long-term improvement of recreation settings as vegetation is established, soil erosion is minimized and there is decreased disturbance from motorized vehicles. Once recovered, these former routes are often not apparent to the casual user. Decommissioning 860 miles of roads would improve recreation settings over time and would improve ROS classes, especially in the semi-primitive non-motorized ROS class where all 85 miles of haul routes would be decommissioned.

About 350 miles of temporary roads for haul access would be constructed to support restoration activities. Construction may include tree removal, ground disturbance, installation of drainage structures, road blading and other disturbances. Following implementation, the temporary roads would be obliterated using techniques noted for road decommissioning. Temporary road construction would result in short term disturbance. When possible, there will be relocation and reconstruction of existing open roads adversely affecting water quality and natural resources, or of concern to human safety. This will have long-term positive effects on water quality, natural resources and human safety.

There may be some increase in illegal motorized vehicle use of these roads until they are decommissioned. Once these roads have been decommissioned, they are usually not apparent to the casual user. Mitigation measures will be used to close off entrance and exit locations of these roads, as well as use of Best Management Practices (see soil and watershed sections in the DEIS and Mitigation table).

### Recreation Opportunity Spectrum

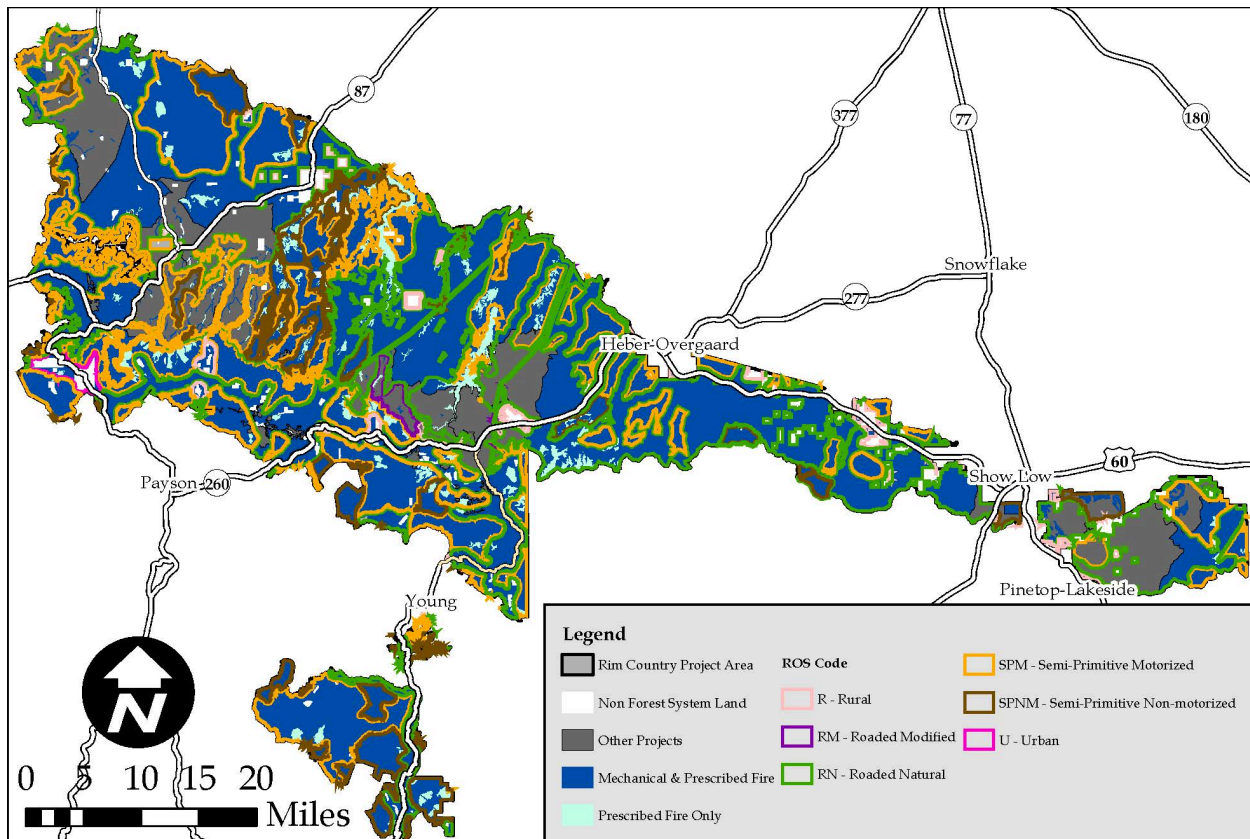
There may be temporary effects on recreation users at particular areas during implementation activities, mainly harvesting operations and hauling. There would be longer term potential effects from increased traffic and noise near processing site locations. However, since most of the project area is located within Roded Natural and a small amount of Rural ROS settings, these effects would be consistent with recreation opportunity objective settings for the majority of the project area.

Construction of all new temporary roads would be similar to a primitive, native surface road that would be cleared and opened for short-term use during thinning and hauling operations. The construction and use is consistent with the RN or SPM designations and after use, the temporary road would be completely rehabilitated and would become naturalized within several years after use. The very slight encumbrance of the SPNM area would likely not result in long-term effects on the ability of the area to meet SPNM characteristics over the long- term.

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**Figure 7 Treatments in the project area and ROS designations for Alternative 2**

Mechanical treatments would primarily occur in RN (46.1%) and SPM (34.6%) areas, with a lesser amount occurring in SPNM (10.7%) in the project area (Table 21 and Figure 12). Mechanical treatments are expected to result in short-term effects (1-2 years after treatment) where the sights and sounds of humans are more noticeable on the landscape. However, after a short period of time and subsequent treatments such as prescribed fire, the evidence of treatments fades and is not expected to affect ROS designations. As a result none of the mechanical treatments would prevent an area from meeting or moving toward ROS classifications over the long term (>1 years).

**Table 21 Acres of mechanical and prescribed treatment per ROS Code for Alternative 2**

ROS Code	Mechanical & Prescribed Fire	Prescribed Fire Only	Grand Total	Percentage
R - Rural	12,916	124	13,040	1.4%
RM - Roaded Modified	1,093	118	1,211	0.1%
RN - Roaded Natural	439,255	14,544	453,799	47.6%
SPM - Semi-Primitive Motorized	330,098	22,231	352,329	37.0%
SPNM - Semi-Primitive Non-motorized	101,879	26,540	128,420	13.5%
U - Urban	3,787	222	4,009	0.4%
WPS - Wilderness Pristine	1	0	1	0.0%

WSP - Wilderness Semi-Primitive	0		0	0.0%
WT - Wilderness Transitional	0		0	0.0%
<b>Grand Total</b>	<b>889,028</b>	<b>63,780</b>	<b>952,808</b>	<b>100.0%</b>

In Semi-primitive Non-motorized recreation opportunity spectrum classes specifically (occurring on about 13.5 percent of the approximately 952,808 acres): (a) Temporary roads should not generally be built. If they are used, they would be restored to pre-treatment conditions when projects are completed, (b) Strive to make stump heights 8 inch above ground (uphill side) or lower, with 12 inch heights the exception, and rarely occurring, (c) Slash must be treated or removed in these areas, and (d) Use existing barriers (roads) and natural barriers as control lines whenever possible (design feature RS013).

Spring restoration and improvements would improve the resilience of these areas and make them more attractive to dispersed recreationists. The proposed improvements may cause short-term changes in the recreation settings, but would result in improvements in the setting characteristics and ROS classes over time. In both action alternatives, up to 184 springs would be improved. Mitigations to use native materials or natural appearing materials appropriate to the ROS setting would result in natural appearing improvements. The spring improvements would improve and meet ROS classes.

There are also 777 miles of channel restoration proposed. This would improve recreation settings over time. Mitigations to use native materials or natural appearing materials appropriate to the ROS setting and to consult the Landscape Architect regarding the project design would result in natural appearing improvements. The channel improvements would improve the settings and meet ROS classes.

Aspen treatments would take longer for recreation settings to be natural appearing in roaded natural and semi-primitive settings due to the need to fence or create barriers to ungulate grazing. Aspen groves are popular recreation settings for many users throughout the year, but especially for fall color viewing. The restoration activities would assure that aspen continue as a vital component within the ponderosa pine forest. There would be short to moderate term changes in ROS settings where aspen are treated. Aspen restoration requires that ungulates be kept out of sprouting trees until they are large enough to withstand the browsing pressure. Fencing and jackstraw piling are both proposed methods for keeping the ungulates out.

Up to 200 miles of protective barriers around springs, aspen, native willows, and big-tooth maples, as needed for restoration would be constructed. This would cause temporary changes in the ROS class setting characteristics since the natural appearing environment would be somewhat altered. More developed settings would appear altered for a shorter time since human alterations may be visible in these settings. Since the barriers must stay in place for many years, the primitive ROS settings would be altered for at least 20 years or until the trees can survive browsing. When the protective barriers are removed or begin to break up and decompose, treatment areas would meet ROS classes.

## Cumulative Effects

### *Alternative 2– Proposed Action*

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The cumulative effects of Alternative 2 and past, present and future projects would have short term and local negative cumulative effects on the provision of recreation opportunities and the associated recreation settings on the forests. Forest users seeking ponderosa pine recreation settings may be displaced or restricted, and the quality of recreation sites may temporarily decrease during management activities on this project and other current or future projects. Long distance hikers may have trips disrupted or may be rerouted to different areas in the short term.

Alternative 2 would restore the ponderosa pine forest health and sustainability to 952,808 acres; this combined with other restoration activities would decrease the risk of high severity wildfire or large insect outbreaks. Increasing numbers of recreation users and demand for ponderosa pine recreation settings would continue to strain the agency's capacity and in some areas of concentrated use, the resource capacity. With increasing demand for ponderosa pine forest settings, the large scale improvements to forest health and sustainability of this project and similar vegetation and burning projects such as Upper Beaver Creek Forest Restoration, Hart Prairie Forest Restoration, Marshall Forest Restoration, Rim Lakes Forest Restoration and others are expected to result in cumulative retention or improvement in the quality of recreation settings and an increase in the ability of the Apache- Sitgreaves, Coconino and Tonto National Forests to meet recreation demands over the long term.

Past vegetation management activities resulted in an even-aged forest structure that is generally undesirable for recreation settings. It contributed to the scarcity of large, mature trees, and has not resulted in a forest with a more open structure, two setting characteristics (Ryan 2005) that have been identified as desirable to forest users. Past fire suppression activities have contributed to overstocked forest conditions, increased quantities of fuels, and decreased understory vegetation.

The current and planned vegetation management treatments and burning projects on all three forests, as well as opportunities for managed wildfire, cumulatively result in improvements in forest health and sustainability in the ponderosa pine that are large and widespread. In the event of a wildfire, or insect infestation the restored forest would likely experience more typical low severity fire and small scale insect infestation. The cumulative effects on desired recreation settings and ROS class characteristics forest users seek would be to maintain and improve them.

Alternative 2 is expected to have mostly positive effects on recreation settings due to decommissioning of user created routes and some existing forest roads. The quality of some recreation settings in ROS classes were declining due to unconfined motorized use. Present and future activities may result in additional degradation along camping corridors, but these would be short term and localized. There would be positive cumulative effects and an overall improvement in ROS classes as a result of these activities.

No new road construction is proposed now or in the future in cumulative effects projects. Motorized trails projects include new construction, road to trail conversion and route decommissioning in appropriate ROS classes. This would have positive cumulative effects in more primitive ROS classes when decommissioned routes naturalize, and expected characteristics are re-established.

Desired recreation setting characteristics such as large, mature trees, healthy understory, and diversity of tree age classes, sizes, and species are also at high risk from the effects of climate change. While drought cycles are common in the Southwest, increasing temperatures and decreases in precipitation in combination with overstocked forest conditions and high fuel loads are predicted to result in an increase in high severity wildfires (Westerling, 2006) (Marlon, 2012) (CLIMAS., 2011). Unmanaged forests have shown increases in tree stress and mortality because of global warming, and old, mature trees are especially vulnerable (Ritchie, Wing, & Hamilton, 2008.) (Van Mantgem, 2009.) (Williams,

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2010). Alternative 2 and other restoration projects will cumulatively result in improved forest structure, composition and diversity and more resilient forest conditions, decreased tree stress and potential for decreased mortality.

Over time, effects would lessen and the crown fire risk predicted for the project area because of climate change would decrease. Recreation structures and environment would be made more resilient to wildfire effects by mechanical thinning and prescribed fire treatments. Since direct or indirect effects resulting from project activities would be mitigated by project design features, there would be no cumulative effects on trails, recreation sites, other structures related to recreation, and recreationists' experience.

Ongoing or planned projects of a similar nature to Rim Country Project within the project boundary include the Cragin Watershed Protection Project (64,430 acres), Upper Beaver Project (49,210 acres), Timber Mesa Vernon (41,162 acres), Upper Rocky Arroyo (33,436 acres), Larson Project (30,041 acres), Rim Lakes Project (33,770 acres) and Clint Wells (17,741 acres). These thinning and burning projects would have similar effects on recreation as would Rim Country and resource effects would be mitigated similarly. Rim Country Project in combination with ongoing and future projects would not result in any detrimental cumulative effects on recreation.

## Summary

The primary concern to recreation resources from the proposed action is the need to minimize and mitigate effects on recreation features (e.g. developed campgrounds, signs, trails, and trailheads), recreation activities (e.g. driving for pleasure, dispersed camping, hiking, mountain biking, equestrian use, hunting, boating, and developed camping) and the overall recreation experience. Important infrastructure within and adjacent to the project area are also of great concern, as these facilities and lands would likely be largely affected by uncharacteristic wildfire, as well as face effects due to prescribed burning, thinning, and other land management activities as defined in the proposed action alternative.

The No Action Alternative includes some thinning or prescribed burning treatments in the project area, slightly decreasing the likelihood of uncharacteristic wildfire that may have lasting effects on recreation areas throughout the Rim Country Project. Uncharacteristic wildfire could also result in major effects on private land and developments within the project area, including long-term effects on communities that rely on these lands for their water supply. In addition, utilities and other infrastructure could be damaged or destroyed during a wildfire that could cost companies and their customers in service interruptions and fees for repairs or replacements facilities.

Alternatively, the Proposed Action, which includes much thinning and prescribed burning throughout the project area, will reduce the risk of extensive crown fire and uncharacteristic wildfire. This alternative will protect the developed campgrounds, trails, and dispersed recreation areas within the Rim Country area, maintaining open recreation areas and activities for users during and in the years following the project implementation. Shorter-term effects will occur to uses during implementation, including the potential effects from larger processing sites near campgrounds, highways and dispersed recreation areas.

In the long-term, the proposed action will support the health and safety of recreationalists and surrounding communities, as well as reduce potential effects on water supplies, utilities and other infrastructure within and adjacent to the project area.



### Alternative 3 – Focused Alternative

This alternative is designed to focus restoration treatments in areas that are the most highly departed from the natural range of variation (NRV) of ecological conditions, and/or that put communities at risk from undesirable fire behavior and effects. High value assets will be better protected and burn boundaries will be designed to create conditions safe for personnel and to ensure fire can meet objectives. Treatment areas would be chosen to optimize ecological restoration, those areas that are most important to treat and can be moved the furthest toward desired conditions. Focusing on the higher priority ecological restoration will result in fewer acres being treated.

The restoration treatments proposed in Alternative 3 will be used to address moderate and high levels of mistletoe infection, but to a lesser extent on the fewer acres proposed for mechanical treatment and fire. The presence of dwarf mistletoe will not be used to prioritize areas for treatment, but it will be addressed where it exists, using the same types of treatments as Alternative 2. Design features will be developed to focus activity on addressing dwarf mistletoe infestations during implementation of mechanical treatments. Alternative 3 responds to the Smoke/Air Quality, Economics, Roads, and Dwarf Mistletoe Mitigation issues.

The restoration activities listed for Alternative 3 include vegetation treatments (mechanical thinning and burning), using the Flexible Toolbox Approach for Mechanical Treatments (see Appendix 3); as well as the same comprehensive restoration treatments as proposed in Alternative 2 for grassland and meadows, springs, streams, riparian habitat, using the Flexible Toolbox Approach for Aquatic and Watershed Restoration Activities (see Appendix 3), wildlife habitat, and rare species restoration (Table 21). Proposed activities include:

#### Alt 3 Mechanical and Fire Treatments

**Table 22 Alternative 3 mechanical and Fire Treatments**

Treatment Type	Treatment Description/Objective	Acres
<b>Intermediate Thin (IT) 10-25</b> (10 to 25% interspace)	Mechanical and fire treatments that thin stands that are up to moderate infection levels of dwarf mistletoe, thins tree groups to an average of 70 to 90 square feet of basal area (BA) in pine cover types and 40-100 BA in dry mixed conifer cover type, and establishes non-forested grass/forb interspace/openings between residual tree groups or individual randomly-spaced trees.  Manages for improved tree vigor and growth by retaining the best growing dominant and co-dominant trees with the least amount of dwarf mistletoe and as many old and/or large trees as possible.	24,260
IT 25-40 (25 to 40% interspace)		34,530
IT 40-55 (40 to 55% interspace)		39,260
IT 55-70 (55 to 70% interspace)		14,040

Treatment Type	Treatment Description/Objective	Acres
<b>Single Tree Selection (ST)</b>	Mechanical and fire treatments that leave fewer tree groups and more randomly spaced trees. Designed to increase or maintain age class diversity and reduce understory brush and shrub response, creating small openings less than or equal to ¼-acre in size where seedlings and saplings are underrepresented and brush cover is greater than 40%. Maintains higher basal area where brush competition is expected to be strong to suppress woody understory response. Accompanied by prescribed fire.	5,630
<b>Stand Improvement (SI) 10-25</b> (10 to 25% interspace)	Mechanical and fire treatments that thin young, even-aged stands dominated by trees less than 8.5 inches in diameter. Establishes tree groups and interspace adjacent to tree groups. Manages for improved tree vigor and growth by retaining the best growing dominant and co-dominant trees within each group and as many old and/or large trees as possible, and establishes non-forested grass/forb interspace/openings between residual tree groups or individual randomly-spaced trees. Begins conversion to uneven-aged structure.	7,480
SI 25-40 (25 to 40% interspace)		17,120
SI 40-55 (40 to 55% interspace)		7,690
SI 55-70 (55 to 70% interspace)		5,010
<b>Uneven-aged (UEA) 10-25</b> (10 to 25% interspace)	Mechanical and fire treatments designed to develop uneven-aged structure and a mosaic of interspaces and tree groups of varying sizes. Thins tree groups to an average of 20-80 BA in pine cover types and 30-100 BA in dry mixed conifer cover type, and establishes non-forested grass/forb interspace/openings between residual tree groups or individual randomly-spaced trees. Manages to enhance growing space for younger trees, while retaining as many old or large trees as possible. Establishes regeneration openings where seedlings and saplings are underrepresented. Locates interspace in currently non-forested areas and lacking pre-settlement evidence.	48,500
UEA 25-40 (25 to 40% interspace)		53,740
UEA 40-55 (40 to 55% interspace)		11,110
UEA 55-70 (55 to 70% interspace)		43,440
<b>Prescribed Fire Only</b>	Prescribed burning to improve structure, maintain and develop large trees, and reduce risk of high-severity. Retain old growth attributes, protect large oaks, and ensure snags and coarse woody debris post-fire.	40,630
<b>Aspen Restoration</b>	Mechanical and fire treatments that remove post-settlement conifers within 66 feet (one chain) of the aspen clone. Managed to stimulate suckering by removing aspen, disturbing the ground, and/or applying fire as needed.	980
Aspen Restoration in PACs		30
<b>Facilitative Operations (FO)</b> Mechanical	Mechanical treatment in non-target cover types to support the use of prescribed fire in cover types targeted for restoration. Includes mastication/chipping; lop and scatter; thinning/limbing; and moving, rearranging, or removal of jackpots or excessive surface fuels. Designed to improve safety, improve treatment effectiveness, expand burn windows, decrease undesirable fire behavior and effects, and minimize disturbance from fireline construction. Accompanied by prescribed fire.	47,580
FO Mechanical in PACs		300

<b>Treatment Type</b>	<b>Treatment Description/Objective</b>	<b>Acres</b>
FO Prescribed Fire Only	Fire treatment in non-target cover types to support the use of prescribed fire in cover types targeted for restoration. Includes broadcast burning, jackpotting, pile burning, and blacklining.	630
FO Prescribed Fire Only in PACs	Designed to improve safety, improve treatment effectiveness, expand burn windows, decrease undesirable fire behavior and effects, and minimize disturbance from fireline construction.	3,070
<b>MSO Recovery – Replacement Nest/Roost</b>	Mechanical and fire treatments designed to develop uneven-aged structure, irregular tree spacing, and a mosaic of interspace and tree groups of varying size. Intent is to continue to develop replacement Nest/Roost where possible, and to develop a diverse mix of heterogeneous stand structures and densities to provide for owl dispersal and foraging.	19,590
<b>MSO PAC Mechanical</b>	Mechanical treatment outside core areas that thins to improve structure, maintain and develop large trees, and reduce risk of high-severity fire in PACs. Designed to increase tree vigor and health, to promote irregular tree spacing, and to create canopy gaps more conducive to fire treatment (reduce fire risk). Retain old growth attributes, protect large oaks, and ensure snags and coarse woody debris post-treatment. Accompanied by prescribed fire.	15,750
MSO PAC Prescribed Fire Only	Prescribed burning to improve structure, maintain and develop large trees, and reduce risk of high-severity fire in PACs. Fire may be implemented in core areas. Retain old growth attributes, protect large oaks, and ensure snags and coarse woody debris post-fire.	37,960
<b>Savanna Restoration (70 to 90% interspace)</b>	Mechanical and fire treatments that restore pre-settlement tree density and pattern by removing encroaching post-settlement conifers. Manages for a range of 70 to 90 percent interspace (grass/forb) between tree groups or individual trees using pre-settlement tree evidence as guidance. Retains all pre-settlement trees and the largest post-settlement trees as replacement trees adjacent to pre-settlement tree evidence (stumps, dead and down).	2,470
<b>Severe Disturbance Area Treatment</b>	Combination of restoration treatments: reforestation, prescribed fire, lopping/scattering, mastication, and other mechanical methods.	30,340
Severe Disturbance Area – MSO PAC	Objective is to identify treatments that would be effective in restoring the fuel structure that produces the types of fire to which ponderosa pine is adapted.	1,420
<b>Grassland Restoration</b>	Mechanical and fire treatments to reduce or eliminate tree encroachment (pines and junipers). Remove trees established since interruption of the historic fire regime. Promote and re-establish the historic meadow edge. Retain all pre-settlement trees and leave replacement trees where evidence of historical large trees exist.	36,320
<b>Wet Meadow Restoration</b>		6,720

Treatment Type	Treatment Description/Objective	Acres
<b>Riparian Restoration</b>	Combination of restoration treatments, including mechanical and fire treatments to maintain riparian vegetation and habitat. Remove encroaching upland tree and shrub species. Remove noxious or invasive plants. Promote, protect, or plant native aquatic or riparian species. Prescribed fire to regenerate riparian species and reduce fuels.	14,560

- Mechanically thin trees and/or implement prescribed fire on up to 529,060 acres.
  - Implement mechanical thinning and prescribed fire on approximately 311,800 acres including –
    - Approximately 112,090 acres of intermediate thinning
    - Approximately 37,300 acres of stand improvement
    - Approximately 5,630 acres of single tree selection
    - Approximately 156,780 acres of uneven-aged group selection
    - Approximately 46,260 within ½ mile of non-FS lands with structures and critical infrastructure, including –
      - Approximately 16,970 acres of intermediate thinning
      - Approximately 14,040 acres of stand improvement
      - Approximately 27,200 acres of uneven-aged group selection
  - Implement prescribed fire alone on approximately 40,630 acres.
  - Mechanically thin and/or implement prescribed fire on approximately 61,700 acres of Mexican spotted owl (MSO) protected activity centers (PACs) including -
    - Approximately 19,650 acres of mechanical thinning and/or prescribed fire
    - Approximately 42,050 acres of prescribed fire only
    - Approximately 3,370 acres of facilitative operations
  - Mechanically thin and/or implement prescribed fire on approximately 19,590 acres of MSO replacement nest/roost recovery habitat.
  - Conduct facilitative operations in non-target cover types to support treatments in target cover types, including –
    - Approximately 47,580 acres of facilitative thinning and prescribed fire
    - Approximately 630 acres of facilitative prescribed fire only
    - Approximately 3,070 acres of facilitative prescribed fire only in PACs
    - Approximately 300 acres of facilitative thinning and prescribed fire in PACs
  - Restore aspen on approximately 1,010 acres, including about 30 acres in PACs.
  - Restore approximately 31,750 acres that have experienced severe disturbance, including about 1,420 acres in PACs.
  - Restore approximately 2,470 acres of savanna.
  - Restore approximately 36,320 acres of grassland, including –
    - Maintaining or restoring montane meadow connectivity in pronghorn corridors.
  - Restore hydrologic function and vegetation on approximately 6,720 acres of meadows.

- 
- Restore approximately up to 14,560 acres of riparian areas for aquatic stream habitat.
  - Restore approximately 184 springs.
  - Restore function and habitat in up to 777 miles of streams, including stream reaches with habitat for threatened, endangered, and sensitive aquatic species.
  - Decommission up to 200 miles of existing system roads on the Coconino and Apache-Sitgreaves NFs, and up to 290 miles on the Tonto NF.
  - Decommission up to 800 miles of unauthorized roads on the Apache-Sitgreaves, Coconino, and Tonto NFs.
  - Construct or improve approximately 170 miles of new temporary roads or existing non-system roads to facilitate mechanical treatments; decommission all temporary roads when restoration treatments are completed.
  - Relocate and reconstruct existing open roads adversely affecting water quality and natural resources, or of concern to human safety.
  - Construct up to 200 miles of protective barriers around springs, aspen, native willows, and big-tooth maples, as needed for restoration.

## **Direct and Indirect Effects**

### *Recreation Sites and Uses*

The effects described in Alternative 2 would be the same for Alternative 3 with the exception of the number of acres restored. Design features described in alternative 2 would be applied in alternative 3. Alternative 3 treats 45% less area than alternative 2. Approximately 46% less acres would receive mechanical and prescribed fire restoration treatments, about 28% less prescribed fire-only. Additionally, the Severe Disturbance Area Treatment would be 76% less in alternative 3 than alternative 2. Alternative 3 would provide less potential to reduce the risk of large scale, high-severity fires in the project area. It would have a less positive effect than Alternative 2 on protecting and maintaining high quality recreation settings over time.

### **Developed Sites**

Any vegetation treatments or prescribed burning in developed recreation sites would follow the same design features as in alternative 2. Consequently, the effects from management activities, and such treatments on developed sites would protect the developed sites from any short or long-term risk of uncharacteristic wildfire similarly to alternative 2. However, facilities at developed sites and campgrounds in the project area would be less protected from adverse short and long term effects from the risk of uncharacteristic wildfire because of the fewer area treated.

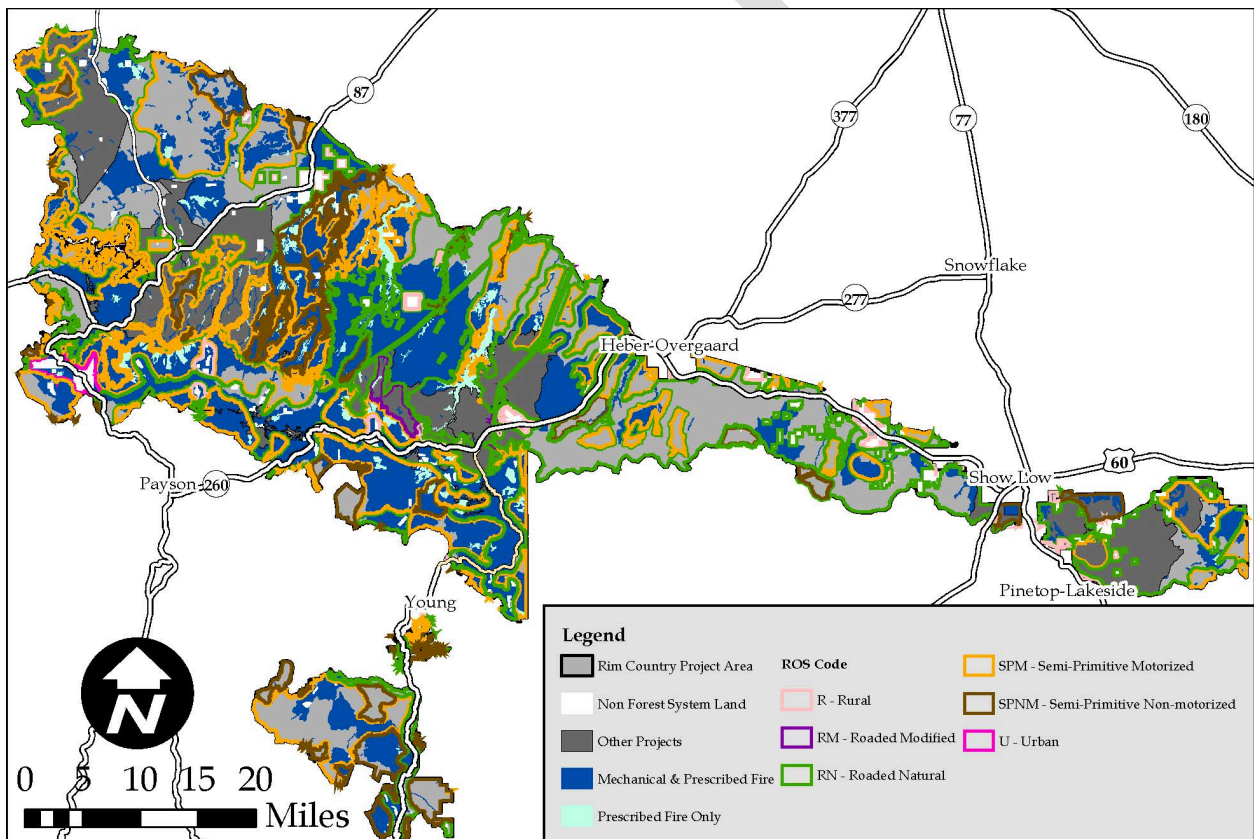
### **Trails, Dispersed Recreation, Recreation Special Uses, and Motor Vehicle Use**

The effects explained in Alternative 2 would be the same for the following areas: dispersed recreation, recreation special use, and motor vehicle use.

### **Recreation Opportunity Spectrum**

This alternative provides for the long-term protection of recreational settings and facilities on 528,803 acres where mechanical thinning and burning would occur by improving stand conditions and reducing fuel loading, and would lower the risk of high severity fire somewhat on 316,580 acres

where treatments would occur. Maintaining healthy, green forests and reducing the risk of large scale, high-severity fires in the project area would have a positive effect on protecting and maintaining high quality recreation settings into the future. Effects from alternative 3 would be similar to those from alternative 2 although on an area almost half the size.



**Figure 8 Treatments in the project area and ROS designations for Alternative 3**

Mechanical treatments would primarily occur in RN (43.6%) and SPM (38.8%) areas, with a lesser amount occurring in SPNM (15.1%) in the project area (Figure 12). Mechanical treatments are expected to result in short-term effects (1-2 years after treatment) where the sights and sounds of

humans are more noticeable on the landscape. However, after a short period of time and subsequent treatments such as prescribed fire, the evidence of treatments fades and is not expected to affect ROS designations. As a result none of the mechanical treatments would prevent an area from meeting or moving toward ROS classifications over the long term (>1 years).

**Table 23 Acres of mechanical and prescribed treatment per ROS Code for Alternative 3**

ROS Code	Mechanical & Prescribed Fire	Prescribed Fire Only	Grand Total	Percentage
R - Rural	8,334	117	8,451	1.6%
RM - Roaded Modified	638	118	756	0.1%
RN - Roaded Natural	222,658	8,093	230,750	43.6%
SPM - Semi-Primitive Motorized	188,197	16,900	205,097	38.8%
SPNM - Semi-Primitive Non-motorized	59,450	20,444	79,894	15.1%
U - Urban	3,632	222	3,854	0.7%
WPS - Wilderness Pristine	0		0	0.0%
WT - Wilderness Transitional	0		0	0.0%
<b>Grand Total</b>	<b>482,910</b>	<b>45,893</b>	<b>528,803</b>	<b>100.0%</b>

## Cumulative Effects

### Alternative 3– Focused Alternative

The focused alternative would have similar minor, short term and temporary negative direct and indirect effects on recreation sites and uses as alternative 2. As noted in this alternative effects description, less area inside the project boundary would be affected by treatments. Consequently, the predicted crown fire risk because of climate change would menace more area in the project area than in alternative 2. This would heighten the danger of disastrous consequence to recreation structures, sites and recreation settings.

## Effects Common to Both Action Alternatives

### Developed Sites

Mechanical and prescribed fire treatments could negatively affect developed recreation sites. However, developed recreation sites would not be modified by any alternatives, as design features have been developed to protect the sites from possible negative effects from proposed treatments in alternatives 2 and 3.

### Recreation Special Use

All alternatives would not have any effects from vegetation management or prescribed burning on Recreation Special Use activities. All permittees can execute their business as intended in their authorized special use permit.

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## Wild and Scenic River

Proposed treatments would have no effect in either alternative 1 or 2 on the eligible Wild and Scenic Rivers. All possible effects would be addressed as per the design features, best management practices and mitigations per the description in table 18. Wild and scenic river eligibility characteristics (free flow, water quality, and outstanding-remarkable values) are protected.

## Effects Unique to Each Action Alternative and Differences among Them

The No Action Alternative does not include any thinning or prescribed burning treatments in the project area, increasing the likelihood of uncharacteristic wildfire that may have lasting effects on recreation areas throughout the Rim Country project area.

Alternatively, the Proposed Action and the Focused Alternative, which includes thinning and prescribed burning throughout the project area, would reduce the risk of extensive crown fire and uncharacteristic wildfire. These alternatives would protect the developed campgrounds, lands infrastructure, trails, and dispersed recreation areas within the project area, maintaining open recreation areas and activities for users during and in the years following the project implementation. Shorter-term effects would occur to users during implementation, including the potential effects from larger processing sites near residences, highways and dispersed recreation areas.

In the long-term, the proposed action would support the health and safety of recreationalists and surrounding communities, as well as reduce potential effects on water supplies, utilities and other infrastructure within and adjacent to the project area.

## Trails

Overall trail users respond negatively and have a decreased return to forested areas that have experienced uncharacteristic wildfire. Trail users would be minimally affected by the proposed treatments in both alternatives 2 and 3 since design features are developed to mitigate any issues related to trails. Effects like visitor displacement and possible overcrowding of some areas where visitors choose to go instead of areas closed or disturbed by proposed treatments are difficult to estimate. However, all three alternatives present different possibilities of risks of uncharacteristic wildfires. The No Action alternative presents the highest risk because of the lack of concentrated treatments on a large landscape scale. Consequently, alternative 2 has the lowest risk because of its sizeable amount of acres treated. Alternative 3 has lower risk than the No action alternative and higher risks than the proposed alternative. The greatest effects on trails results from uncharacteristic wildfires. This risk can be reduced with proposed treatments. Alternative 1 poses the greatest threat to the trail systems, followed by alternative 3. The proposed alternative offers the best possible outcome for the current and future use of the trail systems, treating the most acres of forest.

## Dispersed Recreation and Motor Vehicle Use

Dispersed recreation and motor vehicle use display the same effects for Alternatives 2 and 3 while alternative 1 has no impact unless there is an uncharacteristic wildfire. Alternatives 2-3 might result in some reduction of recreation opportunities during active forest thinning and prescribed burning, and potentially longer slash treatment duration. Areas may be closed to the public due to hazardous conditions that would result in forest user displacement and user dissatisfaction. There could also be an increase in crowding in nearby open forest areas.



Alternatives 2 and 3 propose to decommission 230 miles of existing system and unauthorized roads on the Coconino and Apache-Sitgreaves National Forests and 20 miles on the Tonto National Forest. The Rim Country project would adhere to the TMR decisions for the Coconino, Tonto and Apache-Sitgreaves National Forest. Design features address any issues related to the construction of temporary roads for haul access insuring decommissioning of all temporary roads after treatments are completed. Hence, both alternatives would reduce access or ease of access to recreate in certain areas on their respective forests. However, decommissioning unauthorized roads could positively affect recreation resources by protecting resources and removing access to motorized recreation where unlawful.

Alternatives 2 and 3 display similar effects but vary proportionally with the treatments’ area size. Minor effects are mitigated through design features.

### Recreation Opportunity Spectrum

The No Action Alternative would allow ROS to remain within Land Management Plan guidelines unless stand replacement wildfire affects a large proportion of the project area. Locations and results of unplanned fire ignitions are impossible to predict, however, it is fairly likely that an uncharacteristic wildfire would move conditions away from desired conditions for semi-primitive areas where the evidence of humans is meant to be limited (semi- primitive areas). Uncharacteristic wildfire would likely include a number of alterations to the forest environment such as cutting of dead roadside hazard trees, increased signage to warn of post-fire dangers, re-constructed roads, or recently constructed dozer or hand-built fire line. All of these would result in short and some long-term effects that would move conditions away from desired conditions identified for semi-primitive areas.

Alternatives 2 and 3 might cause temporary effects on recreation users at particular areas during implementation activities, mainly thinning operations and hauling. There would be longer term potential effects of increased traffic and noise near processing site locations. However, since most of the project area is located within Roaded Natural, Semi-Primitive Motorized and to a lesser amount Semi-Primitive Non-Motorized ROS settings, these effects would be consistent with recreation opportunity objective settings for the majority of the project area.

Differences in proposed treatment between alternatives 2 and 3 are displayed in table 20.

**Table 24: Detailed Treatments by Alternative**

Proposed Treatment	Acres Alt 2 (MPA)	Acres Alt 3 (FA)
Intermediate Thin (IT) 10-25 (10 to 25% interspace)	30,210	30,210
<b>IT 25-40</b> (25 to 40% interspace)	53,620	53,620
<b>IT 40-55</b> (40 to 55% interspace)	49,980	49,980
<b>IT 55-70</b> (55 to 70% interspace)	16,970	16,970
Single Tree Selection (ST)	12,510	12,510
Stand Improvement (SI) 10-25 (10 to 25% interspace)	13,660	13,660
<b>SI 25-40</b> (25 to 40% interspace)	34,590	34,590
<b>SI 40-55</b>	14,460	14,460

<b>(40 to 55% interspace)</b>		
<b>SI 55-70</b> <b>(55 to 70% interspace)</b>	8,560	8,560
Uneven-aged (UEA) <b>10-25</b> <b>(10 to 25% interspace)</b>	77,820	77,820
<b>UEA 25-40</b> <b>(25 to 40% interspace)</b>	106,210	106,210
<b>UEA 40-55</b> <b>(40 to 55% interspace)</b>	39,490	39,490
<b>UEA 55-70</b> <b>(55 to 70% interspace)</b>	56,850	56,850
<b>Prescribed Fire Only</b>	54,070	54,070
Aspen Restoration	1,200	1,200
<b>Aspen Restoration in PACs</b>	30	30
Facilitative Operations (FO) <b>Mechanical</b>	123,400	123,400
<b>FO Mechanical in PACs</b>	300	300
<b>FO Prescribed Fire Only</b>	1,260	1,260
<b>FO Prescribed Fire Only in PACs</b>	6,880	6,880
<b>MSO Recovery – Replacement Nest/Roost</b>	25,290	25,290
<b>MSO PAC Mechanical</b>	17,460	17,460
<b>MSO PAC Prescribed Fire Only</b>	50,830	50,830
Savanna Restoration <b>(70 to 90% interspace)</b>	18,570	18,570
Severe Disturbance Area Treatment	128,630	128,630
<b>Severe Disturbance Area – MSO PAC</b>	3,610	3,610
Grassland Restoration	36,320	36,320
Wet Meadow Restoration	6,720	6,720
Riparian Restoration	14,560	14,560

## Effects from Rock Pit Use and Expansion

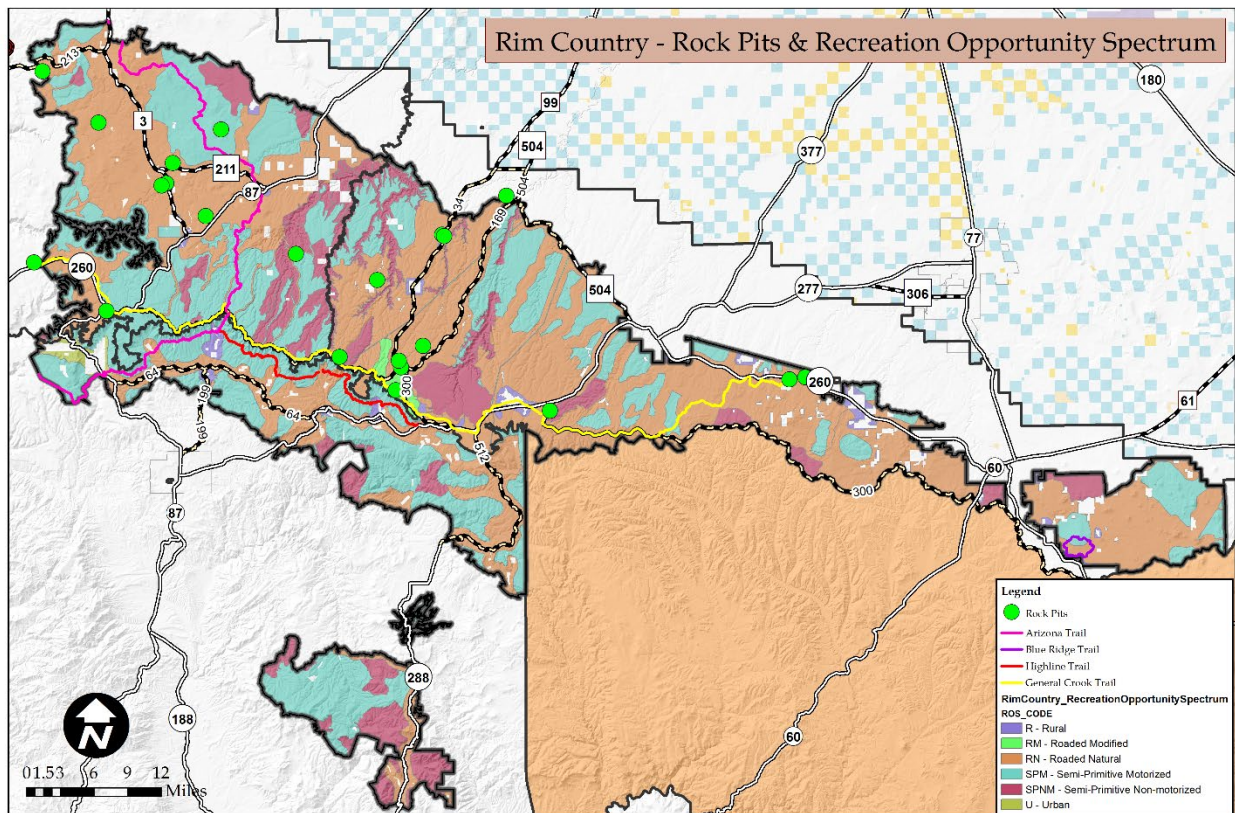
### Effects Common to All Alternatives

All alternatives would increase the level of noise, dust, and traffic in the Project Area. All alternatives would experience a temporary loss of access to desired recreation areas when rock pits are being used

to mine and process roadbed material. There would also be potential safety issues when recreationists are using roads that are haul routes for roadbed material.

There would be no effects or indirect effects on recreation special use permittees as they can continue their normal operations as directed in their permit. Motor vehicle use should not be affected, as these rock pits would not add any access restriction or modification to recreationists.

Figure 6 displays the ROS in the areas where the pits are located in relation to major travel ways and forest boundaries. Most rock pits are located in ROS in forested areas making them difficult to view. Under both action alternatives, design features would help mitigate the impact to recreation from rock pits.



**Figure 9 Rim Country project rock pits location and recreation opportunity spectrum**

### Alternative 1- No Action

#### *Direct and Indirect Effects*

#### **General Effects on Dispersed Recreation, Recreation Special Uses, Developed Recreation Sites, Trails and Motor Vehicle Use**

If Alternative 1 - No Action were to be implemented, there would be rock mining, processing, and hauling activities at the existing and currently operational rock pits.

Alternative 1 - No Action could cause a short term disruption of recreation uses and displacement of recreation users at and near the existing and operational pits during times when aggregate materials are

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being hauled. This would have the effect of concentrating operations and hauling to a relatively small number of locations, and as a result this alternative would concentrate rock mining, processing and hauling at currently operating pits or on main hauling routes (when aggregate material is purchased from private sources and hauled onto the Forest), increasing the amount of time spent in each location since fewer pits would be used.

Indirect effects associated with Alternative 1 - No Action would include dust and noise effects on nearby trails and recreation areas. Portions of the trails and recreation areas that are in proximity to these rock pits would be likely to experience increased dust, noise and perceptions of human activity when the pits are operational. These effects would be temporary and short-term.

### **Recreational Opportunity Spectrum**

Rock pits are located in Roaded Natural, Roaded Modified and Semi-Motorized ROS setting. The pits developed in Roaded Natural, Roaded Modified and Semi-Motorized settings would comply with the setting characteristics. Since the pits are located away from or not in the viewshed of primary (sensitive) travel corridors, these would comply with the setting characteristics.

### ***Cumulative Effects***

This analysis includes the potential cumulative effects on recreation during the 20-year implementation of this project. Numerous other projects would require the use of the same roads that are used to access recreational resources on the three national forests. Other restoration projects would also result in a cumulative increase in hauling by heavy machinery on main Forest travel corridors and concentrated hauling for periods of several weeks in project areas.

The cumulative effects would be an increase in potential safety hazards such as dust and truck traffic to motorized recreation users, especially during duplicate hauling periods (which includes hauling associated with road maintenance and hauling associated with tree and slash removal). However, this cumulative effect is considered less than significant because of the long period and large area for implementation of the future foreseeable actions. If any activity from a particular project in combination with actions associated with existing rock pit activity were to affect recreational access, recreationists could find other areas on the three national forests with similar recreation opportunities.

The largest cumulative effect from this alternative would be the cumulative effect of hauling, causing traffic, noise, and dust in areas near recreation sites or on the main road system being used to access recreation opportunities. Under this no action alternative, there would still be cumulative effects on the recreational experience for several thousand forest visitors over the next two decades.

### **Both Action Alternatives**

A total of 21 rock pits were identified for use and potential expansion up to 30% of the existing footprint for this project. Ten pits are on the Coconino NF and 12 are on the Apache-Sitgreaves NF. The materials from the rock pits may be used for a variety of road maintenance activities, from general maintenance of primary roads to construction or rehabilitation of temporary roads. The proposed use and expansion of rock pits would include hauling of equipment and aggregate materials to and from the pits for use in road maintenance, road construction, and erosion control during the duration of the 4FRI Rim Country project.

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### *Direct and Indirect Effects*

#### **General Effects on Dispersed Recreation, Recreation Special Uses, Wild and Scenic Rivers, Developed Recreation Sites, Trails and Motor Vehicle Use**

Indirect effects associated with Alternative 2 - Proposed Action would include dust and noise effects on these resources. Portions of the trails and recreation areas that are in proximity to these trails would be likely to experience increased dust, noise and perceptions of human activity. However, the maximum values of estimated noise levels for most of the heavy equipment associated with pit development would be in the 40-50 dB range for locations 0.5 miles away or comparable to a running computer or refrigerator.

Direct effects of Alternative 2 - Proposed Action would include disruption of recreation use at and near pits where roadbed materials are being mined and processed, and along haul routes that provide recreational access. Access to desired recreation resources could be altered, requiring recreationists to use another route, or go to another recreation resource where access is not disrupted by hauling activities.

There also could be safety effects if recreationists are using the same roads that are used for hauling. Potential safety effects on recreationists would be reduced by placing signs at major intersections on hauling routes during periods of active hauling. The effects at, and in proximity to, active pits would be temporary and short-term. Based on the application of recreation related design features (RS003, RS018, RS019, and RS020), effects on the trails and recreation areas would be temporary, short-term, and therefore less than significant.

#### **Recreational Opportunity Spectrum**

Most of the rock pits are located in Roaded Natural settings. One rock pit is located in the Roaded Modified and two rock pits are located in Semi-Motorized ROS setting. The pits developed in Roaded Natural, Roaded Modified and Semi-Motorized settings would comply with the setting characteristics. Since the pits are located away from or not in the viewshed of primary (sensitive) travel corridors, these would comply with the setting characteristics.

The pits are similar to a very small mechanical treatment area, which would generally be consistent with natural vegetation patterns. For example, rock pit development would occur at the scale of non-ponderosa pine inclusions such as aspen and meadows that naturally occur in northern Arizona forests. The development would meet the intent of the management direction in the Apache-Sitgreaves Forest Plan..

#### ***Cumulative Effects***

The cumulative effects are similar to Alternative 1, which include the effect of hauling, causing traffic, noise, and dust in areas near recreation sites or on the main road system being used to access recreation opportunities. However, since more rock pits are available for use, this would spread the effects to more areas while lessening the impact in areas where rock pits would be more intensively used without the addition of the new rock pits. Furthermore, the cumulative effects would be less for Alternative 3 since the treatment area is half the size of Alternative 2.

#### **Effects from Use of In-woods Processing and Storage Sites**

A total of 12 in-woods processing sites are proposed for use in this project. Tasks carried out at processing sites includes drying, debarking, chipping stems and bark, cutting logs, manufacturing and sorting logs to size, producing wood cants, scaling and weighing logs and creating poles from suitable sized logs. Equipment types commonly used at processing sites include circular or band saws, various sizes and types of front-end loaders, log loaders and chippers of several types and may include timber processors,

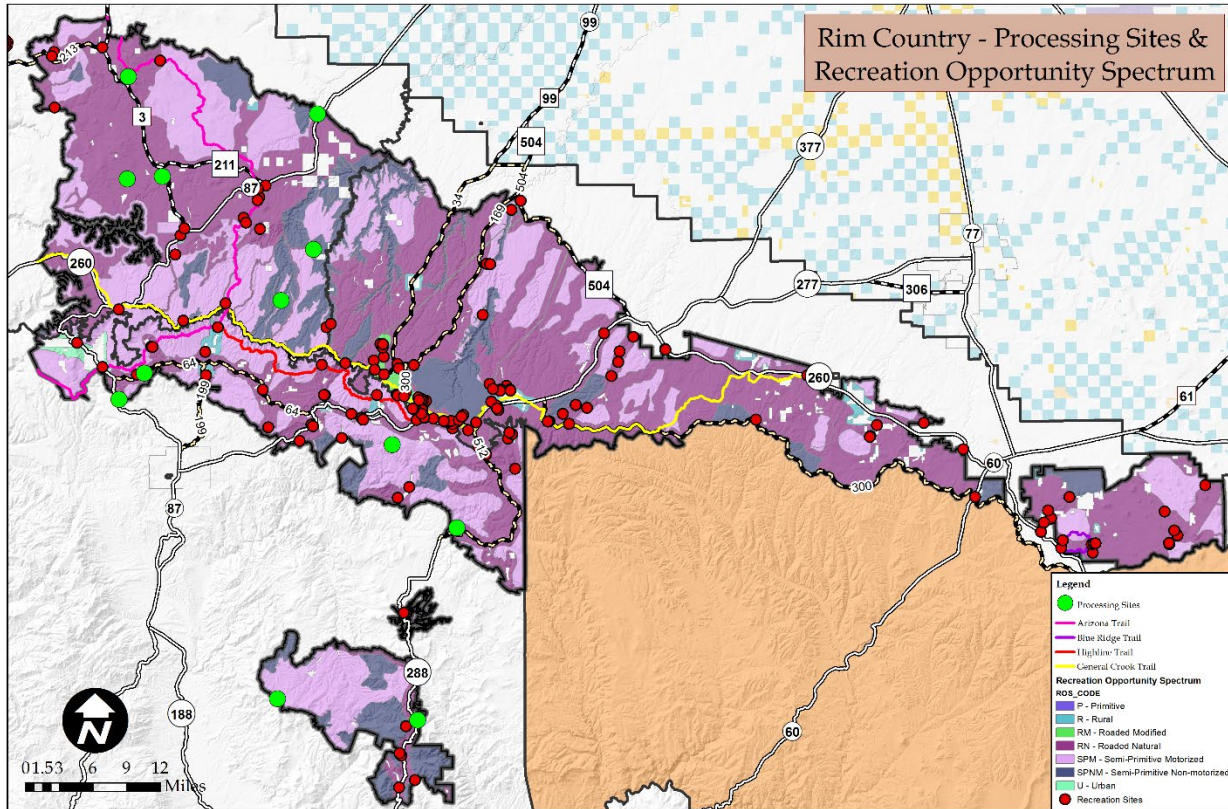
planers and mechanized cut to length systems, associated conveyers and log sorting bunks for accumulation and storage of logs. Electric motors and gas or diesel generators are also used to provide power.

Eight processing sites were proposed and analyzed for environmental effects in the Cragin Watershed Protection Project. These sites carried forward for potential use in implementing the Rim Country Project. An additional 12 processing sites have been proposed that range in size from 4 to 21 acres. Table 18 lists the 12 proposed sites, with approximate acreage and analysis summary. Figure 7 displays the ROS and the

**Table 25: Proposed in-woods processing sites**

Site Name	Ranger District	Size (ac)	Recreation Sites?	Visual Screen/Concern
<b>Coconino</b>				
137 / 96	Mogollon Rim	18	No concerns.	No concerns (locate to provide for a buffer of 100 or 300 feet from forest roads and state highways).
145A / 9615X	Mogollon Rim	7	No concerns.	No concerns (locate to provide for a buffer of 100 or 300 feet from forest roads and state highways).
294 / 294D	Mogollon Rim	18	No concerns.	No concerns. Located approx. 0.7 miles from Arizona Trail in valley, but in Modification VQO.
81 / 81E	Mogollon Rim	7	No concerns.	No concerns (locate to provide for a buffer of 100 or 300 feet from forest roads and state highways).
9364L / FH3	Mogollon Rim	21	No concerns.	High concern. Located in High Scenic Integrity Area without much tree coverage/screening potential. Would be viewed from FH3. This part UNSUITABLE. Western half of proposed area would be more ideal as farther from the road and in moderate SIO.
9731G / Hwy87	Mogollon Rim	9	No concerns.	No concerns (locate to provide for a buffer of 100 or 300 feet from forest roads and state highways).
Site Name	Ranger District	Size (ac)	Recreation Sites?	Visual Screen from Road
<b>Tonto</b>				
117 / 1321	Payson	4	No concerns.	No concerns (locate to provide for a buffer of 100 or 300 feet from forest roads and state highways).
582 / Hwy87	Payson	5	No concerns.	No concerns (locate to provide for a buffer of 100 or 300 feet from forest roads and state highways).
74 / 64	Payson	8	No concerns.	No concerns (locate to provide for a buffer of 100 or 300 feet from forest roads and state highways).
288/2781	Pleasant Valley	4	No concerns.	High concern. Located in Retention Visual Quality Area along From Desert to Tall Pines Scenic Byway. Activity related to processing sites may be visible from foreground/ middleground/ background. However, footprint of the canopy opening is existing from previous activity and located in dense forest canopy. If selected, locate to provide for a buffer of 100 or 300 feet from road.
3238 / 512	Pleasant Valley	20	No concerns.	No concerns (locate to provide for a buffer of 100 or 300 feet from forest roads and state highways).
609 / 1938	Pleasant Valley	7	Entrance to site used heavily by recreationists.	Incomplete visual data for analysis, but moderate concern of visibility from high use road by recreationists. Locate to provide for a buffer of 100 or 300 feet from forest roads and state highways.

areas where the proposed processing sites are located in relation to developed recreation sites. Most processing sites are located in forested areas making them difficult to view even from 300 feet to 0.5 miles.



**Figure 10 Potential in-woods processing site locations**

### Alternative 1 - No Action

Alternative 1 proposes no in-woods processing sites and storage sites and initiates no human-caused changes to the recreation resources within the project area. Alternative 1 would meet the ROS in both Coconino and Tonto national forests.

### Alternative 2 – Modified Proposed Action

#### *Direct and Indirect Effects*

The processing sites may be used as part of the 4FRI Rim Country Restoration project over its implementation period. Following completion of use of processing sites and removal of all equipment and materials, site rehabilitation would have to be accomplished including but not necessarily limited to removal of aggregate, restoration of pre-disturbance site grades, decompaction of soil for seedbed preparation, and seeding and mulching of the site with native grasses and forbs. To hasten recovery and help eliminate unauthorized motorized and non-motorized use of skid trails and temporary roads, use physical measures such as re-contouring, pulling slash and rocks across the line, placing cull logs perpendicular to the route, and disguising entrances.

Of the proposed 12 processing sites, nine are in Roaded Natural ROS, 3 are in Semi-Primitive Motorized and one overlaps Semi-Primitive Motorized and Semi-Primitive Non-Motorized. Development and operation of the processing sites would not conflict with the desired conditions for SPM and RN designations where there are occasional or regular sights and sounds of human

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influence. The processing sites could have a broader impact on ROS experience within the immediate area where operations can be heard (0.14 to 2.4 miles around a site) and seen but these would not be inconsistent with the RN, SPM or SPNM settings. During use of a processing site, the appearance of the forest would change because most of the trees would be cleared on the site. The locations of the processing sites have been selected to limit the need for tree removal and would be designed so that there is visual screening from the main roads, thereby moderating the visual effects of the sites. Also during use, there would be increased traffic and interaction between log trucks, chip vans or other vehicles and equipment in use at the site and public use of the forest. The time of effects on ROS from the processing sites would be variable; smaller processing sites would be used over a shorter time, 5-10 years than the larger sites which could be in use from 10-20 years. After use, the areas would be completely rehabilitated and trees and vegetation would slowly be reestablished.

All of the sites are located 100 to 300 feet from forest system roads to provide for visual screening. Effects on dispersed recreational use from the processing sites includes noise disturbance from equipment and increased truck traffic entering and leaving the site. These effects would range from temporary over a few months that the logging operation was active to several years for the large sites (10-15 acres) that would service as focal points for in woods processing of logs etc.

There could be longer-term use of some processing site locations under the larger 4FRI effort. Therefore, the authorization of these sites may combine with the effects of other projects occurring adjacent to the project area resulting in longer-term effects of their use beyond the Rim Country project. Those effects would be related to noise and traffic near some processing sites.

### Alternative 3 – Focused Alternative

#### *Direct and Indirect Effects*

Effects on recreation resources would be of the same type as described for Alternative 2, as all proposed in-woods processing sites could potentially be utilized.

### **Effects from Forest Plan Amendment(s)**

The purpose of Amendment 1 is to bring Alternatives 2 and 3 into alignment with the revised Mexican Spotted Owl Recovery Plan and defer monitoring to the FWS biological opinion that is specific to this project. Amendment 2 clarifies existing direction related to managing canopy cover and interspace in the Forest Plan. The purpose of Amendment 2 is to bring the project into alignment with the best available science (Reynolds et al. 2013) that provides desired conditions for restoring fire-adapted ponderosa pine in the Southwest. Amendment 3 removes the restrictive language related to 40 percent slopes and the language identifying slopes above 40 percent as inoperable, to allow mechanical treatments with new methods and equipment on slopes greater than 40 percent without adverse environmental effects (Rim Country Summary, Chapter 1 pp.viii, ix).

The significance of each amendment was evaluated in accordance with Forest Service Manual (FSM) 1926.51 and FSM 1926.52. No amendment alters multiple use forest plan goals and objectives, or adjusts management area boundaries or management prescriptions. The changes in standards and guidelines are considered to be minor because they reflect the latest, best available science (Reynolds et al. 2013). The amendments bring the alternatives into alignment with the revised Mexican Spotted Owl Recovery Plan. No amendment would alter the long-term relationship between levels of multiple-use goods and services originally projected for the Tonto NF. These outputs were specific to a planning period ranging from 10 to 15 years (as identified in 1987) (Rim Country Summary, Chapter 1 pp.viii, ix).



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With the proposed nonsignificant forest plan amendments (see Appendix B), Alternatives 2 and 3 are consistent with the direction in the 1985 Tonto Forest Plan as amended (Rim Country Summary, Chapter 1 pp.viii, ix). There would not have any measurable direct or indirect effects on recreation.

## Irreversible and Irretrievable Commitments of Resources

There are no irreversible or irretrievable commitments related to recreation resources from the alternatives.

## Other Agencies and Individuals Consulted

### Acronyms

NVUM	National Visitor Use Monitoring survey
RM	Roaded Modified
RN	Roaded Natural
ROS	Recreation Opportunity Spectrum
SPM	Semi-Primitive Motorized
SPNM	Semi-Primitive Non-Motorized

### Glossary

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## Appendix 1. Identification of recreation facilities in Rim Country project area

	Apache-Sitgreaves NF	Coconino NF	Tonto NF
Boating site	Black canyon Lake Scott Reservoir Boat Launch Willow Springs Boat Launch Woods canyon Lake Area	Blue Ridge Knoll Lake	
Campground	Aspen Campground Black Canyon Rim Campground Canyon Point Campground Chevelon Canyon Lake Campground Chevelon Crossing Campground Crook Campground Gentry Campground Lakeside Campground Los Burros Campground Mogollon Campground Rim Campground Scott Reservoir Campground Sinkhole Campground Spillway Campground	Blue Ridge Clints Well Kehl Springs Knoll Lake Rock Crossing	Airplane Flat Alderwood Christopher Creek Colcord Ridge Haigler Canyon Ponderosa Rose Creek Sharp Creek Upper Canyon Creek Upper Tonto Creek Valentine Ridge
Camping Area	Bear Canyon Lake Campground Brown Creek Campground FR 169 FR 171 FR 195 FR 237 FR 84 FR 89 Camping Area FR 9350		Creekside

	FR 9354 FR 9512E Larson Ridge CG Promontory Pit Road		
Day Use Area	Al Fulton Picnic Area Baca Ranch Deer Springs Lookout General Crook Road Gentry Lookout Historic Heber Ranger Station Joe Springs Trail OHV Access Polimana Day Use Area Rock Shelter Sardine Point West Loop OHV Access Wildcat Road OHV Access Wilford Town Site		
Group Campground	Lewis Canyon Group Campground Spillway Group Campground Woods Canyon Group Campground	Long Valley Moqui	Christopher Creek Group Ponderosa Group Reynolds Creek Group Sharp Creek Group
Interpretative Site	Canyon Point Amphitheater Mogollon Rim Visitor Center Woods Canyon Amphitheater		
Info Site/Fee Station		Happy Jack Information Kiosk Mogollon Rim District Office Stoneman Lake Road	Canyon Creek Fish Hatchery
Interpretive Site		Moqui Amphitheater	
Lookout/Cabin		Apache maid	
Observation Site	Military Sinkhole Vista Woods Canyon Vista		Pleasant Valley Vista Rim Lakes Vista

OHV Staging Area	Panorama Motorized Trailhead Timber Mesa Motorized Trailhead		
Organization Site	Camp Shadow Pines Tall Timbers County Park		Arizona Cactus-Pine Girl Scout Camp Grand Canyon Council Boy Scout Camp
Other Recreation Concession	Canyon Point Dump Station Woods Canyon Dump Station		
Picnic Site	Rocky Point Picnic Area Willow Springs Picnic Ground	Stoneman Lake	Christopher Creek Picnic Horton Creek Second Crossing Third Crossing
Recreation Residence			Diamond Point Ellison Creek
Trailhead	237B Trailhead Billy Creek Trailhead Blue Ridge #1 Trailhead Blue Ridge #2 Trailhead Buena Vista Trailhead Canyon Drive OHV Access Carr Lake Trailhead Cottonwood Wash Trailhead Country Club Trailhead Drew Trailhead Durfee Trailhead General Crook Trailhead Ghost of the Coyote Trailhead Hangman Trailhead Horse Trap Trailhead Horton Trailhead Ice Cave Trailhead Joe Springs Drive OHV Access Juniper Ridge #1 Trailhead Juniper Ridge #2 Trailhead Lake Mountain Trailhead	General Springs Hay Meadow Jumbo Pine Canyon Pine Spring	Bear Flat TH Box Canyon TH Circle Ranch TH Geronimo TH Hatchery TH Hellsgate TH McFadden Peak TH Pine TH Red Rock TH Reynolds TH See Canyon TH Strawberry TH Two-Sixty TH Washington Park TH

	<p>Land of the Pioneers Trailhead  Larson Ridge Trailhead  Long Draw South Trailhead  Los Burros #1 Trailhead  Los Burros #2 Trailhead  Los Caballos Trailhead  Mallard Trailhead  Meadow Trailhead  Merganser Trailhead  Mogollon Campground Trailhead  Mogollon Trailhead  Old Rim Trailhead  Panorama Trailhead  Rim Campground Trailhead  Rim Top Trailhead  Rocky Point Trailhead  See Canyon Trailhead  Sinkhole Trailhead  Sky Hi OHV Trailhead  Springs Trailhead  Tall Timbers Trailhead  Telephone Ridge Trailhead  Three Oaks Trailhead  Timber Mesa Trailhead  Two-O-Eight Trailhead  Willow Springs Lake Trailhead  Woods Canyon Lake Trailhead  Woods Canyon Lake Vista Trailhead</p>		
Wildlife Viewing Site		Stoneman Lake	

## Appendix 2. Special Use activities within the Rim Country analysis area

Name	Type of Special Uses	General Location	PURPOSE
<b>GRAND CANYON COUNCIL BSA</b>	Organization camp		Organization camp called CAMP GERONIMO, including a service road, water pipeline, troop-sites with dining shelter and Adirondacks, entry sign, campfire-ring, pit latrines, washstands with spigot, plus a chapel with a trail
<b>ARIZONA CACTUS-PINE GIRL SCOUT COUNCIL, INC.</b>	Organization camp		Camping area equipped with sleeping facilities, fire circles, an outhouse (vault-type) and an old Quonset hut (used for storage)
<b>GRAND CANYON COUNCIL BSA</b>	Organization camp		Organization camp called CAMP GERONIMO, including a service road, water pipeline, troop-sites with dining shelter and Adirondacks, entry sign, campfire-ring, pit latrines, washstands with spigot, plus a chapel with a trail
<b>BAILEY, JAMES</b>	Recreation residence		Use for a private family cabin.
<b>KAHN, DEBORAH VEZIE</b>	Recreation residence		Use for a private family cabin.
<b>JOANN LUTZ</b>	Recreation residence		Use for a private family cabin.
<b>SUNNY DAY HOLDINGS</b>	Marina		Woods Canyon Lake Store and Marina including a convenience/general store, boat dock, boat rental building, storage room, workshop, living quarters, and ice plant, plus four

			parking spaces directly behind the store
<b>RECREATION RESOURCE MANAGEMENT</b>	Concession campground		Provide high-quality public service in the operation and maintenance of Government-owned recreation facilities located on the Payson Ranger District, Tonto National Forest.
<b>RECREATION RESOURCE MANAGEMENT OF AMERICA, INC.</b>	Concession campground		OPERATING AND MAINTAINING FOREST SERVICE CAMPGROUNDS AND RECREATION FACILITIES AS DESCRIBED IN THE PERMITTEES OPERATING PLAN EXHIBIT B.  THE PERMITTEE IS ALLOWED TO CHARGE REASONABLE FEES FOR THE USE OF FACILITIES AND REQUIRED SERVICES PROVIDED TO THE PU
<b>HERRERA, RANDY</b>	Outfitter/Guide		hunting outfitter and guide service using a certified guide. 45 priority use service days in Forest, excluding Wilderness and MA 6F
<b>Ogle, Bryant</b>	Outfitter/Guide		hunting outfitter and guide service using certified guides.  50 priority use service days with the following restrictions: 10 service days in Mazatzal Wilderness (MAs 1B, 1C, 1E, 3A, 4A, 4B, 6A) 10 service days in Hellsgate Wilder

<b>Starr, Douglas A.</b>	Outfitter/Guide		<p>Conducting a high quality hunting outfitting and guide service using a certified guide.</p> <p>20 priority use days with the following restrictions: no more than 10 service days in Hellsgate Wilderness (MAs 4C, 5B) and excluding MA 6F</p>
<b>MOSSBACK PRODUCTIONS INC</b>	Outfitter/Guide		<p>Conducting a high quality hunting outfitting and guide service using a certified guide.</p> <p>30 priority use days with the following restrictions: 10 service days in Hellsgate Wilderness (MAs 4C, 5B) 20 remaining service days in remainder of Forest, excluding</p>
<b>JARRED NICHOLS</b>	Outfitter/Guide		<p>Conducting a high quality hunting outfitting and guide service using a certified guide.</p> <p>45 priority use days with the following restrictions: 10 service days in MA 3B 10 service days in MA 6B 10 service days in MA 6J 5 service days in Mazatzal Wilderness</p>
<b>Hatch, Tyson</b>	Outfitter/Guide		<p>Conducting a high quality hunting outfitting and guide service using a certified guide.</p> <p>50 priority use service days with the following restrictions: 10 service days in Hellsgate Wilderness (MAs 4C, 5B) 20 service days in Mazatzal Wilderness (MAs 1B, 1C,</p>



<b>COLBURN AND SCOTT OUTFITTERS, LLC</b>	Outfitter/Guide		<p>Conducting a high quality hunting outfitting and guide service using a certified guide.</p> <p>90 priority use service days with the following restrictions:  20 service days in Mazatzal Wilderness (MAs 1B, 1C, 1E, 3A, 4A, 4B, 6A)  10 service days in Hellsgate Wil</p>
<b>KROGH, GREG M.</b>	Outfitter/Guide		<p>Conducting a high quality hunting outfitting and guide service using a certified guide.</p> <p>90 priority use service days with the following restrictions:  20 service days in Mazatzal Wilderness (MAs 1B, 1C, 1E, 3A, 4B, 6A)  10 service days in Hellsgate Wildern</p>
<b>PHOENIX WILDERNESS ADVENTURES, LLC</b>	Outfitter/Guide		<p>Conducting a high quality rock-climbing and canyoneering guide service using certified guides.</p> <p>300 service days in MA 2F (Globe RD)  225 service days in MA 6J (Tonto Basin RD)  75 service days in MA 6H (Tonto Basin RD)  75 service days in MA 5E (Pleasant Val</p>
<b>PHOENIX WILDERNESS ADVENTURES, LLC</b>	Outfitter/Guide		<p>Conducting a high quality rock-climbing and canyoneering guide service using certified guides.</p> <p>300 service days in MA 2F (Globe RD)  225 service days in MA 6J (Tonto Basin RD)  75 service days in MA 6H (Tonto Basin RD)  75 service days in MA 5E (Pleasant Val</p>

<b>360 ADVENTURES, LLC</b>	Outfitter/Guide		Conducting a high quality rock-climbing canyoneering guide service using a certified guide. 170 priority use service days with the following restrictions: 40 service days in MA 2F 40 service days in MA 5E 40 service days in MA 4D 50 service days in MA 6H
<b>PEREGRINE EXPEDITIONS, LLC</b>	Outfitter/Guide		Conducting a high-quality guided canyoneering and rock climbing service in the Superstition Mountains and Christopher Creek.
<b>COLORADO HIKING, LLC</b>	Outfitter/Guide		Conducting a high-quality outfitter/guide service providing 6-day scenic desert hiking tours and camping on the Highline Trail. 288 user days
<b>ADVENTURE ON PURPOSE LLC</b>	Outfitter/Guide		Conducting high-quality guided hiking and canyoneering trips on the Mesa, Payson, Pleasant Valley, and Tonto Basin Ranger Districts. Permanent anchors will not be installed.
<b>MTM RANCH, LLC</b>	Outfitter/Guide		Conducting high-quality guided horseback tours on the Cave Creek, Mesa, and Payson Ranger Districts. Approved trails include: Mesa- Trail 109 from Rogers Trough TH to Reavis Ranch Cave Creek- Cave Creek System Trails 4, 245, 246, 247, 248, 250, and FR 48
<b>MTM RANCH, LLC</b>	Outfitter/Guide		Conducting high-quality guided horseback tours on the Cave Creek, Mesa, and Payson Ranger Districts. Approved trails include: Mesa- Trail 109 from Rogers Trough TH to Reavis Ranch Cave Creek- Cave Creek

			System Trails 4, 245, 246, 247, 248, 250, and FR 48
<b>HERMOSA TOURS, LLC</b>	Outfitter/Guide		dba AZT Expeditions  Conducting a high-quality outfitter/guide service providing overnight camping equipment and hiking supplies for preregistered hikers on the Arizona Trail and other major trails in the Globe, Mesa, Tonto Basin, and Payson Ranger Distri
<b>BARS HUNTING SERVICE, LLC.</b>	Outfitter/Guide		Operating a high quality hunting outfitter guide service on the Coconino National Forest, per the following conditions as well as all operating conditions as outlined in the attached operating plan.
<b>DEADFALL OUTFITTERS LLC</b>	Outfitter/Guide		Outfitting and Guiding on the Apache-Sitgreaves National Forests.
<b>BOGGS, CHRISTINA</b>	Outfitter/Guide		Providing a high quality hunting/ fishing outfitting and guide service using a certified guides on the Tonto National Forest Land/Lakes.
<b>BACK 2 BASICS SOBER LIVING, L.L.C.</b>	Outfitter/Guide		Providing guided hiking and backpacking trips as part of an adventure therapy program for alcohol and drug rehabilitating adults. Routes consist of designated trails on the Cave Creek, Mesa, Payson, and Tonto Basin Ranger Districts as identified in the at
<b>PINETOP LAKES ASSOCIATION LLC</b>	Outfitter/Guide		Public horseback trail rides from Pinetop Equestrian Center

<b>PORTER MOUNTAIN STABLES</b>	Outfitter/Guide		Stables operating trail rides on NFS trails.
<b>DBA A DAY IN THE WEST</b>	Outfitter/Guide		The purpose of this permit is to authorize the following outfitting and guiding activities:  Priority Use Outfitter/Guide permit for guided hiking, biking, and jeep tours in accordance with approved Operating Plan, Appendix B.  and assigning use as follo
<b>HUBBARD, KEITH</b>	Outfitter/Guide		To conduct a high quality hunter outfitter guide operations on the Coconino NF.
<b>JAMES BEDLION</b>	Outfitter/Guide		To conduct hunting outfitter guide operations on the Coconino National Forest.
<b>STEWART</b>	Outfitter/Guide		Trail rides
<b>PORTER MOUNTAIN STABLES</b>	Outfitter/Guide		Trail rides on the Sitgreaves National Forest.
<b>Elmer Guide Service</b>	Outfitter/Guide		Conducting a high quality hunting outfitting and guide service using a certified guide.  70 priority use service days with the following restrictions: 5 service days in Mazatzal Wilderness (MAs 1B, 1C, 1E, 3A, 4A, 4B, 6A) 5 service days in Hellsgate Wilder
<b>FIRRIOLO, MARCO</b>	Outfitter/Guide		Conducting a high quality hunting outfitting and guide service using a certified guide.  10 priority use service days on Forest, excluding MA 6F
<b>TOWN OF PINETOP-LAKESIDE/PARKS &amp; RECREATION</b>	Outfitter/Guide		Multi-event permit for Woodland Lake Park including

			the ramadas, ball fields and Cool Runnings recreation event.
<b>RIM COUNTRY BOWHUNTERS</b>	Outfitter/Guide		To conduct an archery target shoot on the Mogollon Rim Ranger District. #2 Long Valley Draw/Long Valley Work Center
<b>PINE/STRAWBERRY FUEL REDUCTION, INC</b>	Outfitter/Guide		Annual Fire on the Rim mountain bike race September 16, 2017 around Strawberry Mountain on FR 428 (Hardscrabble Road), FR 1559, Trail #15, and routes identified in Exhibit A.
<b>STACY</b>	Outfitter/Guide		Annual Trail Event Ride with the Scottsdale Charros, Inc. as a club event. Private club event for members only. Horseback riding and working with a range permittee, Four of a Kind cattle ranch.
<b>MOUNTAIN MEADOW RANCH BIBLE CAMP INC.</b>	Outfitter/Guide		Bigfoot Hustle 5K run September 23, 2017 on FR 284 and 114. All event staging and parking will take place on non-Forest System Lands.
<b>WILLIAMS</b>	Outfitter/Guide		Multi-use permit for the Town of Pinetop-Lakeside.
<b>ARIZONA TRAIL RIDERS</b>	Outfitter/Guide		The Howlin at the Moon dual sport / adventure ride for street legal motorcycles October 21-22, 2017. Permit Holder will obtain separate authorizations for use of additional roads or lands outside the Tonto National Forest. Authorized route is identified
<b>ARIZONA TRAIL RIDERS</b>	Outfitter/Guide		The Howlin at the Moon dual sport / adventure ride for street legal motorcycles October 21-22, 2017. Permit Holder will obtain separate authorizations for use of additional roads or lands outside the Tonto National

			Forest. Authorized route is identified
<b>Hancock Family Reunion, Van</b>	Outfitter/Guide		Family Reunion at the Naegle Ranch area north of AP-3140. Returning family reunion annually for 100 years.
<b>Hancock Family Reunion, Van</b>	Outfitter/Guide		Family Reunion at the Naegle Ranch area north of AP-3140. Returning family reunion annually for 100 years.
<b>CAMPBELL, MIKE</b>	Outfitter/Guide		Group campout Shotgun shoot SUPA #9 Picnic Tank

### Appendix 3. Flexible Toolbox Approach for Mechanical Treatments

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