

Land Management Plan for the Apache-Sitgreaves National Forests
Administrative Change #2
Changes Related to Appeal Resolution and Error Correction
August 15, 2016

This Administrative Change to the 2015 Land Management Plan for the Apache-Sitgreaves National Forests implements changes to the plan for three reasons. The changes are arranged below into 3 sections as follows:

1. The Forest Service agreed to make certain changes to other content¹ in the plan through appeal negotiation for the partial withdrawal of Appeal #16-13-00-0006 by Arizona Game and Fish Department in a letter dated April 12, 2016, from Regional Forester Calvin Joyner to AZGFD Director Larry Voyles.
2. The Forest Service agreed to make certain changes to other content in the plan through appeal negotiation for the withdrawal of Appeal #16-13-00-0007 by the International Society for the Protection of Mustangs and Burros and TerraWind Ranch Eco-Action Group in a letter dated July 1, 2016, from Regional Forester Calvin Joyner to Anthony W. Merrill, Polsinelli Law Firm.
3. The Apache-Sitgreaves National Forests have been made aware of errors and inaccuracies in the plan which require changes to other content in the plan and a correction of a clerical error in a plan decision as provided for by 36 CFR 219.13(c).

Additions to the text of the plan are indicated here by **bold** text. Deletions are indicated by ~~strike through text~~. Additions that would be in boldface in the original are indicated by ***bold italics***. In addition to the above indicators, changes are highlighted in yellow to enhance their visibility. [Explanatory text which is not part of the change is enclosed in square brackets.]

Change pages will be produced and used to replace the original pages in the printed documents. An updated electronic version (pdf) of the Land Management Plan will be posted to the Forests' website. Pages which have been changed will be identified in the page footers, and the date of the change will be included.

¹ Other content is all content that is not a plan decision. In the ASNFs Land Management Plan, other content includes Chapter 1, parts of Chapters 2 and 3 which are not highlighted in gray, parts of Chapter 4 which are not in tables, Chapter 5, and all appendices.

**Section 1: Changes made to the plan through appeal negotiation
for the partial withdrawal of Appeal #16-13-00-0006 by Arizona
Game and Fish Department**

Management Approaches for Aquatic Habitat and Species

Proactive management of aquatic habitats and populations is critical to reversing downward population trends in several federally listed species. Physical barriers or habitat alterations like temperature changes, loss of streamflow, nonnative species predation, and nonnative hybridization can be threats to these species. Habitat improvement projects are prioritized with an emphasis on federally listed species and other species with population or habitat concerns. Managers work to ensure native species can be found in their historic habitat.

The Apache-Sitgreaves NFs assist the Arizona Game and Fish Department (AZGFD) with efforts to protect and reintroduce native aquatic species where appropriate and control or eradicate nonnative species. The forests support efforts to develop effective methods to eradicate crayfish and other undesirable nonnative species. **The Apache-Sitgreaves National Forests coordinate with and support the AZGFD in the use of aquatic habitat and species improvement methods in order to move aquatic resources toward desired conditions when such methods are consistent with applicable plan components.**

Enhancement or restoration treatments may include stabilization of stream banks and road crossings, facilitation of aquatic species passage and movement, restoration of perennial flows and native vegetation, or removal of unneeded impoundments. [Ephemeral](#) and seasonal wetlands are managed to lengthen wet periods. Wetlands are protected from activities that reduce habitat quality or size such as dewatering or loss of emergent vegetation.

Related Plan Content for Aquatic Habitat and Species

See the following sections: [Overall Ecosystem Health](#), [Water Resources](#), [Riparian Areas](#), [Invasive Species](#), [Livestock Grazing](#), and [Water Uses](#).

All PNVTs

Background for All PNVTs

The 14 major PNVTs¹² can be assembled into 5 groupings: riparian, forest, woodland, grassland, and chaparral. This section pertains to all 5 groupings and all 14 PNVTs. Each PNVt consists of one or more subtypes depending on local environmental characteristics. These subtypes (e.g., pine-Gambel oak is a subtype of the ponderosa pine PNVt) are not described in detail in this plan but may be evaluated at the project or activity level.

Riparian PNVts include wetland/cienegas and three riparian forested PNVts: mixed broadleaf deciduous, montane willow, and cottonwood-willow. There are four forested PNVts: ponderosa pine, dry mixed conifer, wet mixed conifer, and spruce-fir. Madrean pine-oak and piñon-juniper make up the woodland PNVts. The three grassland PNVts are Great Basin, semi-desert, and montane/subalpine. Interior chaparral is the only chaparral PNVt.

All of these PNVts vary, to some degree, in structure, composition, function, and natural ecological processes from what they were historically. Fire and climate change are among the most important natural ecological disturbances that shaped these vegetation communities.

The variety of habitat conditions provides for a wide diversity of plant species. Preliminary estimates include over 2,500 species and varieties. Vegetation conditions for Mexican spotted owl (MSO) and other federally listed species, although not described in detail below, are managed consistent with the habitat requirements specified in the appropriate species recovery plan.

¹² This plan refers to PNVt, meaning the [potential natural vegetation type](#). Refer to appendix B for more information.

thistle. Species not yet extensive which provide good opportunity for treatment success include Dalmatian toadflax, Canada thistle, and bullfrogs. Treatment efforts are focused in roadways, [developed recreation sites](#), trailheads, boating areas, and areas with [mechanical treatments](#) or concentrated use (e.g., corrals, driveways, log landings, dispersed campsites, pile burn sites). The control or eradication of crayfish and undesirable nonnative fish is needed to restore native aquatic species; however, more research is needed to determine effective tools for aquatic invasive species.

Forest employees identify, locate, and report invasive species occurrences. The forests maintain an inventory which identifies areas of invasive species occurrence. Because of the often aggressive and tenacious nature of invasive species, the forests apply timely initial treatments with follow-up treatments for as long as needed to meet either eradication or control goals.

The forests continue to provide education and outreach programs designed to increase employee, public, and permittee awareness. Implementation of preventative measures (e.g., pre- and post-work equipment sanitation, requiring certified weed-free seed and hay) continues through permitting, contracting, and other forest administrative processes. The forests continue to utilize vehicle wash stations to prevent spread of noxious weeds, nonnative invasive plants, insects, and disease pathogens.

Where determined appropriate, the forests collaborate with other agencies and entities in efforts to replace nonnative aquatic species with natives. The forests encourage ADOT to treat noxious weeds and undesirable nonnative invasive plants along highways. The forests cooperate with the Natural Resource Conservation Service (NRCS), APHIS, AZGFD, ADOT, Arizona Department of Agriculture (ADA), tribes, State and county extension services, local governments, and other organizations (e.g., Little Colorado River Weed Management Group) to support a successful invasive species management program. **The Apache-Sitgreaves National Forests coordinate with and support the AZGFD in the use of methods that protect against aquatic invasives and diseases in order to move aquatic resources toward desired conditions, when such methods are consistent with applicable plan components.**

Related Plan Content for Invasive Species

See the following sections: [Overall Ecosystem Health](#), [Aquatic Habitat and Species](#), [All PNVTs](#), [Wildlife and Rare Plants](#), [Conservation Education](#), and [Special Uses](#).

Landscape Scale Disturbance Events

Background for Landscape Scale Disturbance Events

Landscape scale (generally over 10,000 acres) disturbance events are recurring natural ecological processes with characteristic outcomes. However, given current (2011) departure from reference conditions, outcomes can be uncharacteristic where there are drastic changes in soil and vegetation components. These can lead to ecological succession away from desired conditions, which can be complicated by other factors like climate change and invasive species. When uncharacteristic outcomes occur, the landscape can take hundreds of years or more to recover to some level of stability. Where outcomes are uncharacteristic and there are needs to accelerate recovery, additional direction is provided to protect existing resources and facilitate recovery of soil and vegetation components and improve ecosystem health.

restrictions to prevent disturbance to owls during the breeding season (March 1 through August 31).

Mosaic – Mix of recurring patterns of forested and non-forested areas at the identified scale (e.g., landscape, watershed, mid-scale). Patterns are variable and may change over time.

Motorized travel – Movement using machines that use a motor, engine, or other nonliving power sources other than a vehicle operated on rails or a wheelchair or mobility device, including one that is battery powered, designed solely for the use by a mobility-impaired person for locomotion and that is suitable for use in an indoor pedestrian area.

Motor vehicle use map (MVUM) – The MVUM displays designated roads, trails, and areas on an administrative unit or a ranger district of the National Forest System.

National Forest System (NFS) – As defined in the Forest and Rangeland Renewable Resources Planning Act of 1974 (Public Law 93-378), the “National Forest System” includes all national forest lands reserved or withdrawn from the public domain of the United States, all national forest lands acquired through purchase, exchange, donation, or other means; the national grasslands and land use projects administered under Title III of the Bankhead-Jones Farm Tenant Act (50 Stat. 525, 7 USC 1010-1012); and other lands, waters, or interests therein administered by the Forest Service or are designated for administration through the Forest Service as part of the system.

National Forest System road – A road wholly or partly within or adjacent to and serving the National Forest System that the Forest Service determines is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources. A forest road other than a road which has been authorized by a legally documented right-of-way held by a state, county, or other local public road authority (36 CFR § 212.1).

National Forest System trail – A trail wholly or partly within or adjacent to and serving the National Forest System that the Forest Service determines is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources. A forest trail other than a trail which has been authorized by a legally documented right-of-way held by a state, county, or other local public road authority (36 CFR § 212.1).

Native species – A species which is a part of the original fauna or flora in the area in question.

Natural disturbance regime – The historic patterns (frequency and extent) of fire, insects, wind, landslides, floods, and other natural processes in an area.

Natural fire regime – The fire regime that existed prior to human facilitated interruption of frequency, extent, or severity.

Naturalized – A species or subspecies that is not native to an area, but one which has adapted to that area and has a stable or expanding population. In some cases, species move into a new area by themselves, but in most instances they are human-associated introductions.

Naturalized – A species that is not native to an area, but one which has adapted to that area and has a stable or expanding population. In some cases, species move into a new area by themselves, but in most instances they are human-associated introductions. An example of a desirable nonnative species that has become naturalized is the Rocky Mountain elk, first brought to the forests in 1913 (Forest Service et al., 1990) to replace the extinct native Merriam’s elk (Purdue et al., 2002, Thomas and Toweill, 1982). An example of an undesirable nonnative species is the crayfish which has contributed to the decline of aquatic vegetation and native species such as the threatened Chiricahua leopard frog (AZGFD, 2003).

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forests develop partnerships with interested individuals and groups to help implement the wildlife program, including wildlife survey and habitat assessment. The forests also promote public education and valuing of the wildlife resource on the forests. The latter is increasingly important with growing urbanization and forest use.

Where the need is demonstrated, seasonal road restrictions and area closures may be used to provide refuge in small and large blocks of land habitat for a wide range of species.

Related Plan Content for Wildlife and Rare Plants

See the following sections: [Overall Ecosystem Health](#), [All PNVTs](#), [Dispersed Recreation](#), [Developed Recreation](#), [Motorized Opportunities](#), [Nonmotorized Opportunities](#), [Livestock Grazing](#), [Minerals and Geology](#), and [Wildlife Quiet Areas](#).

Invasive Species

Background for Invasive Species

Nonnative plants (including diseases) and animals (including insects) that do, or have the potential to do, ecological or economic harm are classified as invasive species. Invasive species can be terrestrial or aquatic. On the Apache-Sitgreaves NFs, 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. For example, musk thistle and Siberian elm have spread along roadways, bull thistle has established in numerous meadows and wetlands, and tamarisk has become common along many streams and lakes. Crayfish, also common in many streams and lakes, are harming several native aquatic species.

In addition, feral and/or [stray equine](#) (e.g., horses) have become established on the forests. These unauthorized animals are impacting ecological conditions as well as management opportunities. Locations include areas within the Black River drainage, west of Big Lake, and along and north of FR 300.



Figure 7. Yellow toadflax, an invasive species on the Apache-Sitgreaves NFs
© Photo courtesy of Michael Shepherd, USDA Forest Service, Bugwood.org

Management of invasive species is an increasing need across all PNVTs on the Apache-Sitgreaves NFs. There is an array of tools (chemical, biological, mechanical, and cultural) to help managers control or eradicate these species. To address terrestrial invasive plants, managers have implemented an integrated forestwide noxious or invasive weed management program. Even though complete eradication of invasive species is not always possible, aggressive treatment of existing populations, along with prevention of new infestations or populations, is important to protect native ecosystem diversity.

Wild Horse Territory

Background for Wild Horse Territory

This management area contains most of the Heber Wild Horse Territory, approximately 19,700 acres¹ on the Black Mesa Ranger District. The territory was established in 1973 pursuant to the Wild Free-Roaming Horse and Burro Act of 1971 as amended with the purpose of providing use by and for the protection of wild horses. The Heber Wild Horse Territory is considered a special area by the Forest Service. The Forest Service entered into a Stipulation Agreement filed on March 2, 2007, agreeing that wild horses are by law an integral part and component of the natural system of the public lands, as expressed by Congress. Under the Stipulation Agreement, the Forest Service agreed to "refrain from any gathering or removing of horses within the Heber Wild Horse Territory, as well as, on the Black Mesa and Lakeside Ranger Districts (which are considered the Sitgreaves National Forest) until the Forest Service completes, with public involvement, an analysis and appropriate environmental document pursuant to NEPA and develops a written Heber Wild Horse Territory Management Strategy."

This management area contains most of the Heber Wild Horse Territory, approximately 19,700 acres,¹ on the Black Mesa Ranger District. The territory was established in 1973 under the Wild Free Roaming Horse and Burro Act of 1971 (Public Law 92-195) with the purpose of providing use by and for the protection of wild horses. The Heber Wild Horse Territory is considered a special area by the Forest Service. It is thought that the originally designated Heber wild horse herd is extirpated from the territory. Records from 1992 indicate that only two mares were known to exist within the territory. Currently (2014), there are bands of free-ranging stray and/or [feral equine](#) (e.g., horses) both inside and outside the territory.

Desired Conditions for Wild Horse Territory

- Grazing is in balance with available forage (i.e., grazing and browsing by authorized livestock, wild horses, and wildlife do not exceed established use levels).
- Horse numbers within the territory are aligned with the appropriate management level² as described in the "Heber Wild Horse Territory Management Plan."
- The Wild Horse Territory Management Area contains landscapes that vary from moderately altered where human activities are evident (low scenic integrity) to natural appearing where human activities do not stand out (high scenic integrity).
- Recreation opportunities range from semiprimitive nonmotorized to roaded natural.

¹ Approximately 939 acres of the Heber Wild Horse Territory overlap the adjacent Community-Forest Intermix Management Area.

² The Interior Board of Land Appeals (IBLA) has defined the appropriate management level as the "optimum" number of wild horses (or burros) which results in a thriving natural ecological balance and avoids a deterioration of the range. (109 IBLA 119; also reference Dahl vs. Clark, supra at 592). It is usually expressed as a range of numbers. From http://www.blm.gov/nv/st/en/prog/wh_b/appropriate_management.html

Guidelines for Wild Horse Territory

- When wild horse populations exceed the appropriate management level, horses should be removed in accordance with the “Heber Wild Horse Territory Management Plan” (when completed).

Management Approaches for Wild Horse Territory

The Forest Service will administer wild horses in the Heber Wild Horse Territory in accordance with applicable laws and regulations, including but not limited to 36 CFR Part 222, Subpart D. The Forest Service will work with the public to develop a Heber Wild Horse Territory Management Plan to direct specific management actions for the Heber Wild Horse Territory. Based on site-specific analysis, the management plan will determine an appropriate management level. As directed in the regulations at 36 CFR 222. 61(a)(1), the goal is to maintain a thriving ecological balance within the territory. Management actions may be needed both inside and outside of the territory to meet desired conditions.

The forests work in cooperation with the Arizona Game and Fish Department (AZGFD), Arizona Department of Agriculture, White Mountain and San Carlos Apache Tribes, livestock permittees, Bureau of Indian Affairs (BIA), neighboring landowners, and partners to keep grazing use in balance with available forage. Development of the Heber Wild Horse Territory Management Plan will take into consideration whether a wild horse herd, as defined by Public Law 92-95, currently exists inside and/or outside the Heber Wild Horse Territory. In addition, based on site-specific analysis, the management plan will determine whether the territory has sufficient suitable habitat and essential habitat components to sustain a free-roaming wild horse herd, an appropriate management level expressed as a high and low range, and population growth suppression techniques that may be implemented if wild horse populations exceed the management level. The focus is to maintain wild horse populations in a thriving ecological balance within the territory at the appropriate management level. Management actions may be needed both inside and outside of the territory to meet desired conditions.

Related Plan Content for Wild Horse Territory

See the following sections: [Soils](#), [All PNVTs](#), [Riparian Areas](#), [Forests: Ponderosa Pine](#), [Forests: Dry Mixed Conifer](#), [Wildlife and Rare Plants](#), [Invasive Species](#), [Developed Recreation](#), [Livestock Grazing](#), and [Community-Forest Intermix](#).

Wildlife Quiet Area

Background for Wildlife Quiet Area

Wildlife quiet areas (WQAs) were first identified in the 1980s by the Apache-Sitgreaves NFs in cooperation with the AZGFD to provide relatively undisturbed habitat where big game and other wildlife could reside without disturbance from motorized vehicle use. Other reasons they were set aside include the need to address road-related erosion, provide for more effective use of the habitat, and provide the nonmotorized hunter a high quality hunt opportunity without motorized impacts. These areas are recognized as key wildlife habitats. WQAs may also provide relatively undisturbed habitat and wildlife populations for research purposes.

Desired Conditions for Wildlife Quiet Area

- WQAs provide blocks of core habitat to meet wildlife life stage requirements during the breeding, rearing, and, in some cases, the critical wintering period.
- WQAs contribute to preserving natural behaviors and processes that sustain wildlife populations associated with each WQA (see below).
- WQAs provide for wide ranging predators and big game species, are large enough for a range of species, and provide for population and genetic exchange.
- WQAs lack disturbance from motorized vehicles, resulting in less stress to wildlife.
- WQAs provide undisturbed, nonmotorized hunting opportunities.
- WQAs provide semiprimitive nonmotorized recreation opportunities, including relatively quiet recreation opportunities close to or adjacent to intensively used areas.
- 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).
- 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.
- Bear Springs and Cottonwood Seep WQAs provide quality travel, hiding, and thermal cover along the Mogollon Rim (Black Mesa and Lakeside Ranger Districts) for a wide variety of species ranging from turkeys to mountain lions. The WQAs provide an abundance of browse species important for deer and elk.

Chapter 4. Suitability

Introduction to Suitability

The Apache-Sitgreaves NFs are suitable, or appropriate, for a variety of uses. The broad use categories on the following pages are not intended to be all inclusive. Other uses, projects, or activities may be proposed during the life of the plan. Acquired lands are evaluated for suitability (chapter 4) prior to being allocated to appropriate uses.

An identification of an area as suitable for a particular use does not mean that the use will occur over the entire area. Likewise, identifying that a particular use is not suitable in a management area does not mean that the use will not occur in specific areas. The identification of an area as suitable for various uses is guidance for project and activity decision-making and is not a resource commitment or final decision approving projects and activities. Final decisions on resource commitments are made at the project level. The final decision to authorize livestock grazing would be made at a project (allotment) level.

Forestwide suitability calculations (acres suitable versus not suitable) can be found in appendix B of the Apache-Sitgreaves NFs “Programmatic Environmental Impact Statement for the Land Management Plan” (Forest Service, 2012a). Specifics about suitability of areas are analyzed at the project or activity level and are subject to laws, regulations, and plan guidance. Areas that are not suitable are those where a use is not compatible with desired conditions. However, this does not mean that the use cannot occur. Conversely, areas identified as suitable, when analyzed at the project or activity level, may not be able to support that use¹.

The suitability determinations (plan decisions) are summarized below and displayed in tables 6 through 11. The information outside of these tables is not a plan decision but is provided for background. Plan decisions and other content for forestwide direction (chapter 2) and management areas (chapter 3) should also be consulted.

Livestock Grazing Suitability

Livestock grazing is defined as foraging by permitted livestock, including cattle, horses, and sheep. Provisions of the 1982 Planning Rule require that the capability and suitability for producing forage for grazing animals on National Forest System (NFS) lands be determined.

Capability is the potential of an area of land to produce resources and supply goods and services. Capability depends upon current conditions and site conditions such as climate variability, slope, landform, soils, and geology. Capability was determined in the 1980s during the first round of forest planning by compiling data from the most recent individual grazing allotment analyses. Landscape scale conditions have not changed significantly since this evaluation.

Suitability is the appropriateness of applying certain resource management practices to a particular area of land, in consideration of relevant social, economic, and ecological factors. Suitable rangeland is determined based on compatibility with desired conditions and objectives in the plan area. Lands within the plan area are not identified as suitable for a certain use if that use is prohibited by law, regulation, or policy; would result in substantial and permanent impairment of the productivity of the land or renewable resources; or if the use is incompatible with the desired conditions for the relevant portion of the plan area. A unit of land may be suitable for a variety of individual or combined management practices. Table 6 identifies areas as suitable or not suitable for livestock grazing.

¹ As a result of site-specific analysis if plan suitability needs adjustment, it can be accomplished through a plan amendment.

Feral *animalequine* – A "... animals, including horses, ~~and~~ burros, **cattle, swine, sheep, goats, reindeer, dogs, and cats**, without ownership; that have reverted to the wild from a domestic state ..." (50 CFR 30.11). Feral horses and burros are animals that do not meet the definition of a wild free-roaming horse in accordance with 36 CFR 222.~~6020~~(b)(13).

Fire intensity – The product of the available heat of combustion per unit of ground and the rate of spread of the fire, interpreted as the heat released per unit of time for each unit length of fire edge. The primary unit is British thermal unit per second per foot (Btu/sec/ft.) of fire front. See also fire severity.

Fire regime – The patterns, frequency, and severity of fire that occur over a long period of time across a landscape and its immediate effects on the ecosystem in which it occurs. There are five fire regimes which are classified based on frequency (average number of years between fires) and severity (amount of replacement of the dominant overstory vegetation) of the fire.

- **Fire regime I** – 0 to 35-year frequency and low (surface fires most common) to mixed severity (less than 75 percent of dominant overstory vegetation replaced)
- **Fire regime II** – 0 to 35-year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced)
- **Fire regime III** – 35 to 100+ year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced)
- **Fire regime IV** – 35 to 100+ year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced)
- **Fire regime V** – 200+ year frequency and high (stand replacement) severity.

Fire risk – The chance of fire starting, as determined by the presence and activity of causative agents.

Fire severity – Degree to which a site has been altered or disrupted by fire; also used to describe the product of fire intensity and residence time; usually defined by the degree of soil heating or mortality of vegetation.

Fireline – The part of a containment or control line that is scraped or dug to mineral soil.

Fire management plan – A plan that identifies and integrates all wildland fire management and related activities within the context of approved land management plans. It defines a program to manage wildland fires (wildfire and prescribed fire). The plan is supplemented by operational plans, including but not limited to, preparedness plans, preplanned dispatch plans, prescribed fire burn plans, and prevention plans. Fire management plans assure that wildland fire management goals and components are coordinated.

Free-flowing – Existing or flowing in natural conditions without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway.

Fugitive dust – Fine particulate matter from windblown soil and dust which becomes airborne.

Firewood – Wood grown or used for fuel.

Functioning ecosystem – An ecosystem that contains all components and processes necessary to maintain resilience over time.

Soil and water conservation practices – Set of practices, which when applied during implementation of a project, protects soil and water quality to the level required by beneficial uses. These lead to the formation of site-specific BMPs during project planning.

Soil condition rating – A qualitative rating developed within the Southwestern Region of the Forest Service that provides an overall picture of soil condition vital in sustaining ecosystems. It is based on three soil functions: the ability of soil to resist erosion, infiltrate water, and recycle nutrients. There are four soil condition ratings:

- **Satisfactory** – soil function is being sustained and soil is functioning properly and normally.
- **Impaired** – the ability of the soil to function properly and normally has been reduced or there exists an increased vulnerability to degradation.
- **Unsatisfactory** – degradation of vital soil functions result in the inability of the soil to maintain resource values, sustain outputs, or recover from impacts.
- **Inherently unstable** – these soils are eroding faster than they are renewing themselves.

Soil productivity – The inherent capacity of the soil to support appropriate site-specific biological resource management objectives, which includes the growth of specified plants, plant communities, or a sequence of plant communities to support multiple land uses.

Special use authorization – A permit, term permit, temporary permit, lease, easement, or other written instrument that grants rights or privileges of occupancy and use subject to specified terms and conditions on National Forest System land.

Species diversity – Abundance of different species (both plant and animal) on the Apache-Sitgreaves NFs and adjoining lands; species richness. NFMA requires that land management plans provide for diversity of plant and animal communities.

Springs and seeps - Springs and seeps are groundwater-dependent ecosystems where groundwater discharges at the ground surface, often through complex subsurface flow paths (Stevens and Meretsky, 2008).

Stand – A contiguous group of trees generally uniform in age class distribution, composition, condition, and structure, and growing on a site of generally uniform quality, to be a distinguishable unit, such as mixed, pure, even-aged, and uneven-aged stands. A stand is the fundamental unit of silviculture reporting and record keeping.

Stray animal - equine – Equine

- " . . . livestock, **bison or ratites** whose owner is unknown or cannot be located, or any such animals whose owner is known but permits the animal to roam at large on **the streets, alleys, roads, range, or premises of another without permission.**" ~~This section does not apply to livestock where the principles of a federal permit, federal allotment or federal lease are in dispute [adapted from (Arizona Revised Statute:, Title 3—Agriculture (Ownership, Control and Regulation of Livestock), Chapter 11, Article 7, 3-1401) (Definitions)]~~.
- **Stray horses and burros are animals that do not meet the definition of a wild free-roaming horse in accordance with 16 USC 1332(b), 36 CFR 222.60(b)(13), and 36 CFR 222.63.**

Structure – Structure includes both the vertical and horizontal dimensions of a vegetation type or plant community. The horizontal structure refers to spatial patterns of individual and groups of plants and openings, as well as plant size and species composition. The vertical component refers to the layers of vegetation between the forest floor and the top of the canopy. Each vegetation

Values to be protected (values at risk) - Includes property; structures; physical improvements; natural and culture resources; community infrastructure; and economic, environmental, and social values.

Vigor – Relates to the relative robustness of a plant in comparison to other individuals of the same species. It is reflected primarily by the size of a plant (i.e., height, weight) and its parts in relation to its age and the environment in which it is growing.

Wild and scenic rivers – These rivers are free-flowing and have at least one outstandingly remarkable value. Eligible and suitable rivers are given a tentative classification of wild, scenic, or recreational. These rivers may be included in the National Wild and Scenic Rivers System.

- **Wild** – Those rivers or segments of rivers free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive, and waters unpolluted. These represent vestiges of primitive America.
- **Scenic** – Those rivers or segments of rivers free of impoundments, with shorelines or watersheds still largely primitive, and shorelines largely undeveloped but accessible in places by roads.
- **Recreational** – Those rivers or segments of rivers readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Wild free-roaming horses and burros --

- " . . . all unbranded and unclaimed horses and burros on public lands of the United States." (16 USC 1332(b)).
- "Wild free-roaming horses and burros mean all unbranded and unclaimed horses and burros and their progeny that have used lands of the National Forest System on or after December 15, 1971, or do hereafter use these lands as all or part of their habitat, but does not include any horse or burro introduced onto the National Forest System on or after December 15, 1971, by accident, negligence, or willful disregard of private ownership. Unbranded, claimed horses and burros for which the claim is found to be erroneous, are also considered as wild and free-roaming if they meet the criteria above." (36 CFR 222.60(b)(13))
- "Horses and burros not within the definition in § 222.20(b)(13) [recodified as 36 CFR § 222.60(b)(13)] which are introduced onto Wild Horse and Burro Territories or ranges after December 15, 1971, by accident, negligence, or willful disregard of private ownership, and which do not become intermingled with wild free-roaming horses or burros shall be considered as unauthorized livestock and treated in accordance with provisions in 36 CFR 261.7 and 262.10." (36 CFR 222.63)

Wild horse (wild free-roaming horse)—All unbranded and unclaimed horses and their progeny using National Forest System lands on or after December 15, 1971. This definition does not include any horse introduced onto National Forest System lands on or after December 15, 1971, by accident, negligence, or willful disregard of private ownership. Animals that stray from other lands onto National Forest System lands are not considered wild free-roaming horses and are not under Forest Service protection. No known records or documentation exists that the Apache NF had any unbranded and unclaimed horses prior to December 15, 1971. See 36 CFR § 220 and FSM 2260 for more information.

Wild Horse and Burro Territory – " . . . lands of the National Forest System which are identified by the Chief, Forest Service, as lands which were territorial habitat of wild free-roaming horses and/or burros at the time of the passage of the Act." (36 CFR 222.60(b)(15))

Wildfire – Unplanned ignition of a wildland fire (e.g., fires caused by lightning or unauthorized and accidental human-caused fires) and escaped prescribed fires. See unplanned ignition.

Wildfire hazard – A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree or ease of ignition and of resistance to control.

Wildland – An area in which development is essentially nonexistent, except for roads, railroads, power lines, and similar transportation facilities. Structures, if any, are widely scattered.

Wildling – A native plant growing uncultivated in the wild: specifically, the collection or transplant of such whole live plants.

Wildland fire – A general term describing any non-structure fire that occurs in the vegetation and/or natural fuels. The two types of wildland fire are wildfires and prescribed fires. Other terms such as "fire-use fires," "resource benefit fires," or "suppression fires" are not used in this plan.

Wildland-urban interface (WUI) – Wildland-urban interface includes those areas of resident populations at imminent risk from wildfire, and human developments having special significance. These areas may include critical communications sites, municipal watersheds, high voltage transmission lines, church camps, scout camps, research facilities, and other structures that, if destroyed by fire, would result in hardship to communities. These areas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites, regardless of the distance involved. (FSM 5140.5, Southwestern Region supplement).

Windthrow – Trees susceptible to wind damage (e.g., uprooting, toppling, bole breakage).

Woody biomass – The trees and woody plants, including limbs, tops, needles, leaves, and other woody parts, grown in a forest, woodland, or grassland environment, that are the byproducts of forest management used to produce bioenergy and the full range of bio-based products.

Section 3: Changes to the plan to correct errors and inaccuracies as provided for by 36 CFR 219.13(c).

Desired Conditions for Forest Products

- The Apache-Sitgreaves NFs provide a sustainable supply of forest products (e.g., small roundwood, sawlogs, biomass, firewood, cones, Christmas trees, **wildlings**) to businesses and individuals within the capability of the land.
- The collection of live plants, mushrooms, and other forest products does not impact species persistence onsite.

Objectives for Forest Products

- Annually, prepare and offer up to an average of 122,000 CCF²⁹ from [suitable timberlands](#) resulting from sustainable harvest to provide wood products to businesses and individuals.
- Annually, provide up to 94,000 CCF (119,380 cords³⁰) of firewood for personal and commercial use.
- Annually, provide an average of 5,000 permits for Christmas trees.

Standards for Forest Products

- Authorizations to cut, collect, or use forest products for any personal, commercial, or scientific purpose (i.e., permits, contracts, agreements) shall include provisions to ensure the needs of wildlife, which depend upon those forest products, will continue to be met (e.g., fungi and cone collection with respect to overwinter forage needs of squirrels).

Guidelines for Forest Products

- Permits issued for forest products should include stipulations to protect resources.

Management Approaches for Forest Products

Wood products are a secondary benefit of treatments that are intended to restore the forests' ecological composition, structure, and function to a healthier, resilient condition. Timber production and [tree cutting](#) are used to help achieve vegetation desired conditions, as well as contribute to the local and regional economy. Uneven-aged silvicultural systems are emphasized and even-aged systems are used where appropriate. Tree cutting on lands not suitable for timber production may occur for such purposes as restoration, salvage, fuels management, insect and disease mitigation, protection or enhancement of biological diversity or wildlife habitat, research or administrative studies, or recreation consistent with other management direction.

A variety of partnerships and authorities are used for making forest products available to forest users (e.g., procurement contracts, stewardship contracts, forest products permits). The forests also use the Tribal Forest Protection Act to collaboratively work with adjacent tribal governments

²⁹ CCF = 100 cubic feet

³⁰ 1 CCF = 1.27 cords

within the planning area. FMPs and their associated programs and activities support the implementation of land management plans. FMPs are designed to adapt to changing conditions.

The Apache-Sitgreaves NFs' FMP provides for firefighter and public safety first; includes fire management strategies, tactics, and alternatives; and addresses [values to be protected](#) and public health issues. The FMP helps guide fire managers in wildland fire decisionmaking. ~~It provides information organized by fire management units (FMUs) based on specific vegetation, fuels conditions, and management emphases.~~

When appropriate weather and fuel moisture conditions exist, use of wildland fire is a cost-effective way to reduce the likelihood of uncharacteristic fire. The risk of uncharacteristic fire can be reduced when fires occur within historic fire regimes.

To achieve ecosystems that are resilient to fire disturbance, vegetation structure needs to be more consistent with desired conditions. In addition to fire treatments, activities such as thinning and tree harvesting are needed to reduce tree density and canopy cover and support the natural fire regime. Strategic placement and design of these treatments is key to minimizing the impact from fire on values to be protected more efficiently because these activities are costly and there is limited capacity to implement them.

Desired Conditions for Wildland Fire Management

- Human life, property, and natural and cultural resource are protected within and adjacent to NFS lands.
- Wildland fires burn within the range of frequency and intensity of natural fire regimes. Uncharacteristic high severity fires rarely occur and do not burn at the landscape scale.
- Wildland fire maintains and enhances resources and functions in its natural ecological role.
- For all PNVTs, the composition, cover, structure, and mosaic of vegetative conditions reduce uncharacteristic wildfire hazard to local communities and forest ecosystems.

Guidelines for Wildland Fire Management

- Wildland fire may be used to meet PNVT desired conditions and enable natural fire regimes.
- Human-induced impacts (e.g., smoke production, suppression actions) to natural processes, resources, or infrastructure attributable to wildland fire activities should be managed towards achieving objectives as identified in the applicable decision document.
- Resources and infrastructure (e.g., fences, roads, stock tanks) that are lost or damaged by prescribed fire, use of wildland fire, or any suppression activities should be stabilized and rehabilitated.
- [Firelines](#), helispots, and fire camps should be located to avoid disturbance to critical species and impacts to cultural resources.

Feral equine – Animals, including horses and burros, without ownership, that have reverted to the wild from a domestic state (50 CFR 30). Feral horses and burros are animals that do not meet the definition of a wild free-roaming horse in accordance with 36 CFR 222.20(b).

Fire intensity – The product of the available heat of combustion per unit of ground and the rate of spread of the fire, interpreted as the heat released per unit of time for each unit length of fire edge. The primary unit is British thermal unit per second per foot (Btu/sec/ft.) of fire front. See also fire severity.

Fire regime – The patterns, frequency, and severity of fire that occur over a long period of time across a landscape and its immediate effects on the ecosystem in which it occurs. There are five fire regimes which are classified based on frequency (average number of years between fires) and severity (amount of replacement of the dominant overstory vegetation) of the fire.

- **Fire regime I** – 0 to 35-year frequency and low (surface fires most common) to mixed severity (less than 75 percent of dominant overstory vegetation replaced)
- **Fire regime II** – 0 to 35-year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced)
- **Fire regime III** – 35 to 100+ year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced)
- **Fire regime IV** – 35 to 100+ year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced)
- **Fire regime V** – 200+ year frequency and high (stand replacement) severity.

Fire risk – The chance of fire starting, as determined by the presence and activity of causative agents.

Fire severity – Degree to which a site has been altered or disrupted by fire; also used to describe the product of fire intensity and residence time; usually defined by the degree of soil heating or mortality of vegetation.

Fireline – The part of a containment or control line that is scraped or dug to mineral soil.

Fire management plan – A plan that identifies and integrates all wildland fire management and related activities within the context of approved land management plans. It defines a program to manage wildland fires (wildfire and prescribed fire). The plan is supplemented by operational plans, including but not limited to, preparedness plans, preplanned dispatch plans, prescribed fire burn plans, and prevention plans. Fire management plans assure that wildland fire management goals and components are coordinated.

Free-flowing – Existing or flowing in natural conditions without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway.

Fugitive dust – Fine particulate matter from windblown soil and dust which becomes airborne.

Firewood – Wood grown or used for fuel.

Functioning ecosystem – An ecosystem that contains all components and processes necessary to maintain resilience over time

Values to be protected (values at risk) - Includes property; structures; physical improvements; natural and culture resources; community infrastructure; and economic, environmental, and social values.

Vigor – Relates to the relative robustness of a plant in comparison to other individuals of the same species. It is reflected primarily by the size of a plant (i.e., height, weight) and its parts in relation to its age and the environment in which it is growing.

Wild and scenic rivers – These rivers are free-flowing and have at least one outstandingly remarkable value. Eligible and suitable rivers are given a tentative classification of wild, scenic, or recreational. These rivers may be included in the National Wild and Scenic Rivers System.

- **Wild** – Those rivers or segments of rivers free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive, and waters unpolluted. These represent vestiges of primitive America.
- **Scenic** – Those rivers or segments of rivers free of impoundments, with shorelines or watersheds still largely primitive, and shorelines largely undeveloped but accessible in places by roads.
- **Recreational** – Those rivers or segments of rivers readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Wild horse (wild free-roaming horse) – All unbranded and unclaimed horses and their progeny using National Forest System lands on or after December 15, 1971. This definition does not include any horse introduced onto National Forest System lands on or after December 15, 1971, by accident, negligence, or willful disregard of private ownership. Animals that stray from other lands onto National Forest System lands are not considered wild free-roaming horses and are not under Forest Service protection. No known records or documentation exists that the Apache NF had any unbranded and unclaimed horses prior to December 15, 1971. See 36 CFR § 220 and FSM 2260 for more information.

Wildfire – Unplanned ignition of a wildland fire (e.g., fires caused by lightning or unauthorized and accidental human-caused fires) and escaped prescribed fires. See unplanned ignition.

Wildfire hazard – A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree or ease of ignition and of resistance to control.

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transmission lines, church camps, scout camps, research facilities, and other structures that, if destroyed by fire, would result in hardship to communities. These areas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites, regardless of the distance involved. (FSM 5140.5, Southwestern Region supplement).

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Livestock Grazing

- FSH 2209.13 Grazing Permit Administration Handbook, Southwestern Region Supplement
- Forest Service, Southwestern Region, Rangeland Analysis and Management Training Guide (2013)
- Bureau of Land Management, Measuring and Monitoring Plant Populations (Technical Reference 1730-1, 1998)
- Arizona Grazing Lands Association, Guide to Rangeland Monitoring and Assessment, (2012)

Minerals and Geology

- FSM 2356 Cave Management
- Memorandum of Understanding between the National Speleological Society and the Forest Service Cave and Karst Management
- 36 CFR § 228, Subpart A – Locatable Minerals
- 36 CFR Part 290 Cave Resources Management
- Central Arizona Grotto. 2013. **Recommendations for Apache-Sitgreaves National Forest Cave and Karst Management** Arizona National Forest Cave and Karst Management Plan. http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd511748.pdf
<https://docs.google.com/file/d/0B6ltDV4wi2eQbWFrNkxZd25DafE/edit>

Special Uses

- FSH 2709.11 Special Uses Handbook, Chapter 40 – Special Uses Administration
- FSH 2709.11 Special Uses Handbook, Chapter 50 – Standard Forms and Supplemental Clauses (Section: Policy) FSH 2709.11 Special Uses Handbook, Southwestern Region Supplement, Chapter 50 – Terms and Conditions

Water Uses

- Forest Service, Technical Guide to Managing Groundwater Resources Part 2 (Section: Overview of National Groundwater Policy) (FS-881)
- Forest Service, Groundwater-Dependent Ecosystems: Level II Inventory Field Guide (General Technical Report WO-86b)

Wildland Fire Management

- FSM 5142.1 Developing Prescribed Fire Burn Plans
- Forest Service, Southwestern Region, Minimum Impact Suppression Tactics
- Interagency Prescribed Fire Planning and Implementation Procedures Guide (Section: Prescribed Fire Planning Process)
- Interagency Standards for Fire and Aviation Operations (Red Book), Forest Service Wildland Fire and Aviation Program Organization and Responsibilities
- Interagency Guidance for Implementation of Federal Wildland Fire Management Policy (February 13, 2009)
- Annual Interagency Guidance for Preventing Spread of Aquatic Invasive Organisms Common to the Southwestern Region (Section: Technical Guidelines for Fire Operations)

Index [The entire index is replaced due to systematic errors in page references.]

- air resources, 18–20
 - air quality, 18, 114, 142, 149
 - airshed, 142, 150
- American Indian, 12, 89–92, 92–94, 100, 135, 139
- aquatic habitat, 18, 22–24, 25–27, 76, 143
- aquatic management zones, 24
- Arizona State agencies
 - Arizona Department of Agriculture, 118
 - Arizona Department of Environmental Quality (ADEQ), 19, 142, 161
 - Arizona Department of Transportation (ADOT), 64, 67, 72, 77, 99, 103
 - Arizona Department of Water Resources (ADWR), 103
 - Arizona Game and Fish Department (AZGFD), 27, 36, 52, 64, 67, 98, 118, 119
- aspen, 27–31, 43, 45, 48, 49–52, 57, 85, 97, 124, 126, 143, 149
- Bear Wallow Wilderness, 83, 126, 127, 130
- Blue Range Primitive Area, 71, 128–30
- caves, 99, 100
- climate change (also called climate variability), 16, 25, 28, 29, 51, 86, 124
- coarse woody debris, 21, 28, 29, 34, 41, 43, 46, 47, 48, 49, 50, 52, 54, 56, 114, 117, 151
- communication sites, 101–3, 134, 136, 151
- conservation education, 65, 67, 77, 79, 80, 87–88, 90, 105, 120, 145
- cultural resources, 16, 70, 76, 89–92, 97, 98, 99
 - sacred site, 76, 78, 90, 93, 100, 135, 139
 - Traditional Cultural Property (TCP), 90, 93, 94, 100, 169
- dry mixed conifer, 27–31, 42–45, 46, 51, 113
- endangered species. *See* federally listed species
- Endangered Species Act (ESA), 61, 152
- energy corridor, 94, 101–3, 116–17, 134, 154
- energy development, 101–3, 134, 161
- Escudilla Wilderness, 80, 83, 126, 127, 130
- Federal agencies
 - Bureau of Land Management (BLM), 89, 118, 157
 - Federal Highway Administration (FHA), 77, 79
 - Natural Resource Conservation Service (NRCS), 67
- Federal agencies
 - Fish and Wildlife Service (USFWS), 36
- federally listed species, 17, 27, 60–65, 143, 152, 154
- fire management, 39, 112, 127, 130
 - community wildfire protection plan, 31, 112, 114, 144, 151
 - fire behavior, 28
 - fire regime, 17, 18, 28, 30, 37, 39, 40, 41, 43, 44, 45, 46, 47, 48, 49, 50, 53, 54, 55, 56, 58, 59, 60, 66, 113, 135, 155
 - planned ignition (also called prescribed fire), 18, 35, 39, 114, 128, 131, 161
 - unplanned ignition (also called wildfire), 18, 33, 38, 113, 114, 169
- forest health, 39, 143
- even-aged management, 38, 39, 95, 154
- restoration, 16, 30, 36, 52, 59, 120, 121, 122, 143, 153
- uneven-aged management, 38, 39, 95, 169
- forest product, 12, 29, 36, 37, 39, 93, 94–96, 103, 112, 135–37, 145, 169
 - biomass, 94–96, 136, 145, 171
 - Christmas tree, 94–96, 145
 - fuelwood, 94–96, 95, 135, 136, 145, 155
 - timber, 8, 94–96, 112, 124, 135–37, 144, 168
- Fort Apache Indian Reservation. *See* White Mountain Apache Tribe
- grasslands, 56–59, 85, 113, 136, 143
 - Great Basin, 27–31, 40, 55, 56–59, 57
 - montane/subalpine, 11, 27–31, 40, 56–59
 - semi-desert, 27–31, 53, 56–59, 124
- grazing. *See* livestock grazing
- Hydrologic Unit Code (HUC). *See* watershed
- interior chaparral, 27–31, 56, 59–60, 136
- invasive species, 16, 25, 59, 65–67, 77, 101, 103, 115, 117, 122, 124, 143, 144, 157, 189
- Inventoried Roadless Areas (IRAs), 70, 121
- lands, 88–89
- livestock grazing, 22, 23, 36, 86, 96–98, 122, 124, 126, 128, 133–34, 151, 158
- Madrean pine-oak, 27–31, 52–53, 53–54, 56, 59
- Management Areas, 133–34, 134–35, 135–37, 137–39, 67
 - Community-Forest Intermix, 38, 102, 111, 112–15, 117
 - Energy Corridor, 111, 116–17
 - General Forest, 102, 111, 112
 - High Use Developed Recreation Area, 111, 115–16
 - Natural Landscape, 83, 111, 121–22, 129
 - Primitive Area, 83, 100, 102, 111, 128–30
 - Recommended Research Natural Area, 111, 123–25
 - Recommended Wilderness, 102, 111, 130–31
 - Research Natural Area, 111, 122–25
 - Wild Horse Territory, 100, 111, 118–19
 - Wilderness, 100, 102, 111, 126–28
 - Wildlife Quiet Area, 102, 111, 119–20
- mechanized travel, 81, 126, 139, 158
- minerals and geology, 36, 93, 98–101, 129, 151, 157, 158, 166
- mining, 94, 98–101, 128, 158
- Mogollon Rim, 11, 12, 56, 80, 85, 129
- motorized opportunities, 71–73, 75–77, 84, 100, 115, 116, 121, 126, 137–39, 159
- Mount Baldy Wilderness, 18, 19, 83, 122, 123, 124, 126, 127, 142
- National Environmental Policy Act (NEPA), 124, 130, 142, 143, 145

- National Forest Management Act (NFMA), 1, 5, 135
- National recreation trail, 7, 80–81, 81, 126
- non-motorized opportunities, 71–73, 78–79, 81, 84, 112, 116, 118, 119–20, 121, 123, 125, 126–28, 128–30, 129, 130–31, 131, 67, 160
- off-highway vehicles (OHVs), 12, 69, 75–77, 94, 137–39, 144
- old growth, 29, 38, 54, 124, 160
- Phelps Cabin Botanical Area, 102, 122, 124, 125
- Phelps Cabin Research Natural Area, 102, 122
- piñon-juniper, 27–31, 43, 52–53, 55–56, 57, 113
- plan consistency, 5
- plan decisions, 5–8, 141
- ponderosa pine, 11, 27–31, 40–42, 43, 45, 50, 51, 80, 113
- rare plants, 16, 60–65
- recreational opportunities, 22, 69–71, 75–77, 86, 89, 104, 112, 113, 119, 123, 137–39, 67, 144
 - developed recreation, 12, 67, 70, 73, 79, 115–16, 136, 152
 - dispersed recreation, 12, 70, 71–73, 120, 152
 - winter recreation, 12, 69, 72, 120, 140
- research natural area, 7, 99, 100, 122–25, 123–25, 164
- revision topics, 3
- riparian, 11, 22–24, 25–27, 27–31, 31–36, 89, 97, 98, 104, 113, 117, 124, 136, 142, 164
- roads and trails, 23, 24, 27, 65, 75–77, 78–79, 81, 86, 98, 99, 103, 112, 115, 117, 119, 121, 123, 126, 127, 129, 137–39, 144, 168
 - motor vehicle use map (MVUM), 137
 - motor vehicle use map (MVUM), 77
 - National Forest System roads and trails, 35, 75, 138, 159
 - unauthorized roads and trails, 21, 35, 59, 75, 127, 169
- Rodeo-Chediski Fire, 16, 106
- scale, 15, 28, 165
- scenic byway, 7, 12, 77, 79–80, 115
- scenic resources, 58, 73, 77, 79–80, 81, 84–86, 99, 101, 104, 112, 113, 117, 118, 121, 123, 125, 127, 129, 130, 144, 165
- sensitive species, 125, 143
- soil resources, 18, 20–22, 22–24, 27–31, 34, 136, 142, 167
- special uses, 101–3, 134–35
- spruce-fir, 27–31, 47–49, 51, 113, 120, 124
- Terrestrial Ecosystem Survey (TES), 31, 53, 168
- timber production. *See* forest product
- Travel Management Rule, 77
- uneven-aged management. *See* forest health
- Wallow Fire, 5, 16, 20, 40, 43, 45, 48, 106
- water resources, 22–24, 82–84
 - water rights, 22, 23, 22–24, 105, 149, 154
 - water uses, 102, 103–5, 22–24
- watershed, 17, 22–24, 25–27, 112, 142, 157
 - Hydrologic Unit Code (HUC) watershed, 15, 17, 21, 26, 31, 39, 105, 112, 157, 162, 165
- wet mixed conifer, 27–31, 45–47, 51, 113, 124
- White Mountain Apache Tribe, 93
 - Fort Apache Indian Reservation, 126
- White Mountains, 1, 12, 86
- wild and scenic river, 12, 82–84, 100, 102, 125, 136, 170
- wilderness. *See* Management Areas
- wildland-urban interface (WUI), 86, 112, 120, 151
- wildlife, 12, 16, 17, 22, 28, 29, 32, 39, 53, 54, 57, 60–65, 70, 72, 74, 75, 89, 95, 97, 98, 102, 104, 119–20, 119, 121, 126, 127, 129, 130
 - aquatic species, 18, 23, 25–27, 31–36, 32, 36, 67, 76, 78, 124
 - bald eagle, 63
 - connectivity, 23, 32, 62, 76, 78, 129, 151
 - fish, 12, 16, 22, 23, 25–27, 31–36, 32, 36, 75, 77, 104
 - Gunnison's prairie dog, 63, 64
 - Mexican gray wolf, 12, 61
 - Mexican spotted owl, 27, 54, 76, 120, 124, 136
 - Northern goshawk, 41, 42, 44, 47, 49, 63, 76, 120, 156

Index

- air resources, 19–20
 - air quality, 19, 119, 151, 157
 - airshed, 151, 158
- American Indian, 12, 94–97, 97–99, 105, 141, 146
- aquatic habitat, 18, 22–25, 26–28, 80, 151
- aquatic management zones, 25
- Arizona State agencies
 - Arizona Department of Agriculture, 123
 - Arizona Department of Environmental Quality (ADEQ), 20, 150, 169
 - Arizona Department of Transportation (ADOT), 67, 70, 76, 81, 104, 108
 - Arizona Department of Water Resources (ADWR), 108
 - Arizona Game and Fish Department (AZGFD), 28, 38, 55, 67, 70, 103, 123, 124
- aspen, 29–33, 45, 48, 51, 52–55, 60, 89, 102, 129, 132, 152, 157
- Bear Wallow Wilderness, 87, 131, 132, 133, 136
- Blue Range Primitive Area, 75, 134–36
- caves, 104, 105, 106
- climate change (also called climate variability), 16, 26, 30, 31, 54, 91, 129
- coarse woody debris, 22, 30, 36, 43, 46, 48, 49, 51, 52, 53, 55, 57, 59, 118, 121, 159
- communication sites, 106–9, 140, 143, 159
- conservation education, 68, 70, 81, 83, 84, 91–92, 95, 110, 125, 153
- cultural resources, 16, 74, 80, 94–97, 101, 103, 104
 - sacred site, 80, 82, 95, 97, 98, 105, 141, 146
 - Traditional Cultural Property (TCP), 95, 97, 98, 99, 105, 177
- dry mixed conifer, 29–33, 45–47, 48, 53, 117
- endangered species. *See* federally listed species
- Endangered Species Act (ESA), 64, 160
- energy corridor, 99, 106–9, 120–22, 140, 162
- energy development, 106–9, 140, 169
- Escudilla Wilderness, 85, 88, 131, 132, 133, 136
- Federal agencies
 - Bureau of Land Management (BLM), 93, 123, 166
 - Federal Highway Administration (FHA), 81, 83
 - Natural Resource Conservation Service (NRCS), 70
- Federal agencies
 - Fish and Wildlife Service (USFWS), 38
- federally listed species, 17, 28, 29, 63–68, 151, 160, 162
- fire management, 41, 116, 133, 137
 - community wildfire protection plan, 33, 117, 118, 153, 159
 - fire behavior, 30
 - fire regime, 18, 30, 31, 39, 41, 42, 43, 45, 46, 48, 49, 50, 51, 53, 56, 57, 58, 59, 61, 63, 69, 117, 142, 163
 - planned ignition (also called prescribed fire), 18, 37, 41, 119, 134, 137, 169
 - unplanned ignition (also called wildfire), 18, 35, 40, 117, 119, 178
- forest health, 42, 152
 - even aged management, 40, 41, 42, 100, 162
 - restoration, 16, 32, 38, 55, 62, 125, 126, 127, 151, 161
 - uneven aged management, 40, 42, 100, 178
- forest product, 12, 31, 38, 39, 41, 98, 99–101, 108, 116, 141–43, 153, 178
 - biomass, 99–101, 142, 153, 179
 - Christmas tree, 99–101, 153
 - fuelwood, 99–101, 100, 142, 153, 163
 - timber, 8, 99–101, 116, 129, 141–43, 152, 177
- Fort Apache Indian Reservation. *See* White Mountain Apache Tribe
- grasslands, 60–62, 89, 117, 142, 143, 151
 - Great Basin, 29–33, 42, 58, 60–62, 64
 - montane/subalpine, 11, 29–33, 42, 60–62
 - semi desert, 29–33, 56, 60–62, 130
- grazing. *See* livestock grazing
- Hydrologic Unit Code (HUC). *See* watershed
- interior chaparral, 29–33, 60, 63, 143
- invasive species, 16, 26, 63, 68–70, 81, 106, 109, 120, 122, 127, 129, 152, 165, 197
- Inventoried Roadless Areas (IRAs), 73, 126
- lands, 92–94
- livestock grazing, 23, 24, 38, 90, 101–3, 127, 129, 130, 131, 134, 139–40, 160, 166
- Madrean pine oak, 29–33, 55–56, 56–58, 60, 63
- Management Areas, 139–40, 140–41, 141–43, 143–46, 71–70
 - Community Forest Intermix, 40, 107, 115, 116–19, 121
 - Energy Corridor, 115, 120–22
 - General Forest, 107, 115, 116
 - High Use Developed Recreation Area, 115, 119–20
 - Natural Landscape, 88, 115, 126–27, 136
 - Primitive Area, 88, 105, 108, 115, 134–36
 - Recommended Research Natural Area, 115, 128–31
 - Recommended Wilderness, 108, 115, 136–37
 - Research Natural Area, 115, 127–31
 - Wild Horse Territory, 105, 115, 122–23
 - Wilderness, 105, 108, 115, 131–34
 - Wildlife Quiet Area, 108, 115, 124–25
- mechanized travel, 85, 131, 146, 166
- minerals and geology, 38, 98, 103–6, 135, 159, 166, 175
- mining, 99, 103–6, 135, 166
- Mogollon Rim, 11, 13, 60, 84, 89, 135
- motorized opportunities, 75–76, 78–81, 88, 105, 120, 121, 126, 127, 131, 143–46, 167
- Mount Baldy Wilderness, 19, 20, 87, 128, 130, 131, 133, 151
- National Environmental Policy Act (NEPA), 130, 136, 150, 152, 154

Index

- National Forest Management Act (NFMA), 1, 5, 141
National recreation trail, 7, 84–86, 85, 132
non-motorized opportunities, 75–76, 82–83, 85, 88, 116, 121, 123, 124–25, 126, 128, 131–34, 134–36, 135, 136–37, 137, 71–70, 168
off-highway vehicles (OHVs), 12, 73, 78–81, 99, 143–46, 152
old growth, 30, 40, 57, 129, 168
Phelps Cabin Botanical Area, 108, 127, 130
Phelps Cabin Research Natural Area, 108, 127
piñon juniper, 29–33, 45, 55–56, 58–59, 60, 117
plan consistency, 5
plan decisions, 5–8, 149
ponderosa pine, 11, 29–33, 42–45, 45, 48, 52, 53, 84, 117
rare plants, 16, 63–68
recreational opportunities, 23, 73–74, 78–81, 90, 93, 109, 116, 118, 124, 128, 143–46, 71–70, 152
developed recreation, 12, 70, 74, 77, 83, 119–20, 143, 160
dispersed recreation, 12, 74, 75–76, 125, 160
winter recreation, 12, 73, 75, 125, 146
research natural area, 7, 104, 105, 127–31, 128–31, 172
revision topics, 3
riparian, 11, 22–25, 26–28, 29–33, 33–38, 93, 102, 103, 109, 117, 121, 129, 143, 150, 173
roads and trails, 24, 25, 28, 68, 78–81, 82–83, 85, 90, 102, 104, 108, 116, 120, 121, 124, 127, 128, 132, 134, 135, 143–46, 153, 176
motor vehicle use map (MVUM), 144
motor vehicle use map (MVUM), 81
National Forest System roads and trails, 37, 79, 144, 167
unauthorized roads and trails, 22, 37, 62, 78, 133, 177
Rodeo-Chediski Fire, 16, 112
scale, 15, 29, 173
scenic byway, 7, 12, 81, 83–84, 119
scenic resources, 61, 77, 81, 83–84, 85, 88, 89–90, 105, 106, 109, 116, 117, 122, 123, 126, 128, 130, 133, 135, 137, 152, 173
sensitive species, 130, 151
soil resources, 18, 20–22, 22–25, 29–33, 36, 142, 150, 175
special uses, 106–9, 140–41
spruce fir, 29–33, 50–52, 54, 117, 125, 129
Terrestrial Ecosystem Survey (TES), 33, 56, 176
timber production. *See* forest product
Travel Management Rule, 80
uneven-aged management. *See* forest health
Wallow Fire, 5, 16, 20, 42, 45, 48, 50, 112
water resources, 22–25, 86–88
water rights, 23, 24, 22–25, 110, 157, 162
water uses, 107, 109–10, 22–25
watershed, 18, 22–25, 26–28, 116, 150, 165
Hydrologic Unit Code (HUC) watershed, 15, 18, 21, 22, 27, 33, 41, 110, 116, 165, 170, 173
wet-mixed conifer, 29–33, 47–50, 53, 117, 129
White Mountain Apache Tribe, 97
Fort Apache Indian Reservation, 131
White Mountains, 1, 13, 90
wild and scenic river, 12, 86–88, 105, 108, 130, 143, 178
wilderness. *See* Management Areas
wildland-urban interface (WUI), 90, 117, 124, 159
wildlife, 12, 16, 17, 23, 30, 31, 33, 41, 56, 57, 60, 63–68, 74, 76, 77, 79, 93, 100, 102, 103, 107, 109, 124–25, 124, 126, 132, 133, 135, 137
aquatic species, 18, 24, 26–28, 33–38, 34, 38, 70, 80, 82, 129
bald eagle, 66
connectivity, 24, 34, 65, 80, 82, 135, 159
fish, 12, 16, 23, 24, 26–28, 33–38, 33, 38, 79, 81, 109
Gunnison's prairie dog, 66, 67
Mexican gray wolf, 12, 65
Mexican spotted owl, 29, 57, 80, 124, 125, 129, 143
Northern goshawk, 43, 44, 46, 47, 49, 52, 66, 80, 124, 125, 164