

# Appendix A. Glossary

**Administrative use** – Use by the Forest Service.

**Air quality related value** - A scenic, cultural, physical, biological, ecological, or recreational resource which may be affected by a change in air quality as defined by the Federal Land Manager for federal lands.

**Age class** - Trees or plants that originated within a relatively distinct range of years. Typically the range of years is considered to fall within 20 percent of the average natural maturity of a particular species (e.g., if 100 years is required to reach maturity, then there would be five 20-year age classes).

**Aspen clone** – A genetically identical set of aspen trees all connected by the same root system, such that they can be vegetatively propagated. A clone may be a distinct aspen stand, or it may be a smaller inclusion within a conifer stand, or it may cover an entire mountainside as a large stand or patch.

**Basal area** - The cross-sectional area at breast height (4.5 feet above the ground) of trees, measured in square feet. Basal area is a way to measure how much of a site is occupied by trees. The cross-sectional area is determined by calculating the tree's radius from its diameter (diameter/2 = radius) and using the formula for the area of a circle ( $\pi \times \text{radius}^2 = \text{cross-sectional area}$ ). Basal area per acre is the summation of the cross-sectional area of all trees in an acre or in a smaller plot used to estimate basal area per acre. Diameter at root collar (the part of a tree where the main roots join the trunk, usually at or near ground level) is used to calculate the cross-sectional area of multi-stemmed trees such as juniper and oak. Basal area is representative of the typical size classes found on the ASNFs.

**Bole** – The main trunk of a tree.

**Browser** – Animals that eat twigs and leaves of woody plants. An example of a browser is deer.

**CCF** – 100 cubic feet.

**Class I airshed** - An airshed classification where areas require the highest level of protection under the Clean Air Act of 1963.

**Class II airshed** - An airshed classification representing National Forest System land that is not classified as a Class I airshed. These areas may receive a greater amount of man-made pollution than Class I areas.

**Clearcutting regeneration method** – The cutting of essentially all trees, producing a fully exposed microclimate for the development of a new age class.

**Clump** - A tight cluster of two to five trees of similar age and size originating from a common rooting zone that typically lean away from each other when mature. A clump is relatively isolated from other clumps or trees within a group of trees, but a stand-alone clump of trees can function as a tree group.

**Coarse woody debris** - Woody material, including logs, on the ground greater than three inches in diameter. A component of litter.

**Common variety minerals** – Salable/mineral materials/common variety minerals are synonymous terms for the same class of minerals that can be sold under a mineral material contract, and are common. These minerals are relatively low value per volume, for example: sand, gravel, cinders, common building stone, and flagstone. Many of the materials are used for road surfacing, boulders, and engineering construction or may be specialty resources such as soil amendments or decorative stone, including flagstone. These minerals are typically sold unless used internally, by another government agency, or for ceremonial uses. In these cases they may be provided free of charge.

**Communications site** - An area of National Forest System land used for telecommunications services. A communications site may be limited to a single communications facility, but most often encompasses more than one facility. Existing ASNFs communications sites are listed in Appendix E.

**Connectivity** - The arrangement of habitats that allows organisms and ecological processes to move across the landscape; patches of similar habitats are either close together or linked by corridors of appropriate vegetation; the opposite of fragmentation.

**Coppice regeneration method** – An even-aged method of regenerating a stand in which the trees in the previous stand are cut and the majority of regeneration is from sprouts or root suckers, such as used in regenerating aspen stands.

**Culmination of mean annual increment** – Mean annual increment is the total increment of increase of volume of a stand (standing crop plus thinning) up to a given age divided by that age. Culmination of mean annual increment is the age in the growth cycle of an even-aged stand at which the average annual rate of increase of volume is at a maximum.

**Declining** - The senescent (aging) period in the lifespan of plants that includes the presence of dead and/or dying limbs, snag-tops, and other characteristics that indicate the later life-stages of vegetation.

**Defensible space** – An area either natural or manmade where material capable of allowing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and property or resources. In practice, "defensible space" is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

**Developed recreation site** - A distinctly defined area where facilities are provided by the Forest Service for concentrated public use, e.g., campgrounds, picnic areas, swimming areas.

**Diameter at breast height (DBH)** - The diameter of a tree at the bole or trunk typically measured at 4.5 feet above ground level.

**Dispersed recreation** - Recreation use which occurs outside developed sites.

**Ecotones** - Communities that include the species of two or more adjacent communities. Few plant communities have distinct boundaries. Transition zones occur as ongoing areas of expansion and contraction over time into adjacent vegetation types. Ecotones are a valuable source of ecological and species diversity where one vegetation type fingers into another.

**Ecosystem** - A spatially explicit, relatively homogeneous unit of the earth that includes all interacting organisms and components of the abiotic environment within its boundaries. An ecosystem is commonly described in terms of its: 1) Composition. Major vegetation types, rare communities, aquatic systems, and riparian systems; 2) Structure. Successional stages, water quality, wetlands, and floodplains; 3) Function. Ecological processes such as stream flows and disturbance regimes.

**Ecosystem services** - Benefits people obtain from ecosystems, including: 1) Provisioning services - such as food, fresh water, fuel, and fiber; 2) Regulating services - such as climate, water, pollination, and disease regulation; 3) Supporting services - such as soil formation and nutrient cycling; and 4) Cultural services - such as educational, aesthetic, and cultural heritage values as well as recreation and tourism opportunities.

**Encumbrance** –Any right or interest in land, held by someone other than the owner, that may or may not be consistent with the owner's use. Among other things, encumbrances may consist of mortgages, deeds of trust, agreements for support, life estates, leases, tax liens, outstanding mineral rights, reservations, restrictions, and rights of reverter.

**Energy corridor** – A linear strip of land identified for the present or future location of utility right-of-way (e.g., above or below-ground electric transmission line, gas pipeline).

**Even-aged forests** - Forests that are composed of one or two distinct age classes of trees.

**Even-aged management** - The application of a combination of actions that result in the creation of stands in which trees are essentially the same age. Managed even-aged forests are characterized by a distribution of stands of varying ages (and therefore, tree size) throughout the forest area. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.

**Federally listed species** - Threatened or endangered species listed under the Endangered Species Act of 1973, as amended.

**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. These five regimes are:

- **Fire regime I:** 0 to 35 year frequency and low (surface fires most common, isolated torching can occur) to mixed severity (less than 75 percent of dominant overstory vegetation replaced)
- **Fire regime II:** 0 to 35 year frequency and high severity (greater than 75 percent of dominant overstory vegetation replaced)
- **Fire regime III:** 35 to 100+ year frequency and mixed severity
- **Fire regime IV:** 35 to 100+ year frequency and high severity
- **Fire regime V:** 200+ year frequency and high severity.

**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.

**Genetic exchange** – The exchange of genetic material between individuals and/or populations through sexual reproduction.

**Geographic area** – Areas of the ASNFs that have their own distinct characteristics and conditions reflected in geographic area specific plan components. The ASNFs are divided into eight geographic areas.

**Goshawk foraging areas** - The areas that surround goshawk PFAs (Post-fledging Family Areas) that northern goshawks use to hunt for prey. They are approximately 5,400 acres in size and do not include the PFA or nesting area acres.

**Goshawk nest areas** - The areas immediately around a nest that are used by northern goshawks in relation to courtship and breeding activities. They are approximately 30 acres in size and contain multiple groups or patches of large, old trees with interlocking crowns.

**Goshawk post-fledging family areas (PFAs)** - The areas that surround nest areas. They represent an area of concentrated use by the northern goshawk family until the time the young are no longer dependent on adults for food. PFAs are approximately 420 acres in size, not including the nest area.

**Grass reserve** - An area that is normally not allocated for livestock grazing, although may be used when an authorized pasture or allotment is unavailable.

**Group** - A cluster of two or more trees with interlocking or nearly interlocking crowns at maturity surrounded by an opening. Size of tree groups is typically variable depending on forest type and site conditions and can range from fractions of an acre (a two-tree group) to many acres. Trees within groups are typically non-uniformly spaced, some of which may be tightly clumped.

**Group selection** – An uneven-aged management method in which trees are removed and new age classes are established in groups, adjacent to other groups of different age classes. Group cut size is determined by the reproduction requirements of the species desired, and by the number or total acreage of different age classes desired across the stand.

**Half-shrub** – Half-shrubs have a woody base and lower stems but the top growth remains herbaceous during the growing season.

**Herbivory** – Loss of vegetation due to consumption by another organism.

**Hibernacula** – The place an animal hibernates or winters.

**Highly interactive species** – A species that has a disproportionate effect on its ecosystem. The virtual or effective absence of a highly interactive species leads to significant changes in some feature of its ecosystem. Such changes include structural or compositional modifications, alterations in the import or export of nutrients, loss of resilience to disturbance, and decreases in native species diversity.

**Host** - A plant that is invaded by a parasite and from which the parasite obtains its nutrients.

**Hydrologic Unit Code (HUC)** – The United States is divided and sub-divided into successively smaller hydrologic units which are identified by unique hydrologic unit codes (HUCs). The ASNFs is contained within three 3<sup>rd</sup> level HUC watersheds: Little Colorado, Gila, and Salt

Rivers. The ASNFs intersect thirteen 4<sup>th</sup> level HUC watersheds, thirty-two 5<sup>th</sup> level HUC watersheds, and two-hundred and fifteen 6<sup>th</sup> level HUC watersheds. The average size of a 4<sup>th</sup> level HUC watershed is 1 million acres, 5<sup>th</sup> level HUC watersheds are around 165,000 acres, and 6<sup>th</sup> level HUC watersheds are about 21,000 acres.

**Individual tree selection** – An uneven-aged management method where individual trees of all size classes are removed more or less uniformly throughout the stand, to promote growth of remaining trees and to provide space for regeneration.

**Instream flow** - Seasonal stream flows needed for maintaining aquatic and riparian ecosystems, wildlife, visual quality, and recreational opportunities at an acceptable level.

**Invasive species** - Species that are not native to the ecosystem being described.

**Leasable minerals** - Leasable minerals include coal, oil, gas, oil shale, sodium, phosphate, potassium, and geothermal. Leaseable minerals also include the hardrock minerals, if they are found on lands that have “acquired” status. Leases are obtained through the Bureau of Land Management to extract these mineral resources.

**Leave No Trace** - Guidelines that help protect the land and lessen the sights and sounds of forest visitors. <http://www.lnt.org/>

**Lentic** - A non-flowing or standing body of water (e.g., pond, lake).

**Litter** – Litter consists of dead, unattached organic material on the soil surface that is effective in protecting the soil surface from raindrop splash, sheet and rill erosion and is at least ½ inch thick. Litter is composed of leaves, needles, cones, and woody vegetative debris including twigs, branches, and trunks.

**Livestock grazing** – Foraging by permitted livestock (foraging animals of any kind).

**Locatable minerals** - In general, the hardrock minerals mined and processed for metals (for example: gold, silver, copper, uranium and some types of non-metallic minerals, such as sandstone). They are called ‘locatable’, meaning subject to mining claim location under the United States mining laws. Locatable minerals are limited to lands with “reserved public domain” status.

**Lotic** - A flowing body of water (e.g., stream, river).

**Mechanized travel** – Movement using any contrivance over land, water, or air, having moving parts, that provides a mechanical advantage to the user and that is powered by a living or nonliving power source. This includes, but is not limited to: sailboats, hang gliders, parachutes, bicycles, game carriers, carts, and wagons. It does not include wheelchairs when used as necessary medical appliances. It also does not include: skis, snowshoes, rafts, canoes, sleds, travois, or similar primitive devices without moving parts.

**Metapopulation** - A set of partially isolated populations belonging to the same species that can interbreed and recolonize areas where the species has recently become locally extinct.

**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, that is designed solely for the use by a mobility-impaired person for locomotion, and that is suitable for use in an indoor pedestrian area.

**National Forest System** - As defined in the Forest Rangeland Renewable Resources Planning Act, 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 U.S.C. 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.

**Non-motorized travel** – Movement not relying on machines that use a motor, engine, or other nonliving power source (e.g., walking, canoeing, equestrian).

**Old growth** - Refers to a tree group, tree patch, or landscape composed of old trees, some of which are declining in vigor. In some forest types (e.g., ponderosa pine), old growth typically contains groups of younger trees interspersed with the old trees. However, patches of mainly old trees may exist, but are not sustainable without replacement by younger trees. Old growth forests typically support communities of plants and animals that are associated with or require large old trees. A single tree is not old growth. Although old trees must be present, “old” is a relative term that varies among species.

**Openings** - Spatial breaks between groups or patches of trees containing grass, forb, shrub, and/or tree seedlings but are largely devoid of big trees.

**Other energy development** – Infrastructure associated with the provision or transport of energy (e.g., biomass power generation, wind turbines, solar panels).

**Patches** - Areas larger than tree groups in which the vegetation composition and structure are relatively homogeneous. Patches comprise the mid-scale, thus they range in size from 10 to 1,000 acres. Patches and stands are generally synonymous term.

**Planned ignition** – A fire ignited by management actions under certain pre-determined conditions to meet Plan desired conditions. Prescribed fire is a synonymous term.

**Planning period** – The life of the Plan, generally 10 to 15 years from plan approval.

**Primitive recreation** – The reliance on personal, non-motorized, or non-mechanized skills to travel and camp in an area, rather than reliance on facilities or outside help.

**Recreation opportunity spectrum (ROS)** – A framework for defining the types of outdoor recreation opportunities the public might desire, and identifies that portion of the spectrum a given National Forest area might be able to provide. The broad classes are:

- **Primitive (P)**: Characterized by essentially unmodified natural environment. Interaction between users is very low and evidence of other users is minimal. Essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is generally not permitted. Very high probability of experiencing solitude, closeness to nature, tranquility, self-reliance, and risk.

- **Semi-Primitive Non-Motorized (SPNM):** Characterized by a predominantly natural or natural-appearing environment. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on site controls and restrictions may be present, but are subtle. Motorized use is generally not permitted. High probability of experiencing solitude, closeness to nature, tranquility, self-reliance, and risk.
- **Semi-Primitive Motorized (SPM):** Characterized by a predominantly natural or natural-appearing environment. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on site controls and restrictions may be present, but are subtle. Motorized use is generally permitted. Moderate probability of experiencing solitude, closeness to nature, tranquility, self-reliance, and risk.
- **Roaded Natural (RN):** Characterized by a predominantly natural-appearing environment with moderate evidence of the sights and sounds of other humans. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate but with evidence of other users prevalent. Resource modification and utilization practices are evident but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities. Opportunity to affiliate with other users in developed sites but with some chance for privacy.
- **Roaded Modified (RM) –** Characterized by substantially modified natural environment except for campsite. Roads and management activities may be strongly dominant. There is moderate evidence of other users on roads. Conventional motorized use is provided for in construction standards and design of facilities. Opportunity to get away from others, but with easy access.
- **Rural (R):** Characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available. Opportunity to observe and affiliate with other users is important, as is convenience of facilities.
- **Urban (U):** Characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans on-site are predominant. Large numbers of users can be expected, both on-site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site. Opportunity to observe and affiliate with other users is very important, as is convenience of facilities.

**Redundancy** – Multiple occurrences of the representative conditions across the landscape.

**Reforestation** – The natural or artificial restocking of an area with forest trees.

**Regeneration method** – A cutting procedure by which a new age class is created. The major methods are clearcutting, seed-tree, shelterwood, selection, and [coppice](#). Regeneration methods are grouped into four categories: coppice, even-aged, two-aged, and uneven-aged.

**Research Natural Area** – A physical or biological unit in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural physical and biological processes to prevail without human intervention. Research Natural Areas are principally for non-manipulative research, observation, and study. They are designated to maintain a wide spectrum of high quality representative areas that represent the major forms of variability found in forest, shrubland, grassland, alpine, and natural situations that have scientific interest and importance that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity

**Reserve trees** – Live trees, 6 inch DBH or larger, retained in either a dispersed or aggregated manner after the regeneration period: seed-tree with reserves, group selection with reserves, etc. Trees may be retained for resource purposes other than regeneration.

**Resiliency** –The capacity of a system to absorb disturbance (whether natural or human) and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks.

**Riparian area** – Terrestrial ecosystems characterized by wet soils and plant species that are water loving and dependent on the water table or its capillary fringe zone (a zone in the soil just above the water table that remains saturated or almost saturated).

**Scale** – The aerial extent of certain plan components are described at various scales:

- **Fine scale** is an area of about 10 acres or less at which the distribution of species is described.
- **Mid-scale** is an area of 100 to 1,000 acres composed of assemblages of grouped and individual species which have similar biophysical conditions. An area at this scale is composed of ten or more fine-scale units.
- **Landscape scale** is a unit of forest land approximately 10,000 acres or greater, typically composed of variable elevations, slopes, aspects, soils, plant associations, and disturbance processes. An area at this scale is composed of ten or more mid-scale units.
- **6<sup>th</sup> level HUC watershed scale** is a unit of the forest approximately comparable to a 6<sup>th</sup> level HUC (Hydrologic Unit Code) watershed (approximately 5,000 to 80,000 acres).
- **4<sup>th</sup> to 5<sup>th</sup> level HUC watershed scale.** 4<sup>th</sup> level HUC watershed scale is a unit of the forest approximately comparable to a 4<sup>th</sup> level HUC (Hydrologic Unit Code) watershed (approximately 400,000 to 2,000,000 acres). A 4<sup>th</sup> level HUC watershed is an aggregation of multiple 5<sup>th</sup> level HUC watersheds. 5<sup>th</sup> level HUC watershed scale is a unit of the forest approximately comparable to a 5<sup>th</sup> level HUC watershed (approximately 80,000 to 300,000 acres)

**Scenic integrity** - The state of naturalness or a measure of the degree to which a landscape is visually perceived to be "complete." The highest scenic integrity ratings are given to those landscapes that have little or no deviation from the landscape character valued by constituents for its aesthetic quality. Scenic integrity is the state of naturalness or, conversely, the state of disturbance created by human activities or alteration. Scenic integrity is measured in five levels:

- **Very high** (unaltered) preservation
- **High** (appears unaltered) retention
- **Moderate** (slightly altered) partial retention
- **Low** (moderately altered) modification
- **Very Low** (heavily altered) maximum modification

**Seed tree regeneration method** - An even-aged regeneration method in which a new age class develops from seeds that germinate in fully-exposed micro-environments after removal of the previous stand, except for a small number of trees left to provide seed.

**Selection regeneration method** – An uneven-aged method where individual trees or groups of trees of all size classes are removed more or less uniformly throughout the stand, to promote growth of remaining trees and to provide space for regeneration. Includes [individual tree selection](#) and [group selection](#) methods.

**Sense of place** - The aesthetic, nostalgic, or spiritual effects of physical locations on humans based on personal, use-oriented or attachment-oriented relationships between individuals and those locations. The meaning, values, and feelings that people associate with physical locations because of their experiences there.

**Seral** - A plant and animal community which is transitional in stage of succession, being either short- or long-term. If left alone, the seral stage will pass, and another plant or animal community will replace it. Aspen represents a seral stage that eventually is replaced by conifers such as spruce.

**Shelterwood regeneration method** - A method of regenerating an even-aged stand in which a new age class develops beneath the moderated micro-environment provided by the residual trees.

**Silviculture** - The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis.

**Site preparation** – Hand or mechanized manipulation of a site, designed to enhance the success of a treatment.

**Snags** - Standing dead or partially dead trees (snag-topped), often missing many or all limbs. They provide essential wildlife habitat for many species and are important for forest ecosystem function.

**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.

**Special use authorization** - A permit, term permit, temporary permit, lease, or 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.

**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.

**Sustainability** - Meeting the 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.

**Thinning** – An intermediate treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, to recover potential mortality, or to emphasize desired tree species. Includes crown thinning (thinning from above, high thinning), free thinning, low thinning (thinning from below), mechanical thinning (geometric thinning), and selection thinning (dominant thinning). Thinning can be used with both even and uneven-aged management systems.

**Timber harvest** - The removal of trees for wood fiber use and other multiple-use purposes.

**Timber production** – The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. In addition, managing land to provide commercial timber products on a regulated basis with planned, scheduled entries.

**Tread Lightly!**<sup>®</sup> – Outdoor ethics with a special focus on motorized and mechanized recreation. <http://www.treadlightly.org>

**Unauthorized road or trail** - A road or trail that is not a forest road or trail or a temporary road or trail and that is not included in a forest transportation atlas. Sometimes referred to as “user-created” road or trail.

**Uneven-aged forests** - Forests that are composed of three or more distinct age classes of trees, either inter-mixed or in small groups.

**Uneven-aged management** – The application of combination of actions needed to simultaneously maintain continuous forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection.

**Unique water** - Surface water designated by Arizona Department of Environmental Quality as an outstanding state water resource. These are waters with exceptional quality where water quality should not be degraded.

**Unplanned ignition**- A wildfire, not including planned ignitions.

**Wildling** - A native plant growing uncultivated in the wild. Specifically, the collection or transplant of such whole live plants.

**Wildland-urban interface (WUI)** - The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

**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 by-products of forest management. It is used to produce bioenergy and the full range of bio-based products.

**Xeroriparian** – A riparian-upland transition zone where upland vegetation takes advantage of the greater residence time of additional run-on water to grow larger and denser than it grows in the uplands or in ephemeral reaches. It is considered excellent habitat for wildlife and bird nesting.

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# Appendix B.

## Consistency with Plan Components

As required by the National Forest Management Act (NFMA) and the National Forest System Land Management Planning Rule (36 CFR 219), all projects and activities authorized by the Forest Service must be consistent with the plan (16 U.S.C. 1604(i); 36 CFR 219.8(a), (b), and (e)). Projects and activities cover all actions under 16 U.S.C. 1604(i). A project or activity must be consistent with the plan (36 CFR 219.8(e)) by being consistent with applicable plan components (36 CFR 219.7(a)); 36 CFR 219.8(a)).

Plans may have other content, such as, background, collaboration strategies, context, existing conditions, glossary, introduction, monitoring questions, other referenced information or guidance, performance history, performance measures, performance risks, program emphasis, program guidance, program priorities, possible actions, roles and contributions, management challenges, or strategies, but such other content are not matters to which project consistency is required.

### Ensuring Project or Activity Consistency with the Plan

Where a proposed project or activity would not be consistent with a plan component the responsible official has the following options:

- To modify the proposal so that the project or activity will be consistent;
- To reject the proposal; or
- To amend the plan contemporaneously with the approval of the project or activity so that the project or activity is consistent with the plan as amended. The amendment may be limited to apply only to the project or activity (36 CFR 219.8(e)).

The following paragraphs describe how a project or activity is consistent with plan components and the requirements for documenting consistency.

**Desired conditions** (36 CFR 219.7(a)(2)(i)) — Because of the many types of projects and activities that can occur over the life of a plan, it is not likely that a project or activity can maintain or contribute to the attainment of all desired conditions. Most projects and activities are developed specifically to maintain or move conditions toward one or more of the desired conditions of a plan. It should not be expected that each project or activity will contribute to all desired conditions in a plan, but usually to one or a subset. However, it should not be expected that in every instance, a project could clearly point to a specific desired condition as the reason the project was proposed; for example, a powerline right-of-way to a private inholding. There will also be instances when negative effects related to a specific desired condition are appropriate, either for long-term progress toward that same desired condition, or for progress toward or maintenance of another desired condition. It is also important that project consistency with a desired condition be assessed at the appropriate scale. For example, if a desired condition addresses watershed functionality at the scale of a 5<sup>th</sup> level HUC watershed, then the contribution of any proposal to that desired condition should be considered at that scale.

To be consistent with the desired conditions of the plan, a project or activity, when assessed at the appropriate spatial scale described in the plan, must be designed to meet one or more of the following conditions:

- Maintain or make progress toward one or more of the desired conditions of a plan without adversely affecting progress toward, or maintenance of other desired conditions, or
- Be neutral with regard to progress toward plan desired conditions, or
- Maintain or make progress toward one or more of the desired conditions over the long-term, even if the project or activity would adversely affect progress toward or maintenance of one or more desired conditions in the short-term, or
- Maintain or make progress toward one or more of the desired conditions over the long-term, even if the project or activity would adversely affect progress toward other desired conditions in a negligible way over the long-term.

The project documentation should explain how the project is consistent with desired conditions and describe any short-term, or negligible long-term, adverse effects the project may have on the maintenance or attainment of any desired condition.

**Objectives** (36 CFR 219.7(a)(2)(ii)) — A project or activity is consistent with the objectives component of the plan if it contributes to or does not prevent the attainment of any applicable objectives.

The project documentation should identify any applicable objective(s) to which the project contributes and document that the project does not prevent the attainment of any objectives. If there are no applicable objectives, the project is consistent with the objectives components of the plan, and the project documentation should state that fact.

**Guidelines** (36 CFR 219.7(a)(2)(iii))—A project or activity must be consistent with all guidelines applicable to the type of project or activity and its location in the plan area. A project or activity can be consistent with a guideline in either of two ways—

- The project or activity is designed exactly in accord with the guideline, or
- A project or activity design varies from the exact words of the guideline but is as effective in meeting the purpose of the guideline to contribute to the maintenance or attainment of relevant desired conditions and objectives.

The project documentation should describe how the project is consistent with the guidelines. When the project varies from the exact words of the guideline, the documentation must specifically explain how the project design is as effective in contributing to the maintenance or attainment of relevant desired conditions and objectives.

**Suitability of areas** (36 CFR 219.7(a)(2)(iv))—A project with the purpose of timber production may only occur in an area identified as suitable for timber production (16 U.S.C. 1604(k)). The documentation for the project should confirm the project area meets the suitability for timber production criteria set out in Forest Service Handbook 1909.12 section 61.

Except for projects with a purpose of timber production, a project or activity can be consistent with plan suitability determinations in either of two ways:

- The project or activity is a use identified in the plan as generally suitable for the location where the project or activity is to occur, or
- The project or activity is not a use identified in the plan as generally suitable for the location (the plan is silent on the use or the plan identifies the use as generally not suitable), but the responsible official determines the use to be appropriate for that location's desired conditions and objectives.

The project documentation should describe that the project or activity is either (1) a use for which the area is specifically identified in the plan as generally suitable, or (2) not a use for which the area is specifically identified in the plan as general suitable, but is nonetheless appropriate for that location.

**Special areas** (36 CFR 219.7(a)(2)(v))—Where a plan provides plan components specific to a special area, a project, or activity must be consistent with those area-specific components. The project documentation should describe how the project or activity is consistent with the area-specific components of the plan.

## Appendix C. Proposed and Possible Actions

This Appendix describes possible actions that may subsequently take place on the Apache-Sitgreaves National Forests (ASNFs) during the plan period to help maintain existing conditions or move toward the desired conditions. This information is included in the Plan pursuant to section 6(f) of the National Forest Management Act of 1976 (16 U.S.C. 1604(f)), which requires plans to reflect:

“proposed and possible actions, including the planned timber sale program and the proportion of probable methods of timber harvest within the unit necessary to fulfill the plan;”

The list of possible actions is not intended to be all-inclusive. Possible actions are not intended to be decisions or even National Environmental Policy Act (NEPA) “proposals.” They are simply predictions of what actions may take place in the future. During the life of the Plan the ASNFs is not limited to these possible actions when proposing projects and activities. A Plan amendment is not required to change or modify the possible actions. In accord with the National Forest System Land Management Planning Rule (36 CFR 219.7(b)), these predictions can be updated at any time through an administrative correction of the Plan.

**TO BE DEVELOPED – will include possible work activities that may take place to help maintain existing conditions or move toward the desired conditions. It will also include a description of the timber program as required by Chapter 60 of Forest Service Handbook 1909.12.**

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# Appendix D.

## Monitoring Strategy

### Introduction

This ASNFs' land management plan (Plan) is an integral part of the adaptive management cycle that includes management decisions and actions. Adaptive management includes defining measurable objectives, carrying out projects to achieve objectives, monitoring project results, learning from past actions, and changing management activities. This cycle of adaptation is supported through the monitoring and evaluation of the Plan.

The monitoring program includes the monitoring questions and corresponding performance measures listed in the following section. Monitoring questions focus on key plan components where carrying out projects and activities is likely to cause a change over time. The adaptive management cycle also includes an approach for responding to changing conditions or public desires and to new information, including research and scientific papers.

The plan monitoring guide identifies specific methods for data collection and storage, staff responsibilities, and a schedule of monitoring and evaluation activities during the next 10 to 15 years. The monitoring guide also identifies opportunities for public participation in the monitoring process and linkages with the National Environmental Management System Framework (available online at <http://www.fs.fed.us/emc/met/index.shtml>).

An annual monitoring work plan may be developed that is consistent with the monitoring guide and identifies work needed for the upcoming year based on anticipated resources (staff, funding, etc.).

In general, annual evaluations of the monitoring information consider the following questions based on 36 CFR 219.6(b)(2):

- What are the effects of resource management activities on the productivity of the land?
- To what degree is on-the-ground management maintaining or making progress toward the desired conditions and objectives for the Plan?
- What changes are needed to account for unanticipated changes in conditions?

The ASNFs' staff keeps the Plan and plan set of documents current based on evaluation reports, which reflect changing conditions, science, and other relevant information. If there is a need to change, the plan content would be changed according the planning rule procedures. Three types of evaluations are used.

- Comprehensive evaluations that are updated every 5 years (See the Comprehensive Evaluation Report in the Plan Set of Documents);
- Evaluation for a plan amendment where issues arise that warrant change to the Plan; and
- Annual evaluation of the monitoring information.

The Forest Supervisor annually evaluates the monitoring information displayed in the evaluation reports through a management review and determines if any changes are needed in management actions or the Plan itself.

The following table shows the Plan components and the types of monitoring that may be conducted. Table 8 is not meant to imply that the monitoring program is comprehensive and every plan component should be monitored to some degree.

**Table 10. Plan components and associated monitoring**

Plan Component	Description of Monitoring Activity
Desired Conditions	<p>Monitoring to determine whether the plan area is moving toward, or maintaining desired conditions. A range of ecological, economic, and social factors are considered. These include natural events, human uses, and management activities.</p> <p>Monitoring tasks have a frequency specified in the monitoring guide. While monitoring may take place annually, indications of trends will likely be on the basis of data obtained over 3 to 5 years or more.</p>
Objectives	<p>These types of monitoring measure progress toward the objectives.</p>
Guidelines	<p>This monitoring evaluates whether projects and other activities are accomplished within the plan guidelines used in the project design. The guidelines themselves may also be monitored to determine their effectiveness.</p> <p>The Agency’s administration of projects or special uses provides monitoring (such as inspection reports) that document that the activity occurs as designed. Audits and other monitoring systems are also used as additional checks.</p>

## MONITORING PROGRAM

The monitoring questions and performance measures that could be used to evaluate movement toward key Plan desired conditions are displayed below. In some cases the monitoring question and performance measures directly measure accomplishment of desired conditions. In other cases, they measure objectives or guidelines associated with desired conditions.

**TO BE DEVELOPED**

# Appendix E.

## Communications Sites

The following are designated communications and electronic sites to be administered per Forest Service Manual direction (table 9). Many sites are for Forest Service administration. Future development at all sites should adhere to direction in the ASNFs' Land Management Plan.

**Table 11. Communications sites on the Apache-Sitgreaves National Forests**

Site Name	Administrative	Commercial	Low Power (LP) or High Power (HP)
<b>SITGREAVES NATIONAL FOREST</b>			
Chevelon Butte	X		LP
Brookbank	X	X	LP
Chevelon Work Center	X		LP
Promontory Lookout	X		LP
O'Haco Lookout	X		LP
Dutch Joe Lookout	X		LP
Deer Springs Lookout	X		LP
Juniper Ridge Lookout	X		LP
Gentry Lookout	X		LP
Porter Mountain	X	X	LP, HP
Heber Sub-Station	X		LP
Heber Ranger Station	X		LP
Long Hollow		X	LP
Pinedale Work Center	X		LP
Springer Mountain Lookout	X		LP
Lakeside Ranger Station	X		LP
Lake Mountain Lookout	X		LP
Ortega Mountain (proposed)	X		LP
<b>APACHE NATIONAL FOREST</b>			
Green's Peak Lookout	X	X	LP
MCI		X	LP
Big Lake Lookout	X		LP
Sizer Knoll		X	LP
Gobbler Peak		X	LP
Escudilla Lookout	X		LP

Appendix E. Communications Sites

Site Name	Administrative	Commercial	Low Power (LP) or High Power (HP)
South Mountain	X	X	LP
Rose Peak Lookout	X		LP
Alpine Ranger Station	X		LP
Reno Lookout	X		LP
Alpine Heliport	X		LP
P.S. Knoll Lookout	X		LP
Strayhorse	X		LP
Blue Lookout	X		LP
Bear Mountain Lookout	X		LP
Granville	X		LP
Big Lake Lookout	X		LP
Trail Cabin	X		LP
Hannagan Helibase	X		LP

# Appendix F.

## Timber Availability Summary and Classification Descriptions

**Table 12. Availability of areas for timber harvest and suitability for timber production on the Apache-Sitgreaves National Forests**

Category	Acres	Acres Generally Not Available for Timber Harvest	Acres Generally Available for Timber Harvest	Acres Not Suitable for Timber Production
1. Total National Forest System lands within the plan area	2,111,000			
2. Lands generally not available for timber harvest [Forest Service Handbook 1909.12 sec. 62.1]		628,000		628,000
a. Lands not available for timber harvest due to statute, Executive order, regulation, policy, physical, or biological conditions [sec. 62.1]		530,000		
b. Lands where timber harvest is not compatible with desired conditions and objectives [sec. 62.1]		<u>98,000</u>		
3. Lands generally available for timber harvest [sec. 62.2]			1,482,000	
a. Lands generally suitable for timber production [sec. 62.21] <sup>24</sup>			655,000	
b. Other lands where trees may be harvested for multiple use values other than timber production [sec. 62.22]			<u>827,000</u>	<u>827,000</u>
4. Lands generally not suitable for timber production, all lands except 3(a) [sec. 62.3]				1,408,000

<sup>24</sup> Timber production achieves or is consistent with Plan desired conditions and objectives

**Table 13. Classification descriptions for availability of areas for timber on the Apache-Sitgreaves National Forests; bold text in the description column represent ASNFs' specific criteria**

Forest Service Handbook 1909.12 Chapter 60 Reference	Description	Timber Harvest?
<b>LANDS THAT ARE GENERALLY NOT AVAILABLE FOR TIMBER HARVEST</b>		
62.1 - Lands where timber harvest is incompatible with desired conditions	<ul style="list-style-type: none"> <li>▪ Harvest of any kind is not compatible with desired conditions or objectives (i.e., the desired condition includes no human intervention)</li> </ul> <p><b>Designated and recommended wilderness, Blue Range Primitive Area, RNAs, recommended RNAs, eligible Wild river corridors, and botanical area</b></p>	No harvest, including salvage
62.11 - Lands on which timber harvest is generally prohibited	<ul style="list-style-type: none"> <li>▪ Harvest prohibited by statute, Executive Order, regulation, or national policy</li> <li>▪ Harvest infeasible due to physical or biological conditions</li> </ul> <p><b>Designated and recommended wilderness, and Blue Range Primitive Area</b></p>	No harvest, including salvage
62.12 - Lands where timber harvest would likely result in irreversible resource damage at the forest scale	<ul style="list-style-type: none"> <li>▪ Harvest could result in irreversible resource damage to soil, slope, or other watershed conditions</li> <li>▪ Harvest could result in substantial or permanent impairment of the productivity of the land</li> </ul> <p><b>Areas with unsuited/unstable soils, wetland/cienega</b></p>	No harvest, including salvage
62.13 - Lands where there is no reasonable assurance of adequate restocking at the forest scale	<ul style="list-style-type: none"> <li>▪ Trees are unable to grow due to environmental or other conditions</li> </ul> <p><b>Quarries, water</b></p>	No harvest generally, salvage harvest may be permitted as an exception for some areas
<b>LANDS THAT ARE GENERALLY AVAILABLE FOR TIMBER HARVEST</b>		
62.21 - Lands generally suitable for timber production	<ul style="list-style-type: none"> <li>▪ Timber production would achieve, be compatible with, or contribute to achievement of desired conditions and objectives.</li> <li>▪ A flow of forest products can be planned and scheduled on a reasonably predictable basis over time</li> <li>▪ Regeneration of the stand is intended</li> </ul> <p><b>Forest types (ponderosa pine, dry mixed conifer, wet mixed conifer, spruce-fir) at 0-40% slope</b></p>	Harvest allowed, generally scheduled
62.22 - Timber harvest to meet non-timber multiple use objectives	<ul style="list-style-type: none"> <li>▪ Regulated timber production is not compatible with desired conditions and objectives</li> <li>▪ Some timber harvest may achieve other multiple-use values and/or resource objectives.</li> <li>▪ Regeneration may or may not be desired, based on plan desired conditions</li> </ul> <p><b>Madrean pine-oak and piñon-juniper woodlands, interior chaparral, grasslands with greater than 10% tree/shrub cover, riparian forests, forest types with slopes greater than 40%</b></p>	Harvest allowed  (Determined on a case-by-case basis)

Appendix F. Timber Availability Summary and Classification Descriptions

Forest Service Handbook 1909.12 Chapter 60 Reference	Description	Timber Harvest?
<b>LANDS THAT ARE <i>NOT SUITABLE</i> FOR TIMBER PRODUCTION</b>		
62.31 - Lands on which timber production is prohibited or withdrawn	<ul style="list-style-type: none"> <li>▪ Aggregation of lands classed under 62.1 and 62.22 <b>(62.1 + 62.22)</b></li> </ul>	No harvest
62.32 - Lands that are not forested <sup>25</sup>	<ul style="list-style-type: none"> <li>▪ Includes savanna and grasslands where the desired condition is not forested cover <b>Grasslands, woodland savanna</b></li> </ul>	Harvest allowed on 62.22 lands

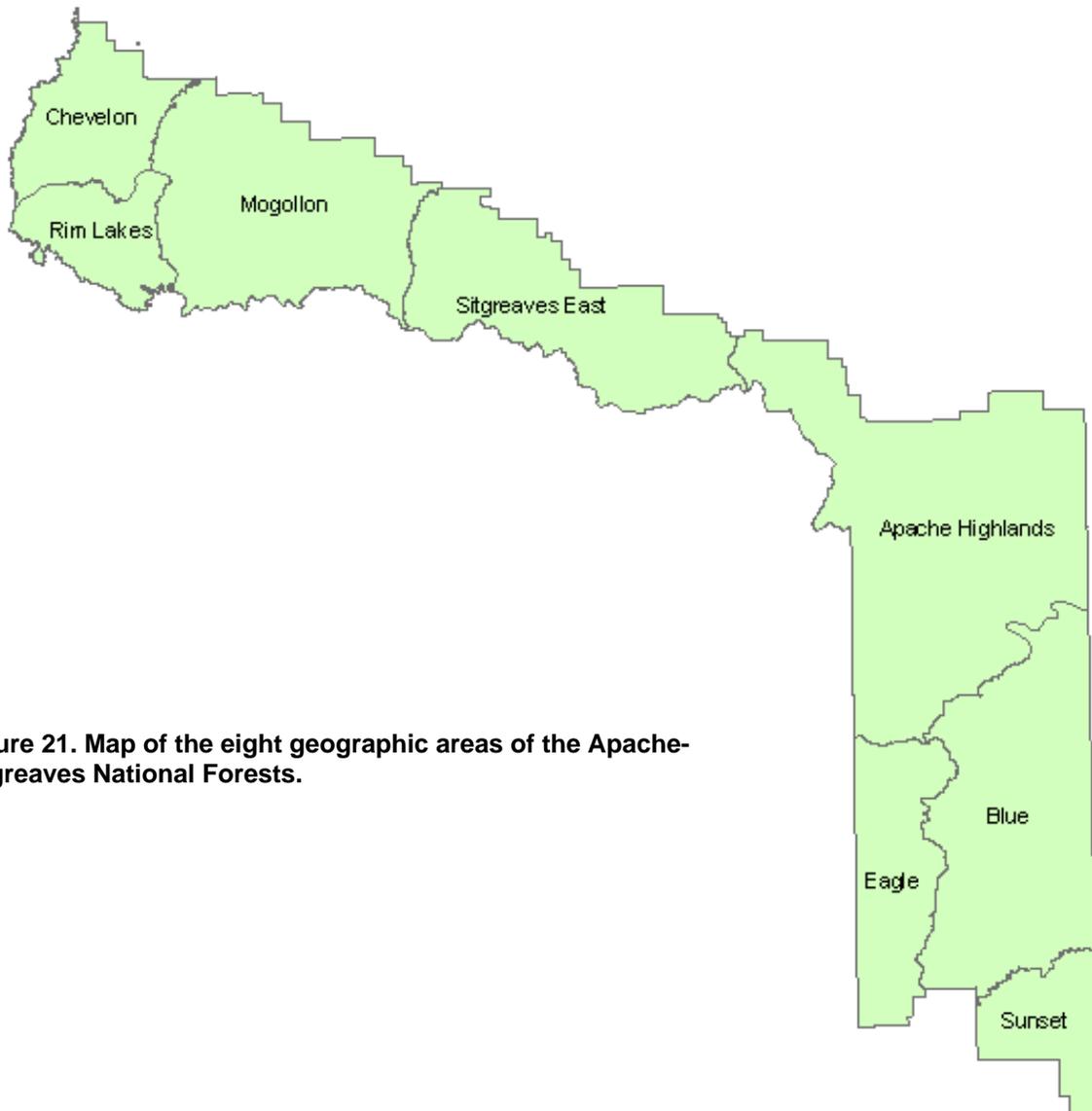
<sup>25</sup> Forest Service Manual 1905: Forestland is defined as having greater than or equal to 10% tree canopy cover at maturity

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## Appendix G. Geographic Area Maps

This appendix includes maps of the eight geographic areas. These maps display special areas, management areas, and other features. These maps are also available on the forests' Web site: <http://www.fs.fed.us/r3/asnf/plan-revision/documents.shtml>.



**Figure 21. Map of the eight geographic areas of the Apache-Sitgreaves National Forests.**

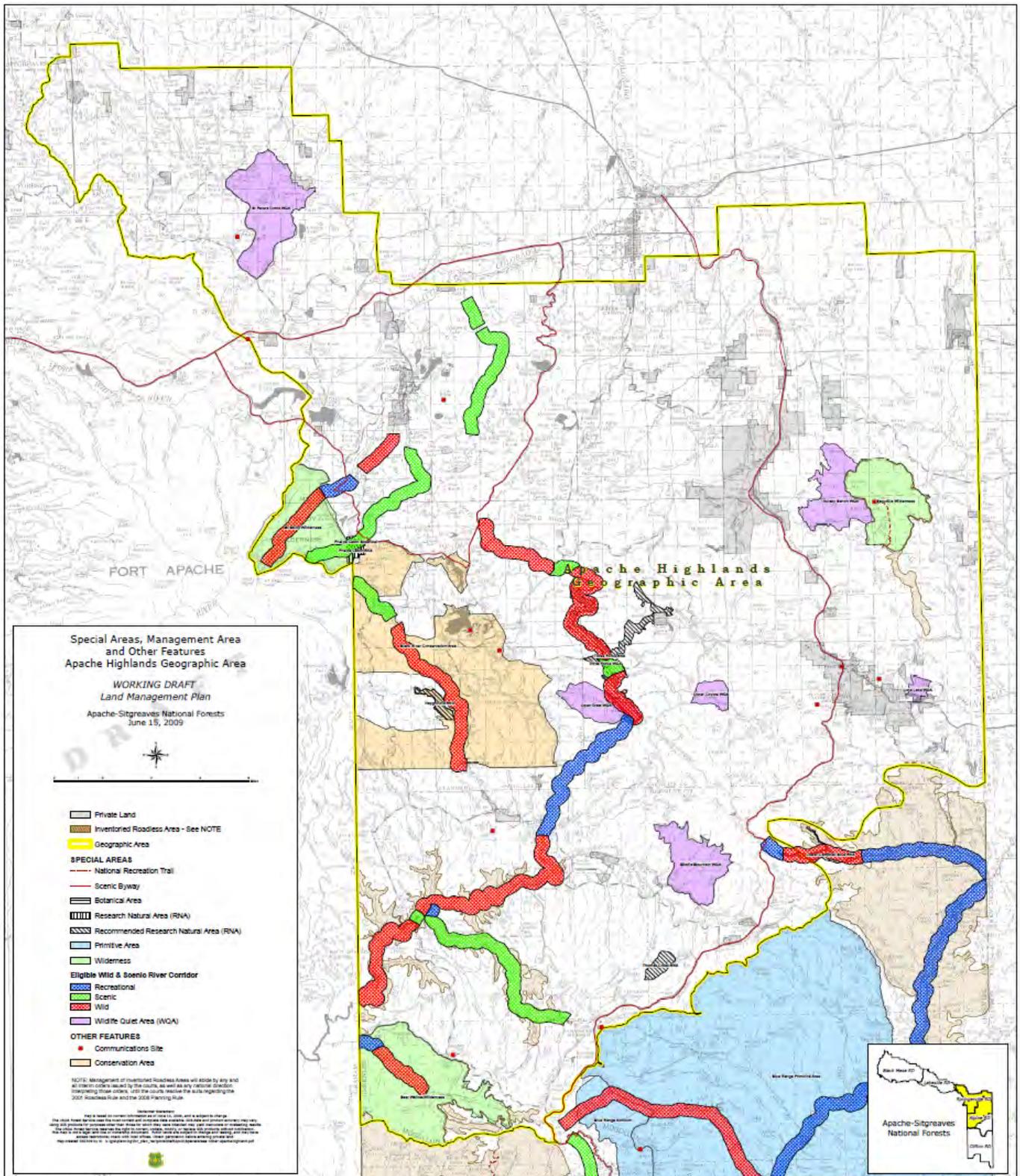


Figure 22. Map of the special areas, management areas, and other features of the Apache Highlands Geographic Area.



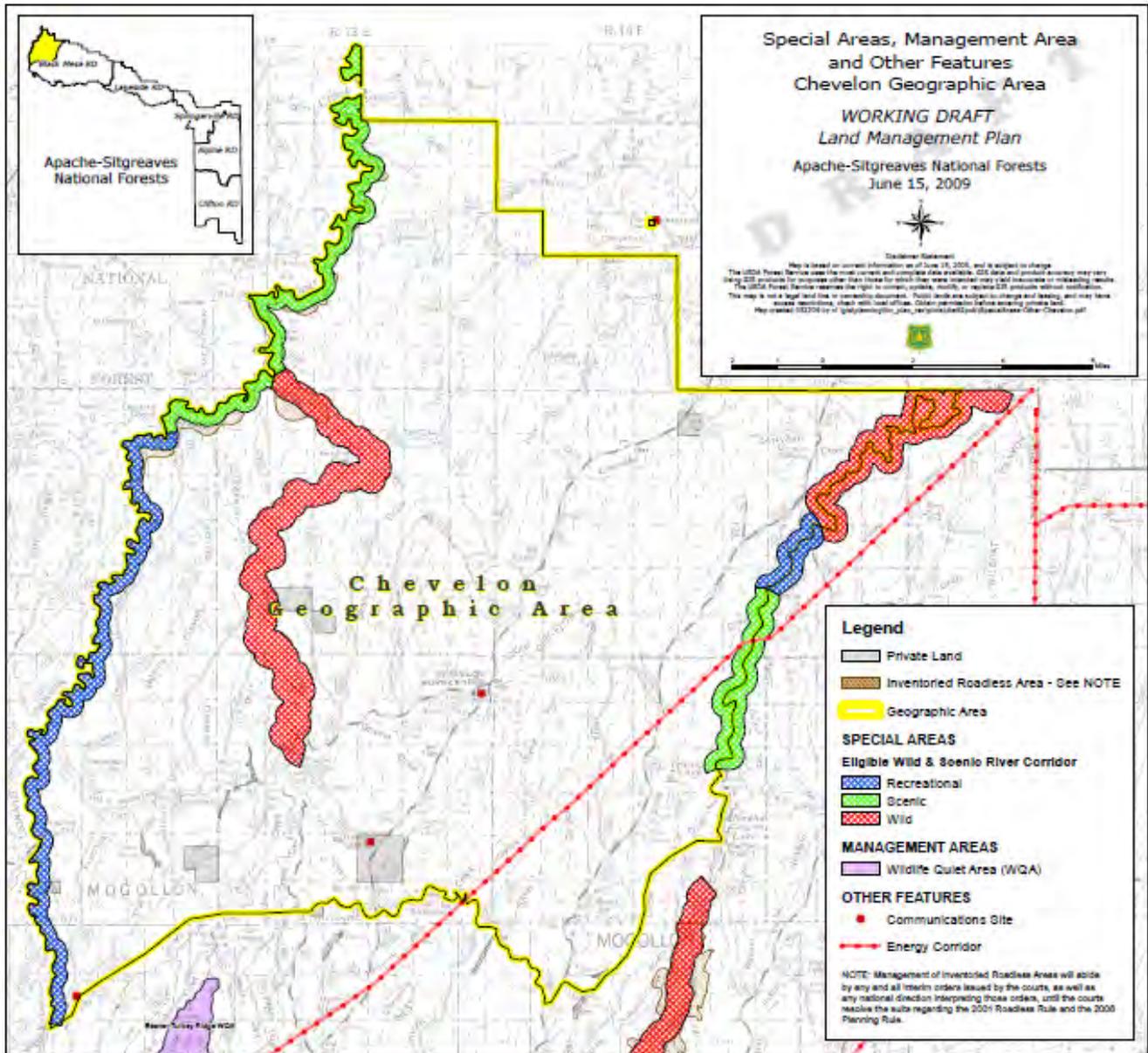


Figure 24. Map of the special areas, management areas, and other features of the Chevelon Geographic Area.



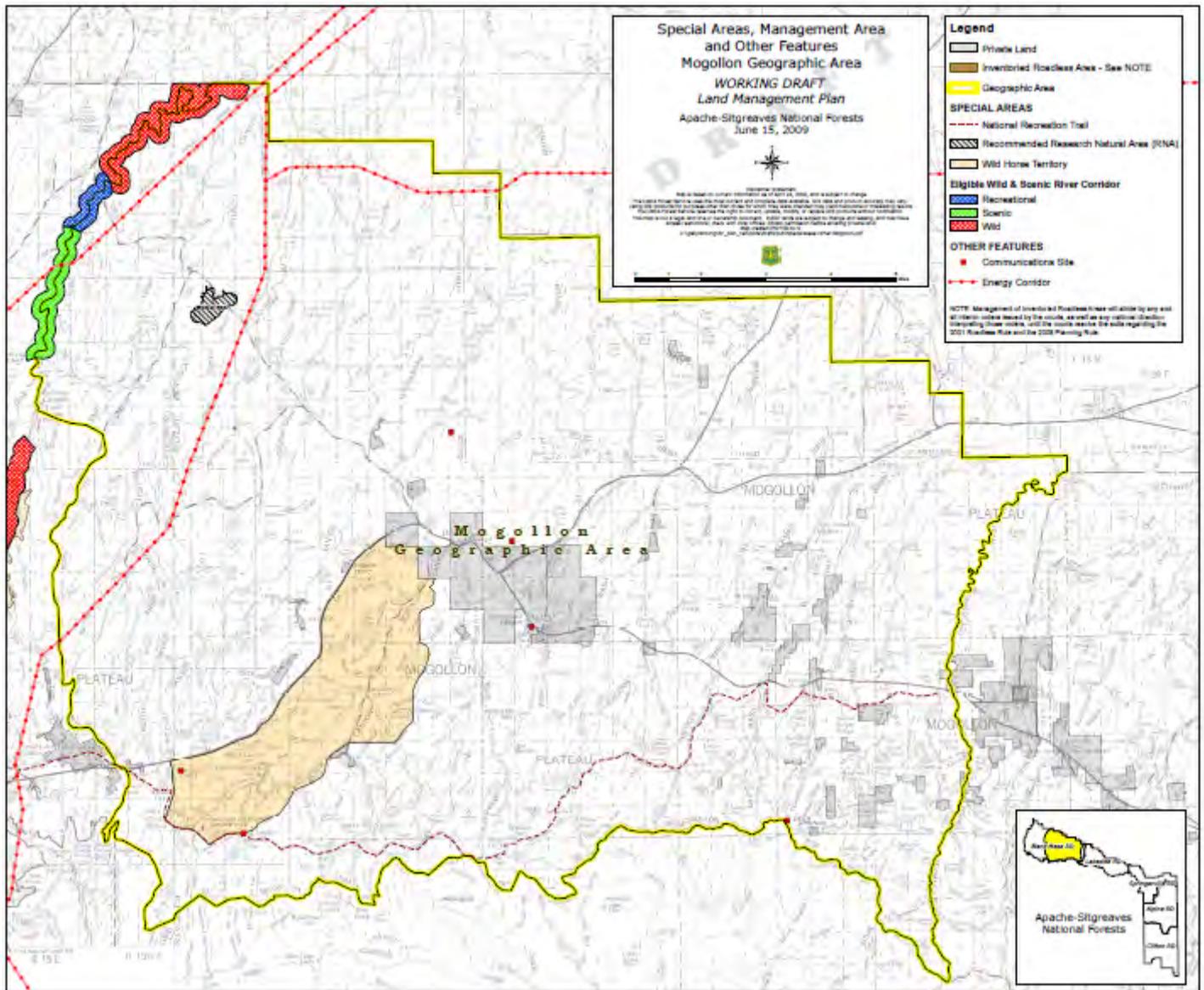


Figure 26. Map of the special areas, management areas, and other features of the Mogollon Geographic Area.

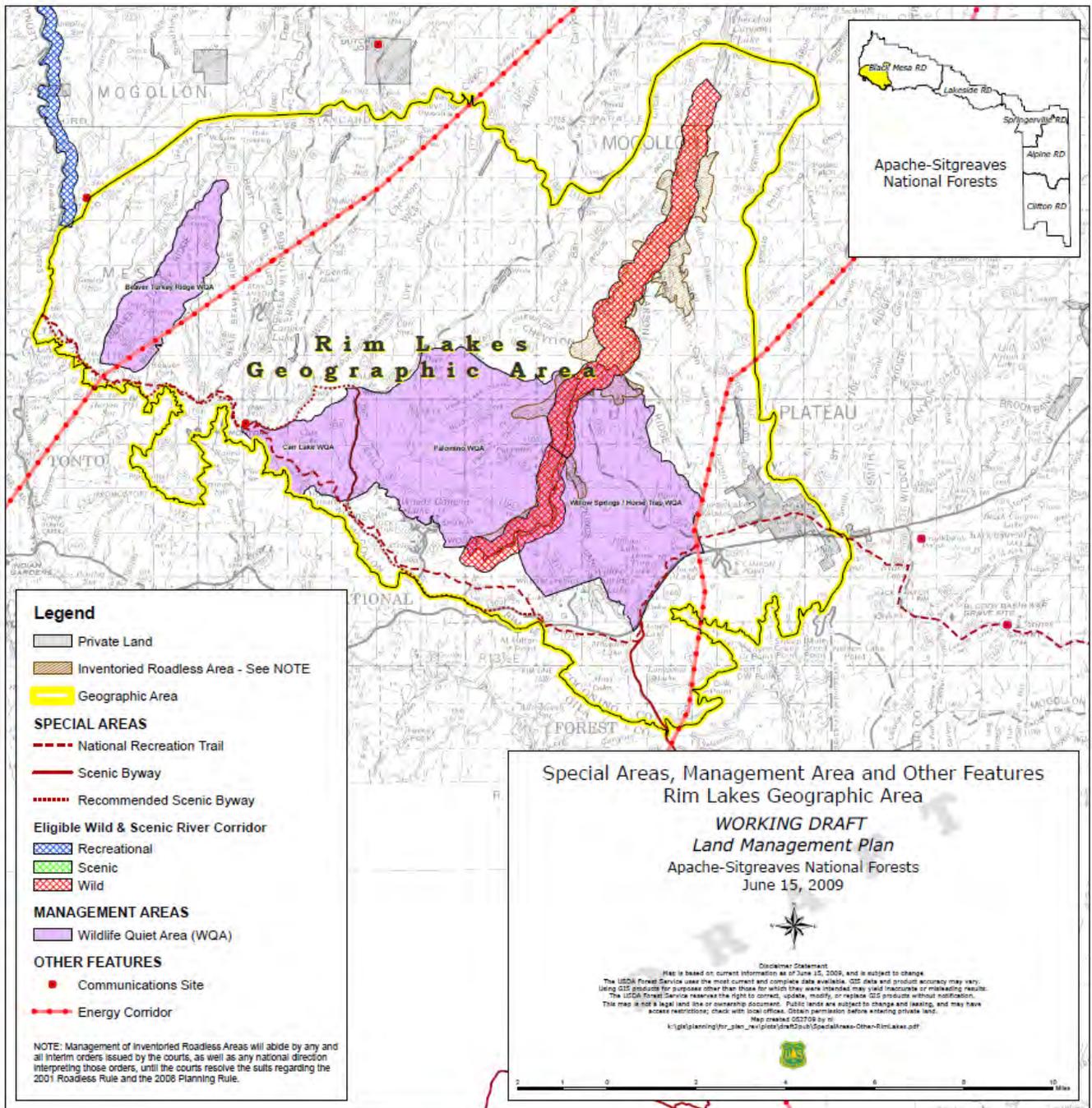


Figure 27. Map of the special areas, management areas, and other features of the Rim Lakes Geographic Area.

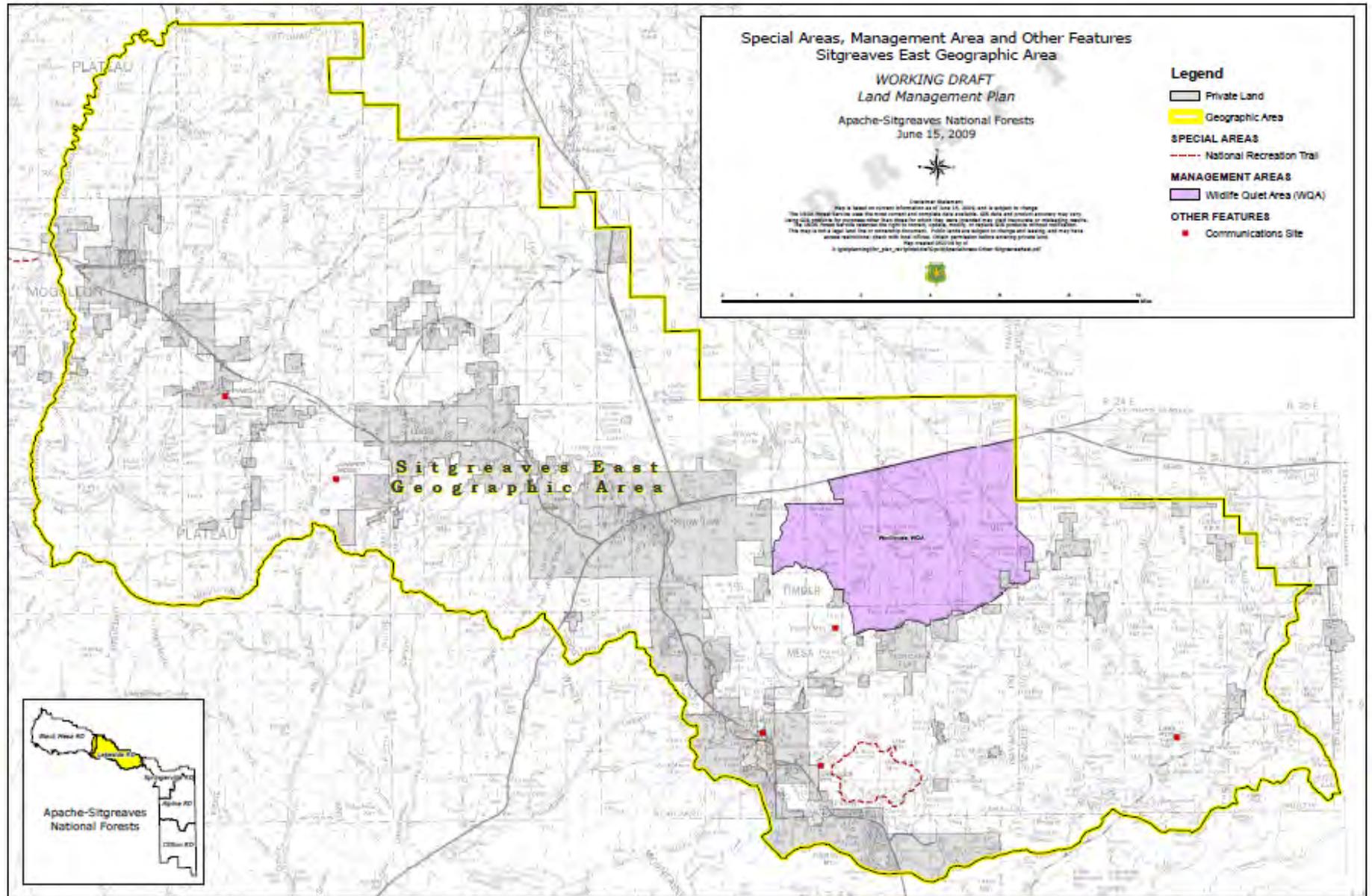


Figure 28. Map of the special areas, management areas, and other features of the Sitgreaves East Geographic Area.

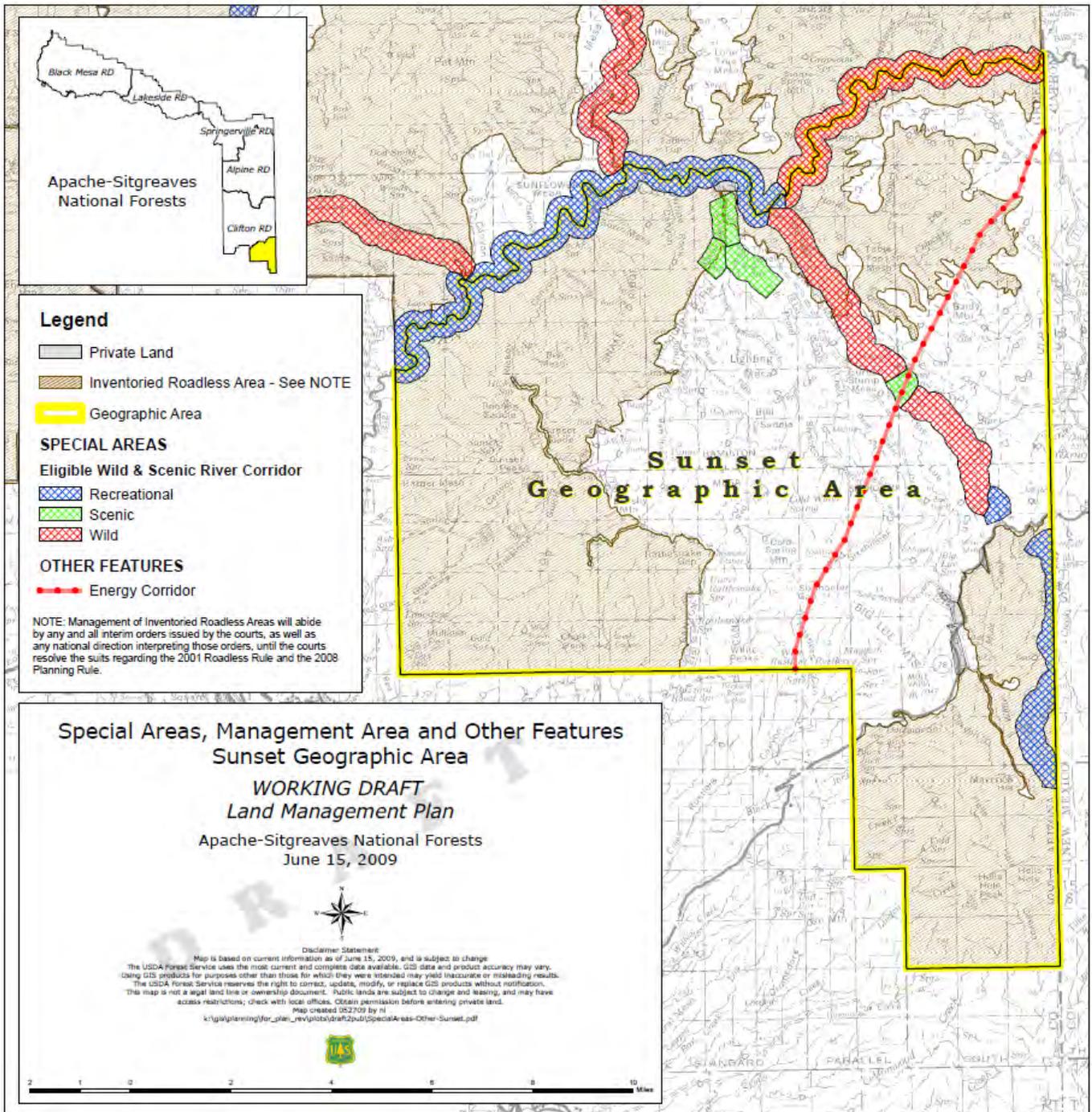


Figure 29. Map of the special areas, management areas, and other features of the Sunset Geographic Area.