ASNF Wildlife, Fish and Plants

ASNF Wildlife and Rare Plants

The forests currently (2012) have 13 federally listed species under the Endangered Species Act of 1973 (Public Law 93-205), 8 with proposed or designated critical habitat. An additional four species are candidates being considered for Federal listing. Three areas have been identified by the National Audubon Society for their great diversity of breeding and migratory bird species. These are known as important bird areas (IBAs). The Mogollon Rim Snowmelt Draws IBA is located on the west side of the forests on the Black Mesa Ranger District, overlapping onto the Coconino National Forest. The Blue and San Francisco Rivers IBA is located on the Alpine and Clifton Ranger Districts. The Upper Little Colorado River IBA on the Springerville Ranger District includes its east, west, and south fork tributaries and extends off the forests to include the AZGFDWenima Wildlife Area. While these areas provide exceptional birding opportunities, they carry no management obligations or restrictions for the forests.

Desired Conditions

Landscape Scale

Habitat conditions contribute to the recovery of federally listed species.

Habitat is well distributed and connected.

Mid-Scale Desired Conditions (100 to 1,000 acres)

Wildlife are free from harassment and disturbance at a scale that impacts vital functions (e.g., breeding, rearing young) that could affect persistence of the species.

Fine-Scale Desired Conditions (less than 10 acres)

Collection of animals and plants does not negatively impact species abundance.

• Localized rare plant and animal communities are intact and functioning.

Other Sources of Information for Wildlife and Rare Plants

Species Recovery Plans (see appendix D)

• Arizona's Comprehensive Wildlife Conservation Strategy 2005-2015. Arizona Game and Fish Department (Sections: Wildlife and Habitats; Stressors the Impact Wildlife and Habitat; Ecoregion-Specific Habitat Conditions; Conservation Actions to Address Stressors to Habitat; and Monitoring Habitat Condition and Wildlife).

• Birds of Conservation Concern. U.S. Fish and Wildlife Service, Division of Migratory Birds. Bird Conservation Regions (BCRs) 16 and 34.

Interagency Management Plan for Gunnison's Prairie Dogs in Arizona. Arizona Game and Fish Department, Nongame and Endangered Wildlife Program (Sections: Conservation Objectives and Actions).

Arizona Partners in Flight Conservation Plan. Arizona Game and Fish Department, Nongame and Endangered Wildlife Program. Technical Report 142 (Chapter V).

Western Hummingbird Partnership Action Plan. U.S. Forest Service and the Hummingbird Monitoring Network (Section V – Conservation Actions).

Conservation Assessment and Strategy for the Bald Eagle in Arizona, specifically Interagency MOU, Nest Watch Program (Sections: Post-Delisting Nest Area Monitoring, Winter Roost and Counts, Strategies Regarding Maintenance of Existing and Establishment of New Breeding Closures, Recreation, and Development).

Candidate Species Analysis and Recommended Action Plan. U.S. Forest Service and U.S. Fish and Wildlife Service. New Mexico meadow jumping mouse.

Conservation assessments/strategies and agreements with the U.S. Fish and Wildlife Service (bluehead sucker, Little Colorado River sucker, roundtail chub, Goodding's onion, and Arizona willow).

Related Plan Content for Wildlife and Rare Plants

See the following sections: Overall Ecosystem Health, All PNVTs, Dispersed Recreation Opportunities, Developed Recreation Opportunities, Motorized Opportunities, Nonmotorized Opportunities, Livestock Grazing, and Minerals and Geology.

Related Plan Content: Overall Ecosystem Health

Landscape Scale Desired Conditions (10,000 acres or greater)

Ecological conditions for habitat quality, distribution, and abundance contribute to self-sustaining populations of native and desirable nonnative plants and animals that are healthy, well distributed, connected, and genetically diverse. Conditions provide for the life history, distribution, and natural population fluctuations of the species within the capability of the landscape.

• Large blocks of habitat are interconnected, allowing for behavioral and predator-prey interactions, and the persistence of metapopulations and highly interactive wildlife species across the landscape. Ecological connectivity extends through all plant communities and ecotones.

• Habitat configuration and availability allows wildlife populations to adjust their movements (e.g., seasonal migration, foraging) in response to climate change and promote genetic flow between wildlife populations.

• Habitat quality, distribution, and abundance exist to support the recovery of federally listed species and the continued existence of all native and desirable nonnative species.

• Healthy ecosystems provide a wide range of ecosystem services.

Plan Related Content: All PNVTs

Landscape-scale Desired Conditions

The range of species genetic diversity remains within native vegetation and animal populations, thus enabling species to adapt to changing environmental and climatic conditions.

• Vegetative connectivity provides for species dispersal, genetic exchange, and daily and seasonal movements across multiple spatial scales.

• • Organic soil cover and herbaceous vegetation protect soil, facilitate moisture infiltration, and contribute to plant and animal diversity and ecosystem function.

• Diverse vegetation structure, species composition, densities, and seral states provide quality habitat for native and desirable nonnative plant and animal species throughout their life cycle and at multiple spatial scales. Landscapes provide for the full range of ecosystem diversity at multiple scales, including habitats for those species associated with late seral states and old growth forests.

Mid Scale Desired Conditions

Vegetation conditions provide hiding and thermal cover in contiguous blocks for wildlife. Native plant species are present in all age classes and are healthy, reproducing, and persisting.

Fine Scale Desired Conditions

Herbaceous vegetation amount and structure (e.g., plant density, height, litter, seed heads) provides habitat to support prey species.

Some isolated infestations of mistletoe provide for a diversity of habitat components (e.g., food, nesting, cover) for a variety of species such as owls, squirrels, and some birds and insects.

Dispersed Recreation, Developed Recreation, Motorized Opportunities, Non-Motorized Opportunities, Livestock Grazing – Did not see anything relevant to restoration

Related Plan Content: Minerals and Geology

Desired Conditions

Caves and abandoned mines are available for roosting bats, reducing the potential for displacement, abandonment of young, and possible mortality.

Caves and abandoned mines that are used by bats should be managed to prevent disturbance to species and spread of disease (e.g., white-nose syndrome).

Related Plan Content: Aquatic Habitat and Species (below)

ASNF Aquatic Habitat and Species

The forests are home to 14 native and 25 nonnative fish species. Fish habitats range from high elevation cold water trout streams to the lower elevation warm water cyprinid (minnow family) streams. Other aquatic species include Chiricahua leopard frog, narrow-headed gartersnake, springsnails, and aquatic invertebrates.

Most streams have been altered from reference conditions, resulting in reduced quality of fish habitat. Inventoried streams have exhibited reduced habitat capabilities. Native fish populations and distributions are decreasing rangewide, and the resiliency of all fish species has been impacted. The alteration of habitats, isolation of populations, and introduction of nonnative species have contributed to the decline of native fish habitat and populations. Almost all of the forests' fish-bearing streams have been impacted by diversions. Some streams, including portions

of the Blue River, Little Colorado River, Dix Creek, San Francisco River, Eagle Creek, and Show Low Creek, are totally diverted for several months of the year which effectively eliminates or isolates viable aquatic habitat and diminishes fish populations.

If climate change predictions become reality, a warmer and drier climate may further reduce the quality and quantity of wetlands that provide habitat for resident and migratory waterfowl and associated mammals, reptiles, and amphibians. Destruction of historic waterfowl congregation areas along the Colorado River and changes in migratory patterns have added to the importance of maintaining forest wetlands.

Desired Conditions for Aquatic Habitat and Species

4th to 5th Level HUC Watershed Scale Desired Conditions

Streams and aquatic habitats support native fish and/or other aquatic species providing the quantity and quality of aquatic habitat within reference conditions.

Federally listed species are trending toward recovery.

Streamflows, habitat, and water quality support native aquatic and riparian-dependent species and habitat.

6th Level HUC Watershed Scale Desired Conditions

• Habitat and ecological conditions are capable of providing for self-sustaining populations of native, riparian dependent plant and animal species.

• Native fish, reptile, and amphibian populations are free from or minimally impacted by nonnative plants and animals.

• Aquatic species habitat conditions provide the resiliency and redundancy necessary to maintain species diversity and metapopulations.

Desirable nonnative fish species provide recreational fishing in waters where those opportunities are not in conflict with the recovery of native species.

• Wetlands are hydrologically functioning and have sufficient (composing 50 percent of the wetland) emergent vegetation and macroinvertebrate populations to support resident and migratory wetland dependent species.

ASNF Invasive Species

Nonnative plants and animals 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.

Desired Conditions for Invasive Species

Landscape Scale Desired Condition (10,000 acres or greater)

• Invasive species are in low abundance or nonexistent.

Mid-Scale Desired Conditions (100 to 1,000 acres)

• Undesirable nonnative species are absent or present only to the extent that they do not adversely affect ecosystem composition, structure, or function, including native species populations or the natural fire regime.

• Introduction of additional invasive species rarely occurs and is detected at an early stage.

Ecosystem Health

Desired Conditions for Overall Ecosystem Health

Landscape Scale Desired Conditions (10,000 acres or greater)

Ecological components are resilient to disturbances including human activities and climate variability.

Natural ecological processes (e.g., fire, drought, wind, insects, disease, pathogens) return to their innate role within the ecosystem. Fire, in particular, is restored to a more natural function.

Natural ecological processes allow for a shifting of plant communities, structure, and ages across the landscape. Ecotone shifts are influenced at both the landscape and watershed scale by ecological processes. The mosaic of plant communities and the variety within the communities are resilient to disturbances.

Ecological conditions for habitat quality, distribution, and abundance contribute to self-sustaining populations of native and desirable nonnative plants and animals that are healthy, well distributed, connected, and genetically diverse. Conditions provide for the life history, distribution, and natural population fluctuations of the species within the capability of the landscape.

Large blocks of habitat are interconnected, allowing for behavioral and predator-prey interactions, and the persistence of metapopulations and highly interactive wildlife species across the landscape. Ecological connectivity extends through all plant communities and ecotones.

Habitat configuration and availability allows wildlife populations to adjust their movements (e.g., seasonal migration, foraging) in response to climate change and promote genetic flow between wildlife populations.

Habitat quality, distribution, and abundance exist to support the recovery of federally listed species and the continued existence of all native and desirable nonnative species.

Healthy ecosystems provide a wide range of ecosystem services.

Watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

ASNF Water Resources

Lands within the forests form the headwaters for the Little Colorado, Black, Blue, and San Francisco Rivers which produce water for many uses throughout the State of Arizona. Streams and riparian areas occur at a higher density than any other area in the State. Watersheds and aquatic ecosystems have changed from reference conditions, but the location of stream channels has generally not changed. The demand for water resources is increasing.

Many riparian areas are not in proper functioning condition. Diversions, impoundments, unnaturally dense forests, grazing, and prolonged drought have altered streamflow and riparian condition. In addition, pumping from the Little Colorado and Morenci groundwater aquifers associated with the forests is greater than the estimated recharge, resulting in reduced water availability and affecting some streamflows.

Water quality is generally good, but there are some impaired streams and lakes. Suspended sediment is a potential nonpoint source water quality problem throughout the forests. There are nine Outstanding Arizona Waters on the forests.

Desired Conditions for Water Resources

4th to 5th Level HUC Watershed Scale Desired Conditions

Water quality, stream channel stability, and aquatic habitats retain their inherent resilience to natural and other disturbances.

Water resources maintain the capability to respond and adjust to disturbances without long term adverse changes.

Vegetation and soil conditions above the floodplain contribute to downstream water quality, quantity, and aquatic habitat.

6th Level HUC Watershed Scale Desired Conditions

Instream flows provide for channel and floodplain maintenance, recharge of riparian aquifers, water quality, and minimal temperature fluctuations.

Streamflows provide connectivity among fish populations and provide unobstructed routes critical for fulfilling needs of aquatic, riparian dependent, and many upland species of plants and animals.

Water quantity meets the needs for forest administration and authorized activities (e.g., livestock grazing, recreation, firefighting, domestic use, road maintenance).

Stream channels and floodplains are dynamic and resilient to disturbances. The water and sediment balance between streams and their watersheds allow a natural frequency of low and high flows.

Flooding does not disrupt normal stream characteristics (e.g., water transport, sediment, woody material) or alter stream dimensions (e.g., bankfull width, depth, slope, sinuosity).

Floodplains are functioning and lessen the impacts of floods on human safety, health, and welfare.

Related Plan Content for Water Resources: See the following sections: Soil, Aquatic Habitat and Species, Riparian Areas, Dispersed Recreation Opportunities, Motorized Opportunities, Nonmotorized Opportunities, Special Uses, and Water Uses.

Related Plan Content: ASNF Riparian

Landscape Scale Desired Conditions (10,000 acres or greater)

- Natural ecological processes (e.g., flooding, scouring) promote a diverse plant structure consisting of herbaceous, shrub, and tree species of all ages and size classes necessary for the recruitment of riparian-dependent species.
- Riparian-wetland conditions maintain water-related processes (e.g., hydrologic, hydraulic, geomorphic). They also maintain the physical and biological community characteristics, functions, and processes.

Mid-Scale Desired Conditions (100 to 1,000 acres)

- Stream (lotic) riparian-wetland areas have vegetation, landform, or large coarse woody debris to dissipate stream energy associated with high waterflow.
- Streams and their adjacent floodplains are capable of filtering, processing, and storing sediment; aiding floodplain development; improving floodwater retention; and increasing groundwater recharge.
- Vegetation and root masses stabilize streambanks, islands, and shoreline features against the cutting action of water.
- Ponding and channel characteristics provide habitat, water depth, water duration, and the temperatures necessary for maintaining populations of riparian-dependent species and for their dispersal.
- Beavers occupy capable stream reaches and help promote the function and stability of riparian areas.
- Lentic riparian areas (e.g., wet meadows, fens, bogs) have vegetation and landform present to dissipate wind action, wave action, and overland flow from uplands.
- Wetland riparian areas are capable of filtering sediment and aiding floodplain development that contribute to water retention and groundwater recharge.
- Willows (e.g., Bebb, Geyer, Arizona) are reproducing with all age classes present.
- The spatial extent of wetlands is maintained[16].
- Sedimentation and soil compaction do not negatively impact riparian areas.
- Riparian vegetation consists mostly of native species that support a wide range of vertebrate and invertebrate species and are free of invasive plant and animal species.

- Diversity and density of riparian forest vegetation provides for escape, hiding, and resting cover for wildlife and provides travelways between other habitat areas and seasonal ranges.

Fine Scale Desired Conditions (less than 10 acres)

- The ecological function of riparian areas is resilient to animal and human use.
- Floodplains and wet meadows provide sufficient herbaceous cover (55 percent or greater) and height (9 inches or longer) to trap sediment, mitigate flood energy, and provide wildlife habitat.
- Riparian areas that do not depend on geologic control features for stability have large, coarse woody debris that provides key habitat for riparian-dependent species.
- Stream bottoms that are predominantly composed of sand and gravel have large coarse woody debris which provides habitat and food and helps dissipate hydraulic energy.
- Vegetation is structurally diverse, often dense, providing for high bird species diversity and abundance, especially neotropical migratory birds. It includes large trees and snags in the cottonwood-willow and mixed broadleaf deciduous riparian forests to support species such as beaver, yellow-billed cuckoo, bald eagles, Arizona gray squirrel, and various bat species

Related Plan Content for Riparian Areas

See the following sections: Overall Ecosystem Health, Soil, Water Resources, Aquatic Habitat and Species, All PNVTs, Wildlife and Rare Plants, Dispersed Recreation Opportunities, Motorized Opportunities, and Nonmotorized Opportunities.

Related Plan Content: Overall Ecosystem Health

Objectives

During the planning period, improve the condition class on at least 10 priority 6th level HUC watersheds by removing or mitigating degrading factors2. Degrading factors include, but are not limited to: high departure from historic vegetation conditions, poor soil condition, nonfunctioning riparian areas, impaired species habitat, occurrence of invasive species, unmanaged grazing, and sedimentation from roads or trails

Management Approaches for Overall Ecosystem Health

Highest priority treatments are those that remove risk factors that may threaten the integrity of the watershed; some of the risk factors include: low geomorphic, hydrologic, and biotic integrity relative to the watershed's natural potential condition; an unstable drainage network; and conditions which may not support beneficial uses. Geomorphic integrity can be defined in terms of attributes such as slope stability, soil erosion, channel morphology, and other upslope, riparian, and aquatic habitat characteristics. Hydrologic integrity relates primarily to flow, sediment, and water quality attributes. Biological integrity is defined by the characteristics that influence the diversity and abundance of aquatic species, vegetation, and soil productivity. Specific objectives to reduce degrading factors can be found below in the "Soil," "Water Resources," "Aquatic Habitat," and "All PNVTs" (vegetation) sections. Treatments include those that restore and then maintain natural fire regimes, improve riparian condition, restore meadows or openings, repair gullies, and reduce erosion.

Related Plan Content: Soil – Did not find any specific reference to "riparian"

Related Plan Content: Aquatic Habitat and Species

4th to 5th Level HUC Watershed Scale Desired Conditions

• Streamflows, habitat, and water quality support native aquatic and riparian-dependent species and habitat.

6th Level HUC Watershed Scale Desired Conditions

• Habitat and ecological conditions are capable of providing for self-sustaining populations of native, riparian dependent plant and animal species.

Related Plan Content: All PNVTs

The 14 major PNVTs[12] can be assembled into 5 groupings: riparian, forest, woodland, grassland, and chaparral. This section pertains to all 5 vegetation 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 PNVT Landscape-Scale Desired Conditions

Ecosystem services are available as forests, woodlands, grasslands, and riparian communities successfully adapt to a changing and variable climate.

Related Plan Content: Wildlife and Rare Plants – nothing specific to "riparian species or habitat"

Related Plan Content: Water Resources

Lands within the forests form the headwaters for the Little Colorado, Black, Blue, and San Francisco Rivers which produce water for many uses throughout the State of Arizona. Streams and riparian areas occur at a higher density than any other area in the State. Watersheds and aquatic ecosystems have changed from reference conditions, but the location of stream channels has generally not changed. The demand for water resources is increasing.

Many riparian areas are not in proper functioning condition. Diversions, impoundments, unnaturally dense forests, grazing, and prolonged drought have altered streamflow and riparian condition. In addition, pumping from the Little Colorado and Morenci groundwater aquifers associated with the forests is greater than the estimated recharge, resulting in reduced water availability and affecting some streamflows.

ASNF Aquatic Habitat and Species

The forests are home to 14 native and 25 nonnative fish species. Fish habitats range from high elevation cold water trout streams to the lower elevation warm water cyprinid (minnow family) streams. Other aquatic species include Chiricahua leopard frog, narrow-headed gartersnake, springsnails, and aquatic invertebrates.

Most streams have been altered from reference conditions, resulting in reduced quality of fish habitat. Inventoried streams have exhibited reduced habitat capabilities. Native fish populations and distributions are decreasing rangewide, and the resiliency of all fish species has been impacted. The alteration of habitats, isolation of populations, and introduction of nonnative species have contributed to the decline of native fish habitat and populations. Almost all of the forests' fish-bearing streams have been impacted by diversions. Some streams, including portions of the Blue River, Little Colorado River, Dix Creek, San Francisco River, Eagle Creek, and Show Low Creek, are totally diverted for several months of the year which effectively eliminates or isolates viable aquatic habitat and diminishes fish populations.

4th to 5th Level HUC Watershed Scale Desired Conditions

Streams and aquatic habitats support native fish and/or other aquatic species providing the quantity and quality of aquatic habitat within reference conditions.

• Federally listed species are trending toward recovery.

• Streamflows, habitat, and water quality support native aquatic and riparian-dependent species and habitat.

6th Level HUC Watershed Scale Desired Conditions

Habitat and ecological conditions are capable of providing for self-sustaining populations of native, riparian dependent plant and animal species.

• Native fish, reptile, and amphibian populations are free from or minimally impacted by nonnative plants and animals.

• Aquatic species habitat conditions provide the resiliency and redundancy necessary to maintain species diversity and metapopulations.

Desirable nonnative fish species provide recreational fishing in waters where those opportunities are not in conflict with the recovery of native species.

• Wetlands are hydrologically functioning and have sufficient (composing 50 percent of the wetland) emergent vegetation and macroinvertebrate populations to support resident and migratory wetland dependent species.

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.

Related Plan Content - Overall Ecosystem Health

Related Plan Content - Water Resources

Lands within the forests form the headwaters for the Little Colorado, Black, Blue, and San Francisco Rivers which produce water for many uses throughout the State of Arizona. Streams and riparian areas occur at a higher density than any other area in the State. Watersheds and aquatic ecosystems have changed from reference conditions, but the location of stream channels has generally not changed. The demand for water resources is increasing.

Desired Conditions for Water Resources

4th to 5th Level HUC Watershed Scale Desired Conditions

• Water quality, stream channel stability, and aquatic habitats retain their inherent resilience to natural and other disturbances.

• Water resources maintain the capability to respond and adjust to disturbances without long term adverse changes.

Vegetation and soil conditions above the floodplain contribute to downstream water quality, quantity, and aquatic habitat.

6th Level HUC Watershed Scale Desired Conditions

• Instream flows provide for channel and floodplain maintenance, recharge of riparian aquifers, water quality, and minimal temperature fluctuations.

• Streamflows provide connectivity among fish populations and provide unobstructed routes critical for fulfilling needs of aquatic, riparian dependent, and many upland species of plants and animals.

• Water quantity meets the needs for forest administration and authorized activities (e.g., livestock grazing, recreation, firefighting, domestic use, road maintenance).

• Stream channels and floodplains are dynamic and resilient to disturbances. The water and sediment balance between streams and their watersheds allow a natural frequency of low and high flows.

• Flooding does not disrupt normal stream characteristics (e.g., water transport, sediment, woody material) or alter stream dimensions (e.g., bankfull width, depth, slope, sinuosity).

• Floodplains are functioning and lessen the impacts of floods on human safety, health, and welfare.

• Water quality meets or exceeds Arizona State standards[10] or Environmental Protection Agency water quality standards for designated uses.

• Water quality meets the needs of aquatic species such as the California floater, northern and Chiricahua leopard frog, and invertebrates that support fish populations.

Related Plan Content - ASNF Riparian

Landscape Scale Desired Conditions (10,000 acres or greater)

• Natural ecological processes (e.g., flooding, scouring) promote a diverse plant structure consisting of herbaceous, shrub, and tree species of all ages and size classes necessary for the recruitment of riparian-dependent species.

Mid-Scale Desired Conditions (100 to 1,000 acres)

• Ponding and channel characteristics provide habitat, water depth, water duration, and the temperatures necessary for maintaining populations of riparian-dependent species and for their dispersal.

• Riparian vegetation consists mostly of native species that support a wide range of vertebrate and invertebrate species and are free of invasive plant and animal species.

• Diversity and density of riparian forest vegetation provides for escape, hiding, and resting cover for wildlife and provides travelways between other habitat areas and seasonal ranges.

Fine Scale Desired Conditions (less than 10 acres)

• Floodplains and wet meadows provide sufficient herbaceous cover (55 percent or greater) and height (9 inches or longer) to trap sediment, mitigate flood energy, and provide wildlife habitat.

• Riparian areas that do not depend on geologic control features for stability have large, coarse woody debris that provides key habitat for riparian-dependent species.

• Stream bottoms that are predominantly composed of sand and gravel have large coarse woody debris which provides habitat and food and helps dissipate hydraulic energy.

• Vegetation is structurally diverse, often dense, providing for high bird species diversity and abundance, especially neotropical migratory birds. It includes large trees and snags in the cottonwood-willow and mixed broadleaf deciduous riparian forests to support species such as beaver, yellow-billed cuckoo, bald eagles, Arizona gray squirrel, and various bat species.

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ASNF Wetlands

DC at 6th Level HUC:

Wetlands are hydrologically functioning and have sufficient (composing 50 percent of the wetland) emergent vegetation and macroinvertebrate populations to support resident and migratory wetland dependent species.

Related Plan Content: Water Resources:

Related Plan Content: Aquatic Habitat and Species:

Background for Aquatic Habitat and Species

If climate change predictions become reality, a warmer and drier climate may further reduce the quality and quantity of wetlands that provide habitat for resident and migratory waterfowl and associated mammals, reptiles, and amphibians. Destruction of historic waterfowl congregation areas along the Colorado River and changes in migratory patterns have added to the importance of maintaining forest wetlands.

6th Level HUC Watershed Scale Desired Conditions

Wetlands are hydrologically functioning and have sufficient (composing 50 percent of the wetland) emergent vegetation and macroinvertebrate populations to support resident and migratory wetland dependent species.

Related Plan Content: All PNVTs

Landscape-Scale Desired Conditions

Riparian-wetland conditions maintain water-related processes (e.g., hydrologic, hydraulic, geomorphic). They also maintain the physical and biological community characteristics, functions, and processes.

Mid-Scale Desired Conditions

Stream (lotic) riparian-wetland areas have vegetation, landform, or large coarse woody debris to dissipate stream energy associated with high waterflow.

Lentic riparian areas (e.g., wet meadows, fens, bogs) have vegetation and landform present to dissipate wind action, wave action, and overland flow from uplands.

Wetland riparian areas are capable of filtering sediment and aiding floodplain development that contribute to water retention and groundwater recharge.

Fine-Scale Desired Conditions

Floodplains and wet meadows provide sufficient herbaceous cover (55 percent or greater) and height (9 inches or longer) to trap sediment, mitigate flood energy, and provide wildlife habitat.

Related Plan Content: Guidelines for Riparian Areas

• Wet meadows and active floodplains with riparian-obligate species should provide sufficient herbaceous cover (55 percent or greater) and height (6 to 9 inches or longer) to trap sediment, mitigate flood energy, stabilize banks, and provide for wildlife and plant needs.

• Ground-disturbing projects (including planned ignitions) which may degrade long term riparian conditions should be avoided.

• Wet meadows and cienegas should not be used for concentrated activities (e.g., equipment storage, forest product or mineral stockpiling, livestock handling facilities, special uses) that cause damage to soil and vegetation.

Related Plan Content – Invasive Species

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

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ASNF – Springs

See Aquatic Habitat and Species, All PNVTs and Riparian Areas, American Indian Rights and Interests, Wildlife Quiet Areas

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Related Plan Content – Aquatic Habitat and Species

See Guidelines for Aquatic Habitat and Species

Related Plan Content – American Indian Rights and Interests

The better known TCPs, sacred sites, or areas known to have been used and/or continue to be used for traditional cultural purposes include, but are not limited to, Escudilla Mountain, Mount Baldy, Greens Peak, Rose Peak, Gobbler Peak, St. Peters Dome, Burro Mountain, Antelope Mountain, Pole Knoll, Flume Mountain, SU Knoll, Head of Chevelon Canyon, Chevelon Butte, areas near Aspen Lake, numerous springs, caves, and the Little Colorado River.

Related Plan Content – Wildlife Quiet Areas

Desired Conditions: Bear Springs and Cottonwood Seep WQAs provide quality travel, hiding, and thermal cover along the Mogollon Rim for a wide variety of species ranging from turkeys to mountain lions. TheWQAs provide an abundance of browse species important for deer and elk.

ASNF Riparian Forests – N/A – See Riparian, Overall Ecosystem Health, All PNVTs

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All PNVTs

Background for All PNVTs

The 14 major PNVTs[1] 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.

Ranges of values presented in desired conditions reflect varying multiple use needs and/or the natural variation in the composition and structure within a PNVT due to soils, elevation, and aspect. The desired conditions do not necessarily represent reference conditions, since it may not be possible, nor desirable, to return to that condition. Additional information on desired conditions for overstory and understory vegetation can be found in appendix B.

Desired conditions are described at multiple scales when possible. **Fine scale** is a 10-acre or less area at which the distribution of individual trees (single, grouped, or aggregates of groups) is described. **Mid-**

[1] This plan refers to PNVT, meaning the potential natural vegetation type. Refer to appendix B for more information.

scale is a unit of 100 to 1,000 acres and is composed of assemblages of fine scale units which have similar biophysical conditions. **Landscape scale** is an assemblage of mid-scale units, typically composed of variable elevations, slopes, aspects, soils, plant associations, and ecological processes. An area at this scale comprises multiple mid-scale units, most often 10 or more.

Desired Conditions for All PNVTs

Landscape Scale Desired Conditions (10,000 acres or greater)

- Each PNVT contains a mosaic of vegetative conditions, densities, and structures. This mosaic occurs at a variety of scales across landscapes and watersheds. The distribution of physical and biological conditions is appropriate to the natural disturbance regimes affecting the area.
- The vegetative conditions and functions are resilient to the frequency, extent, and severity of disturbances (e.g., fire, insects and disease, flood, climate change, management activities). The landscape is a functioning ecosystem that contains all its components and processes.
- Natural processes and human and natural disturbances (e.g., wildland fire, mechanical vegetation treatments) provide desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling. Natural fire regimes are restored. Uncharacteristic fire behavior is minimal or absent on the landscape.
- Wildland fire maintains and enhances resources and, as nearly as possible, is allowed to function in its natural ecological role.
- Native plant communities dominate the landscape.
- Species genetic diversity remains within native vegetation and animal populations, thus enabling species to adapt to changing environmental and climatic conditions.
- Vegetative connectivity provides for species dispersal, genetic exchange, and daily and seasonal movements across multiple spatial scales.
- Vegetation characteristics (e.g., density, litter) provide favorable conditions for water flow and quality.
- Organic soil cover and herbaceous vegetation protect soil, facilitate moisture infiltration, and contribute to plant and animal diversity and ecosystem function.
- Diverse vegetation structure, species composition, densities, and seral states provide quality habitat for native and desirable nonnative plant and animal species throughout their life cycle and at multiple spatial scales. Landscapes provide for the full range of ecosystem diversity at multiple scales, including habitats for those species associated with late seral states and old growth.
- Old growth is dynamic in nature, well distributed, and spatially shifts across forest and woodland landscapes over time.
- Old or large trees, multistoried canopies, large coarse woody debris, and snags provide the structure, function, and associated vegetation composition as appropriate for each forested and woodland PNVT.
- Vegetation conditions allow for transition zones or ecotones between riparian areas, forests, woodlands, shrublands, and grasslands. Transition zones may shift in time and space due to changing site conditions from disturbances (e.g., fire, climate change).

- Insect and disease populations are at endemic levels with occasional outbreaks. A variety of seral states usually restricts the scale of localized insect and disease outbreaks.
- Disjunct populations of Chihuahuan pine, Arizona cypress, and Rocky Mountain maple are present with the ability to reproduce on capable sites.
- Herbivory is in balance with available forage (i.e., grazing and browsing by authorized livestock, wild horses, and wildlife do not exceed available forage production within established use levels).
- Vegetation conditions within each PNVT should be similar to site potential[2].
- Shrub components contain a diverse array of native vegetation that is well distributed across the landscape to provide nutritional needs for browsers.
- Vegetation provides products—such as wood fiber or forage—to help meet local and regional needs in a manner that is consistent with other desired conditions on a sustainable basis within the capacity of the land.
- Ecosystem services are available as forests, woodlands, grasslands, and riparian communities successfully adapt to a changing and variable climate.

Mid-Scale Desired Conditions (100 to 1,000 acres)

- Stand densities and species compositions are such that vegetation conditions are resilient under a variety of potential future climates.
- Vegetation conditions provide hiding and thermal cover in contiguous blocks for wildlife. Native plant species are present in all age classes and are healthy, reproducing, and persisting.
- Vegetative ground cover (herbaceous vegetation and litter) is optimized[3] to protect and enrich soils and promote water infiltration. There is a diverse mix of cool and warm season grasses and desirable forbs species.
- Grasses, forbs, shrubs, and litter are abundant and continuous to support natural fire regimes.
- The composition, density, structure, and mosaic of vegetative conditions reduce uncharacteristic wildfire hazard to local communities and forest ecosystems.

Fine Scale Desired Conditions (less than 10 acres)

- Rare or unique plant communities (e.g., agaves, Chihuahuan pine) are intact and persisting.
- Herbaceous vegetation amount and structure (e.g., plant density, height, litter, seed heads) provides habitat to support wildlife and prey species.
- Some isolated infestations of mistletoe provide for a diversity of habitat components (e.g., food, nesting, cover) for a variety of species such as owls, squirrels, and some birds and insects.

[2] Similarity refers to a method of comparing the composition of the existing plant community to the potential natural plant community as described by the ecological unit in the "Terrestrial Ecosystem Survey for the Apache-Sitgreaves National Forests" (Laing et al., 1987, as amended).

[3] Based on site capability as defined by the specific ecological unit under consideration in the "Terrestrial Ecosystem Survey for the Apache-Sitgreaves National Forests" (Laing et al., 1987, as amended).

Related Plan Content for All PNVTs

See the following sections: Air, Soil, Wildlife and Rare Plants, Landscape Scale Disturbance Events, Motorized Opportunities, Forest Products, Wildland Fire Management, and Community-Forest Intermix.

Riparian Areas

Background for Riparian Areas

Riparian areas include plant communities associated with springs, seeps, streams, ponds, lakes, and other wet areas. These areas collect and transport water, soil, and organic material from upslope and upstream. They make up the most biologically productive and diverse components of the forests' ecosystems. Fish, most wildlife, and many plant species depend on riparian areas for their existence. Riparian areas provide important habitat connectivity for terrestrial and aquatic species. Some wildlife, such as otter and beaver, historically contributed to the maintenance of riparian areas.

Riparian areas are important because water is rare in the Southwest. Four specific PNVTs occur on the Apache-Sitgreaves NFs: montane willow riparian forest, cottonwood-willow riparian forest, mixed broadleaf deciduous riparian forest, and wetland/cienega. These riparian areas cover less than 3 percent of the forests; however, they represent a major portion of the riparian areas within the ecoregion[4]. Because they cover such a small area and have a shallow saturated zone beneath them, they are vulnerable to disturbance. The interface between riparian areas and uplands provides important wildlife habitat and helps filter sediment. Compared to surrounding uplands, riparian areas have characteristics (e.g., surface water, saturated soils) that reduce fire frequency and fire intensity.

Montane willow riparian forest PNVT, at roughly 4,800 acres, is found along approximately 1,130 miles of rivers and streams starting at about 5,000 feet in elevation and extending up to approximately 11,000 feet. At lower elevations, this riparian PNVT can be found along perennial streams and seasonal or intermittent drainages. Dominant woody vegetation includes a variety of willows such as Geyer and Bebb, narrowleaf cottonwood, and Arizona alder. Shrubs include skunkbush sumac, chokecherry, and red osier dogwood. An assortment of herbaceous species is usually present. At higher elevations, montane willow riparian areas are found along stream banks, seeps, fens, and isolated springs. Dominant woody vegetation includes a variety of willows, thinleaf alder, and currant. In many high elevation sites, nonnative Kentucky and Canada bluegrasses are the dominant herbaceous species.

Cottonwood-willow riparian forest PNVT covers approximately 15,900 acres and is typically found at elevations from 5,500 to 7,500 feet along roughly 800 miles of rivers and streams in wider valley bottoms. This riparian PNVT is found primarily on the Sitgreaves NF. Dominant woody species include narrowleaf cottonwood and a variety of willows such as Geyer and Goodding's. An assortment of herbaceous species is usually present.

Mixed broadleaf deciduous riparian forest PNVT, at roughly 9,700 acres, is found along approximately 860 miles of rivers and streams. Elevations start around 3,500 feet and range up to approximately 6,500 feet. The vegetation is a mix of riparian woodlands and shrublands with a variety of vegetation associations. The dominant vegetation depends on a mixture of site-specific characteristics including

[4] Ecoregion sections and subsections are units in the National Hierarchy of Ecological Units ranging in size from 13 million acres (section) down to 10,000 acres (subsection) that describe areas of similar environmental and biological features. The Apache-Sitgreaves NFs is located in the White Mountains-San Francisco Peaks-Mogollon Rim ecoregion section.

elevation, soil type, stream gradient, and depth to groundwater. For example, one vegetation association is dominated by bigtooth maple with mixed stands of Emory oak and scattered conifers (pines and junipers). Other sites can be dominated by a mixture of woody species including boxelder, Fremont cottonwood, Arizona sycamore, velvet ash, Arizona walnut, desert willow, and true willow species (e.g., Goodding's), as well as numerous shrub, grass, and forb species.

Wetland/cienega riparian areas generally occur between 5,500 and 11,000 feet elevation and cover roughly 17,900 acres. This PNVT is associated with perennial springs, seeps or headwater streams, bogs, and fens where groundwater intersects the surface and creates pools of standing water, sometimes with channels flowing between pools. Wetland/cienegas may also include high elevation meadows with subsurface flows. Vegetation composition is diverse, varies with elevation, and includes saltgrass, bentgrasses, sacaton, and bog alkaligrass at lower elevations and tufted hairgrass, mannagrasses, sedges, and spikerushes, among others, at middle and higher elevations.

All of the riparian PNVTs' overstory vegetation, except for the cottonwood-willow riparian forest PNVT, are considered departed from reference conditions. Most of this departure has occurred in response to past grazing and water diversions for agriculture. Many riparian areas are not in proper functioning condition (PFC). Changes in watershed conditions have resulted in altered canopy cover, including a loss of mature trees and saplings; a change in vegetation species composition, including a shift toward increasing conifer dominance; and a reduction in the amount and composition of herbaceous vegetation. In addition, riparian tree species are not successfully reproducing in many areas. During drought conditions, riparian areas are more susceptible to damage from wildfire than under normal conditions.

Based on range conditions and ecological status, the majority (approximately 59 percent) of herbaceous understory vegetation within the riparian forested PNVTs is highly to severely departed from desired conditions. The ecological status of herbaceous understory vegetation within the wetland/cienega riparian areas is split, nearly equally, between low to moderately departed and high to severely departed from desired conditions.

The montane willow, cottonwood-willow, and mixed broadleaf deciduous riparian forests are generally within the historic fire regime. The wetland/cienega's fire regime is moderately departed. Additional information about overstory and understory vegetation conditions can be found in appendix B.

Because riparian areas are important to a large number of wildlife, no single species could adequately serve as a management indicator species for analyzing impacts to biological diversity. Instead, two riparian areas were selected as an "ecological indicator" or EI for forest plan monitoring to provide an indirect way to estimate how forest management and activities influence associated species. The montane willow and the cottonwood-willow riparian forested PNVTs were selected[5] as the riparian EI.

Desired Conditions for Riparian Areas

Landscape Scale Desired Conditions (10,000 acres or greater)

- Natural ecological disturbances (e.g., flooding, scouring) promote a diverse plant structure consisting of herbaceous, shrub, and tree species of all ages and size classes necessary for the recruitment of riparian-dependent species.

[5] For more information, see the "Wildlife and Rare Plants" section, chapter 3 of the Programmatic Final Environmental Impact Statement for the Apache-Sitgreaves National Forests Land Management Plan (Forest Service, 2014).

- Riparian-wetland conditions maintain water-related processes (e.g., hydrologic, hydraulic, geomorphic). They also maintain the physical and biological community characteristics, functions, and processes.

Mid-Scale Desired Conditions (100 to 1,000 acres)

- Stream (lotic) riparian-wetland areas have vegetation, landform, and/or large coarse woody debris to dissipate stream energy associated with high water flow.
- Streams and their adjacent floodplains are capable of filtering, processing, and storing sediment; aiding floodplain development; improving floodwater retention; and increasing groundwater recharge.
- Vegetation and root masses stabilize stream banks, islands, and shoreline features against the cutting action of water.
- Ponding and channel characteristics provide habitat, water depth, water duration, and the temperatures necessary for maintaining populations of riparian-dependent species and for their dispersal.
- Beavers occupy capable stream reaches and help promote the function and stability of riparian areas.
- Lentic riparian areas (e.g., wet meadows, fens, bogs) have vegetation and landform present to dissipate wind action, wave action, and overland flow from uplands.
- Wetland riparian areas are capable of filtering sediment and aiding floodplain development that contribute to water retention and groundwater recharge.
- Willows (e.g., Bebb, Geyer, Arizona, Goodding's) are reproducing with all age classes present, where the potential exists.
- The spatial extent of wetlands is maintained[6].
- Sedimentation and soil compaction from forest activities (e.g., vehicle use, recreation, livestock grazing) do not negatively impact riparian areas.
- Riparian vegetation consists mostly of native species that support a wide range of vertebrate and invertebrate species and are free of invasive plant and animal species.
- Riparian-obligate species within wet meadows, around springs and seeps, along stream banks, and active floodplains provide sufficient[14] vegetative ground cover (herbaceous vegetation, litter, and woody riparian species) to protect and enrich soils, trap sediment, mitigate flood energy, stabilize stream banks, and provide for wildlife and plant needs.
- Diversity and density of riparian forest vegetation provides for breeding, escape, hiding, and resting cover for wildlife and provides travel ways between other habitat areas and seasonal ranges.

Fine Scale Desired Conditions (less than 10 acres)

- The ecological function of riparian areas is resilient to animal and human use.

[6] The spatial extent of wetlands is delineated in the 2011 RMAP (Regional Riparian Mapping Project) found in the forests' GIS database.

- Riparian soil productivity is optimized as described by the specific TES map unit[14] under consideration as indicated by the vigor of the vegetation community. Based on species composition, ungrazed plant heights[7] range from 10 inches to 36 inches.
- Floodplains and adjacent upland areas provide diverse habitat components (e.g., vegetation, debris, logs) as necessary for migration, hibernation, and brumation (extended inactivity) specific to the needs of riparian-obligate species (e.g., New Mexico meadow jumping mouse, Arizona montane vole, narrow-headed gartersnake).
- Large coarse woody debris provides stability to riparian areas and stream bottoms lacking geologic control (e.g., bedrock) or geomorphic features (e.g., functioning floodplains, stream sinuosity, width/depth ratio).
- Vegetation is structurally diverse, often dense, providing for high bird species diversity and abundance, especially neotropical migratory birds. It includes large trees and snags in the cottonwood-willow and mixed broadleaf deciduous riparian forests to support species such as beaver, yellow-billed cuckoo, bald eagles, Arizona gray squirrel, and various bat species.

Related Plan Content for Riparian Areas

See the following sections: Overall Ecosystem Health, Soil, Water Resources, Aquatic Habitat and Species, All PNVTs, Wildlife and Rare Plants, Dispersed Recreation, Motorized Opportunities, Nonmotorized Opportunities, and Wildland Fire Management.

Forests: All Forested PNVTs

Background for Forests: All Forested PNVTs

The following objectives, guidelines, and management approaches apply to ponderosa pine, dry mixed conifer, wet mixed conifer, spruce-fir, and aspen in addition to the specific direction listed in those sections. Forested PNVTs total approximately 946,000 acres.

Desired Conditions for Forests: All Forested PNVTs

See the desired conditions for ponderosa pine, dry mixed conifer, wet mixed conifer, spruce-fir, and aspen.

Related Plan Content for Forests: All Forested PNVTs

See the following sections: All PNVTs, Forests: Ponderosa Pine, Forests: Dry Mixed Conifer, Forests: Wet Mixed Conifer, Forests: Spruce-Fir, Forests: Aspen, Landscape Scale Disturbance Events, Forest Products, Wildland Fire Management, and Community-Forest Intermix Management Area.

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[7] Plant height source material: Vine, 1960; Hermann, 1970 and 1975; Hitchcock and Chase, 1971; McDougall, 1973; Correll and Correll, 1975; Gould, 1977; Martin and Hutchins, 1980; Benson and Darrow, 1981; Hickman, 1993; Cronquist et al., 1997; Ruyle and Young, 1997; Welsh et al., 1997; Hurd et al., 1998; Barkworth et al., 2003 and 2007; Flora of North America, 2008; and Springer et al., 2009.

ASNF Interior Chaparral

The interior chaparral PNVT, at roughly 56,000 acres, is typically found on mountain foothills and lower slopes where desert landscapes transition into Madrean pine-oak woodlands. Typically, interior chaparral is structurally uniform and dominated by shrubs with thick, stiff, waxy evergreen leaves. Mixed shrub associations include: manzanita, desert ceanothus, mountain mahogany, silktassel, Stansbury cliffrose, yerba de pasmo, evergreen oaks, Arizona cypress, sumacs, and various cacti. Grasses are a minor component in chaparral and may include bullgrass and longtongue muhly.

Current (2011) interior chaparral composition, structure, and fire regime are similar to reference conditions. However, nonnative invasive species, such as mullein, are infesting a portion of the chaparral PNVT.

Desired Conditions for Interior Chaparral

• In the early seral state, chaparral contains an herbaceous component in the understory. Later seral states are dense, nearly impenetrable thickets with considerable leaf litter. Standing dead material may accumulate in areas that have not burned for several decades. Chaparral is in a constant state of transition from early to late seral state and back again, with fire being the major ecological process.

• Ground cover consists primarily (85 to 95 percent) of shrub litter (e.g., small stems, leaves).

• The majority (85 to 95 percent) of chaparral is closed canopy with some openings of grasses and forbs.

• High severity fires occur every 20 to 100 years (fire regime IV) in a mosaic pattern.

Related Plan Content for Interior Chaparral

See the following sections: Overall Ecosystem Health, Soil, All PNVTs, and Wildlife and Rare Plants .

Related Plan Content: Overall Ecosystem Health
Did not see anything specific to “interior chaparral”

Related Plan Content: Soil
Did not see anything specific to “interior chaparral”

Related Plan Content: All PNVTs
The 14 major PNVTs[12] can be assembled into 5 groupings: riparian, forest, woodland, grassland, and chaparral.
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.

Related Plan Content: Grasslands
The semi-desert grassland PNVT encompasses roughly 107,000 acres and occurs below the Mogollon Rim at elevations ranging from approximately 3,200 to 4,500 feet. They are bounded by Chihuahuan Desert at the lowest elevations and Madrean pine-oak woodland or interior chaparral at the higher elevations.

Related Plan Content: Wildlife and Rare Plants
Did not see anything specific to “interior chaparral”

ASNF Woodlands: Piñon-Juniper

At roughly 222,200 acres, this woodland PNVT is mostly found on lower slopes of mountains and upland rolling hills at approximately 4,500 to 7,500 feet in elevation. The most common pine is the piñon. The juniper component is a variable mix of one-seed, Utah, alligator, and Rocky Mountain. In addition, annual and perennial grasses, forbs, shrubs, and half-shrubs can be found beneath the more open woodland canopy. Species composition and stand structure vary by location primarily due to precipitation, natural ecological processes, elevation, temperature, and soil type.

The piñon-juniper woodland can be divided into two subgroups: savanna and persistent woodland. Savanna, with an herbaceous-dominated understory, generally occurs on flats, basins, gentler east-, south-, and west-facing foothills, gentle uplands, and transitional valleys at generally lower elevations. The soils associated with savanna are moderately deep to deep and biologically productive. The persistent woodland, having a sparse discontinuous understory of some grasses and/or shrubs, generally occurs on flats, ridgetops, rugged uplands, and steep slopes at various elevations, and occurs on soils that are shallow and rocky.

Current (2011) conditions within the piñon-juniper woodland are slightly departed from reference conditions. There are too many medium to very large trees with open canopies and a lack of herbaceous species and small to medium size trees with open or closed canopies. The current fire regime is similar to reference conditions.

Many areas that appear to be piñon-juniper woodland are actually historic Great Basin grassland that has been encroached by woody species.

Desired Conditions for Woodlands: Piñon-Juniper – Savanna

Landscape Scale Desired Conditions (10,000 acres or greater)

• The piñon-juniper savanna is open in appearance with trees occurring as individuals or in small groups and ranging from young to old. Overall, tree canopy cover is 10 to 15 percent, but may range up to 30 percent.

• Scattered shrubs and a continuous herbaceous understory, including native grasses, forbs, and annuals, are present to support a natural fire regime.

- • Most areas provide dense herbaceous vegetation cover (55 percent or more). Locations with Gunnison’s prairie dog colonies have less ground cover.
- • Old growth occurs in isolated locations scattered throughout the landscape, as individual old trees or as clumps of old trees. Other old growth components may also be present including dead trees (snags), downed wood (coarse woody debris), and/or structural diversity.
- • Fires are low to mixed severity (fire regime I), occurring every 1 to 35 years.

ASNF Desired Conditions for Woodlands: Piñon-Juniper – Persistent Woodland

Landscape Scale Desired Conditions (10,000 acres or greater)

• A mix of ages, heights, and groupings of trees create a mosaic across the landscape.
• Tree density (350 to 1,600 trees per acre) and canopy cover is closed (30 to 65 percent), shrubs are sparse to moderate, and herbaceous cover is patchy.
• Snags, averaging one to two per acre, and older trees with dead limbs and tops are scattered across the landscape. Coarse woody debris averages 2 to 5 tons per acre.

• Old growth includes old trees, dead trees (snags), downed wood (coarse woody debris), and/or structural diversity. The location of old growth shifts on the landscape over time as a result of succession and disturbance (tree growth and mortality).
• Fire is less frequent and more variable than in the savanna due to patchiness of ground cover. The fires that do occur are mixed to high severity (fire regimes III, IV, and V).

Mid-Scale Desired Conditions (100 to 1,000 acres)

• Grass and forb cover is maximized, based on site capability, to protect and enrich soils.

Related Plan Content for all woodlands: All PNVTs

Landscape Scale Desired Conditions (10,000 acres or greater)

Vegetation conditions allow for transition zones or ecotones between riparian areas, forests, woodlands, shrublands, and grasslands. Transition zones may shift in time and space due to changing site conditions (e.g., fire, climate).
Ecosystem services are available as forests, woodlands, grasslands, and riparian communities successfully adapt to a changing and variable climate.

Related Plan Content: Madrean Pine-Oak

Woodlands: Madrean Pine-Oak

Madrean pine-oak woodlands, at roughly 394,900 acres, cover nearly 20 percent of the Apache-Sitgreaves NFs and usually occupy foothills and mountain slopes. Elevations range from approximately 4,000 to 7,000 feet. These woodlands consist of an open to closed canopy of evergreen oaks and various conifers, including gray oak, Emory oak, and alligator juniper. Beneath the canopy, there are annual and perennial grasses, forbs, shrubs, and half-shrubs.

Currently (2011), the Madrean pine-oak woodland is highly departed from reference conditions. There are too many acres of closed canopy conditions consisting of small, medium, or large trees. Medium to very large trees with herbaceous understory and open canopy are lacking. The fire regime is also severely departed from reference conditions. Low severity surface fires frequently (every 3 to 8 years) burned through this PNVT maintaining an open stand structure.

Some areas that appear to be Madrean pine-oak woodlands are actually historic semi-desert grasslands that have been encroached by woody species.

Landscape Scale Desired Conditions (10,000 acres or greater)

• A mix of ages, heights, and groupings of trees create a mosaic across the landscape.
• This woodland has an open canopy consisting of large trees and an herbaceous understory, with some groups of closed canopy. Overall, canopy cover is 10 to 50 percent.
• Snags, averaging 1 to 2 per acre, and older trees are scattered across the landscape. Coarse woody debris averages 1 to 5 tons per acre.
• Understory vegetation includes evergreen oaks, mountain mahogany, grasses, and forbs.
• Ground cover consists of perennial grasses and forbs that frequently carry fire through the landscape.
• Fires are typically of low or occasionally moderate severity (fire regime I) and occur every 5 to 20 years.

Mid-Scale Desired Conditions (100 to 1,000 acres)

• Some large patches in the Madrean pine-oak woodland are closed canopy, have multiple age classes, and old growth-like characteristics (e.g., numerous snags, large coarse woody debris) in order to provide for wildlife such as Mexican spotted owl and black bear that need denser habitat.
The size and number of groups and patches vary depending on disturbance, elevation, soil type, aspect, and site productivity. Patch sizes vary but are mostly tens of acres, with rare disturbances of hundreds of acres. There may be frequent small disturbances resulting in groups and patches of tens of acres or less. A mosaic of groups and patches of trees, primarily even-aged, that are variable in size, species composition, and age, is present. Grass, forb, and shrub openings created by disturbance may comprise 10 to 100 percent of the area depending on the disturbances.
• Woodland densities range from 15 to 50 square feet basal area per acre.
• Grasses, forbs, shrubs, leaves, needles, and small trees maintain the natural fire regime with a greater proportion of the soil cover as grasses and forbs as opposed to leaves and needles.

Fine Scale Desired Conditions (less than 10 acres)

• Single large trees or small groups are widely spaced between large expanses of herbaceous vegetation and shrubs.

ASNF – Aspen

ASNF Desired Conditions for Forests: Aspen

Landscape Scale Desired Conditions (10,000 acres or greater)

• Areas of aspen occur across the forested landscape and are successfully regenerating and being recruited into older and larger size classes. Size classes have a natural distribution, with the greatest number of stems in the smaller size classes.

Mid-Scale Desired Conditions (100 to 1,000 acres)

• Aspen may comprise 10 to 100 percent of the area depending on disturbance (e.g., fire, insects, silvicultural treatments) in multistoried patches.
• As an early seral species, aspen reproduction and recruitment benefit from low severity surface fires in association with ponderosa pine and dry mixed conifer PNVTs, and mixed-severity fires in association with wet mixed conifer and spruce-fir PNVTs.

Objectives for Forests: Aspen

• Aspen dominated and codominated acres within forested PNVTs, representing a range of age classes, are maintained on at least 50,000 acres during the planning period.

Related Plan Content for Forests: Aspen

See the following sections: Overall Ecosystem Health, Soil, All PNVTs, Forests: All Forested PNVTs, Forests: Ponderosa Pine, Forests: Dry Mixed Conifer, Forests: Wet Mixed Conifer, Forests: Spruce-Fir, Wildlife and Rare Plants, and Livestock Grazing.

Related Plan Content: Forests: All Forested PNVTs

The following objectives, guidelines, and management approaches apply to ponderosa pine, dry mixed conifer, wet mixed conifer, spruce-fir, and aspen in addition to the specific direction listed in those sections.

Desired Conditions for Forests: All Forested PNVTs

See the desired conditions for ponderosa pine, dry mixed conifer, wet mixed conifer, spruce-fir, and aspen.

Related Plan Content: Ponderosa Pine

Ponderosa pine at approximately 602,200 acres represents the largest PNVT on the Apache-Sitgreaves NFs. This PNVT generally occurs at elevations ranging from 6,000 to 9,000 feet. It is dominated by ponderosa pine and commonly includes other species such as Gambel oak, New Mexico locust, juniper, and piñon at lower elevations and more southerly aspects. Occasionally, species such as quaking aspen (aspen), southwestern white pine, Rocky Mountain Douglas-fir, white fir, and blue spruce may be present and may occur as individual trees or in small groups at higher elevations and more northerly aspects. There is typically an understory of grasses and forbs with occasional shrubs. This PNVT sometimes appears savanna-like with extensive grasslands interspersed between widely spaced clumps or individual trees. Approximately 6,000 acres of aspen are scattered across this PNVT.

Related Plan Content: Dry Mixed Conifer

Dry mixed conifer, covering approximately 147,900 acres, typically occurs between the ponderosa pine and wet mixed conifer forests. Dry mixed conifer generally occurs at elevations between 7,000 and 10,000 feet on flat ridgetops and upper slopes of drainages and knolls. Species vary in relation to elevation and moisture availability and are mainly shade intolerant trees. In lower elevations and drier areas, Rocky Mountain Douglas-fir, Gambel oak, ponderosa pine, piñon, and juniper may codominate. In higher elevations and moister areas, ponderosa pine may codominate with Rocky Mountain Douglas-fir, aspen, white fir, southwestern white pine, and Rocky Mountain juniper. The understory can be composed of a wide variety of shrubs, grasses, sedges, rushes, and forbs depending on the soil type, aspect, elevation, disturbance history, and other factors. Over 14,000 acres of aspen are scattered across this PNVT.

Related Plan Content - Community-Forest Intermix

Desired Conditions
Where potential occurs, pure deciduous stands (e.g., aspen, Gambel oak) act as firebreaks and enhance scenery.
Guidelines: Retention of fire-resistant tree species (e.g., ponderosa pine, Douglas-fir, pure aspen) should be emphasized in the wet mixed conifer and spruce-fir forested PNVTs to reduce fire hazard.

ASNF NF Ponderosa Pine

Desired Conditions for Forests: Ponderosa Pine

The forest arrangement consists of individual trees, small clumps, and groups of trees interspersed within variably-sized openings of grasses, forbs, and shrubs. Vegetation associations are similar to reference conditions. Openings typically range from 10 percent of the area in more biologically productive sites to 70 percent in less productive sites. The size, shape, and number of trees per group and the number of groups per area vary across the landscape. Tree density may be greater in some locations, such as north-facing slopes and canyon bottoms.

Landscape Scale Desired Conditions (10,000 acres or greater)

• The ponderosa pine forest is a mosaic of structural states ranging from young to old trees. Forest structure is variable but uneven-aged and open in appearance. Sporadic areas of even-aged structure may be present on 10 percent or less of the landscape to provide structural diversity.

The forest arrangement consists of individual trees, small clumps, and groups of trees interspersed within variably-sized openings of grasses, forbs, and shrubs. Vegetation associations are similar to reference conditions. Openings typically range from 10 percent of the area in more biologically productive sites to 70 percent in less productive sites. The size, shape, and number of trees per group and the number of groups per area vary across the landscape. Tree density may be greater in some locations, such as north-facing slopes and canyon bottoms.

• The ponderosa pine forest is composed predominantly of vigorous trees, but declining, top-killed, lightning-scarred, and fire-scarred trees provide snags and coarse woody debris. Snags and coarse woody debris are well distributed throughout the landscape. Ponderosa pine snags are typically 18 inches or greater in diameter and average 1 to 2 per acre.

• Coarse woody debris, including logs, ranges from 3 to 10 tons per acre. Logs average 3 per acre within the forested area of the landscape.

• Where it naturally occurs, Gambel oak is present with all age classes represented. It is reproducing to maintain or expand its presence on capable sites across the landscape. Large Gambel oak snags are typically 10 inches or larger in diameter and are well distributed.

• Grasses, forbs, shrubs, needles, leaves, and small trees support the natural fire regime. The greater proportion (60 to 85 percent or greater) of soil cover is composed of grasses and forbs as opposed to needles and leaves.

• Old growth occurs throughout the landscape, in small, discontinuous areas consisting of clumps of old trees, or occasionally individual old trees. Other old growth components are also present including dead trees (snags), downed wood (coarse woody debris), and/or structural diversity. The location of old growth shifts on the landscape over time as a result of succession and disturbance (tree growth and mortality).

• Frequent, low to mixed severity fires (fire regime I), occurring approximately every 2 to 17 years, are characteristic in this PNVT.

ASNF Mid-Scale Desired Conditions (100 to 1,000 acres)

- Ponderosa pine forest is characterized by variation in the size and number of tree groups depending on elevation, soil type, aspect, and site productivity. The more biologically productive sites contain more trees per group and more groups per area, resulting in less space between groups. Openings typically range from 10 percent in more productive sites to 70 percent in the less productive sites. Tree density within forested areas ranges from 20 to 80 square feet basal area per acre.
- The tree group mosaic comprises an uneven-aged forest with all age classes, size classes, and structural stages present. Occasionally, patches of even-aged forest structure are present (less than 50 acres). Disturbances sustain the overall age and structural distribution.
- Fires burn primarily on the forest floor and do not spread between tree groups as crown fire.

- Forest structure in the wildland-urban interface (WUI) may have smaller, more widely spaced groups of trees than in the non-WUI areas.
- Northern goshawk post-fledgling family areas (PFAs) may contain 10 to 20 percent higher basal area in mid-aged to old tree groups than northern goshawk foraging areas and the surrounding forest.
- Northern goshawk nest areas have forest conditions that are multi-aged and dominated by large trees with relatively denser canopies than the surrounding forest.

Fine Scale Desired Conditions (less than 10 acres)

• Trees typically occur in irregularly shaped groups and are variably spaced with some tight clumps. Crowns in the mid- to old-aged groups are interlocking or nearly interlocking providing for species such as Abert's squirrel.
• Openings surrounding tree groups are variably shaped and composed of a grass, forb, and shrub mix. Some openings may contain individual trees.
• Trees within groups are of similar or variable ages and may contain species other than ponderosa pine. Tree groups are typically less than 1 acre and average ½ acre. Mid- to old-aged tree groups consist of approximately 2 to 40 trees with interlocking canopies.
• Where Gambel oak occurs, the majority are single trunk trees over 8 inches in diameter with full crowns.

ASNF Dry Mixed Conifer

Landscape Scale Desired Conditions (10,000 acres or greater)

- The dry mixed conifer forest is a mosaic of conditions composed of structural states ranging from young to old trees. Forest structure and density are similar to ponderosa pine forest. Forest appearance is variable but uneven-aged and open. Sporadic areas of even-aged structure may be present on 10 percent or less of the landscape to provide structural diversity.

- The forest arrangement consists of small clumps and groups of trees interspersed within variably-sized openings of grass, forb, and shrub vegetation associations similar to reference conditions. Openings typically range from 10 percent of the area in more biologically productive sites to 50 percent in less productive sites. Size, shape, number of trees per group, and number of groups per area are variable across the landscape. Where they naturally occur, groups of Gambel oak are healthy and maintained or increased. Tree density may be greater in some locations, such as north-facing slopes and canyon bottoms.

- The dry mixed conifer forest is composed predominantly of vigorous trees, but declining, top-killed, lightning-scarred, and fire-scarred trees provide snags and coarse woody debris. Snags and coarse woody debris are well distributed throughout the landscape. Snags are typically 18 inches in diameter or greater and average 3 per acre

- Coarse woody debris, including logs, ranges from 5 to 15 tons per acre. Logs average three per acre within the forested area of the landscape.

- Southwestern white pine is present with the ability to reproduce on capable sites.
- Grasses, forbs, shrubs, needles, leaves, and small trees maintain the natural fire regime with a greater proportion of the soil cover as grasses and forbs as opposed to needles and leaves.

- Old growth occurs throughout the landscape, in small, discontinuous areas consisting of clumps of old trees, or occasionally individual old trees. Other old growth components are also present including dead trees (snags), downed wood (coarse woody debris), and/or structural diversity. The location of old growth shifts on the landscape over time as a result of succession and disturbance (tree growth and mortality).
- Frequent, low to mixed severity fires (fire regime I) occurring every 10 to 22 years are characteristic in this PNVT.

ASNF Mid-Scale Desired Conditions (100 to 1,000 acres)

- The dry mixed conifer forest is characterized by a variety of size and number of tree groups depending on elevation, soil type, aspect, and site productivity. The more biologically productive sites contain more trees per group and more groups per area, resulting in less space between groups. Openings typically range from 10 percent in more productive sites to 50 percent in less productive sites. Tree density within forested areas ranges from 30 to 100 square feet basal area per acre.
- The mosaic of tree groups is composed of uneven-aged forest. All age classes and structural stages are present. Occasionally, there are small patches (less than 50 acres) of even-aged forest present. Disturbances sustain the overall age and structural distribution.
- Fire burns primarily on the forest floor and does not spread between tree groups as crown fire.
- Forest structure in the wildland-urban interface (WUI) may have smaller, more widely spaced groups of trees than in the non-WUI areas.
- Northern goshawk post-fledgling family areas (PFAs) may contain 10 to 20 percent higher basal area in mid-aged to old tree groups than northern goshawk foraging areas and the surrounding forest.
- Northern goshawk nest areas have forest conditions that are multi-aged but are dominated by large trees with relatively denser canopies than the surrounding forest.

Fine Scale Desired Conditions (less than 10 acres)

• Trees typically occur in irregularly-shaped groups and are variably spaced with some tight clumps with crowns of mid- to old-aged trees interlocking (clumped trees) or nearly interlocking providing for species such as Abert's squirrel.
Openings surrounding tree groups are composed of a grass, forb, and shrub mix. Some openings may contain individual trees or snags.
• Trees within groups are of similar or variable ages and one or more species. Tree group sizes typically are less than 5 acres, but often less than 1 acre, and at the mature and old stages consist of approximately 2 to 50 trees.
• Where Gambel oak occurs, the majority are single trunk trees over 8 inches in diameter with full crowns.

See the following sections: Overall Ecosystem Health, Soil, All PNVTs, Forests: All Forested PNVTs, Forests: Aspen, Wildlife and Rare Plants, and Community-Forest Intermix Management Area.

Related Plan Content: ASNF Objectives for Forests: All Forested PNVTs

• Annually, treat 5,000 to 35,000 acres to reduce tree densities, restore natural fire regimes, promote species habitat and ecosystem health, reduce fire hazard, maintain desired conditions, initiate recovery from uncharacteristic disturbance, and provide forest products, leaving a desired mix of species with the range of desired densities that are resilient to changing climatic conditions.

Related Plan Content: Objectives for All Woodland PNVTs

ASNF Woodlands: Madrean Pine-Oak

Background for Woodlands: Madrean Pine-Oak

Madrean pine-oak woodlands, at roughly 394,900 acres, cover nearly 20 percent of the Apache-Sitgreaves NFs and usually occupy foothills and mountain slopes. Elevations range from approximately 4,000 to 7,000 feet. These woodlands consist of an open to closed canopy of evergreen oaks and various conifers, including gray oak, Emory oak, and alligator juniper. Beneath the canopy, there are annual and perennial grasses, forbs, shrubs, and half-shrubs.

Currently (2011), the Madrean pine-oak woodland is highly departed from reference conditions. There are too many acres of closed canopy conditions consisting of small, medium, or large trees. Medium to very large trees with herbaceous understory and open canopy are lacking. The fire regime is also severely departed from reference conditions. Low severity surface fires frequently (every 3 to 8 years) burned through this PNVT maintaining an open stand structure.

Some areas that appear to be Madrean pine-oak woodlands are actually historic semi-desert grasslands that have been encroached by woody species.

ASNF Desired Conditions for Woodlands: Madrean Pine-Oak

Landscape Scale Desired Conditions (10,000 acres or greater)

A mix of ages, heights, and groupings of trees create a mosaic across the landscape.

This woodland has an open canopy consisting of large trees and an herbaceous understory, with some groups of closed canopy. Overall, canopy cover is 10 to 50 percent.

Snags, averaging 1 to 2 per acre, and older trees are scattered across the landscape. Coarse woody debris averages 1 to 5 tons per acre.

Understory vegetation includes evergreen oaks, mountain mahogany, grasses, and forbs.

Ground cover consists of perennial grasses and forbs that frequently carry fire through the landscape.

Fires are typically of low or occasionally moderate severity (fire regime I) and occur every 5 to 20 years.

ASNF Mid-Scale Desired Conditions (100 to 1,000 acres)

Some large patches in the Madrean pine-oak woodland are closed canopy, have multiple age classes, and old growth-like characteristics (e.g., numerous snags, large coarse woody debris) in order to provide for wildlife such as Mexican spotted owl and black bear that need denser habitat.

The size and number of groups and patches vary depending on disturbance, elevation, soil type, aspect, and site productivity. Patch sizes vary but are mostly tens of acres, with rare disturbances of hundreds of acres. There may be frequent small disturbances resulting in groups and patches of tens of acres or less. A mosaic of groups and patches of trees, primarily even-aged, that are variable in size, species composition, and age, is present. Grass, forb, and shrub openings created by disturbance may comprise 10 to 100 percent of the area depending on the disturbances.

Woodland densities range from 15 to 50 square feet basal area per acre.

Grasses, forbs, shrubs, leaves, needles, and small trees maintain the natural fire regime with a greater proportion of the soil cover as grasses and forbs as opposed to leaves and needles.

Fine Scale Desired Conditions (less than 10 acres)

• Single large trees or small groups are widely spaced between large expanses of herbaceous vegetation and shrubs.

ASNF Grasslands

Background for Grasslands

There are three grassland PNVTs: semi-desert, Great Basin, and montane/subalpine. Grasslands are characterized by less than 10 percent tree and/or shrub cover.

Desired Conditions for Grasslands

Landscape Scale Desired Conditions (10,000 acres or greater)

Perennial herbaceous species dominate and include native grasses, grass-like plants (sedges and rushes), and forbs, and in some locations, a diversity of shrubs.

The extent, abundance, cover, and composition of grasslands is maintained or reestablished and moving closer to reference conditions. Ground cover is 35 percent or greater and herbaceous vegetation height ranges from 10 to 31 inches[17] depending on grassland type.

Prairie dogs are present and support healthy grassland soil development and the diversity of other species associated with them such as the western burrowing owl.

Litter provides for and maintains the natural fire regime (fire regime I). In semi-desert grasslands, the natural fire return interval is approximately every 2 to 10 years. In Great Basin grasslands the natural fire return interval is approximately every 10 to 30 years. In montane/subalpine grasslands it ranges from approximately 2 to 400 years, depending on the adjacent forested PNVT.

Landscapes associated with montane/subalpine grasslands vary from natural appearing where human activities do not stand out (high scenic integrity) to unaltered where only natural ecological changes occur (very high scenic integrity).

Fine-Scale Desired Conditions (less than 10 acres)

• Average ungrazed grass height varies by grassland PNVT and yearly weather conditions. Grass heights range from 11 to 26 inches in Great Basin grasslands, 10 to 25 inches in montane/subalpine grasslands, and 13 to 31 inches in semi-desert grasslands.

• During the critical pronghorn fawning period (May through June[19]), cool season grasses and forbs provide nutritional forage; while shrubs and standing grass growth from the previous year provide adequate hiding cover (10 to 18 inches) to protect fawns from predation.

Related Plan Content for Grasslands

See the following sections: Overall Ecosystem Health, Soil, All PNVTs, Wildlife and Rare Plants, Scenic Resources, and Livestock Grazing.

ASNF Caves and Karst – see Wildlife and Rare Plants

Guidelines: Rare, unique habitats (e.g., talus slopes, cliffs, canyon slopes, caves, fens, bogs, sinkholes) should be protected.

ASNF – Fire

Related Plan Content: Ecosystem Health

Desired Conditions for Overall Ecosystem Health

Landscape Scale Desired Conditions (10,000 acres or greater)

Natural ecological processes (e.g., fire, drought, wind, insects, disease, pathogens) return to their innate role within the ecosystem. Fire, in particular, is restored to a more natural function.

Community-Forest Intermix

Background for Community-Forest Intermix

The Community-Forest Intermix Management Area consists of National Forest System (NFS) lands that are within one-half mile of communities-at-risk. Due to the threat of fire moving into or from developed areas, higher levels of management may be needed to restore fire-adapted ecosystems, including regular maintenance. This management area may act as a zone in which fire suppression activities can be safely and effectively conducted. Likewise, it can act as a buffer to protect forest resources.

The Community-Forest Intermix Management Area makes up a portion of the wildland-urban interface (WUI). The WUIs were identified in community wildfire protection plans (CWPPs) and may be located in several management areas. A WUI includes areas around human development at imminent risk from wildfire.

Desired Conditions for Community-Forest Intermix

- The Community-Forest Intermix Management Area is composed of smaller, more widely spaced groups of trees than the general forest. These conditions result in fires that burn primarily on the forest floor and rarely spread as crown fire.
- There is legal and adequate access to public lands for resource management and recreation.
- As a result of forest management, most wildfires are low to mixed severity surface fires resulting in limited loss of structures or ecosystem function.

- Residents and visitors are knowledgeable regarding wildfire protection of their homes and property, defensible space, and appropriate uses of the forests.
- These areas provide a safer firefighting environment than the general forest.
- Native grasses, forbs, shrubs, and litter (i.e., fine fuels) are abundant enough to maintain and support natural fire regimes, protect soils, and support water infiltration.

- The composition, density, structure, and mosaic of vegetative conditions reduce uncharacteristic wildfire hazard to local communities and forest ecosystems.
- Ponderosa pine and dry mixed conifer forest structure is similar to forestwide conditions or is composed of smaller and more widely spaced tree groups than in the general forest.
- Wet mixed conifer and spruce-fir PNVTs are growing in an overall more open condition than the wet mixed conifer PNVT outside of the Community-Forest Intermix Management Area. These conditions result in fires that burn primarily on the forest floor and rarely spread as crown fire.
- Where potential occurs, pure deciduous stands (e.g., aspen, Gambel oak) act as natural firebreaks and enhance scenery.
- Grasslands have less than 10 percent woody canopy cover.
- Piñon-juniper stands are represented by savanna-like conditions.
- The integrity of riparian areas is maintained.
- Vandalism and pilfering of heritage sites is uncommon.
- Landscapes in the Community-Forest Intermix Management Area 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 roaded natural to rural.

Related Plan Content for Community-Forest Intermix

See these sections: All PNVTs, Scenic Resources, Lands, Cultural Resources, and American Indian Rights and Interests.

Related Plan Content: See All PNVTs

Related Plan Content: See All Forested PNVTs

Related Plan Content: See Ponderosa Pine

Related Plan Content: See Dry Mixed Conifer

Related Plan Content: See Aspen

Related Plan Content: See All Woodlands PNVT

Related Plan Content: See Interior Chaparral

ASNF Motorized Roads and Trails

ASNF Desired Conditions for Motorized Opportunities

• A maintained roads and motorized trail system is in place and provides for safety and access for the use (e.g., recreation, minerals, vegetation treatment, fire protection) of the Apache-Sitgreaves NFs.

Related Plan Content: Overall Ecosystem Health Objectives

Related Plan Content: Riparian Areas – See objectives and management approach

Related Plan Content: Grasslands management approach

Management Approaches for Grasslands

Related Plan Content: Landscape Scale Disturbance Events – see guidelines

Related Plan Content: Dispersed Recreation

Desired Conditions:

Roads and trails provide a variety of opportunities to view natural landscapes and wildlife.