



Prescott National Forest

United States
Department of
Agriculture

Forest
Service

Southwestern
Region



Terrestrial Wildlife

Specialist Report

Forest Plan Revision DEIS

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Introduction

This Specialist Report is being prepared in support of the Draft Environmental Impact Statement (DEIS) for the Prescott National Forest Proposed Land Management Plan. It evaluates and discloses the potential environmental consequences to terrestrial wildlife species that may result with the adoption of a revised land management plan. It analyzes the existing 1987 Prescott National Forest land management plan (Forest Service 1987) and three action alternatives that address the need for change revision topics developed for the plan revision process.

This report documents the effects on terrestrial wildlife species that are federally listed (under the Endangered Species Act) as endangered and threatened and their designated critical habitat, federal candidate species, Forest Service sensitive species, migratory birds, bald and golden eagles (protected under the Bald and Golden Eagle Protection Act) and Management Indicator Species in the planning area. The findings of effects for the selected alternative will be addressed in a Biological Assessment and Evaluation (BA & E), which will be prepared later.

Summary of effects determinations

Table 1. Summary of Effects for terrestrial species			
Species	Status	Determinations	
Endangered Species Act:			
Mexican spotted owl (MSO)	Threatened	May affect, likely to adversely affect	
MSO Critical Habitat	Designated		
Southwestern willow flycatcher (SWWF)	Endangered		
SWWF Critical Habitat	Designated		
Western Yellow-billed cuckoo (YBC)	Proposed		
YBC Potential Critical Habitat	Potential identified		
Sonoran desert tortoise (SDT)	Candidate	Not Likely to jeopardize, if and when the species is proposed.	
Bald and Golden Eagle Protection Act:			
Bald eagle	Protected	No Take	
Golden eagle			
Migratory Bird Treaty Act:			
Migratory birds	-----	Effects evaluated	
FS Handbook & FS Manuals – Regional Forester’s Sensitive species			
Bald eagle	Sensitive	Will not trend toward listing	
American peregrine falcon			
Western Yellow-billed cuckoo (YBC)			
Northern goshawk			
Pale Townsend’s big-eared bat			
Western red bat			
Sonoran desert tortoise (SDT)			
Forest Plan Management Indicator Species analysis			
Pronghorn	Alt A	Alts B, D & E	Alt C
Habitat quantity	Decrease	Slight decrease	Slight increase
Habitat quality	Some improvement	Moderate improvement	Most improvement

Table 1. Summary of Effects for terrestrial species			
Population trend	Static to decrease	Static or possible increase	Probably increase
Northern goshawk	Alt A	Alts B, D & E	Alt C
Habitat quantity	Increase	More increase	
Habitat quality	Improved	More improvement	
Population trend	Increase	More increase	

Relevant Laws, Regulations, and Policy that Apply

Below is a summary list of major laws, regulations, and policies that apply to wildlife management on National Forest System lands.

Migratory Bird Treaty Act of 1918 In accordance with the Migratory Bird Treaty Act, Executive Order 13186, and the MOU signed December 2008, this project was evaluated for its effects on migratory birds. The original 1918 statute implemented the 1916 Convention between the U.S. and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the U.S. and Mexico, the U.S. and Japan, and the U.S. and the Soviet Union (now Russia). This law was originally intended as a hunting statute. Removal and/or destruction of vegetation is NOT a taking under the MBTA.

Bald and Golden Eagle Protection Act of 1940 The purpose of this assessment is to document if there is “take of eagles” with the proposed action, the no action, or other action alternatives on bald and golden eagles protected under the Bald and Golden Eagle Protection Act. In the “Eagle Act”, “take” is defined to include “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb.” The FWS (USDA Fish and Wildlife Service) subsequently defined “disturb” as follows: “Disturb means to agitate or bother a bald eagle or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.” (FWS 2007)

National Environmental Policy Act (NEPA) of 1970, as amended, provides regulations for implementing the procedural provisions of the Act. NEPA requires all federal agencies to give appropriate consideration to environmental factors in the decision making process, to involve affected and interested parties in the analysis process, and to write detailed statements in an Environmental Impact Statement or Environmental Assessment and supporting Specialist Reports that clearly describe the potential impacts of the proposed actions.

The Endangered Species Act of 1973 requires Federal agencies to conserve threatened and endangered species and the ecosystem on which they depend. Section 7(a)(1) outlines the procedures for Federal interagency cooperation designed to conserve federally listed species and their designated critical habitats. Section 7(a)(2) outlines the consultation process the requirement that any action authorized, funded, or carried out by a Federal agency would not likely jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of designated critical habitat.

National Forest Management Act (NFMA) of 1976 requires that habitat be managed to support viable populations of native and desirable non-native vertebrates within the planning area (36 CFR219.9). USDA regulation 9500-004, adopted in 1983, reinforces the NFMA viability regulation by requiring that habitats on national forests be managed to support viable populations of native and desired non-native plants, fish, and wildlife. For planning purposes, a viable population shall be regarded as one that has

the estimated numbers and distribution of reproductive individuals to ensure its continued existence is well distributed in the planning area (36 CFR 219.19). Also, the 1982 planning provisions require that “Forest planning shall provide for diversity of plant and animal communities and tree species consistent with the over-all multiple-use objectives of the planning area” (36 CFR 219.26).

Forest Service Manual 2600 provides directives regarding wildlife, fish, and rare plant management.

Principal Executive Orders relevant to terrestrial wildlife are listed below:

- **Executive Order 13186: Responsibilities of Federal Agencies To Protect Migratory Birds** (50 CFR Parts 10 and 21, January 10, 2001). A complete list of protected species is found at 50 CFR 10.13.

Current Prescott National Forest Plan

The current forest plan was approved in 1987 and has been amended seventeen times. The current Plan addresses uses and resources separately without recognition of interrelationships. As a result, management direction is lacking when guidance is needed to deal with more complex situations. For example, appropriate management responses following uncharacteristic fires need to consider the interactions between soils, vegetation structure, coarse woody debris, cultural resources, economics, and work capacity. In some cases, management under the current Plan is appropriate, but the rate of implementation is too low to alter the direction of trends currently moving away from desired conditions. The current plan revision process illuminated many gaps in the existing plan, pointing to potential needs for change in the existing forest plan:

Goals/Desired Conditions

- are either missing or inadequate to guide projects in many of the Forest’s PNVTs, which allows for projects to move forward that do not make progress towards desired conditions.
- are missing for invasive species presence or influence.
- do not integrate desired disturbance processes.
- are sometimes written as standards and/or guidelines, rather than desirable conditions to move toward.

Objectives

- are focused primarily on outputs, rather than progress toward desired conditions, goals and objectives.
- are sometimes expressed as guidelines

Standards and/or Guidelines

- are often unnecessarily prescriptive about how to accomplish a project, instead of focusing on the project outcome.
- do not support attaining desired conditions or accomplishing objectives.
- are duplicative or conflict with direction already found in Forest Service handbooks and manuals, existing laws and regulations, or recovery plans and strategies for federally listed species.
- are based on outdated policy, science, or information.
- sometimes describe purely administrative functions, such as budgeting, rather than Plan components and can be confused with Plan direction.
- Include out of date terminology such as wildland fire use.

Monitoring

- Focuses on outputs, rather than on progress toward attainment of goals/desired conditions.

Plan Direction/Goals for Wildlife and Fish Habitat

- Manage for a diverse, well distributed pattern of habitats for wildlife populations and fish species in cooperation with states and other agencies.
- Cooperate with the Arizona Game and Fish Department to meet or exceed management goals and objectives in the Arizona Cold Water Fisheries Strategic Plan.
- Maintain and/or improve habitat for threatened or endangered species and work toward the eventual recovery and delisting of species through recovery plan implementation.
- Integrate wildlife habitat management activities into all resource practices through intensive coordination.
- Support the goals and objectives of the Arizona Wildlife and Fisheries Comprehensive Plan, as approved by the Southwestern Regional Forester and Director of the Arizona Game and Fish Department.

Plan Revision Need for Change

The Analysis of the Management Situation (AMS) identified five areas where there are priority needs for change under the existing management plan:

- a. Restore vegetation arrangements, plant species, and fire to selected ecosystems, while using adaptive management to respond to citizen concerns related to smoke emissions.
- b. Maintain/improve watershed integrity to provide desired water quality, quantity, and timing of delivery.
- c. Provide sustainable, diverse recreational experiences that consider population demographic characteristics, reflect desires of local communities, avoid overcrowding and user conflicts, and minimize resource damage.
- d. Provide desired habitat for native fish.
- e. Enhance the scenic value of Prescott NF-provided open space by defining the value of the visual character within areas near or viewed by those in local communities.

Essentially, the first three needs for change could include objectives that may have various effects on terrestrial habitat in the process of moving from the existing conditions toward the desired conditions. “Providing desired habitat for native fish” is analyzed in the Fisheries Specialist Report (Forest Service 2011c) and would not be expected to have any realized effects to terrestrial habitat. For the final item, “defining the value of visual character” would not result in changes to the terrestrial habitat.

The Proposed Forest Plan is organized in three tiers: Desired Conditions, Objectives, and Standards and Guidelines. The desired conditions for an area are the basis for developing the resource objectives for the project or area. The Proposed Forest Plan identifies specific objectives to facilitate moving from existing to desired conditions. Standards and guidelines provide sideboards and guidance for project and activity decision making to help achieve desired conditions and objectives.

Summary of Alternatives

A total of five alternatives are described in the FEIS. A summary of each alternative is described below.

Alternative A: 1987 Plan Direction

Under alternative A, the 1987 plan would continue to guide management of the Prescott NF.

Alternative B: Citizen Collaboration Emphasis

Alternative B represents the collaborative effort of citizens, agencies, and Prescott NF employees to respond to suggested needs for change in existing plan direction. It includes proposed treatments for vegetation to address the need to restore vegetation structure and composition; proposed treatments to retain or improve watershed integrity; an expansion of opportunities for sustainable and diverse recreation; direction to restore and improve habitat for native fish species; and a focus on enhancing the value of open space provided by the Prescott NF.

Alternative C: Vegetation and Wildlife Emphasis

Alternative C includes many of the same components of alternative B; however, it responds to the issue of species viability and habitat by placing increased emphasis on vegetation trends within both grassland and ponderosa pine vegetation types. This focus increases the rate of improvement in the most departed vegetation types and places less emphasis on other vegetation communities and recreation components. In addition, alternative C includes more management treatment for native fish and other aquatic species and pronghorn habitats; there are no areas recommended for wilderness designation.

Alternative D: Dispersed Recreation Emphasis

Alternative D includes an emphasis on dispersed recreation in response to the issue of providing sustainable and diverse recreation opportunities. There would be a reduced emphasis on developed recreation and increased emphasis on dispersed recreation compared to alternative B. Examples include adding trails, improving trailheads, and adding designated dispersed sites. This alternative also includes the highest number of areas recommended for wilderness designation.

Alternative E: The Preferred Alternative

Alternative E, the preferred alternative, is based upon the collaborative effort of alternative B, with changes to plan components that address public and leadership concerns raised during the comment period. It includes a reduced emphasis on developed recreation and trail maintenance and additional guidance for watersheds, forest access, and land acquisitions compared to alternative B.

For a summary table of the Forest Plan Revision Alternatives at a glance see Appendix 4 at the end of this document.

Comprehensive desired conditions, standards, guidelines, and objectives can be found in the FEIS for this plan revision.

Description of the Program Areas

The proposed LRMP directs how current and future activities will be implemented for the land and resource programs managed by the Prescott NF. The program areas described in this BA are: Watersheds and Soils; Wildlife, Fish and Rare Plants; Wildland Fire and Fuels Management; Recreation; Transportation; Wilderness and Special Areas; Lands and Special Uses; Minerals Management; Rangeland Management; and Forestry and Forest Health.

The sections that follow provide a summary of the ongoing and future activities for each program for the 15 years following approval of the proposed LRMP. Objectives for each resource area are found in the table in Appendix 4. Desired conditions relevant to wildlife and their habitat are found in Tables 2 and 3. Standards and guidelines relevant to wildlife and their habitat are listed in Table 4.

Watershed and Soils

The Watershed and Soils program is responsible for maintaining or improving the condition of watersheds managed by the Prescott NF. Methods used to meet the overall objectives of the program include assessing watershed condition; prioritizing watersheds for protection or improvement; coordinating with other Federal, State, and tribal agencies; securing water rights under State or Federal law to meet NFS management; improving and maintaining water quality through the use of best management practices (BMPs); improving and protecting riparian areas and other groundwater dependent ecosystems; protecting floodplains; and planning and implementing burned area emergency response (BAER) activities. Future projects would be designed to protect and improve watershed condition and would employ best management practices, standards and guidelines, and mitigation measures to protect soils and watershed resources.

Wildlife/Fish/Rare Plants

The Wildlife/Fish/Rare Plants program involves a variety of activities conducted by the USFS and its partners, including inventory and monitoring, habitat assessments, habitat improvements through land treatments and structures, species reintroductions, development of conservation strategies, administrative studies, collaboration with research, and information and education.

The Wildlife/Fish/Rare Plants program is tasked to manage habitats for all existing native and desired nonnative wildlife, fish, and plant species in order to maintain viable populations (FSM 2620.1). Habitat planning and evaluation are integral to meeting the goals for ensuring the continued existence of wildlife, fish, and plants generally throughout their geographic range, and much of this habitat enhancement is accomplished by the involvement of fisheries biologists, wildlife biologists, and botanists in project planning and implementation.

Wildland Fire and Fuels Management

The Fire Management program combines elements of wildland fire prevention, response and management; post-fire area stabilization and rehabilitation; and hazardous fuels planning, implementation, and monitoring.

Wildland fire is defined as any nonstructural fire that occurs in vegetation or natural fuels, and it is further categorized as either wildfire or prescribed fire. Wildfires are fires with unplanned ignitions including lightning or unauthorized and accidental human-caused actions. [Prescribed fires](#) are intentionally ignited by the Forest Service under an approved plan to meet specific objectives.

Management actions taken in response to wildfires are not planned, so they are covered under ESA § 7(a)(2) emergency procedures. Therefore, they are not included as part of the proposed action for this consultation. However, the Forest Service expects to work closely with the USFWS on management responses and emergency consultation procedures as wildfires occur during the life of the LRMP.

Prescribed fire and mechanical treatments are actions that are part of the hazardous fuels program designed to protect communities, watersheds, and species at risk; and to restore and maintain resilient ecosystems. Fuel reduction activities focus on treating landscapes in fire regimes I, II and III, adjacent to the wildland-urban interface (WUI) areas; that are in condition class 2 or 3.

Recreation

The Recreation program provides a wide range of recreation settings, opportunities, and services. Program components include administration and management of resources and visitors at developed recreation sites, dispersed recreation settings, partnerships and tourism, interpretive services, recreation special use permits, congressionally designated areas, visual quality management, trail management, and scenic byways.

A variety of year-round recreation opportunities exist on the Prescott NF. Visitors and local citizens alike enjoy having such opportunities nearby, and during the summer, recreate in the Prescott NF where temperatures are moderate. In the winter, people visit the Verde Valley and other snow-free areas to recreate where temperatures are mild. Increases in population have led to increased demand for trails and other recreation opportunities. If climate changes include continuing increases in temperatures, it is likely that there will also be increases in recreation visitors from hotter areas such as Phoenix.

In addition to a host of trails and campgrounds, the Prescott NF has several unique recreation opportunities, including: a hang-glider site atop Mingus Mountain; Alto Pit and Hayfield Draw Off-highway Vehicle (OHV) recreation sites; Granite Mountain National Recreation Trail; General Crook National Historic Study Trail, a portion of the Great Western Trail, which traverses the western U.S. from Mexico to Canada; gold panning on Lynx Creek; and three historic Forest Service buildings which are a part of the “Rooms with a View” cabin rental program.

The recreation program has administered an average of 15 recreation event permits per year for the last 10 years and currently has 17 active outfitter/guide permits. The recreation event permits are short term, generally spanning a period of 3 to 5 days to cover setup, takedown, and the event itself. Categories of events include noncommercial events such as club gatherings or weddings and commercial ventures like festivals and races.

Transportation

The transportation system on the Prescott NF consists of roads and trails that provide access to areas on the forest including private land, structures and improvements under special use permit, recreational opportunities, and facilities that support land and resource management activities. The Prescott NF provides management of the transportation system including conducting inventories, surveys, and analyses; formulating plans; and executing reconstruction, maintenance, and obliteration operations.

The motorized transportation system for the Prescott NF is composed of 29.5 miles of roads managed and maintained for passenger cars and about 1,300 miles of roads managed and maintained for high-clearance vehicles, 28 miles of roads closed to all motorized vehicles, and 408 miles of trails open to motorized vehicles less than 50 inches wide. The miles of road open to motorized use include roads where access may be restricted on a seasonal basis. Any road, regardless of maintenance level, may be closed during extreme weather conditions for public safety or to minimize resource damage. Cross-country motorized travel is restricted to two designated areas on the Prescott NF, Alto Pit (41 acres) and Hayfield Draw (80 acres), and for motorized big game retrieval. Motor vehicle use off of the designated system of roads, trails and areas is prohibited except as identified on the motor vehicle use map (MVUM) and as authorized by law, permits, and orders in connection with resource management and public safety.

Wilderness and Special Areas

The Prescott NF contains 8 designated wilderness areas, totaling over 100,000 acres. The largest wilderness area is Sycamore Canyon Wilderness, which encompasses parts of three national forests: Prescott, Coconino, and Kaibab. Management of the area is shared among the three units. Pine Mountain Wilderness is also managed cooperatively, as it sits atop the boundary between the Prescott NF and the Tonto NF. Of the remaining six wilderness areas managed by the Prescott NF (Apache Creek, Castle Creek, Cedar Bench, Granite Mountain, Juniper Mesa, and Woodchute), Granite Mountain Wilderness receives the highest level of visitation due to its proximity to the Prescott Basin. Adjacent to these wilderness areas, extensions totaling 23,000 acres are recommended for future wilderness designation as part of the proposed LRMP.

The Verde River below Camp Verde is designated as a wild and scenic river (WSR), and a 37-mile segment of the upper Verde River (extending from the Prescott NF boundary downstream to Clarkdale) is identified as eligible for WSR designation.

The Prescott NF also contains 11 inventoried roadless areas (IRAs) identified in the 2001 Roadless Area Conservation Rule (RACR). The RACR prohibited road construction and reconstruction in most inventoried roadless areas and outlined procedures to evaluate the quality and importance of roadless characteristics. IRAs are characterized as having an undeveloped character and are valued for many resource benefits including wildlife habitat, biological diversity, and dispersed recreation opportunities.

Special areas, such as research natural areas, botanical areas, and geological areas, are designated to ensure protection of specific biological and geological communities. By definition, they must have unique or special characteristics for which specific management is required. Grapevine Botanical Area (800 acres), a special area located in the Bradshaw Mountains south of Prescott, was designated to protect the 12 perennial springs and associated Arizona alder-Arizona walnut vegetation community found in the area.

Lands and Special Uses

The Prescott NF lands program is responsible for identification and maintenance of land line locations between Forest Service lands and lands of other ownership and land adjustments. Land ownership adjustments include: purchases, withdrawals, land exchanges, and the issuance of non-recreation special use authorizations. The Prescott NF has issued over 400 active special use authorizations including recreation residences, organizational camps, research studies, rights-of-way, communications towers, power lines, and wildlife water catchments.

The effects of future development projects such as for utilities and transportation systems would be addressed on a site specific basis and mitigated individually following the Forest Service policy regarding special uses. Mitigations are typically accomplished by consolidation of new developments along existing routes and corridors or by construction techniques that disturb less land and improve reclamation success.

Minerals Management

Minerals of economic interest are classified as leasable, salable, or locatable. Locatable minerals are subject to the General Mining Law of May 10, 1872, as amended, and for the most part are outside the scope of the LRMP.

Locatable minerals include gold, copper, silver, and zinc, as well as uncommon variety minerals such as perlite, high-grade limestone and others. Approved mining includes any anticipated surface disturbance associated with underground mining operations and all surface mining activity. These activities can involve exploration drill holes, small scale prospecting, active mining from surface quarries and pits, and mill sites. For locatable minerals, new plans of operations (and acres of new disturbance) have been fairly consistent with not much variation from year to year on the number of active mine sites or acres open at any one time. The Southwestern Region does not currently have detailed acreage estimates for all the locatable mineral surface disturbances, but generally, as new operations are approved, reclamation is done on other pre-existing sites as their plans expire, so the overall net change in acreage is minor.

The Prescott NF has abundant minerals deposits and mining is common both on and off the forest. Existing mining activities on the Prescott NF includes five mineral material contracts for removal of flagstone, one contract for schist removal, one contract for removal of decomposed granite, one limestone operation with an approved commercial plan of operations, and numerous recreational gold placer mining operations.

Gold mining is limited to small-scale placer and/or lode mining. Placer operations involve methods such as excavation, dredging, and panning from alluvial deposits and are most common on the forest in the Bradshaw Mountains. Most placer mining is recreational use or small commercial operators; the Gold Basin Project is the only commercial mine with an approved plan of operations. Lode operations, also known as hard rock mining, consist of mining a vein bearing gold or a rock in-place valuable mineral deposit. There are 1,800 active placer claims and 1,484 active lode claims with 10 tunnel site claims. Claims can be up to 20 acres per placer claim with a maximum of 160 contiguous acres with 8 or more people (an association). Lode claims are limited to a maximum size of 1,500 feet in length along the vein or lode and width of 600 feet. Mining claims are not filed on the forest, but rather with the Bureau of Land Management. It should be noted that the vast majority of mining claims do not have any on-the-ground operations associated with them; many of them are for speculative purposes.

Copper is the most abundant metallic mineral on the Prescott NF, and there is an active plan of operation for exploratory drilling of copper on the Verde Ranger District. High demand growth is expected for copper in the United States, and this is likely to increase the interest of mining on the Prescott NF. It is anticipated that most major mineral exploration and development will occur in the Bradshaw Mountains (Bureau of Mines, 1995).

Geologic surveys and studies suggest that the highest concentrations of metallic minerals exist in the western parts of the forest. Areas with exploration potential for large tonnage deposits of copper and gold are near Copper Basin, Groom Creek, Big Bug Creek, Crooks Canyon, Crown King, and Goodwin.

The Prescott NF does not produce any energy or fuel minerals such as uranium, oil, natural gas, or coal. There is no method for predicting future demand, but current conditions and trends indicate that development interests should remain low due to the unlikelihood of suitable deposits on the forest.

There is substantial production of construction related materials (e.g., cinders, crushed stone, dimension stone, landscape rock) on the forest. Demand tends to be highly influenced by local conditions and has varied considerably in recent years, so mining activity for these minerals has been sporadic.

Rangeland Management

The Prescott NF authorizes livestock grazing on as many as 68 allotments covering 920,779 suitable acres (73 percent of the forest). Of the 62 active grazing allotments, 19 are used seasonally (31 percent) and 43 are used yearlong (69 percent). Allotments are managed using an adaptive management strategy whereby results from long and short term monitoring are used to guide managers concerning yearly stocking rates, pasture rotations, and whether other adjustments are needed in order to meet management objectives and desired conditions for rangelands.

Areas where grazing is excluded include: Prescott Municipal watershed (Goldwater Lake), Lane Mountain watershed, Lynx Lake and Granite Basin Recreation Areas, Grapevine Botanical Area, and the designated wild and scenic segments of the Verde River. Periodic review of allotment management plans also results in decisions to exclude livestock grazing on individual allotments in response to drought, wildfire, and other factors that influence range conditions.

Forestry and Forest Health

Forest products sold on the Prescott NF include both sawtimber and firewood. The harvest of sawtimber on the Prescott NF is solely a byproduct of thinning forested areas where the primary purpose is to improve forest health and wildlife habitat or to reduce hazardous fuels in the wildland-urban interface, rather than an outcome of regulated forest production. The demand for wood products other than sawtimber has been driven by local and regional needs for firewood.

Other Management Direction

The proposed LRMP provides management direction for resources that are not included in the program areas described above, including: ecosystem resilience, air quality, and heritage resources.

The proposed LRMP also includes a plan monitoring strategy that identifies monitoring questions organized according to six themes: (1) legally required monitoring (1982 planning rule provisions); (2) conserving biological diversity, (3) retaining ecosystem resilience; (4) maintaining watershed, soil, and air quality; (5) sustaining recreational and social benefits; and (6) maintaining infrastructure capacity. See the proposed LRMP for more information about the monitoring strategy.

Methodology and Analysis Process

Plan decisions in the current forest plan and the alternatives include goals/desired conditions, objectives, standards/guidelines, suitability of uses, special areas, and monitoring. The management actions to be considered in this evaluation include the objectives identified to meet the need for change on the forest. These include the use of prescribed fire and mechanical treatments to restore vegetation and natural fire regimes to the ecosystem, projects to maintain or improve watershed integrity, projects to maintain and provide for recreational experiences, projects to maintain or improve aquatic and wildlife habitat, and opportunities to enhance the scenic value. A concurrent decision in the forest revision process included in this evaluation is the designation of wilderness areas.

In this analysis, the following assumptions have been made:

- The land management plan provides a programmatic framework for future site-specific actions.
- Land management plans do not have direct effects. They do not authorize or mandate any site-specific projects or activities (including ground-disturbing actions).
- Land management plans may have implications, or environmental consequences, of managing the forests under a programmatic framework.
- Law, policy, and regulations will be followed when planning or implementing site-specific projects and activities.
- The plan decisions (desired conditions, objectives, standards, guidelines, management areas, monitoring) will be followed when planning or implementing site-specific projects and activities.
- Monitoring will occur and the land management plan will be amended, as needed.
- Management activities that help ecosystems accommodate changes adaptively will improve ecosystem resiliency in the long-term.
- The planning timeframe is 10 years; other timeframes may be analyzed to compare anticipated trends into the future.

Desired Conditions for Terrestrial Species

Desired conditions are the focus of the Forest Plan and are the basis for developing objectives and other plan components. These desired conditions apply to all alternatives. Two Terrestrial Wildlife DC with several components were developed for the plan revision:

Table 2. Desired Conditions for Terrestrial Wildlife	
DC-Wildlife-1	<ul style="list-style-type: none"> • Habitats that support populations of Southwestern Region sensitive species are enhanced to provide ecological conditions that facilitate the life history, distribution, and natural population fluctuations of the species within the capability of the ecosystem. • Fire plays a role in maintaining wildlife habitat for species associated with fire-adapted systems. • Wildlife in habitats associated with animal movement corridors are free from human harassment¹. • Avian and mammal fatality and habitat alteration associated with existing and proposed power lines, corridors, energy development (i.e., wind and solar), and cell towers is minimized through the implementation of design features and guidelines. • Terrestrial habitats are free of negative impacts from non-native or feral species.
DC-Wildlife-2	<ul style="list-style-type: none"> • Vegetation conditions for federally listed species are consistent with existing recovery plans. • Ecological conditions provide habitat for associated federally-listed species. Habitat conditions generally contribute to survival and recovery and contribute to the de-listing of species under the Endangered Species Act (ESA) of 1973 (P.L. 93-205). • Improved habitats for candidate and proposed species help preclude species listings as threatened or endangered under ESA.

¹ Human activities which could potentially harrass wildlife include, but are not limited to: shooting, camping in developed sites, and OHV recreation.

Desired Conditions for other resource areas that support managing for wildlife resources are common to all alternatives and are listed in Table 3.

Table 3. Desired Conditions for other resource areas that support wildlife resources.		
Resource	Desired Condition	Benefitting wildlife resource
DC-Ecosystem Resilience-1	<ul style="list-style-type: none"> • Ecological conditions for habitat quality, distribution, and abundance contribute to self-sustaining populations of terrestrial and aquatic plant and animals. Conditions provide for the life-history, distribution, and natural population fluctuations of the species within the capability of the ecosystem. • Contiguous blocks of habitat are interconnected, support a wide array of native species, and allow for genetic and behavioral interactions. 	All status of species
DC-Ecosystem Resilience-1	Habitat quality distribution and abundance exist to support recovery and/or stabilization of federally listed and other species.	Federally protected and sensitive species
DC-Watershed-2	<ul style="list-style-type: none"> • Riparian corridors are intact and are trending toward properly functioning condition across the landscape. • Access to food, water, cover, nesting areas, and protected pathways for aquatic and upland species is maintained between aquatic and upland components (e.g., logs, ground vegetation). 	All status of species
DC-Veg-5	<ul style="list-style-type: none"> • Locally endemic plant communities are intact and functioning. • Unique plant community habitats (e.g., limestone cliffs, margins of seeps and springs, Verde Valley Formation, basalt-lava flows/cinders, calcareous soil/alkaline clay, canyons/cliffs and ledges, granitic soils/igneous rocks, sandstone rocks/soils and riparian forest) are present to maintain well-distributed populations of associated native plant species. • Native plants provide nectar, floral diversity, and pollen throughout the seasons that pollinator species are active. Desired habitat conditions promote pollinator success and survival. 	All status of species

The overall assumption of ecosystem management is that managing systems within the range of conditions that native species have experienced over evolutionary time is likely to maintain populations of those species. While the objectives for some resource areas may have the potential for unwanted impacts to wildlife resources, Standards and Guidelines are designed to ensure that wildlife resource priorities are appropriately considered and incorporated in project design and implementation. Standards must be followed and can only change with a forest

plan amendment. Guidelines must be followed, but may be modified somewhat for a specific project if the intent of the guideline is followed and the deviation is addressed in the decision document with supporting rationale. Alternative A uses the management direction in the current Land Management Plan. Table 4 lists Terrestrial Wildlife Standards and Guidelines as well as Standards and Guidelines from other resource areas for Alternatives B-E in the Draft Forest Plan Revision that would ensure wildlife consideration in project design and implementation.

Table 4. Forest Plan Standards and Guidelines supporting wildlife management.		
Resource	Standard or Guideline	Benefitting Resource
Guide- WL-1	Habitat management objectives and terrestrial species protection measures from approved recovery plans should be applied to activities and special uses occurring within federally listed species habitat ² .	Wildlife
Guide- WL-2	<ul style="list-style-type: none"> Design features and mitigation measures should be incorporated in all Forest Service projects as needed to ensure that Southwestern Region sensitive species do not trend toward listing as threatened or endangered species. Design features and mitigation measures should be incorporated in all Forest Service projects as needed to ensure compliance with other Federal laws governing wildlife such as, but not limited to, Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act. 	Wildlife
Guide- WL-3	<p>For pronghorn antelope the following should occur:</p> <ul style="list-style-type: none"> When scheduling activities in pronghorn fawning areas, provide adequate cover and time activities to minimize disturbance. Evaluate opportunities to enhance pronghorn migration routes when identifying priorities for vegetation treatments within grassland PNVTs. Use fencing that allows pronghorn passage when replacing fences or building new fences. Specifications should be based on most recent AZGFD fencing guidelines related to wire heights, distance between posts, and distances between strands of fence wire. As pronghorn habitat improvements to maintain pronghorn travelways are proposed, work done by AZGFD and other partners should be considered. Within identified pronghorn habitat, juniper trees that have been cut down should be treated so that pieces lie no higher than 18 inches above the ground. 	Pronghorn
Guide-WL-4	For cavity nesting birds, snags should be retained at levels indicated in PNVT desired condition statements, if available, and replaced at natural recruitment rates.	Wildlife

² Recovery plans can be found on the following website: <http://www.fws.gov/endangered/>

Table 4. Forest Plan Standards and Guidelines supporting wildlife management.		
Resource	Standard or Guideline	Benefitting Resource
Guide- WL-5	<p>For raptors, as each nest site (e.g. stick nest, cliff, ledge, cavity) is identified:</p> <ul style="list-style-type: none"> • Size and structure of raptor species’ nest stands³ should be maintained. • Disturbance at nest sites during the breeding season should be minimized. 	Raptors
Guide- WL-6	<p>For bats the following should occur:</p> <ul style="list-style-type: none"> • Where known bat use and concentrations of bats occur (e.g., maternity colonies, hibernacula or seasonal roosts), measures to maintain habitat and reduce disturbance by human activities through use of seasonal or permanent access restrictions should be used. These habitats generally include abandoned mines, caves, bridges, rock crevasses, old buildings, or tree snags. • Bat occupancy should be assessed when considering closing abandoned mines (and caves). • When closing mines occupied by bats, use appropriate closure protocols, and consider the installation of bat-friendly closure devices. <p>Containment and decontamination procedures should be used to avoid spread of white-nose syndrome (<i>Geomyces destructans</i> fungus). Forest Service guidance dated July 21, 2010 or most recent decontamination procedures should be used.</p>	Bats
Guide- WL-7	<p>Where goshawks exist:</p> <ul style="list-style-type: none"> • A minimum of 6 nest areas (known and replacement) should be located per territory. Goshawk nest and replacement nest areas should generally be located in drainages, at the base of slopes, and on northerly (NW to NE) aspects. Nest areas should generally be 25 to 30 acres in size. • Goshawk Post-fledging Family Areas (PFAs) of approximately 420 acres in size should be designated surrounding the nest sites. • Human presence should be minimized in occupied goshawk nest areas during nesting season of March 1 through September 30. <p>Management activities and human uses for which the Forest Service issues permits (excluding livestock permits) should be restricted within active nest stands during the active nesting period unless disturbance is not likely to result in nest abandonment.</p>	Northern goshawk

³ A nest stand includes the nest site and surrounding area that provides nest protection, and desired vegetative structure, to enhance reproductive success of the species using the nest.

Table 4. Forest Plan Standards and Guidelines supporting wildlife management.		
Resource	Standard or Guideline	Benefitting Resource
Guide-WL-8	Projects should be designed to minimize the long-term impacts to wildlife from human activities in or adjacent to animal movement corridors.	Wildlife
Guide-WL-9	Water developments or open impoundments, such as those for wildlife, livestock, or mining operations, should incorporate design features to prevent animal entrapments or assist in escape.	Wildlife
Guide-WL-10	All open top vertical pipes with an inside diameter greater than one inch should incorporate design features to prevent animal entrapments. Examples could include pipe for used for fences, survey markers, building plumbing vents, or sign posts.	Birds
Std-WS-1	Construction or maintenance equipment service areas shall be located at least 100 feet from the edges of all riparian corridors, seeps, and springs to prevent gas, oil, or other contaminants from washing or leaching into aquatic and riparian habitats.	Riparian
Std-WS-3	Containment measures shall be employed within 100 feet from the edge of all riparian corridors, seeps, and springs for storage of fuels and other toxicants to prevent degradation of water quality and aquatic habitat.	Riparian
Guide-WS-3	Riparian dependent resources should be managed to maintain and improve productivity and diversity of riparian dependent species. Riparian communities should provide for the sustainability of aquatic and riparian species.	Riparian
Guide-WS-4	Adverse impacts to stream channel features (e.g., streambanks, obligate riparian vegetation) should be minimized by modifying management actions. Examples of modification could include, but are not limited to, adjusting timing and season of grazing, limiting use and location of heavy machinery, or avoiding placing trails or other recreation structures where recreation use could negatively affect stream channel features.	Riparian
Guide-WS-5	Ground cover sufficient to filter runoff and prevent erosion should be retained in riparian corridors, seeps, and springs.	Riparian
Guide-WS-6	New infrastructure or facilities (e.g., roads, trails, parking lots, trailheads, energy transmission lines) should be located outside of riparian corridors. If crossing such areas with transmission lines is unavoidable, design features should be used to maintain hydrologic function and minimize impacts on riparian habitats.	Riparian

Table 4. Forest Plan Standards and Guidelines supporting wildlife management.		
Resource	Standard or Guideline	Benefitting Resource
Guide-WS-7	Infrastructure or facilities locations that lead to erosion or negative impacts to riparian systems should be mitigated/corrected. If no permanent correction is possible, they should be relocated outside of riparian corridors as opportunities arise.	Riparian
Guide-WS-8	Operation of heavy equipment, such as dozers, backhoes, or vehicles, in stream channels, seeps, and springs should be avoided. If use of equipment in such areas is required, site-specific design features should be implemented to minimize disturbance to soil and vegetation. Restoration or stabilization should occur immediately following disturbance.	Riparian
Guide-WS-9	Along perennial streams, perennial intermittent streams, and spring ponds, mitigations such as offsite water for livestock should be provided to reduce impacts on riparian communities and groundwater dependent sites.	Riparian
Guide-WS-10	Measures that restrict use should be considered as a way to mitigate recurring negative impacts to aquatic species and riparian plants. These could include, but are not limited to, installation of barriers, road closures, area closures, or seasonal restrictions.	Riparian
Std-Plants-2	When treating nonnative and invasive plant species, design features in appendix B of the “Final Environmental Impact Statement for Integrated Treatment of Noxious or Invasive Weeds” (Forest Service, 2005a) or the most current direction must be followed to protect endangered, threatened, proposed, and candidate wildlife and plant species and their habitats.	Wildlife
Std-Wildland Fire 2	Within the PNV T called Desert Communities, fire shall not be used as a tool for management and all fires will be suppressed.	Sonoran desert tortoise
Guide-Wildland Fire-7	Project-specific design features to avoid undesired impacts should be used when fire operations occur within or near riparian corridors or seeps and springs. For example, provide screens on water hoses when drafting water to prevent the entrapment of fish.	Riparian

Table 4. Forest Plan Standards and Guidelines supporting wildlife management.		
Resource	Standard or Guideline	Benefitting Resource
Guide-Soils-2	Down logs and coarse woody debris should be retained at the appropriate tonnage per PNVT as outlined in the “Vegetation” desired condition sections to retain soil productivity.	Wildlife
Guide-Rec-8	New developed campgrounds and designated dispersed campsites should be located away from riparian areas, flood plains, and other environmentally sensitive areas.	Riparian
Guide-Lands- 2	When responding to land exchange proposals as presented, consideration should be given to the effects they have on visual characteristics; cultural resources; recreation opportunities; threatened, endangered or sensitive species impacts; and community vision statements. In coordination with general factors to consider in 36 CFR 254.3(1), proposals for acquisition should meet one or more of the following criteria: <ul style="list-style-type: none"> • Lands that contain important wildlife habitat, including that needed for species viability, such as habitat needed to maintain migration patterns or important habitat linkages • Wetlands, riparian areas and other water-oriented lands • Lands that contain unique, natural, or cultural values 	Wildlife Riparian
Guide-Lands- 4	The following guidelines apply to communication sites: <ul style="list-style-type: none"> • New and replacement towers should be self-supporting, and should incorporate design features to minimize bat and bird impacts. 	Bats Birds
Guide-Lands-5	Energy sources should be managed according to the guidelines below: <ul style="list-style-type: none"> • Current USFWS and AZGFD guidelines for wind and solar energy development should be considered for avoiding or minimizing impacts to wildlife. • Wildlife movement corridors should be considered when energy sources and transmission lines are located. 	Wildlife Bats Birds
Guide-Locatable Minerals-1	Provisions should be provided for recreational gold panning and dry mining activities that are allowed on the Prescott NF. These could include but would not be limited to: <ul style="list-style-type: none"> • Only operating one area at a time and refilling holes and restoring areas of operation as nearly as possible to their pre-mining appearance. • Minimizing disturbance to riparian vegetation. • Avoiding disturbance to upland vegetation. • Guidance found in 36 CFR Part 228. 	Riparian

Table 4. Forest Plan Standards and Guidelines supporting wildlife management.		
Resource	Standard or Guideline	Benefitting Resource
Guide – Locatable minerals - 2	<p>Given that the Forest Service function is the management and protection of surface resources in a manner compatible with reasonable and logical mining operations, the following should be included in plans of operations for locatable minerals:</p> <ul style="list-style-type: none"> • Structures and support facilities for mining activity should be located outside riparian areas. Where no alternative to locating facilities in riparian areas exists, site-specific design features should be developed to minimize impacts. • Mine waste that has the potential to generate hazardous material should be located outside of riparian areas. If there is no reasonable alternative, design features should be applied to minimize impacts. • Mitigation measures should be used for Southwestern Region sensitive species to minimize impacts to populations due to mineral exploration or extraction activity. • Watershed protection and mitigations should be incorporated to avoid degradation of aquatic systems, including water quality, during mineral extraction. 	Riparian Wildlife
Guide- Minerals Materials-1	Adverse effects to aquatic and other riparian dependent resources from mineral material operations should be avoided.	Riparian
Guide – Minerals Materials -5	Occupied Southwestern Region Sensitive Species habitat should be avoided during development of new mineral material extraction sites. Heavy equipment use and material removal should not take place in occupied Southwestern Region Sensitive Species habitat within current or new permitted sandstone or dolomitic limestone quarries.	Wildlife
Standard-Range -1	Water troughs shall incorporate escape devices to prevent animal entrapments.	Wildlife
Std-Range-2	Year-long livestock grazing in riparian areas (streams, springs, and seeps) shall be avoided to prevent adverse impacts to water quality and riparian habitat in those areas.	Riparian
Guide-Range-1	The placement of salt, minerals, and/or other supplements for the purposes of livestock management should be located further than ¼ mile from riparian areas or seasonally present water.	Riparian

Table 4. Forest Plan Standards and Guidelines supporting wildlife management.		
Resource	Standard or Guideline	Benefitting Resource
Guide– Range 2	<p>For structural improvements, the following should be considered:</p> <ul style="list-style-type: none"> • Implement design features that incorporate wildlife needs and reduce barriers to movement and entrapment hazards. • Consider wildlife needs in fence placement and design to reduce barriers and hazards to movement and minimize chances of entrapment. • Remove fencing when it is no longer needed. 	Wildlife Pronghorn
Guide- Range-4	Livestock salting should be located away from known locations of Southwestern Region sensitive plant species so that plants are not adversely affected by associated trampling.	Plants
Guide- Range-5	Livestock use of woody riparian species (e.g., cottonwood, willow, ash, and alder) should provide for maintenance of those species and allow regeneration of new individuals leading to diverse age classes of woody riparian species where potential for native woody vegetation exists.	Riparian
Guide- Range-6	Grazing intensity, frequency, occurrence, and period should provide for growth and reproduction of desired plant species while maintaining or enhancing habitat for wildlife.	Wildlife
Guide-Trans- 1	Where the creation of alternate routes does not lead to excessive damage to other resources, opportunities to relocate and restore motorized roads or trails in riparian areas, and in proximity to other water courses, should have priority.	Riparian
Guide-Trans- 3	Roads and trails should be designed to not impede terrestrial and aquatic wildlife species movement and habitat connectivity.	Wildlife
Guide-Trans- 4	Seasonal road and trail closures or other management methods should be used to manage and protect resources and infrastructure.	Wildlife
Guide-Trans- 5	To avoid unintended entrapment, wildlife friendly design for cattle guards should be incorporated for new and replacement installations.	Sonoran desert tortoise

The evaluation of effects of the Forest Plan alternatives on terrestrial species will use the following indicators in Table 5.

Table 5. Terrestrial wildlife analysis indicators for Comparison of Forest Plan alternatives	
Species consideration between existing condition and alternatives.	Indicator for Alternative Comparison
How would objectives listed in each alternative contribute to the recovery of federally listed or proposed species?	<ul style="list-style-type: none"> ➤ Effects of changes to associated PNVT on each species. ➤ Effects of impacts to associated habitat features on each species. ➤ Assessment of Proposed Forest Plan’s design to provide for compliance with Recovery Plans and Conservation Strategies and using the best available science.
How would objectives listed in each alternative contribute to sensitive species management so as to not trend toward federal listing?	<ul style="list-style-type: none"> ➤ Effects of changes to associated PNVT on each species. ➤ Effects of impacts to associated habitat features on each species. ➤ Assessment of S&G’s to provide for sensitive species management.
How would objectives listed in each alternative impact migratory birds and provide for compliance with the MBTA?	<ul style="list-style-type: none"> ➤ Effects of changes to PNVTs on migratory birds. ➤ Effects of impacts to habitat features. ➤ Potential for impacts from proposed projects.
How would standards and guidelines listed in each alternative ensure compliance with the Eagle Act?	<ul style="list-style-type: none"> ➤ Assessment of potential for programmatic “take” under the Eagle Act.
How would objectives listed in each alternative affect Management Indicator Species?	<ul style="list-style-type: none"> ➤ Trends in habitat quantity, quality, and distribution at landscape scale based on effects to relevant PNVT. ➤ Assessment of population trends relative to habitat condition trends.

The effects of ongoing resource programs on biological resources would be similar across the alternatives and will be disclosed at a programmatic level.

Description of Affected Environment (Existing Condition)

Terrestrial Ecosystem

Vegetation (Forest Service 2011b)

At least eleven vegetation types occur across Prescott NF lands. They include a variety of forms from cactus and shrub communities to grasslands, woodlands, and forest. The vegetation patterns observed are responsive not only to natural and human disturbances, but also to the local abiotic features of the landscape (e.g., precipitation, average annual temperatures, topography, aspect, slope, soil texture, etc.). The term Potential Natural Vegetation Type (PNVT) is used throughout this report to refer to these coarse-scale vegetation groups that share similar abiotic features and natural disturbances such as fire and drought cycles.

As shown in Table 6 below, eight vegetation types or PNVTs comprise 98 percent of the Prescott NF. Three minor PNVTs occupy the remaining two percent of the Prescott NF.

Table 6. Vegetation Groups (PNVTs) found on the Prescott National Forest.			
Vegetation Group Name (PNVT)	Acres	Percent	Description
Major PNVTs			
Semi-Desert Grassland (SDG)	125,712	10.0%	Low-elevation grasslands (3,000 to 4,500 ft)
Great Basin/CP Grassland (CPGB)	38,389	3.1%	Mid-elevation grasslands (4,700 to 7,600 ft)
Piñon-Juniper Grassland (JUG)	137,274	10.9%	P-J Community
Piñon-Juniper Evergreen Shrub (PJC)	463,296	36.9%	P-J Community
Piñon-Juniper Woodland (PJW)	36,263	2.9%	P-J Community
Interior Chaparral (CHAP)	315,445	25.2%	Mid-elevation shrublands (3,400 to 6,600 feet)
Ponderosa Pine-Evergreen Oak (PPE)	63,539	5.1%	High-elevation pine forests (6,000 to 7,500 ft)
Ponderosa Pine-Gambel Oak (PPO)	49,052	3.9%	High-elevation pine forests (5,500 to 9,000 ft)
Totals:	1,228,999 ac	98.0%	

Table 6. Vegetation Groups (PNVTs) found on the Prescott National Forest.			
Vegetation Group Name (PNVT)	Acres	Percent	Description
<i>Minor PNVTs</i>			
Riparian Gallery/Forest (RGF)	12,439	1.0%	Warm-water Riparian Communities
Desert Communities (DC)	5,919	0.5%	Low-elevation deserts
Madrean Encinal Woodland (MEW)	5,593	0.5%	Mid-elevation Oak woodlands (3,600 to 6,500 feet)
Totals:	23,951	2.0%	
Totals:	1,252,950 ac	100%	11 Vegetation Groups (PNVTs)

A summary of current conditions and trends for the major PNVTs found on the Prescott NF are described next. These ecological conditions are the foundation for assessing terrestrial wildlife habitat trends based on the consequences of the proposed vegetation and fire related management activities.

Grasslands:

There are two types of grasslands found on the Prescott NF: Semi-desert and Great Basin. Grasslands are characterized by less than 10 percent tree cover.

The semi-desert grassland encompasses roughly 126,000 acres at elevations ranging from 3,000 to 4,500 feet. They are bounded by desert communities at the lowest elevations and piñon-juniper woodlands or interior chaparral at higher elevations. Species composition and dominance varies based on soils and topography. The more common grass species include black grama, blue grama, hairy grama, tobosa, and giant sacaton. Various shrubs species also inhabit these grasslands including: creosote bush, catclaw acacia, mimosa, burroweed, broom snakeweed, and mesquite.

The Great Basin grassland encompasses almost 38,500 acres and intermingles with piñon-juniper ecosystems adjacent to the Chino Valley. They are higher in elevation (approximately 4,700 to 7,600 feet) and climatically cooler and moister than semi-desert grasslands. Vegetation consists mostly of grasses and forbs with interspersed shrubs. Grass species may include, but are not limited to, Indian ricegrass, threeawns, blue grama, needle grass, bottlebrush squirreltail, James’ galleta, dropseed, and tobosa grass. Shrub and half-shrub species may include, but are not limited to, saltbush, snakeweed, winterfat, buckwheat, and juniper.

Healthy grasslands are important habitat for a variety of wildlife species and are essential to maintain pronghorn antelope populations. Grasslands of the Prescott NF have undergone dramatic changes over the last 130 years. Changes include encroachment by trees and shrubs, loss of perennial grass cover, loss of cool season plant species, increase in exposed soil surface, and the spread of non-native annual

grasses and forbs. Fire plays a key role in the maintenance of grasslands. Fire historically occurred every 10 to 30 years in the Great Basin and 2 to 10 years in the semi-desert.

Currently, the Great Basin grasslands show minimal departure from reference conditions (pre-Euro-American settlement period) in structure and composition; however, without periodic disturbance conditions are expected to trend away from reference conditions. In contrast, the semi-desert grasslands show severe departure from reference conditions in both structure and fire regime.

Under warmer and dryer climate conditions, grassland ecosystems are susceptible to decreases in plant productivity from water limitations and increased heat; increases in insect attacks; colonization of invasive plant species; longer and more severe fire seasons; and altered frequency, intensity, timing, and spatial extent of disturbance events (e.g., droughts, flash flooding, landslides, and ice storms). Grasses make use of moisture in the upper soil layers. Intense precipitation events may lead to increased runoff, but decreased effective water infiltration. This could decrease vigor of native plants and lead to increased colonization of non-native invasive plant species.

Juniper Grasslands, Piñon-Juniper Evergreen Shrub, and Piñon-Juniper Woodlands:

At roughly 636,800 acres, piñon-juniper communities cover a majority of the Prescott NF landscape and represent one of the most extensive vegetation types in the Southwest. These cold-adapted evergreen woodlands are characterized by piñon and/or juniper species at elevations ranging from 4,500 to 7,500 feet. The piñon component includes Colorado and single leaf species. The juniper component is a variable mix of alligator, one-seed, Utah, and Rocky Mountain. Annual and perennial grasses, forbs, and shrubs can be found beneath the woodland overstory. Species composition, stand structure, and density vary by location primarily due to precipitation, elevation, temperature, and soil type. On erosive soil types within these communities, shrub, tree, and herbaceous ground cover help to lessen raindrop intensity and soil movement.

Under warmer and dryer climate conditions, piñon-juniper communities are expected to be susceptible to decreases in plant productivity from water limitations and increased heat; increases in insect attacks; colonization of invasive species; longer and more severe fire season; and altered frequency, intensity, timing, and spatial extent of disturbance events (e.g., droughts, flash flooding, landslides, wind storms, and ice storms). It is possible that there may be some shifts in aerial coverage between the three piñon-juniper PNVTs depending on amount and timing of precipitation and site specific conditions such as terrain and soils. In addition, piñon trees may decrease in number due to possible increased insect attack and lack of moisture.

The piñon-juniper vegetation communities on the Prescott NF have been subdivided into three distinct vegetation types: juniper grassland, evergreen shrub, and woodland. Each is described in more detail in the following sections.

Juniper Grasslands:

The juniper grassland type, with a grass and forb-dominated understory and scattered over-story trees, generally occurs on flats, basins, gentle sloping foothills, and transitional valleys at generally lower

elevations. The soils associated with juniper grasslands are generally deep and productive. Juniper grasslands cover about 137,300 acres of the Prescott NF.

Current conditions within juniper grasslands are moderately departed from reference conditions. Fire has been excluded from this type for most of the last century, allowing for increases in the age, density, and canopy cover of trees and shrubs, and a reduction in fire-stimulated re-growth and germination of perennial grasses and forbs.

Piñon-Juniper Evergreen Shrub:

The evergreen shrub type, with an understory dominated by a mix of shrub species, generally occurs on elevated and lowland plains, hills, and lower-mountain slopes. The soils associated with the evergreen shrub type are variable and include those derived from granite, limestone, basalt, sandstone, and alluvium. Covering more than 463,000 acres, this is the most common piñon-juniper type on the Prescott NF.

Current conditions within the piñon-juniper evergreen shrub type are highly departed from estimates of reference conditions. For example, within-group tree and shrub density is higher than expected, and shrub canopy cover lacks variability. There is a higher proportion of recently disturbed, open-canopy grass-forb-shrub state than expected. This is likely due to management activities during the 1950s-70s that involved “juniper pushes”. Current fire frequency is moderately departed, but fire severity when fires occur, is similar to reference conditions.

Piñon-Juniper Woodlands:

Covering about 36,000 acres of the Prescott NF, the woodland type has a persistent tree overstory and a sparse discontinuous understory of some grasses and/or shrubs. It generally occurs on flats, ridge tops, rugged uplands, and steep slopes at various elevations and on soils that are shallow and rocky.

Current vegetative conditions and fire regimes within the piñon-juniper woodlands are similar to reference conditions (i.e. pre-Euro American settlement period). Fire in this vegetation type is less frequent than in the juniper grassland and evergreen shrub types and variable due to differences in ground cover.

Interior Chaparral:

Interior chaparral extends over 315,600 acres, and represents the second-largest vegetation type on the Prescott NF. Interior chaparral occurs at mid-elevations (3,400 to 6,600 ft) on foothills and lower mountain slopes. It is bordered by ponderosa pine or piñon-juniper woodlands at the upper elevations, and semi-desert grasslands at the lower elevations. Interior chaparral has a uniform dense structure dominated by shrubs with thick, stiff, waxy evergreen leaves. Mixed shrub associations include: shrub live oak, manzanita, desert ceanothus, mountain mahogany, silktassles, Stansbury cliffrose, evergreen oaks, sumacs, and various cacti. Grasses are a minor component in chaparral and may include grama, threeawn, and muttongrass species.

Current interior chaparral composition, structure, and fire regime are similar to reference conditions; however, some non-native invasive species, such as yellow star thistle and Dalmatian toadflax, are infesting portions of the chaparral type (USFS 2005).

Under warmer and dryer climate conditions, interior chaparral ecosystems are susceptible to decreases in plant productivity from water limitations and increased heat; colonization of invasive species; longer and more severe fire seasons; and altered frequency, intensity, timing, and spatial extent of disturbance events (e.g., droughts, flash flooding, landslides, wind storms, and ice storms).

Ponderosa Pine-Evergreen Oak Forest:

Ponderosa Pine - Evergreen Oak forests cover more than 63,500 acres of the Prescott NF at elevations ranging from approximately 6,000 to 7,500 feet. It is dominated by ponderosa pine and can be distinguished from the Ponderosa Pine-Gambel Oak PNVT by one or more well-represented evergreen oak species (e.g., Emory oak and Arizona white oak), juniper species, piñon pine species, and Arizona cypress in some locations. This forest type on the Prescott NF has an understory of primarily evergreen shrubs including manzanita, turbinella oak, sumac species, and mountain mahogany species.

This forest type is currently severely departed from reference conditions. Fuel loads have accumulated on the forest floor. It has too many young and mid-aged trees and shrubs growing closely together. There are not enough old trees. The natural fire regime is severely departed from pre-Euro-American settlement reference conditions. Historically, fire burned relatively frequently (every 6 to 12 years) and at low intensities maintaining an open pine forest with a mix of young evergreen oaks and shrubs underneath. When wildfires occur under current conditions, they are more likely to kill many of the large and old trees, moving the vegetation structure further from reference conditions, thereby increasing the time it would take to restore forest structure to groups of uneven aged, multi-storied stands in the desired conditions for ponderosa pine.

Approximately two thirds of this PNVT occurs within the wildland urban interface⁴.

Under warmer and dryer climate conditions, ponderosa pine-evergreen oak ecosystems are susceptible to decreases in plant productivity from water limitations and increased heat; increases in insect attacks, colonization of invasive species; longer and more severe fire seasons; and altered frequency, intensity, timing, and spatial extent of disturbance events (e.g., droughts, flash flooding, landslides, wind storms, and ice storms). High risk occurrences could include uncharacteristically intense wildfire, increased rate of insect or disease attack due to warming temperatures, and increasing challenges to regeneration of ponderosa pine, especially on warmer, dryer areas such as south facing slopes.

Ponderosa Pine-Gambel Oak Forest:

Ponderosa pine-Gambel oak is a minor vegetation type on the Prescott NF, covering approximately 49,000 acres. This forest type generally occurs at elevations ranging from 5,500 to 9,000 feet on hills,

⁴ The wildland urban interface includes those areas of resident populations at imminent risk from wildfire, as well as human developments having special significance. These areas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites regardless of the distance involved.

mountain slopes, and some elevated plains. It is dominated by ponderosa pine and Gambel oak and commonly includes other species such as New Mexico locust, juniper, and piñon. Occasionally, species such as aspen, Douglas-fir, and white fir may be present, especially in relatively moist or shady areas. There is typically an understory of grasses and forbs with occasional shrubs.

This forest type is currently severely departed from reference conditions. Fuel loads have accumulated on the forest floor. There are too many young and mid-aged trees and not enough old trees. The natural fire regime is severely departed from the reference conditions found prior to Euro-American settlement. Historically, fire burned relatively frequently (every 1 to 15 years) and at low intensities that kept the forest open with abundant herbaceous cover. When wildfires occur under current conditions, they are more likely to kill many of the large and old trees, moving the vegetation structure further from reference conditions, thereby increasing the time it would take to restore forest structure to groups of uneven aged, multi-storied stands in the desired conditions for ponderosa pine.

Under warmer and dryer climate conditions, ponderosa pine-Gambel oak forest ecosystems are susceptible to decreases in plant productivity from water limitations and increased heat; increases in insect attacks; colonization of invasive species; longer and more severe fire seasons; and altered frequency, intensity, timing, and spatial extent of disturbance events (e.g., droughts, flash flooding, landslides, wind storms, and ice storms). Similar to the ponderosa pine-evergreen oak PNVT, high risk occurrences could include uncharacteristically intense wildfire due to less moisture, increased rate of insect or disease attack due to warming temperatures, and increasing challenges to regeneration of ponderosa pine following disturbance, especially on warmer dryer areas such as south facing slopes.

Grassland PNVTs

There are two grassland PNVTs classified for the Prescott NF: Semi-Desert and Great Basin. Grassland PNVTs are characterized as having less than 10 percent tree cover.

The **Semi-Desert Grassland PNVT** encompasses roughly 126,000 acres at elevations ranging from 3,000 to 4,500 feet. These grasslands are bounded by desert communities at the lowest elevations and Piñon-Juniper Woodlands or Interior Chaparral at higher elevations. Species composition and dominance varies based on soils and topography. The more common grass species include black grama, blue grama, hairy grama, tobosa, and giant sacaton. Various shrubs species also inhabit these grasslands including: creosote bush, catclaw acacia, mimosa, burroweed, broom snakeweed, and mesquite.

The **Great Basin Grassland PNVT** encompasses almost 38,000 acres and intermingles with piñon-juniper ecosystems adjacent to the Chino Valley. This grassland PNVT is higher in elevation (approximately 4,700 to 7,600 feet) and climatically cooler and moister than the Semi-Desert Grassland PNVT. Vegetation consists mostly of grasses and forbs with interspersed shrubs. Grass species may include, but are not limited to, Indian ricegrass, threeawns, blue grama, needle grass, bottlebrush squirreltail, James' galleta, dropseed, and tobosa grass. Shrub and half-shrub species may include, but are not limited to, saltbush, snakeweed, winterfat, buckwheat, and juniper.

The grasslands PNVTs of the Prescott NF have undergone some dramatic changes over the last 130 years. Changes include encroachment by trees and shrubs, loss of perennial grass cover, loss of cool season plant species, increase in exposed soil surface, and the spread of non-native annual grasses.

Fire plays a key role in the ecological sustainability of grasslands (McPherson, 1995). Fire historically occurred every 10 to 30 years in the Great Basin Grassland PNVT and 2 to 10 years in the Semi-Desert Grassland PNVT. Current fire activity within these grasslands is considerably less often than desired.

A mid-scale assessment of vegetation conditions shows the Semi-Desert Grassland PNVT having a low similarity to desired conditions for vegetation structure. Current conditions are as those described above with encroachment by trees and shrubs, loss of perennial grass cover, and increases in exposed soil surfaces and non-native plant species. The Great Basin Grassland PNVT in contrast, demonstrates a high similarity to desired conditions for vegetation structure and composition, based on a mid-scale assessment. Other field-based vegetation surveys (Forest Service 2009a, Robertson et al., 2000) suggest that species richness (i.e., plant composition) and perennial grass canopy cover within the Great Basin Grassland PNVT are in decline.

Healthy grasslands are important habitat for a variety of wildlife species and are essential to maintaining pronghorn antelope populations. Pronghorn antelope was chosen a Management Indicator Species (MIS) for the grasslands PNVTs because it demonstrates a strong and/or predictable response to proposed management activities including prescribed fire; shrub and tree thinning/removal; road and/or trail maintenance; and watershed or rangeland improvements.

Riparian Gallery Forest PNVT

The **Riparian Gallery Forest PNVT** occurs along perennial or intermittent streams and around springs and seeps. It covers approximately 12,400 acres and ranges in elevation from 2,000 to 8,000 feet (Forest Service, 2009a). The two major vegetation communities within it are cottonwood-willow and mixed broadleaf deciduous forests. The dominant woody vegetation varies according to elevation, substrate, stream gradient, and depth to groundwater. The juxtaposition of floodplains and stream terraces contribute to the mix of vegetative structures within the PNVT, including narrow stringers of mixed deciduous trees (gallery forest) and willow-, desert willow- or mesquite-dominated shrublands. Common species include Fremont cottonwood, narrowleaf, Gooding, and Bebb willow, Arizona sycamore, velvet and green ash, Arizona alder, Arizona walnut, and box elder. Herbaceous plants include several forbs, sedges, rushes, and grasses. Desert willow, mimosa, rubber rabbitbrush, and mesquite shrubs occur in dewatered areas.

Flooding and time between floods are the driving developmental forces in Riparian Gallery Forest PNVTs. In addition to periodic flooding, American Indians had an influence on vegetation composition and structure by favoring edible plants (e.g., mesquite), collecting fuelwood, and burning to flush animals and increase accessibility to open water and agricultural fields (LANDFIRE, 2007). These influences were likely limited to areas near perennial stream courses, and not to areas adjacent to either intermittent water or springs and seeps imbedded in the upland vegetation (LANDFIRE, 2007). Outside of possible American Indian influence, wildland fires appear to have been infrequent in riparian

communities dominated by cottonwood, willow, and mesquite species prior to invasion by tamarisk (Busch and Smith, 1993).

The Riparian Gallery Forest PNVT exhibits a high similarity to desired conditions for vegetation structure and fire regime. However, the spread of non-native invasive plant species, soil compaction and loss of vegetation due to visitor use are known threats to the health of this PNVT.

Forest-wide Current Condition and Trends

Table 6 provides a summary of key findings for PNVTs from the PNF Ecological Sustainability Report (Forest Service 2009). The current level of departure from reference conditions, and the expected trend towards or away from reference conditions is shown for each PNVT.

Note that the departure for the semi-desert grassland, piñon-juniper evergreen shrub, and ponderosa pine-dominated PNVTs are high and trends static over the long-term. The trends are static because high-proportions of each type are not at reference conditions, and there is very little of the vegetation type that would be available to become departed in the future. The piñon-juniper grassland shows a moderate level of departure and conditions over the long-term are expected to improve.

Current conditions for interior chaparral (composition, structure, and fire regime) are similar to reference conditions and are expected to remain similar in the long-term. Prescribed fire and hazardous fuel reduction activities implemented under the existing Plan have contributed to these current conditions. A range of prescribed fire and fuel treatment objectives are evaluated for the proposed alternatives to maintain these desired conditions.

Table 7. PNVT Departure, Trend, and Disturbance in Relation to Reference Conditions

PNVT Name	Prescott National Forest		Veg Structure	Short-Term (1-20 yrs)	Long-Term (40-80 yrs)	Ave. Fire Frequency Years	
	Acres	Percent	Departure	Trend	Trend	Reference	Current
Semi-Desert Grassland	125,712	10	High	Toward	Static	1:10-15	1:94
Great Basin/CP Grassland	38,389	3	Low	Static	Away	1:10-30	0
Piñon-Juniper Grassland	137,274	11	Moderate	Static	Toward	1:1-35	1:714
Piñon-Juniper Evergreen Shrub	463,296	37	High	Toward	Static	1:35-100	1:233
Interior Chaparral	315,445	25	Low	Static	Static	1:35-100	1:84
Ponderosa Pine-Evergreen Oak	63,539	5	High	Toward	Static	1:6-12	1:51
Ponderosa Pine-Gambel Oak	49,052	4	High	Static	Static	1:1-15	1:74
Piñon-Juniper Woodland	36,263	3	Low	Toward	Toward	1:200+	0
Madrean Encinal Woodland	5,593	<1	Low	Toward	Toward	1:1-23	0
Desert Communities	5,919	<1	Low	Static	Static	1:998	1:106
Riparian Gallery/Forest	12,439	1	Low	No data	No data	1:20-600+	1:76
<i>Total</i>	1,252,950	100					

Four of the PNVTs (*Piñon-Juniper Woodland, Madrean Encinal Woodland, Desert Communities, and Riparian Gallery/Forest*) have low departure from reference conditions and are expected to remain near reference conditions over the next 40-80 years. There are no fire and vegetation treatment objectives in any of the developed alternatives for these vegetation types, recognizing the limited capacity for treatment during the planning period. This does not prevent treatments from being planned and implemented in these vegetation types as funding and personnel become available. Since there are no objectives developed for these vegetation types, no meaningful comparison of alternatives is possible, and the species associated with these vegetation types will be analyzed less vigorously in this report.

Summary of Terrestrial Ecosystem Conditions

For the terrestrial wildlife habitat, the AMS revealed that the vegetation structure and composition of several PNVTs on the PNF are moderately or highly departed or are trending away from their historic range of conditions. Because these PNVTs are out of sync with their natural fire regimes, restoration efforts need to include modifying the frequency and severity of fire patterns in addition to modifying the structure and composition of the vegetation.

TERRESTRIAL WILDLIFE SPECIES HABITAT ASSOCIATIONS

In the ESR, the wildlife species to be considered were associated with particular habitats (PNVTs) and habitat features. For the purposes of this analysis, effects of the alternatives on the respective species to be analyzed are based on the anticipated changes or effects to the associated habitat PNVTs or habitat features listed in Table 8. Some species have been added and some different habitat or feature associations have been changed based on clarification of known uses of habitats and features.

Table 8. Species/Habitats assessed for the Prescott NF Plan Revision analysis				
Common Name	Scientific Name	Status	PNVT	Habitat feature
Southwestern willow flycatcher (SWWF)	<i>Empidonax traillii extimus</i>	Endangered ⁵	-----	Riparian
SWWF Critical Habitat	-----	Designated	-----	PCE ⁶ (Appendix 1)
Mexican spotted owl (MSO)	<i>Strix occidentalis lucida</i>	Threatened ⁷	PPO	Tree features, riparian
MSO Critical Habitat	-----	Designated	-----	PCE (Appendix 2)
Western yellow-billed cuckoo (YBC)	<i>Coccyzus americanus occidentalis</i>	Proposed ⁸	-----	Riparian
YBC Potential Critical Habitat	<i>Identified but not designated</i>	Potential	-----	PCE (Appendix 3)
Sonoran desert tortoise	<i>Gopherus morafkai</i>	Candidate ⁹ , Sensitive ¹⁰	DC	-----
Golden eagle	<i>Aquila chrysaetos canadensis</i>	“Eagle Act” ¹¹	-----	Rock features
Bald eagle	<i>Haliaeetus leucocephalus</i>	“Eagle Act” Sensitive	-----	Riparian, tree features, rock features
American peregrine falcon	<i>Falco peregrinus</i>	Sensitive	-----	Rock features: cliffs & ledges for nesting
Northern Goshawk	<i>Accipiter gentilis</i>	Sensitive, MIS ¹²	PPO, PPE	Tree features
Pale Townsend’s big-eared bat	<i>Corynorhinus townsendii pallescens</i>	Sensitive	-----	Rock features: caves & mines
Western red bat	<i>Lasiurus blossevillii</i>	Sensitive	-----	Riparian, tree features, rock features
Pronghorn	<i>Antilocapra americana</i>	MIS	SDG, CPGB, JUG	-----

⁵ Listed Endangered under the ESA: Any species that is in danger of extinction throughout all or a significant portion of its range.

⁶ PCE – Primary constituent elements identified in critical habitat designation

⁷ Listed Threatened under the ESA: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

⁸ Proposed for listing under the ESA.

⁹ Listed Candidate, Ready for Proposal for listing under the ESA.

¹⁰ Those species listed on the Regional Forester’s Sensitive Species list for the Southwestern Region of the Forest Service.

¹¹ Species is protected under the Bald and Golden Eagle Protection Act of 1940.

¹² MIS – Management indicator Species

Effects to habitats by PNVT

Habitat descriptions of the desired conditions (DC) and objectives (O) for each vegetation type are taken directly from the proposed LMP. Effects summaries are compiled from the Vegetation and Fire Ecology Specialist report (Forest Service 2011b) as well as vegetation model data (PR Doc # Reference ?). The acres modeled in the Vegetation and Fire Ecology Specialist report reflect the anticipated changes in vegetation from the effects of projected future wildland fire use on the PNF. See the Terrestrial Viability Report (Forest Service 2011d) for the details on changes among the conditions/states/seral stages of the various PNVTs by alternative.

Table 9. Desert Communities PNVT Effects summary by alternative	
	All Alternatives
Desert communities - 5,919 acres	<p><u>DC – Veg-22:</u> The Desert Communities PNVT is comprised of cacti, succulents, trees and shrubs with variable vegetation cover ranging from 1 to 20 percent of the dominate overstory plants. Grass cover is inherently low. Non-native grass species coverage is controlled. Dominant plants include giant saguaro, palo verde trees, cholla and prickly pear cacti, ocotillo, velvet mesquite, catclaw acacia, and jojoba. Natural disturbances are infrequent from drought, frost and wind. Fire is very rare or absent. Damage to vegetation composition, density, and structure from human-caused fires is infrequent and limited in duration and extent. Saguaros, mesquite trees, and other vegetation large enough to sustain cavity nesting birds are present across the landscape.</p>
Effects in Desert communities	<p>There are no fire and vegetation treatment objectives in any of the developed alternatives for desert community vegetation types, recognizing the limited capacity for treatment during the planning period. This does not prevent treatments from being planned and implemented in this vegetation type as funding and personnel become available. Since there are no objectives developed for this vegetation type, no meaningful comparison of alternatives is possible.</p>

Table 10. Ponderosa pine/Gambel oak PNVT Effects summary by alternative				
	Alternative A	Alternative B	Alternative C	Alternatives D & E
Ponderosa Pine/ Gambel Oak 49,052 acres – Existing condition @ 20% of DC	Existing condition: Ponderosa pine-Gambel oak is a minor vegetation type on the Prescott NF, covering approximately 49,000 acres. This forest type generally occurs at elevations ranging from 5,500 to 9,000 feet on hills, mountain slopes, and some elevated plains. It is dominated by ponderosa pine and Gambel oak and commonly includes other species such as New Mexico locust, juniper, and piñon. Occasionally, species such as aspen, Douglas-fir, and white fir may be present, especially in relatively moist or shady areas. There is typically an understory of grasses and forbs with occasional shrubs. This forest type is currently severely departed from reference conditions. Fuel loads have accumulated on the forest floor. There are too many young and mid-aged trees and not enough old trees. The natural fire regime is severely departed from the reference conditions found prior to Euro-American settlement.			
DC – Veg- 17:				
<p>At the landscape scale, Ponderosa Pine-Gambel Oak PNVTs are forests having a mosaic of structural stages ranging from young to old trees. Forest structure is variable but generally uneven-aged and open in appearance.</p> <p>The forest arrangement consists of small clumps and groups of trees interspersed within variably-sized openings of grasses, forbs, and shrubs. 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 steep-sided valleys at higher elevation.</p> <p>Vegetation composition resembles historic situations including ponderosa pine overstory with Gambel oak occupying the lower tree canopy. Aspen or Gambel oak patches occur. There is typically an understory of grasses and forbs with occasional shrubs. Where it naturally occurs, Gambel oak is present with all age classes represented. It is reproducing to maintain or expand its presence on suitable sites across the landscape.</p> <p>A variety of snag species and coarse woody debris are well distributed throughout the landscape. Snags are typically 18 inches or greater DBH and average 1 to 2 per acre. Logs (greater than 12-inch diameter at mid-point and greater than 8 feet long) average 3 per acre within the forested area of the landscape. Coarse woody debris, including logs, ranges from 3 to 10 tons per acre.</p> <p>Grasses, forbs, shrubs, needle cast (fine fuels), and small trees support the natural fire regime. The greater proportion of ground cover is composed of grasses and forbs as opposed to needle cast. Frequent, low severity fires, occurring every 1 to 15 years, are characteristic of this forest including throughout the range of northern goshawks and Mexican spotted owls.</p>				
O - 5: Thin/harvest and introduce or allow wildland fire (planned and unplanned ignitions) in ponderosa pine-Gambel oak and ponderosa pine-evergreen oak PNVTs during the 10 years following plan approval.				
Timber Harvest	5,600 acres	2,500 – 8,000 acres		
Prescribed Fire	24,300 acres	25,000 – 50,000 acres	30,000 – 65,000 acres	25,000 – 50,000 acres

Table 10. Ponderosa pine/Gambel oak PNVT Effects summary by alternative				
	Alternative A	Alternative B	Alternative C	Alternatives D & E
Effects in PPO	<p>For all of the alternatives, the differences in effects of moving toward desired conditions are not discernible among the alternatives. There is overlap in the ranges for the alternatives. All of the alternatives move the PPO toward desired conditions. The process is slow due to the longevity of the primary species, ponderosa pine. Approaching 34% resemblance of desired conditions would include increased proportion of large over-story or old trees within the PNVT. Reducing the closed canopy states from about 90% of the PPO to 77% of the PPO across the alternatives in the first 20 years would reduce the total number of trees across the landscape and increase grasses, forbs and shrubs in the understory.</p> <p>The vegetative conditions within the ponderosa pine PNVTs will shift from the existing closed canopy conditions toward desired more open canopy conditions. The largest shift is the increase in seedling/sapling stage. The second most considerable change in vegetative conditions is the increase in open canopied areas with medium/large trees. The relative amounts of medium/large trees with a closed canopy, while considerably out of proportion to desired amounts, only decrease by a small proportion within 40 years of implementing the plan due to the longevity of ponderosa pine trees and their slow response to treatments.</p>			

Table 11. Ponderosa pine/evergreen oak PNVT Effects summary by alternative				
	Alternative A	Alternative B	Alternative C	Alternatives D & E
Ponderosa Pine/ Evergreen Oak 63,539 acres – Existing condition @ 17% of DC	<p>Existing condition: Ponderosa Pine - Evergreen Oak forests cover more than 63,500 acres of the Prescott NF at elevations ranging from approximately 6,000 to 7,500 feet. It is dominated by ponderosa pine and can be distinguished from the Ponderosa Pine-Gambel Oak PNVT by one or more well-represented evergreen oak species (e.g., Emory oak and Arizona white oak), juniper species, piñon pine species, and Arizona cypress in some locations. This forest type on the Prescott NF has an understory of primarily evergreen shrubs including manzanita, turbinella oak, sumac species, and mountain mahogany species. This forest type is currently severely departed from reference conditions. Fuel loads have accumulated on the forest floor. It has too many young and mid-aged trees and shrubs growing closely together. There are not enough old trees. The natural fire regime is severely departed from pre-EuroAmerican settlement reference conditions.</p>			

Table 11. Ponderosa pine/evergreen oak PNVT Effects summary by alternative				
	Alternative A	Alternative B	Alternative C	Alternatives D & E
DC – Veg- 13:				
<p>At the landscape scale, Ponderosa Pine-Evergreen Oak PNVTs are forests having a mosaic of structural stages ranging from young to old trees. Forest structure is variable but generally uneven-aged and open in appearance. The forest arrangement consists of small clumps and groups of trees interspersed within variably-sized openings of moderate to high density shrubs and limited grass cover. 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.</p> <p>Vegetation composition resembles historic situations including ponderosa pine overstory. Evergreen oaks are well represented and juniper, piñon pine and Arizona cypress can be found in the lower tree canopy. Understory species consist of evergreen shrubs (manzanita, turbinella oak, sumac species, mountain mahogany species) and grass as scattered ground cover.</p> <p>Old growth occurs throughout the landscape, generally in small areas as individual old growth components, or as clumps of old growth. Old growth components include old trees, snags, coarse woody debris (downed wood), and structural diversity. The location of old growth shifts on the landscape over time as a result of succession and disturbance (tree growth and mortality). The forest contains various stages of development (e.g., temporary openings or groups of very young trees) to provide future old growth within the landscape.</p> <p>The ponderosa pine-evergreen oak forest is composed predominantly of vigorous trees and shrubs, but declining, top-killed, lightning-scarred, and fire-scarred trees provide snags and coarse woody debris (greater than 3 inch diameter). A variety of snag species and coarse woody debris are well distributed throughout the landscape. Snags are typically 18 inches or greater diameter at breast height (DBH) and average 1 to 2 per acre. Logs (greater than 12 inch diameter at mid-point and greater than 8 feet long) average 3 per acre within the forested area of the landscape. Coarse woody debris, including logs, ranges from 3 to 10 tons per acre.</p> <p>Where it naturally occurs, Emory oak and Arizona white oak are present with all age classes represented. Old trees occur as dominant individuals or small groups in openings.</p> <p>Limited grasses, forbs, and a moderate density of shrubs, and needle cast (fine fuels), support the natural fire regime.</p> <p>Fires of low severity and occasionally mixed severity, occurring every 6 to 12 years, are characteristic of this PNVT including throughout the range of northern goshawks.</p>				
O - 5: Thin/harvest and introduce or allow fire in ponderosa pine-Gambel oak and ponderosa pine-evergreen oak PNVTs during the 10 years following plan approval. (same # acres shown above – not distinguished between PNVTs)				
Timber Harvest	5,600 acres	2,500 – 8,000 acres		
Prescribed Fire	24,300 acres	25,000 – 50,000 acres	30,000 – 65,000 acres	25,000 – 50,000 acres
Effects in PPE	<p>The vegetative conditions within the ponderosa pine PNVTs will shift from the existing closed canopy conditions toward desired more open canopy conditions. The largest shift is the increase in seedling/sapling stage. The second most considerable change in vegetative conditions is the increase in open canopied areas with medium/large trees. The relative amounts of medium/large trees with a closed canopy, while considerably out of proportion to desired amounts, only decrease by a small proportion within 40 years of implementing the plan due to the longevity of ponderosa pine trees and their slow response to treatments.</p>			

Table 12. Semi-desert grassland PNVT Effects summary by alternative				
	Alternative A	Alternative B	Alternative C	Alternatives D & E
Semi-desert grassland – 125,712 acres Existing condition @ 31% of DC	Existing condition: The semi-desert grassland encompasses roughly 126,000 acres at elevations ranging from 3,000 to 4,500 feet. The semi-desert grasslands show severe departure from reference conditions in both structure and fire regime. Grasslands of the Prescott NF have undergone dramatic changes over the last 130 years. Changes include encroachment by trees and shrubs, loss of perennial grass cover, loss of cool season plant species, increase in exposed soil surface, and the spread of non-native annual grasses and forbs.			
DC – Veg-21:				
Within Semi-Desert Grassland PNVT, perennial herbaceous species dominate and include native grasses, grass-like plants (sedges and rushes), and forbs and, where appropriate, a diversity of shrubs. Woody (tree and shrub) canopy cover is less than 10 percent. Grass communities consist of a diverse mix of cool and warm season species.				
Composition, structure, and cover provide habitat for native animals associated with grasslands, especially pronghorn antelope, ferruginous and Swainson’s hawks, western burrowing owls, and western grasshopper sparrows.				
On average, fine fuels provide for and maintain the desired fire regime. The desired fire return interval for the Semi-Desert Grassland PNVT is approximately every 10 to 15 years.				
O - 1: Allow or introduce wildland fire (planned and unplanned ignitions) during the 10 years following Plan approval.				
Prescribed Fire	13,300 acres	25,000 - 65,000 acres	65,000 – 85,000 acres	25,000 - 65,000 acres
Effects in SDG: DC of open states – 80%	Alt A moves this vegetation type to just 23-35% open states within 20 years.	Within 20 years, this alternative moves the SDG to 30-84% open states.	Within 20 years, this alternative moves the SDG to 44-86% open states.	Within 20 years, this alternative moves the SDG to 30-84% open states.

Table 13. Colorado Plateau/Great Basin grassland PNVT Effects summary by alternative				
	Alternative A	Alternative B	Alternative C	Alternatives D & E
Colorado Plateau Great Basin – 38,389 acres Existing condition @ 83% of DC	Existing condition: The Great Basin grassland encompasses almost 38,500 acres and intermingles with piñon-juniper ecosystems adjacent to the Chino Valley. They are higher in elevation (approximately 4,700 to 7,600 feet) and climatically cooler and moister than semi-desert grasslands. Vegetation consists mostly of grasses and forbs with interspersed shrubs. Grass species may include, but are not limited to, Indian ricegrass, threeawns, blue grama, needle grass, bottlebrush squirreltail, James’ galleta, dropseed, and tobosa grass. Shrub and half-shrub species may include, but are not limited to, saltbush, snakeweed, winterfat, buckwheat, and juniper. Currently, the Great Basin grasslands show minimal departure from reference conditions (pre-Euro-American settlement period) in structure and composition; however, without periodic disturbance conditions are expected to trend away from reference conditions.			

Table 13. Colorado Plateau/Great Basin grassland PNVT Effects summary by alternative				
	Alternative A	Alternative B	Alternative C	Alternatives D & E
DC – Veg-21: Within Great Basin Grassland PNVT, perennial herbaceous species dominate and include native grasses, grass-like plants (sedges and rushes), and forbs and, where appropriate, a diversity of shrubs. Woody (tree and shrub) canopy cover is less than 10 percent. Grass communities consist of a diverse mix of cool and warm season species. Composition, structure, and cover provide habitat for native animals associated with grasslands, especially pronghorn antelope, ferruginous and Swainson’s hawks, western burrowing owls, and western grasshopper sparrows. On average, fine fuels provide for and maintain the desired fire regime. The desired fire return interval for the Great Basin Grassland PNVT is approximately every 10 to 30 years.				
O - 2: Allow or introduce wildland fire (planned and unplanned ignitions) during the 10 years following Plan approval.				
Prescribed Fire	400 acres	1,000 – 5,000 acres	5,000 – 10,000 acres	1,000 – 5,000 acres
Effects in CPDG: DC of open states – 93%	Alt A moves this vegetation type to 86-93% open states within 20 years.	Within 20 years, these alternatives move the CPDG to 86-95% open states.		

Table 14. Juniper grassland PNVT Effects summary by alternative				
PNVT	Alternative A	Alternatives B & E	Alternative C	Alternative D
Juniper Grassland (JUG) – 137,274 acres - Existing condition @ 55% of DC	Existing condition: The juniper grassland type, with a grass and forb-dominated understory and scattered overstory trees, generally occurs on flats, basins, gentle sloping foothills, and transitional valleys at generally lower elevations. The soils associated with juniper grasslands are generally deep and productive. Juniper grasslands cover about 137,300 acres of the Prescott NF. Current conditions within juniper grasslands are moderately departed from reference conditions. Fire has been excluded from this type for most of the last century, allowing for increases in the age, density, and canopy cover of trees and shrubs, and a reduction in fire-stimulated re-growth and germination of perennial grasses and forbs.			
DC – Veg-6: Juniper Grassland PNVTs are generally uneven-aged and open in appearance. Trees occur as individuals or in smaller groups and range from young to old. One or more juniper species are always present while piñon species are usually absent. Tree canopy cover may range from a low of 5 to 10 percent to as high as 30 percent. A continuous herbaceous understory, including native grasses and forbs, are present, with incidental occurrence of shrubs that support a natural fire regime. Old growth occurs throughout the landscape, generally in small areas as individual old growth components, or as clumps of old growth. Old growth components include old trees, snags, coarse woody debris (downed wood), and structural diversity. The location of old growth shifts on the landscape over time as a result of succession and disturbance (tree growth and mortality). Snags are scattered across the landscape. Coarse woody debris occurrence, including logs, generally averages 1 to 2 tons per acre. Fires occur every 1 to 35 years with low severity favoring re-growth and germination of native grasses and forbs.				

Table 14. Juniper grassland PNVT Effects summary by alternative				
PNVT	Alternative A	Alternatives B & E	Alternative C	Alternative D
O - 3: Treat in Juniper Grasslands, Piñon-Juniper Evergreen Shrub, and Piñon-Juniper Woodlands PNVTs using mechanical treatments, wildland fire (planned and unplanned ignitions), or browsing by domestic livestock to improve watershed and rangeland conditions, vegetation structure, and wildlife habitat during the 10 years following Plan approval.				
Mechanical	3,100 acres	20,000 – 90,000	20,000 – 40,000 acres	
Prescribed Fire	25,000 acres	acres of treatments	of treatments	
Effects in JUG	<p>For all of the alternatives, the differences in effects of moving toward desired conditions are not discernible among the alternatives. There is overlap in the ranges for the alternatives. All of the alternatives move the JUG toward desired conditions changing just 11% to reach 66% of desired conditions at 20 years.</p> <p>Within 20 years after implementing the forest plan, there are two noticeable changes across the landscape; the proposed objectives shift conditions by increasing total acres of medium/large trees with open canopy and reducing the total acres with seed/sapling/small trees with an open canopy. After 40 years, only the medium/large trees with an open canopy are most consistently approaching desired conditions within the PNVT.</p>			

Primary impacts for habitat features identified in the Ecological Sustainability Report (PNF 2009).

Table 15. Riparian habitat features effects summary			
Primary impacts to species associated with Riparian habitat features: Groundwater depletion and stream flow diversions (occurring off-PNF), roads, trails, facilities, non-native plant species and upland species encroachment, uncharacteristic fire in riparian and adjacent areas, mining and dredging, and unmanaged herbivory leads to loss or damage to riparian characteristics. Disturbance to soils in these areas due to unmanaged herbivory, dispersed camping, or construction activities can decrease plant numbers.			
	Alternative A	Alternatives B, C & D	Alternative E
Obj-16 Relocate, improve, or rehabilitate recreation areas that show resource damage.	2 to 5 areas		
Objectives for Watershed Integrity within Riparian habitat			
Obj-18 Do projects to improve watershed conditions	8 to 12 projects	20 to 50 projects	Implement projects within EACH high-priority watershed – 5-50 essential projects
Obj-19 – Improve conditions in identified improperly functioning and at risk riparian areas within 1-5 years of detection.	10 acres and 17 segments improved	10 to 40 % of identified areas	Counter critical threats to riparian system functionality – 1-3 critical threats
Obj-20 – Maintain or repair designated motorized roads or trails that impact watershed integrity	30 miles	20 to 100 miles	Repair or relocate system roads or trails that impact watershed integrity – 20-100 miles
Obj-21 – Obliterate, close, re-contour, or re-vegetate unauthorized routes that are impacting watershed integrity	23 miles	Minimum 10 miles	

Table 15. Riparian habitat features effects summary			
Obj-22 – Improve crossings of streams/drainages by roads or trails	2 crossings	15 to 25 crossings	
Obj-23 –Enhance and restore ground water dependent ecosystem sites	12 sites	25 to 55 sites	Maintain or enhance discrete water dependent ecosystem sites with seeps or springs – 25-55 sites
Obj-31	Not applicable		Apply for in-stream flow water rights – at least 8 water rights
Objectives for Aquatic and Terrestrial Wildlife habitat within Riparian habitat			
Obj-24 – During the 10 years following Plan approval, work with the Arizona Game and Fish Department to restore native fish species	76 acres of tamarisk treatment along Verde W/S/ River	Alts B, D & E: 2 to 3 stream reaches Alt C: 4 to 6 stream reaches	

Table 15. Riparian habitat features effects summary		
Riparian habitat effects	<p>The existing FP has two riparian guidelines: One gives riparian resources preference over other resources and the other calls for maintaining satisfactory conditions or improving riparian areas. The least potential for improvement to riparian associated habitat is through Alternative A.</p>	<p>Alternatives B, C, D, & E have the greatest potential to improve watershed resources and the associated riparian habitat. The main measurable difference among alternatives B, C, D and E goals for watershed integrity is the inclusion of the in-stream flow water rights in Alternative E. All of these alternatives include numerous guidelines (see table 4) designed to ensure that riparian areas are at maintained in their existing condition if not improved by any projects that may impact these habitat features. While there may be some short term negative impacts to the vegetation during project implementation, implementing these objectives would likely improve riparian vegetation habitat features for all wildlife species in the long term. In Alternative E, applying for in-stream flow water rights (Obj-31) would have a profound impact on improving the quality of the riparian habitat in those riparian systems where water rights are acquired.</p>
<p>Riparian features: Specific aspects or features of riparian habitat were not identified in the ESR. For the purposes of this report, the focus of the assessment will be on the “terrestrial” aspect of riparian habitat features, the vegetation associated with riparian habitats. The existing condition of the riparian habitat on the PNF is a “low” departure from reference conditions; or, to state that another way, it closely resembles reference or historic conditions. There are no proposed objectives (treatments/management actions/projects) specifically for riparian habitats in any of the alternatives.</p> <p>All alternatives include a desired condition relevant to riparian habitat in DC-Watershed-2 and DC-Aquatic-1. For watershed integrity, Alternatives B-E include 7 different objectives (Obj-18-24) that would improve the riparian habitats associated with the site specific projects. Alt E includes an additional objective (Obj-31) to obtain in-stream flow water rights that would have only beneficial effects for aquatic and riparian habitats.</p> <p>For riparian habitat elements, both the existing forest plan (ALT A) on pages 30-31 and 35, and the proposed revision (ALTs B-E) include guidelines and/or standards (listed in Table 4) providing for the protection and management of riparian habitat including the riparian vegetation.</p> <p>All of these Watershed projects are proposed for the objective of improving watershed integrity. While implementing any of these projects may have localized, short term impacts including displacement of animals or changing of current riparian vegetation habitat features, these projects would all be designed with the long term objective and intent of improving riparian vegetation habitat quality as either a means or a result of improving watershed integrity.</p> <p>For the vegetation, recreation, and wildlife habitat objectives, all of the relevant desired conditions and guidelines for riparian features would be applied in project design and implementation, thus protecting and providing these riparian habitat features.</p>		

Table 16. Tree features effects summary	
Tree features	Primary impacts: Fires can consume tree features directly resulting in the loss of nesting, breeding and roosting habitat. Smoke from fire can displace individuals and cause direct mortality. Trampling can cause mortality to individuals occupying leaf litter. Timber harvest activities may result in direct damage/loss of trees/snags.
Tree features habitat	Tree features: Different types of tree features identified in the ESR include cavities, snags, leaves, bark, and downed logs. Tree features of one kind or another can be found in practically every PNVT. The primary threats to these features vary by PNVT, type of feature, and the nature of activities proposed within these PNVTs. Most of these tree features are associated with decadence within the system. The various types of tree features are mentioned in the desired conditions for all of the forested PNVTs and riparian gallery forests (DC-Veg-6, 7, 9, 13, 17, and 23) and watershed integrity (DC-Watershed-3). In ALTs B-E, guidelines for tree features occur in soils (Guide-Soils-2) and wildlife (Guide-WL-4 and 5). For snag habitat elements, both the existing forest plan (ALT A) in Appendices F, G, and H, and the proposed revision (ALTs B-E) in Guide-WL-4 include guidelines providing for the protection and management of snag habitat elements. There are no proposed objectives (treatments/management actions/projects) relevant to these habitat features in any of the alternatives. Objectives 3 and 5 involve both timber harvest activities as well as prescribed fire activities to manage vegetation conditions within forested habitat PNVTs. While timber harvest may increase the amount of down woody material, prescribed fire has the potential to reduce this habitat feature. With snags and downed logs included in the desired conditions for all forested PNVTs, these features should be incorporated into the project designs and should continue to be present at appropriate levels across the landscape after project implementation. Implementing vegetation treatments may have some short term negative effects to these components and long term beneficial impacts.

Table 17. Rock features effects summary		
Rock features (caves, cliffs, ledges canyons,)	Primary impacts: Activities including recreational rock climbing, caving, mining, construction and vandalism can disturb or damage habitat. Removal of surface rock causes direct mortality and damages habitat. Alterations of the rock surfaces such as removal of rock through excavation or rock climbing can alter the habitat enough to prevent plant establishment and displace animals using the rock habitat. Where the types of human activity in or on these features are regulated through some sort of permit defining appropriate operating parameters for the activity relevant to the purpose and the resources of concern, site specific resource and wildlife species needs are addressed. There are no proposed objectives (treatments/management actions/projects) relevant to these habitat features in any of the alternatives.	
	Alternative A	Alternatives B, C, D & E
Rock feature habitat	The existing FP, Alt. A, has a guideline to “Maintain or improve habitat for threatened or endangered species...” There is also FSM direction for sensitive species management. This direction will provide a certain level of protection for these status species and their habitats.	Guidelines (WL-1 and 2) for federal and sensitive species would include developing breeding season timing restrictions and other project design features to alleviate impacts from disturbance from resource management and recreational activities. Wildlife Guidelines 5 and 6 specifically address managing rock features to meet wildlife habitat needs and requirements. Guidelines in Minerals (Locatable-2 and Materials-5) would provide for protecting sensitive species and their rock feature habitats from impacts from mineral actions.

Affected environments

Federal species:

Southwestern willow flycatcher (*Empidonax traillii extimus*) and critical habitat:

Occupied sites for SWWF in Arizona are located along permanent water courses, including the San Pedro, Salt, Gila, and Verde Rivers; Alamo Lake; and Tonto Creek. SWWF are historically and currently known to nest and migrate along the Verde River, from the upper part of the Verde Valley near Tavasci Marsh and Tuzigoot National Monument down through the Prescott and Tonto NFs along the Middle and Lower Verde River to just below Horseshoe Dam. Critical habitat is designated through non-Federal and Federal lands of the Verde Valley, including Prescott NF parcels in the Town of Camp Verde. Because of the checkerboard land ownership through the Verde Valley and the absence of thorough flycatcher surveys, it is difficult to know specifically how flycatchers may use specific properties, including National Forest System (NFS) lands. However, since flycatchers are known to nest in areas upstream and downstream of NFS lands in the Verde Valley, it is reasonable to expect in the absence of surveys that, at a minimum, migrating and dispersing flycatchers will occur on these NFS parcels.

SWWF habitat requirements include riparian vegetation with dense foliage from ground level to 13 feet in thickets of trees and shrubs interspersed with small openings. SWWF breeds in dense shrub and tree-dominated riparian habitats along streams or other wetlands. Slow-moving or still surface water is very common, and saturated soils are present at or near breeding sites during non-drought years (Fish and Wildlife Service, 2002).

The extent of SWWF range on the Prescott NF is thought to be within the current designated critical habitat along the Verde River. Designated critical habitat for SWWF occurs along 44.7 miles of the Verde River. Much of this habitat occurs on non-Forest Service land; the Prescott NF portion encompasses 556 acres along the Verde River.

A complete discussion of threats to SWWF and its habitat are included in the recovery plan (Fish and Wildlife Service, 2002) and the final critical habitat designation for the species (Fish and Wildlife Service, 2013). In summary, a number of threats have been identified as contributing to the endangered status of SWWF. These threats are often interrelated and include: (1) habitat loss and modification from numerous processes and activities, (2) changes in abundance of other species, in particular tamarisk and brown-headed cowbirds, (3) vulnerability of small populations to demographics and genetics, and (4) migration and winter range stresses associated with habitat quantity and quality especially in Central America.

The spread of the tamarisk leaf beetle, introduced as a biological-control agent to eradicate tamarisk, is now considered a threat to SWWF because, although an exotic species, tamarisk provides migration and nesting habitat for SWWF. Replacement of nonnative tamarisk populations by the native riparian community would be very difficult to achieve in the foreseeable future. If existing riparian habitat that is

currently dominated by tamarisk becomes degraded or removed by the beetle, the loss of this existing tamarisk habitat could lead to a significant loss of SWWF habitat within a relatively short period of time (unpublished data provided by Greg Beatty, Fish and Wildlife Service, 2010).

Mexican spotted owl (*Strix occidentalis lucida*) and critical habitat

Known Mexican spotted owl locations are distributed from southern Utah and central Colorado, south through the mountains of Arizona, New Mexico, and western Texas, into northern Mexico (FWS 1995).

Mexican spotted owls are known to occur on the Bradshaw and Verde Ranger Districts of the Prescott NF. They are found in forests of ponderosa pine/Gambel oak with large trees, dense overstory, and woody debris including snags and downed logs. Existing habitat on the Prescott NF totals 26,448 acres. Known nesting sites on the Prescott NF include areas near Mingus Mountain, in Prescott Basin, and in Crown King for a total of 15 protected activity centers (PACs).

There are three Mexican spotted owl critical habitat areas associated with the Prescott NF. A small portion of UGM-13 (Upper Gila Mountain) lies across the boundary between the Prescott NF and the neighboring Kaibab NF in Sycamore Canyon Wilderness. None of the acres in that critical habitat area are restricted or recovery habitat. BR-W-2 (Basin & Range- West) is on the Bradshaw Ranger District in the Prescott Basin. BR-W-3 is on the Bradshaw Ranger District near Crown King. Per the Federal Register designating critical habitat, “WUI project areas, State and private lands are not designated as critical habitat” (FWS 2004). For the BR-W-2 polygon, the Boundary WUI project area is exempt from designation. For the BR-W-3 polygon, the Crown King/Ash Creek WUI project area is exempt from designation. The total area of National Forest System lands *within* Critical Habitat polygons on the Prescott NF is 44,814 acres. Within designated critical habitat on the Prescott NF, the total area of protected habitat is 4,058 acres, and the total area of recovery habitat is 6,231 acres.

Threats to MSO and proposed critical habitat vary by EMU. In the two critical habitat units on the Prescott NF (located in the BRW EMU), the primary threat to MSO was, and is, the potential for uncharacteristic wildfire (Fish and Wildlife Service, 1995, 2012). The MSO critical habitat within the UGM Recovery Unit is predominantly canyon habitat and thus not susceptible to the primary threats of catastrophic fire and even-aged timber harvest.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) and potential critical habitat

The western yellow-billed cuckoo is a riparian-obligate species. Nesting and foraging habitat includes open cottonwood woodlands with an understory of dense vegetation, especially near water. In the arid west, this type of habitat usually occurs along river corridors. Nests are usually in willows. The larger populations of western yellow-billed cuckoos in the U.S. are in Arizona and New Mexico. The species is now extirpated as a breeder in western Canada, Washington, and Oregon, and it is rare and patchily distributed throughout the areas west of the Rocky Mountains outside New Mexico and Arizona. The primary threats to the species are destruction, modification, or curtailment of its habitat or range and natural or human-made factors affecting its continued existence (Fish and Wildlife Service, 2013).

Yellow-billed cuckoos (YBC) typically occur in narrow riparian cottonwood-willow galleries and are known to use salt cedar. Dense understory foliage is an important factor in nest site selection in Arizona. YBC are also known to use mesquite bosques in Arizona.

Between 2001 to 2003, a total of 13 observations were reported for the Prescott NF, most from along the Verde River and upper Aqua Fria drainage. Current status of breeding on Prescott NF lands is unknown, but no nesting was reported from monitored sites. Habitat availability for this species on Prescott NF lands is approximately 7,496 acres.

The USFWS have identified the following issues of concern for YBC: habitat modification and loss from dam construction and operations, water diversions, riverflow management, stream channelization and stabilization, conversion of land to agricultural uses, urban and transportation infrastructure, and increased incidence of wildfire. Other identified threats include: fluctuating availability of prey populations, increased or improper use of pesticides (e.g., insecticides impacting the prey base), and collisions with tall vertical structures during migration (Fish and Wildlife Service, 2013).

Sonoran desert tortoise (*Gopherus morafkai*)

Sonoran desert tortoise occurs south and east of the Colorado River, from locations near Pearce Ferry in Mojave County, to the south beyond the International Boundary, and at many scattered locations in between (AIDTT, 2000). The northeastern-most tortoise records in Arizona occur along the Salt River near Roosevelt Lake in Gila County, although populations here have not been confirmed with recent observations. The middle San Pedro River drainage in Cochise County harbors the eastern-most substantial tortoise populations. Sonoran desert tortoise observations have been confirmed in extreme southeastern Cochise County, but they most likely represent released captives (i.e., pets). Tortoises have been found as far southwest as the Barry M. Goldwater Range, Yuma Proving Ground, and the Cabeza Prieta National Wildlife Refuge.

There are two known Sonoran desert tortoise locations on the southeast side of the Bradshaw Ranger District of the Prescott NF around Cleator within the desert vegetation type. There is one incidental unconfirmed report of a tortoise of unknown species on the Mayer-Goodwin Road. No formal surveys have been done to determine the full extent of the species or its habitat on the Prescott NF.

Adequate shelter is one of the most important habitat features for the Sonoran desert tortoise (Fish and Wildlife Service, 2013). Tortoises escape extreme temperatures in burrows, which stay cooler in the summer and warmer in winter than outside temperatures. Tortoises require loose soil to excavate (usually shallow) burrows below rocks and boulders, but they may also use rock crevices which they may or may not be able to modify. Tortoises occasionally burrow under vegetation, less often dig soil burrows on more or less open slopes, and use caliche caves in incised wash banks. They will also rest directly under live or dead vegetation without constructing a burrow.

Sonoran desert tortoise population occurs primarily on rocky slopes and bajadas of Mojave and Sonoran deserts scrub. Vegetation important to the tortoise for sustenance is also vital for predator avoidance, thermal protection, and social behaviors. Habitat use by Sonoran desert tortoises was closely associated with steepness of slope and rock type and structure rather than with a particular vegetation type. Habitat on the Prescott NF is limited to the Desert Communities PNV (5,919 acres) which shows low levels of departure from desired conditions.

Sonoran desert tortoises are primarily herbivorous and have been documented to consume 199 different species of plants including herbs, grasses, woody plants, and succulents. While a nutritional difference in the quality between native and non-native forage was not found, the influence of non-native grasses on native forbs is notable. Native forbs were found to provide considerably more nitrogen and water than

non-native forbs, an important factor in maintaining a positive water balance. Therefore, native forbs provide the best nutrition to Sonoran desert tortoises and are more importantly nutritionally than grasses and non-native forbs. The proliferation of non-native grasses leading to the exclusion of native forbs places Sonoran desert tortoises at a nutritional disadvantage (Fish and Wildlife Service, 2013). The actual diets of Sonoran desert tortoises vary among populations in response to seasonal availability of plant species and in response to precipitation amounts.

A number of habitat-related risk factors are identified for this species. Invasion of non-native plants leading to a change in frequency, duration, intensity, and magnitude of wildfires in desert habitats is described as the most significant habitat modification factor. Off-highway vehicles in desert tortoise habitat can result in damage to soil, increased erosion, and lead to spread of invasive species. Livestock grazing has the potential to damage lower-elevation tortoise burrows (FWS 2010a). There are no fire or vegetation treatments (i.e. plan objectives) proposed for this PNVT in any of the alternatives.

Sensitive species:

Bald eagle (*Haliaeetus leucocephalus*)

Bald eagle is associated with riparian habitat, as well as rock and tree features. Wintering populations occur in both central and northern Arizona (AGFD 2010), and breeding sites are distributed mostly along major rivers in the central portion of the state (SWBEMC 2010). Known breeding occurrences for the Prescott NF include three monitored nest sites located at Lynx Lake and along the Verde River, with confirmed fledging of at least one young each year from 2002-2009. One winter roost site is also known to occur on the Prescott NF near Goldwater Lake.

Nesting in Arizona typically occurs on cliff faces, pinnacles, and ledges, generally within 600 feet of water or in pine habitats within one mile of larger water bodies. Nesting habitat for the bald eagle includes 2,780 acres of overstory riparian along the Verde River, 426 acres of cliff habitat along the Verde River, and approximately 100 acres of ponderosa pine forest adjacent to Lynx Lake. Winter roost habitat includes about 50 acres adjacent to Goldwater Lake. The total acres of bald eagle habitat on the Prescott NF is approximately 3,356 acres.

Human disturbance can lead to nest failure. Power line electrocution, and automobile collisions associated with feeding on road kill are potential mortality factors (FWS 1999b).

Western red bat (*Lasiurus blossevillii*)

Western red bat is associated with broad-leaf deciduous riparian forests and other wooded areas, which comprise roosting habitat as well. It is usually solitary, roosting primarily in the foliage of trees or shrubs (WBWG 2005); they have also been known to “roost” in the leaf litter in the riparian zone.

Arizona locations are scattered throughout the state, but absent from the desert areas (Hoffmeister 1986), with elevations ranging from 1,900 to 7,200 feet (AGFD 2003b). One occurrence, near the Verde River, was reported in 1994 (AGFD 1995b) and several other occurrences were reported within Yavapai County, east of the Prescott NF (HDMS 2011). Modeling indicates approximately 4,248 acres of existing habitat on the Prescott NF.

Threats include loss of dense, mature cottonwood forest is a factor in declining abundance (AGFD 2003c). Intensive use of pesticides in fruit orchards may pose a threat to individuals and may reduce

available prey. Controlled burns have the potential to cause mortality of bats roosting in leaf litter during periods of cooler temperatures (WBWG 2005).

American peregrine falcon (*Falco peregrinus*)

The peregrine falcon breeds in western North America. Most breeding in Arizona occurs on the Mogollon Rim, Grand Canyon, and Colorado Plateau (AGFD 2002b). Known breeding is reported for the Prescott NF. Two nest sites near Thumb Butte and Granite Mountain on the Bradshaw Ranger District are monitored on-Forest; the last confirmed fledging of young occurred in 2006.

Suitable habitat in Arizona for American peregrine falcon consists of steep, sheer cliffs and ledges to caves and mines. Suitable habitats for the Prescott NF were derived by modeling slope associated with digital elevation models, with slopes greater than 65 percent selected to represent cliffs and ledges. Approximately 8,829 acres of cliffs and ledges habitat are estimated for the Prescott NF.

Pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)

The geographic range for pale Townsend's big-eared bat extends from southern California, east to western Texas, and south to northern Mexico. In Arizona, the species is widespread (AGFD 2003b). This species appears to be relatively common at suitable roosting sites on the Prescott NF. Abandoned mines used by Townsend's big-eared bats occur on all three Ranger Districts with the majority of them on the Bradshaw RD.

Suitable habitat in Arizona for Townsend's big-eared bats consists of steep, sheer cliffs and ledges to caves and mines. Suitable habitats for the Prescott NF were derived by modeling slope associated with digital elevation models, with slopes greater than 65 percent selected to represent cliffs and ledges. Approximately 8,829 acres of cliffs and ledges habitat are estimated for the Prescott NF. The extent of potential habitat associated with mine features was not modeled due to the extreme variability of the quality of habitat found in mine features.

Northern goshawk (*Accipiter gentilis*)

In North America, goshawks breed throughout most forested areas, from Alaska, east to eastern Canada, south to New England, and southern New Mexico and northern Mexico (NatureServe 2010). In Arizona, goshawks are found in high, forested mountains and plateaus statewide, usually above 6,000 feet elevation (AGFD 2003a). On the Prescott NF, six to eight sites were monitored from 2002-2005, with nine post-fledging family areas (PFAs) monitored in 2009. Successful fledging at monitored sites has been low.

Goshawks are known to occur on all three of the Ranger Districts of the Prescott NF including areas near Mingus Mountain, Camp Wood, Prescott Basin, and Crown King. The northern goshawk is associated with the ponderosa pine PNVTs and tree features for every aspect of its life history from nesting, to roosting, to foraging. Northern goshawk nesting habitat consists of mature and old growth forest stands with relatively high canopy closure. Foraging habitat for the northern goshawk would primarily consist of early, more open seral stages that provide habitat for key prey species including small mammals and passerine birds. Existing nesting habitat for this species is estimated at 50,489 acres, consisting of ponderosa pine stands with medium and large trees with open and closed canopies. Existing foraging habitat for the northern goshawk would be the 3,522 acres of seedling/sapling and small trees with open canopy in the two ponderosa pine PNVTs.

Management Indicator species:

Pronghorn (*Antilocapra americana*)

Distribution for the pronghorn is from Southeastern Washington, west to western North Dakota, south through Nevada and eastern Colorado to northern Mexico (O’Gara 1978). In Arizona, they are found in the north-central portion of the state, with small herds scattered also in the southeast (AGFD 2009). This species is described as common on the Prescott NF

Habitats - Herds in north-central Arizona are found in a variety of grassland habitats, ranging from desert grasslands to forest and mountain meadows (AGFD 2009). Development of private lands has removed primary habitat and forced herds into less favorable habitats where predation rates are higher. Overall population trends on the Forest vary among hunt units, but based on data compiled from AGFD surveys for hunt units encompassing the herds on the Prescott NF, pronghorn numbers appear to be decreasing (Forest Service 2010).

Pronghorn habitat includes grassland-dominated portions of the Semi-desert, Great Basin, and Juniper grassland PNVTs where shrub/tree cover is less than 10 percent. Existing habitat is estimated at 202,004 acres.

Risk Factors - Movement and population interactions are limited by fencing and highway development. Habitat loss is occurring due to urban development. Tree and shrub encroachment into grasslands is impacting habitat quality (AGFD 2009).

Northern goshawk (*Accipiter gentilis*)

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Environmental Consequences

The land management plan provides a programmatic framework that guides site-specific actions but does not authorize, fund, or carry out any project or activity. Because the land management plan does not authorize or mandate any ground-disturbing actions, there are no direct effects. However, there may be implications, or longer term environmental consequences, of management on the Prescott NF under this programmatic framework.

Following is a general analysis of the effects of continuing the ongoing program management of the Prescott NF LRMP by resource area.

Watersheds and Soils

The proposed LRMP has four objectives (Obj-18, Obj-19, Obj-23, and Obj-31) that direct Watershed and Soils program activities. These are described in detail in the front section of this report. Obj-31 is a paper process to apply for instream water rights that does not involve any on-the-ground projects to physically manipulate the riparian habitat. Obj-31 would have only beneficial effects to the terrestrial and aquatic physical natural resources associated with riparian habitat.

Specific aspects or features of riparian habitat were not identified in the Ecological Sustainability Report (Forest Service, 2009). For this analysis, the assessment will focus on the “terrestrial” aspect of riparian habitat features or the vegetation associated with riparian habitats. The existing condition of the riparian habitat on the Prescott NF is a “low” departure from reference conditions; meaning, it closely resembles reference or historic conditions. There are no proposed objectives (e.g., treatments, management actions, projects) specifically for riparian habitats in the preferred alternative.

The proposed LRMP would improve watershed conditions and their associated riparian habitats (Forest Service, 2012). Guide-WS-3 would ensure that riparian areas are at least maintained in their existing condition if not improved by any projects that may impact these habitat features. Implementing Obj-18, Obj-19, and Obj-23 would likely improve riparian vegetation habitat features for all wildlife species. Guide-Soils-2 would provide for retaining down logs and coarse woody debris per the PNVT desired conditions which would ensure key habitat components are available for various species. Guide-WS-4 through Guide-WS-10 would provide direction for project design to avoid or minimize impacts to riparian habitat features, and thus, associated species.

The purpose of the proposed watershed objectives is to improve watershed integrity. While implementing these projects may have localized, short term impacts (including animal displacement or changes in current riparian vegetation habitat features), site specific projects would be designed with the intent of improving the quality of riparian vegetation habitat long term, either as a means to or a result of improving watershed integrity. Some short term adverse impacts would be expected to occur in riparian habitat as projects are implemented, and the long term effects would be expected to be beneficial as the physical character of riparian habitat is improved.

The types of projects that are ongoing and proposed within the watershed conditions and soils program are typically those that improve the function and physical condition of the vegetation and the soil in both upland habitat types as well as in riparian habitats. While some short term adverse impacts could occur to individual plants or site specific areas, long term beneficial effects to wildlife and their riparian habitats would be expected for most projects.

Wildlife/Fish/Rare Plants

The proposed LRMP has five objectives (Obj-24 through Obj-28) that direct Wildlife/Fish/Rare Plants program activities. Obj-24 would restore native fish populations. Objectives 25-27 would restore pronghorn habitat in the grassland PNVT's through fence modification and vegetation manipulation. Obj-28 would improve and increase the occurrence and distribution of available water sources for wildlife across the landscape increasing the quantity and quality of available habitat for terrestrial species.

Guidelines for the Wildlife/Fish/Rare Plants program would influence projects in other program areas. Guide-WL-1 is relevant listed species and their habitats. By applying recovery plan guidance to projects occurring within habitat of listed species, site specific projects in these areas should contribute to the recovery of the respective species. Breeding season timing restrictions and other management recommendations found in most recovery plans would be examples of project design features that would influence the details of site specific projects in a way to alleviate or minimize unwanted impacts to the species, improve habitat quality, and contribute to the recovery of the species. When and where possible, these management recommendations would be implemented. However, implementing these recommendations (e.g., breeding season restrictions), may not always be possible to meet the purpose and need of a project. Adverse impacts may occur short term or long term, depending on the nature and associated impacts of the project.

Wildland Fire and Fuels Management

The proposed LRMP has five objectives (Obj-1 through Obj-5) that direct the Wildland Fire and Fuels program activities. Obj-1 through Obj-4 are relevant the grasslands, piñon-juniper, and chaparral vegetation types. Obj-1 and 2 would use fire as a tool to improve and restore the semi-desert and Great Basin grasslands. Obj-3 would use a combination of fire and mechanical treatments to improve and restore the various juniper associated PNVTs. Obj-4 would use fire, mechanical and goats to manage the chaparral vegetation. Obj-5 is specific to the Ponderosa Pine-Evergreen Oak and Ponderosa Pine-Gambel Oak PNVTs and includes direction for 25,000 to 50,000 acres of prescribed fire within Ponderosa Pine-Evergreen Oak and Ponderosa Pine-Gambel Oak during the 10 years following plan approval. In 10 years, about 8,000 acres of the entire 112,591 acres of both ponderosa pine PNVTs would have had some type of mechanical forest health treatment. The analysis does not project how many acres are Ponderosa Pine-Gambel Oak versus Ponderosa Pine-Evergreen Oak.

The plan would move Ponderosa Pine-Gambel Oak toward desired conditions. The process is slow due to the longevity of the primary species, ponderosa pine. Treatments in the proposed LRMP would put the vegetation on a trajectory that would move towards the stated desired conditions. Vegetation

modeling was completed for 20 and 40 years post-plan implementation in an effort to display a meaningful change in vegetative conditions. Modeling vegetation changes within 10 to 15 years of planned treatments may not be discernible due to the slow changing nature of the long-lived ponderosa pine. Approaching 34 percent resemblance of desired conditions would include increased proportion of large over-story or old trees within the PNVT. Reducing the closed canopy states from about 90 percent of Ponderosa Pine-Gambel Oak to 77 percent of Ponderosa Pine-Gambel Oak in the first 20 years would reduce the total number of trees across the landscape and increase grasses, forbs, and shrubs in the understory.

The vegetative conditions within the ponderosa pine PNVTs will shift from the existing closed canopy conditions toward desired, more open canopy conditions. The largest shift would be the increase in seedling/sapling stage. The second most considerable change in vegetative conditions would be the increase in open canopied areas with medium/large trees. The existing number of acres of medium/large trees with a closed canopy exceeds the LRMP desired amounts and would only decrease by a small proportion within 40 years of implementing the proposed LRMP due to the longevity of ponderosa pine trees and their slow response to treatments.

During implementation of projects/objectives, some tree habitat features would be negatively impacted for a short term. However, moving towards the proposed LRMP's desired conditions for Ponderosa Pine-Gambel Oak would ultimately provide additional tree habitat features across the landscape as young and mid-size/age trees are cultivated to grow into larger and/or older trees long term, both ponderosa pine and Gambel oak trees.

Standard-Wildland-2 would have management suppress all fires in the Desert community PNVTs, a vegetative community where fires do not typically occur. Guide-Wildland Fire-2 would contribute to restoring the natural fire regime within most PNVTs that historically had the natural disturbance process of fire on the landscape and reduce the risk of landscape-scale, stand replacing wildfire. Guide-Wildland Fire-7 would provide for including measures to protect riparian resources during fire operations in or near riparian habitat.

Ongoing activities within the Fire and Fuels program include site specific projects with site specific NEPA analyses for hazardous fuels reduction and forest health, wildfire management, aviation operations, and fire prevention patrols. NEPA projects are reviewed annually to ensure current compliance with law, policy, and direction. The effects for these projects area addressed in site specific NEPA and not in this analysis.

Fire prevention patrols consist of fire personnel patrolling open roads to look for abandoned campfires and contact forest visitors. This management action would not have any discernible impacts to wildlife or their use of habitat as it occurs primarily on designated roads and in dispersed camp sites. Preventing an unattended or escaped campfire from causing negative impacts to habitat would be a beneficial impact to wildlife and their habitat by reducing the potential for stand-replacing wildfire.

The impacts from wildland fire and aviation operations would be addressed in an emergency consultation relevant to the associated suppression actions and are not included in the analysis of effects of this LRMP.

Recreation

The proposed LRMP has 10 objectives (Obj-8 through Obj-17) that direct Recreation program activities. These objectives are primarily designed to reduce the impact of humans on the natural resources, provide quality recreation experiences for visitors, and design recreation facilities and infrastructures to achieve desired conditions socially and biologically. Implementing these objectives could have some short term negative impacts to the physical environment or wildlife habitat. They would not be expected to have long term negative impacts to wildlife in accordance with DC-Rec-1 that calls for recreation facilities to minimize resource impacts. Recreation projects potentially impacting listed species or occurring in their habitats would be developed according to Guide-WL-1 which could minimize or eliminate adverse impacts to wildlife and their habitats. The same is true for Guide-WL-2 with respect to sensitive species, migratory birds, and eagles. Guide-WL-8 would be relevant if a larger scale recreation project were being considered such as a new campground, trail head or other permanent change in an area.

Ongoing activities within the recreation program include: maintenance and operation of developed recreation sites; dispersed camping; recreation special use permits for a variety of activities and outfitter/guide permits for hunters, organizational camps, and several schools; and the non-motorized trail system on the forest. Developed recreation is contained within particular areas. Dispersed camping is allowed forest-wide with only a few exceptions. Dispersed camping is not allowed within a recreation area boundary surrounding developed recreation facilities and is confined to designated dispersed campsites within the Prescott Basin. Special use permits (SUPs) are reviewed by resource specialists and designed to comply with law, policy, and direction; these can occur forest-wide and are in compliance with LRMP standards and guidelines. For the most part, SUPs are designed to minimize or alleviate impacts to natural, physical, and biological resources. However, situations may arise that require the SUP to take priority over the needs of wildlife and adverse impacts could occur to individuals of the species or its habitat. Non-motorized trails occur forest-wide. Routine trail maintenance would occur outside of site specific breeding seasons to minimize impacts to various species. Anything beyond routine maintenance would be addressed in site specific NEPA and analyzed accordingly.

Transportation

The proposed LRMP has three objectives (Obj-20 through Obj-22) that direct Transportation program activities. The purpose of these proposed transportation objectives are to improve watershed integrity. While implementing any of these projects may have localized, short term impacts (including animal displacement or changes in current upland or riparian vegetation habitat features), site specific projects would be designed with the intent of improving physical characteristics long term, either as a means to or a result of improving watershed integrity. As a result, vegetative habitat quality would inherently be improved as uplands and riparian areas move towards desired conditions.

Implementing Obj-20 through Obj-22 would likely improve any riparian vegetation habitat features associated with the project for all wildlife species. All of the objectives are designed to improve the physical condition of watershed integrity and alleviate or eliminate any negative impacts from transportation facilities to other resources including riparian and terrestrial habitat components. Guide-Trans-1, 3, 4 and 5 of the transportation guidelines are relevant wildlife habitat. Guide-Trans-1 would provide for moving roads and trails from riparian habitat where undesirable impacts are occurring, thereby improving riparian habitat. Guide-Trans-3 would consider habitat connectivity for aquatic and terrestrial species, maintaining population dynamics, migration routes, and habitat quality. Guide-Trans-4 would provide for seasonal closures to make habitat available for wildlife during key life history phases. Guide-Trans-5 would, in particular, incorporate design features in cattle guard construction to reduce or eliminate the possibility of Sonoran desert tortoise or other species entrapment in these features.

Transportation projects potentially impacting listed species or occurring in their habitats would be developed according to Guide-WL-1 which could minimize or eliminate adverse impacts to wildlife and their habitats. The same is true for Guide-WL-2 with respect to sensitive species, migratory birds, and eagles. Guide-WL-8 would be relevant if a larger scale transportation project were being considered such as a new road, trail head or other permanent change in an area.

Ongoing activities within the transportation program include the operation and maintenance of the transportation system on the Prescott NF which consists of roads and trails that provide access to areas on the forest including private land, structures and improvements under special use permit, recreational opportunities, and facilities that support land and resource management activities.

Open roads and trails occur forest-wide in all PNVTs. Routine road and trail can be done outside of site-specific timing restrictions. If required by the Alaska National Interest Lands Conservation Act (ANILCA), a new road could possibly be constructed in important wildlife habitat that could have long term adverse effects to the species that occur in those habitats.

Wilderness and Special Areas

The proposed LRMP has no objectives that direct the Wilderness and Special Areas program activities. The proposed LRMP recommends 23,000 acres for future wilderness designation adjacent to the existing 8 wilderness areas. The ongoing wilderness program includes 8 designated wilderness areas, totaling over 100,000 acres. The largest wilderness area is Sycamore Canyon Wilderness, which encompasses parts of three national forests: Prescott, Coconino, and Kaibab. Management of the area is shared among the three units. Pine Mountain Wilderness is also managed cooperatively, as it sits atop the boundary between the Prescott NF and the Tonto NF. Of the remaining six wilderness areas managed by the Prescott NF (Apache Creek, Castle Creek, Cedar Bench, Granite Mountain, Juniper Mesa, and Woodchute), Granite Mountain Wilderness receives the highest level of visitation due to its proximity to the Prescott Basin.

None of the standards or guidelines for this program area is specifically relevant to wildlife or their habitat.

There are a few known YBC locations within the southern portion of the Sycamore Canyon wilderness on the Prescott NF. The Sycamore Canyon Contiguous A Potential Wilderness Area contains current YBC locations and is adjacent to additional YBC habitat locations on the Prescott NF. Any future designation of the potential areas as wilderness would not be expected to have any impacts to YBC or their habitat.

Lands and Special Uses

The proposed LRMP has two objectives (Obj-29 and Obj-30) that direct the Lands and Special Uses program activities. Obj-29 could have beneficial effects to wildlife where lands are acquired in their respective habitats. Obj-30 could have mixed impacts to wildlife and their habitats as access across private parcels to NFS lands is acquired. Providing additional public access to areas currently not accessed could increase disturbance to wildlife or their habitats as well as increase the risk of fire from dispersed camping. Meanwhile, acquiring access to these same areas would provide additional USFS presence and opportunities to actively manage the areas for the improvement or protection of the resources. Lands and Special Uses projects potentially impacting listed species or occurring in their habitats would be developed according to Guide-WL-1 which could minimize or eliminate adverse impacts to wildlife and their habitats. The same is true for Guide-WL-2 with respect to sensitive species, migratory birds, and eagles. Guide-WL-8 would be relevant if a larger scale lands or special use project were being considered such as a land exchange, small tracts act or other permanent change in an area.

Program guidelines relevant to wildlife and their habitats include Guide-Lands-2,4 and 5. These guidelines include direction to consider the importance of wildlife habitat or some aspect of wildlife needs in the purpose or design of projects. Guide-Lands-2 is relevant to land exchanges as discussed above for Obj-Lands-29 and 30. Guide-Lands-4 incorporates current information on tower construction to minimize negative impacts to bats and birds. Guide-Lands-5 specifically includes by reference the current USFWS and AZGFD guidelines for energy development. These guidelines would contribute to minimizing or eliminating adverse effects to many different species of wildlife.

If required by the Alaska National Interest Lands Conservation Act (ANILCA), a new road could possibly be constructed in important wildlife habitat that could have long term adverse effects to the species that occur in those habitats as the result of vegetation manipulation, utility or road construction, or increased use or activity authorized through a legally mandated permit, right-of-way, or easement.

Minerals Management

The proposed LRMP has no objectives that direct the Minerals Management program activities. Ongoing activities within the program area include various types of mining activities described below.

Existing mining activities on the Prescott NF include five mineral material contracts for removal of flagstone, one contract for schist removal, one contract for removal of decomposed granite, one limestone operation with an approved commercial plan of operations, and numerous recreational gold placer mining operations. Approved mining includes any anticipated surface disturbance associated with underground mining operations and all surface mining activities including: exploration drill holes, small scale prospecting, active mining from surface quarries and pits, and mill sites. For locatable minerals,

new plans of operations (and acres of new disturbance) have been fairly consistent with not much variation from year to year on the number of active mine sites or acres open at any one time. However, if a plan of operation were submitted for a claim in key wildlife habitat, under the 1872 Mining Law, the Prescott NF would be required to process and grant a plan of operation to the claimant, potentially having long term adverse effects to the respective wildlife and their habitat.

Gold mining is limited to small-scale placer and/or lode mining. Placer operations involve methods such as excavation, dredging, and panning from alluvial deposits and are most common on the forest in the Bradshaw Mountains. Most placer mining is recreational use or small commercial operators; the Gold Basin Project is the only commercial mine with an approved plan of operations. Lode operations, also known as hard rock mining, consist of mining a vein bearing gold or a rock in-place valuable mineral deposit. There are 1,800 active placer claims and 1,484 active lode claims with 10 tunnel site claims. Claims can be up to 20 acres per placer claim with a maximum of 160 contiguous acres with 8 or more people (an association). Lode claims are limited to a maximum size of 1,500 feet in length along the vein or lode and width of 600 feet. Mining claims are not filed on the forest, but rather with the Bureau of Land Management. It should be noted that the vast majority of mining claims do not have any on-the-ground operations associated with them; many of them are for speculative purposes.

Copper is the most abundant metallic mineral on the Prescott NF, and there is an active plan of operation for exploratory drilling of copper on the Verde Ranger District. High demand growth is expected for copper in the United States, and this is likely to increase the interest of mining on the Prescott NF. It is anticipated that most major mineral exploration and development will occur in the Bradshaw Mountains (Neubert, 1995).

Geologic surveys and studies suggest that the highest concentrations of metallic minerals exist in the western parts of the forest. Areas with exploration potential for large tonnage deposits of copper and gold are near Copper Basin, Groom Creek, Big Bug Creek, Crooks Canyon, Crown King, and Goodwin.

There is substantial production of construction related materials (cinders, crushed stone, dimension stone, and landscape rock) on the forest. Demand tends to be highly influenced by local conditions and has varied considerably in recent years, so mining activity for these minerals has been sporadic.

Four of the minerals standards or guidelines are relevant to wildlife or their habitats. Guide-Locatable Minerals-1 and 2, Guide-Mineral Materials-1 are indirectly relevant as they provide direction for associated habitat such as riparian. Minimizing disturbance to riparian vegetation, avoiding disturbance to upland vegetation and avoiding adverse effects to riparian dependent resources would protect riparian habitat for associated riparian species. Guide-Mineral Materials-5 provides for avoiding sensitive species habitat in current and new minerals projects.

Any Minerals project with a potential to impact listed species or their habitats would be developed per Guide-WL-1 discussed above, including breeding season timing restrictions and other relevant details to minimize or eliminate adverse effects to species and their habitats. Guide-WL-2 would apply in sensitive species habitat and Guide-WL-8 would apply in certain situations. However, given individuals rights

under the 1872 Mining Law, operators cannot be denied access to mineral materials and long term adverse effects could occur to wildlife and their habitat from mining operations.

Rangeland Management

The proposed LRMP has no objectives that direct the Rangeland management program activities.

There is currently ongoing livestock grazing on the Prescott NF. The Prescott NF authorizes livestock grazing on as many as 68 allotments covering 920,779 suitable acres (73 percent of the forest). Of the 62 active grazing allotments, 19 are used seasonally (31 percent) and 43 are used yearlong (69 percent). Allotments are managed using an adaptive management strategy whereby results from long and short term monitoring are used to guide managers concerning yearly stocking rates, pasture rotations, and whether other adjustments are needed in order to meet management objectives and desired conditions for rangelands.

Areas where grazing is excluded include: Prescott Municipal watershed (Goldwater Lake), Lane Mountain watershed, Lynx Lake and Granite Basin Recreation Areas, and the designated wild and scenic segments of the Verde River.

Seven standards or guidelines in the Range program area would be relevant to wildlife or their habitat. Standard-Range-1 requires all water troughs to be equipped with escape devices for wildlife that may become entrapped in a trough. In particular, bats, birds, small mammals and reptiles would benefit from this standard. Larger animals would benefit from not having decaying carcasses in their water sources. Std-Range-2 would ensure that no riparian areas are grazed year-long, providing for vegetative recovery and to prevent adverse impacts to the habitat. Guide-Range-1 and 5 also address protecting or providing for riparian habitat and other wildlife habitat needs which would indirectly protect or improve riparian and upland habitat for wildlife. Guide-Range-2 would consider site specific wildlife habitat and movement needs in project design. Guide-Range-4 addresses avoiding sensitive plant species habitat.

Any Range project with a potential to impact listed species or their habitats would be developed per Guide-WL-1 discussed above, including breeding season timing restrictions and other relevant details to minimize or eliminate adverse effects to species and their habitats. Guide-WL-2 would apply in sensitive species habitat and Guide-WL-8 would apply in certain situations. This direction to include relevant guidance from respective recovery plans would provide a framework for developing grazing strategies to provide for species recovery and habitat needs.

Forestry and Forest Health

The proposed LRMP has three objectives (Obj-3, Obj-5, and Obj-6) that direct the Forest Health program activities. Obj-3 is specific to piñon-juniper PNVT vegetation types, Obj-5 is specific to Ponderosa Pine-Evergreen Oak and Ponderosa Pine-Gambel Oak , and Obj-6 addresses treating nonnative invasive species.

In 10 years, about 8,000 acres of the entire 112,591 acres of both ponderosa pine PNVTs would have had some type of mechanical forest health treatment. The analysis does not project how many acres are Ponderosa Pine-Gambel Oak versus Ponderosa Pine-Evergreen Oak.

Obj-3 would use a combination of fire and mechanical treatments to improve and restore the various juniper associated PNVTs. These PNVTs were not analyzed in detail as there are no status species closely associated with that particular PNVT. In general, treatments to move the existing conditions towards desired conditions that more closely resemble historic conditions would be beneficial for all species in all seral stages as the ratio of age and size classes of trees are balanced across the landscape.

The plan would move Ponderosa Pine-Gambel Oak toward desired conditions. The process is slow due to the longevity of the primary species, ponderosa pine. Treatments in the proposed LRMP would put the vegetation on a trajectory that would move towards the stated desired conditions. Vegetation modeling was completed for 20 and 40 years post-plan implementation in an effort to display a meaningful change in vegetative conditions. Modeling vegetation changes within 10 to 15 years of planned treatments may not be discernible due to the slow changing nature of the long-lived ponderosa pine. Approaching 34 percent resemblance of desired conditions would include increased proportion of large over-story or old trees within the PNVT. Reducing the closed canopy states from about 90 percent of Ponderosa Pine-Gambel Oak to 77 percent of Ponderosa Pine-Gambel Oak in the first 20 years would reduce the total number of trees across the landscape and increase grasses, forbs, and shrubs in the understory.

The vegetative conditions within the ponderosa pine PNVTs will shift from the existing closed canopy conditions toward desired, more open canopy conditions. The largest shift would be the increase in seedling/sapling stage. The second most considerable change in vegetative conditions would be the increase in open canopied areas with medium/large trees. The existing number of acres of medium/large trees with a closed canopy exceeds the LRMP desired amounts and would only decrease by a small proportion within 40 years of implementing the proposed LRMP due to the longevity of ponderosa pine trees and their slow response to treatments.

During implementation of projects/objectives, some tree habitat features would be negatively impacted for a short term. However, moving towards the proposed LRMP's desired conditions for Ponderosa Pine-Gambel Oak would ultimately provide additional tree habitat features across the landscape as young and mid-size/age trees are cultivated to grow into larger and/or older trees long term, both ponderosa pine and Gambel oak trees.

Obj-6 would contribute to restoring native plant species and communities, providing quality habitat for wildlife. Any project with a potential to impact listed species or their habitats would be developed per Guide-WL-1 discussed above, including breeding season timing restrictions and other relevant details to minimize or eliminate adverse effects to species and their habitats. Guide-WL-2 would apply in sensitive species habitat. This direction in Guide-WL-1 to include relevant guidance from respective recovery plans would provide a framework for developing treatment strategies to provide for species recovery and habitat needs.

None of the Forest Products standards or guidelines is specifically relevant to wildlife or its habitat, but they provide guidance for trending toward DC-Veg-2, a landscape level desired condition related to how and where treatments are completed rather than the desired results.

Ongoing activities within the forest health program include site specific projects with site specific NEPA analyses for hazardous fuels reduction and forest health. Forest health tools include commercial timber sales, fuelwood sales, and contracts. NEPA projects are reviewed annually to ensure current compliance with law, policy, and direction. Any forest health project occurring in or impacting wildlife or its habitat would be developed per Guide-WL-1 or 2 discussed above. Short term adverse effects that change the vegetation or habitat components from the existing condition are eventually transformed into long term beneficial effects of improved vegetation health and reduced risk of fire in the desired condition.

Environmental Consequences

The land management plan provides a programmatic framework that guides site-specific actions but does not authorize, fund, or carry out any project or activity. Because the land management plan does not authorize or mandate any ground-disturbing actions, there are no direct effects. However, there may be implications, or longer term environmental consequences, of management on the Prescott NF under this programmatic framework. Effects analyses of the various Resource Programs are common to all alternatives. The program effects analysis for the SWWF, YBC, MSO, and SDT and any respective critical habitat (designated or potential) can be found in the Biological Assessment submitted to USFWS on Thursday January 9, 2014.

Species Effects Analysis:

Table 18. Southwestern willow flycatcher		
<p>Southwestern willow flycatcher – Affected environment: The common theme in SWWF habitat requirements is “dense”: Dense riparian vegetation with thickets of trees and shrubs, dense riparian foliage from ground level to 13 ft, dense tree and/or shrub canopy for nest sites, dense patches of riparian forests interspersed with small openings (FWS 2005). The SWWF is historically known to occur along the Verde River. While sites are monitored along the Verde River currently, there are no known sites on PNF NFS lands. The extent of the SWWF range on the PNF is thought to be within the current Critical Habitat designation which is entirely along the Verde River and encompasses 1,339 acres along 9.4 miles on NFS lands.</p>		
Measure	Alternative A	Alternatives B, C, D & E
<p>Effects to SWWF from impacts to habitat features: riparian</p>	<p>For all of the alternatives, by following the combination of the riparian guidelines and the wildlife guidelines for listed species, riparian SWWF habitat would be expected to be maintained or improved. Designing and implementing projects to incorporate the habitat management objectives and species protection measures in the SWWF Recovery Plan would be expected to lead to improved habitat conditions for the species. The guideline also allows for the flexibility to apply the best available science in managing for the species and its habitat. By implementing the objectives in the action alternatives, there would be more improvement to riparian vegetation habitat features with Alternatives B, C, D and E than with Alternative A. Obj-31 in Alt E would be unique to that alternative and have great opportunities to improve riparian habitat through acquiring in-stream flow water rights. With no known SWWF occurring on the PNF at this time, there would not be any impacts to any individual SWWF. While most programs may have short term negatives impacts and long term beneficial impacts; some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.</p>	

<p>Compliance with Recovery Plan</p>	<p>A guideline to implement recovery plans would have similar effects to Alternatives B,C, D & E.</p>	<p>These alternatives recommend incorporating habitat management objectives and species protection measures in the SWWF Recovery Plan by reference (Guide-WL-1) and therefore could comply with the management recommendations in that document. The guideline also allows the flexibility to apply the best available information in managing listed species habitat. Managing for the recovery of the species could eventually have beneficial effects for individual SWWF.</p>	
<p>Southwestern willow flycatcher Critical Habitat – Designated critical habitat for the SWWF occurs along the Verde River. There are 31.81 miles of habitat along the Verde River. Much of the habitat occurs on non-FS lands. The PNF portion of the CH includes 9.4 miles of the Verde River.</p>			
<p>PCE:</p>		<p>Alternative A</p>	<p>Alternatives B, C, D & E</p>
<p>Riparian habitat components:</p> <ul style="list-style-type: none"> • Trees and shrubs – Native & introduced • Dense riparian vegetation with thickets of trees and shrubs • Dense riparian foliage at ground level to 13 ft. • Nest sites with 50 -100% canopy of trees and/or shrubs • Dense patches of riparian forest ¼ to 75 acres interspersed with small openings of open water or shorter vegetation 		<p>Implementing projects using the combination of the riparian guidelines and the wildlife guidelines for listed species would be expected to maintain or improve riparian PCE for SWWF critical habitat. By implementing the objectives in the action alternatives, there would be more improvement to riparian vegetation habitat features with Alternatives B, C, and D than with Alternative A. Obj-31 in Alt E would be unique to that alternative and have great opportunities to improve riparian habitat through acquiring in-stream flow water rights. Designing and implementing projects that consider the habitat management objectives and protection measures in the SWWF Recovery Plan would be expected to lead to improved habitat conditions. Being able to apply the best available science in managing the habitat for the species would also contribute towards recovering the species.</p>	
<p>Prey species habitat components: Variety of prey species populations within or adjacent to riparian</p>		<p>While most programs may have short term negatives impacts and long term beneficial impacts; some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.</p>	

Table 19. Yellow-billed cuckoo and potential Critical habitat	
<p>Yellow-billed cuckoo – Affected environment: Yellow-billed cuckoos (YBC) typically occur in narrow riparian cottonwood-willow galleries and are known to use salt cedar. Dense understory foliage is an important factor in nest site selection in Arizona. YBC are also known to use mesquite bosques in Arizona. On the Prescott NF, YBC have been documented along the Verde River, Sycamore Creek and Little Sycamore Creek. YBC have also been documented breeding on the adjacent important bird areas (IBAs), Aqua Fria National Monument, and the Upper Verde River.</p>	
Measure	All Alternatives
<p>Effects to SWWF from impacts to habitat features: riparian</p>	<p>For all of the alternatives, by following the combination of the riparian guidelines and the wildlife guidelines for listed species, riparian SWWF habitat would be expected to be maintained or improved. Designing and implementing projects to incorporate the habitat management objectives and species protection measures in the SWWF Recovery Plan would be expected to lead to improved habitat conditions for the species. The guideline also allows for the flexibility to apply the best available science in managing for the species and its habitat. By implementing the objectives in the action alternatives, there would be more improvement to riparian vegetation habitat features with Alternatives B, C, and D than with Alternative A. Obj-31 in Alt E would be unique to that alternative and have great opportunities to improve riparian habitat through acquiring in-stream flow water rights. With no known SWWF occurring on the PNF at this time, there would not be any impacts to any individual SWWF. While most programs may have short term negatives impacts and long term beneficial impacts; some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.</p>
<p>YBC potential Critical Habitat – Potential critical habitat for the YBC has been identified along the Verde River and the Agua Fria River and three of its tributaries on or in the vicinity of the PNF.</p>	
PCE:	All Alternatives
<p>PCE#1 - Riparian woodlands with mixed willow-cottonwood vegetation, mesquite-thorn-forest vegetation, tamarisk woodland vegetation, or a combination of these that contain habitat for nesting and foraging in contiguous or nearly contiguous patches, that are greater than 325 feet (100 meters) in width, 100 acres (40 hectares) or more in extent. These habitat patches contain one or more nesting groves, generally willow-dominated, with above average canopy closure (greater than 70 percent) and a cooler, more humid environment than the surrounding riparian and uplands habitats.</p> <p>PCE#2 - Presence of a prey base consisting of large insect fauna (e.g., cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies) and tree frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.</p> <p>PCE#3 - River systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health and vigor. This allows habitat to regenerate at regular intervals, leading to riparian vegetation with variously aged patches from young to old. These dynamic riverine processes are considered essential for developing and maintaining PCE-1 and PCE-2.</p>	<p>Implementing projects using the combination of the riparian guidelines and the wildlife guidelines for listed species would be expected to maintain or improve riparian PCE for YBC potential critical habitat. By implementing the objectives in the action alternatives, there would be more improvement to riparian vegetation habitat features with Alternatives B, C, D and E than with Alternative A. Obj-31 in Alt E would be unique to that alternative and have great opportunities to improve riparian habitat through acquiring in-stream flow water rights. Designing and implementing projects that consider the habitat management objectives and protection measures for the YBC would be expected to lead to improved habitat conditions. While most programs may have short term negatives impacts and long term beneficial impacts; some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.</p>

Table 20. Mexican spotted owl			
Mexican spotted owl – Affected environment: MSO are known to occur on the Bradshaw and Verde RDs of the PNF. They are found in stands of Ponderosa pine/Gambel oak with large trees, dense overstories, and woody debris including snags and downed logs. Known nesting sites are located on Mingus Mountain, in Prescott Basin, and at Crown King for a total of 15 Protected Activity Centers (PACs) on the PNF. There are also acres of restricted habitat outside of the PACs.			
PNVT association: PP/QUGA: Medium/large trees with closed canopy			
Acres¹³	Alternative A	Alternatives B, D & E	Alternative C
Existing	26,448		
Desired	7,358		
20 yrs	24,526	24,526– 22,564	24,035– 21,583
40 yrs	23,545	23,054– 21,092	23,054– 19,621
Measure	Alternative A	Alternatives B, C, D & E	
Effects to MSO from changes in PNVT: PPO	This species is associated with a vegetative state or condition that is extremely over-represented across the landscape relative to historic proportions. The projected change in acres of this particular combination of habitat characteristics (medium/large trees with a closed canopy) is relatively small in all alternatives. As landscapes are restored to historic proportions, species may begin to use heretofore underrepresented and/or unavailable habitat characteristics and conditions. Desired conditions and guidelines for snags would ensure the presence of snags across the landscape. Complying with the laws and forest plan direction for federally listed species would ensure that the current habitat requirements for the MSO are met in project design and implementation. Moving the natural habitat for MSO toward the desired condition that more closely resembles historic conditions would be expected to improve the habitat for this species across the landscape. Increasing the abundance and distribution of large trees across the landscape would provide additional nesting habitat for MSO. Reducing canopy closure and increasing understory vegetation would improve habitat for MSO prey species across the landscape. Improving these two facets of the MSO habitat would be expected to have beneficial impacts to the species on the PNF. Although the relative percent of PPO with medium/large trees with closed canopy slightly decreases in all alternatives, the improved quality of foraging habitat in the medium/large trees with open canopy may have an overall beneficial effect to MSO. The most important benefit to the proposed treatments within the PPO PNVT is the reduction of potential for large, landscape scale stand-replacing wildfires that could eliminate MSO habitat.		

¹³ The acres reflect the modeled results of implementing the vegetation treatment Objectives for ponderosa pine Gambel oak PNVT.

Effects to MSO from impacts to habitat features: tree features & riparian	<p>For all of the alternatives, by implementing the combination of the riparian guidelines and the wildlife guidelines for listed species, riparian MSO habitat would be expected to be maintained or improved. By implementing the objectives in the action alternatives, there would be more improvement to riparian vegetation habitat features with Alternatives B, C, D and E than with Alternative A. Obj-31 in Alt E would be unique to that alternative and have great opportunities to improve riparian habitat through acquiring in-stream flow water rights.</p> <p>For all of the alternatives, in the process of implementing projects/objectives, some tree habitat features will be negatively impacted for a short term. However, moving towards the desired conditions in all of the alternatives for the PPO will ultimately provide additional tree habitat features across the landscape as young and mid size/age trees are cultivated to grow into larger and/or older trees long term. While most programs may have short term negatives impacts and long term beneficial impacts; some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.</p>	
Compliance with Recovery Plan	<p>A guideline to implement recovery plans would have similar effects to Alternatives B,C, & D.</p>	<p>These alternatives recommend incorporating habitat management objectives and species protection measures in the MSO Recovery Plan by reference (Guide-WL-1) and therefore could comply with the management recommendations in that document. The guideline also allows the flexibility to apply the best available information in managing listed species habitat. Managing for the recovery of the species could eventually have beneficial effects for individual MSO.</p>

Table 21. Mexican spotted owl (MSO) Critical Habitat (CH).			
<p>There are three MSO CH polygons associated with the PNF. A small portion of UGM-13 lies across the boundary between the PNF and the neighboring Kaibab NF in Sycamore Canyon Wilderness. None of the acres in that polygon are recovery or protected habitat. BR-W-2 is on the Bradshaw RD in the Prescott Basin. BR-W-3 is on the Bradshaw RD near Crown King. Per the Federal Register designating critical habitat, “WUI project areas, State and private lands are not designated as critical habitat” (FWS 2004). For the BR-W-2 polygon, the Boundary WUI project area is exempt from designation. For the BR-W-3 polygon, the Crown King/Ash Creek WUI project area is exempt from designation. The total number of acres of NFS lands within CH polygons on the PNF is 44,814.</p>			
CH Polygon	Total PNF acres	Acres of Protected Habitat	Acres of Recovery Habitat
UGM - 13	11,794	0	0
BR – W – 2	22,182	2,993	5,313
BR – W - 3	10,838	1,065	918
TOTAL on PNF	44,814	4,058	6,231
PCE	Alternative A	Alternatives B, C, D & E	
<p>Forested structure components: While most programs may have short term negatives impacts and long term beneficial impacts to primary constituent elements; some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.</p>			

Table 21. Mexican spotted owl (MSO) Critical Habitat (CH).		
Range of tree species, 30-45% >12" dbh	Alternative A would exceed providing 30-35% of the area with trees >12" dbh assuming that a medium tree is >12" dbh.	DC-Ecosystem Resilience-1 reads: Habitat quality, distribution, and abundance exist to support recovery and/or stabilization of federally listed and other species. And the Guide-Wildlife-1 reads: Habitat management objectives and terrestrial species protection measures from approved recovery plans should be applied to activities occurring within federally listed species habitats. This management direction would ensure that all of these PCEs are provided for the MSO in the proposed LMP. Moving toward desired conditions for PPO would increase the number of trees with dbh>12".
Shade canopy covering 40+% of habitat	With 77% of the PPO with closed canopy states at 20 years after implementation, all of the alternatives would be providing this PCE.	
Snags > 12" dbh	Current Forest Plan provides for 2 snags/ac >18" dbh in the ponderosa pine vegetation type.	DC-Veg-17 for ponderosa pine-Gambel oak reads: "A variety of snags species and coarse woody debris (greater than 3-inch diameter) are well distributed throughout the landscape. Snags are typically 18 inches or greater DBH and average 1 to2 per acre." Combined with the federal species guidelines above, these alternatives would create conditions that would provide this PCE for MSO.
Prey species habitat components:		
Down woody	Current FP calls for retaining substantive amounts of down logs and hardwoods. Through a guideline for listed species recovery, this habitat component would be provided.	The combination of desired conditions and wildlife guidelines would ensure that these habitat components are provided.
Range of tree species including hardwoods		
Plant cover for fruits, seeds, & regeneration		
Canyon habitat components:		
Presence of water	There would not be any change in the existing conditions or availability of water associated with canyon habitat among the alternatives.	
Stringers of conifer/ riparian vegetation	Through a standard for listed species recovery, this habitat component would be provided.	The combination of desired conditions and wildlife guidelines would ensure that these habitat components are provided for MSO. Obj-31 in Alt E would be unique to that alternative and have great opportunities to improve riparian habitat through acquiring in-stream flow water rights.
Crevice, ledges, caves	There would not be any change in the existing conditions or availability of crevices, ledges, and caves associated with canyon habitat among the alternatives.	
Litter & woody debris	Current FP calls for retaining substantive amounts of down logs.	The combination of desired conditions and wildlife guidelines would ensure that these habitat components are provided.

Table 22. Sonoran desert tortoise	
<p>The Sonoran desert tortoise is a federal candidate and Regional Forester sensitive species. According to the AZGFD HDMS range map for the Sonoran desert tortoise, there are no known locations for the species on the Prescott NF. Suitable habitat for the species does occur on the southern portions of the forest near Cleator and is well within the range of known locations of the species near Black Canyon City. With few known locations and no populations documented within the action area, it is difficult to determine the status of the species. The potential habitat for the species is the steep rocky slopes of the desert communities PNVT, and the existing condition is considered to be a low departure from reference conditions, or, similar to historic conditions.</p>	
<p>Desert communities PNVT (5,919 acres): The existing condition for the desert communities PNVT is a low departure from reference conditions or, similar to historic conditions. The alternatives include a desired condition relevant to desert communities in DC-Veg-22.</p>	
Acres:	All Alternatives
Existing	5,919 acres
Desired	
20yrs	
40yrs	
Measure	All Alternatives
Effects to species from impacts to DC PNVT.	DC habitats have low departure from reference conditions and are expected to remain near reference conditions over the next 40-80 years. There are no fire and vegetation treatment objectives in any of the developed alternatives for this PNVT or habitat.
FP S&G’s relative to sensitive species	While the Sonoran desert tortoise is protected under the ESA as a candidate species, there is no species specific direction for the tortoise at this time. Therefore, for all of the alternatives, the various guidelines for sensitive species would be expected to maintain or improve desert communities habitat associated with desert tortoise habitat needs. Sensitive species guidelines (WL-2) would include developing breeding season timing restrictions and other project design features to alleviate impacts from disturbance from prescribed burning, and other resource management activities occurring within desert community PNVT. Wildlife guidelines would provide for following current AZGFD handling guidelines for any desert tortoises encountered during project implementation. While most programs may have short term negatives impacts and long term beneficial impacts to habitat components, some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.

Table 23. Bald eagle	
<p>The bald eagle is associated with riparian habitat, as well as rock and tree features: The bald eagles are associated with the prey species habitat within the aquatic habitat in riparian systems. Bald eagles nest along the Verde River from Perkinsville to Camp Verde and at Lynx Lake and roost in the winter adjacent to Goldwater Lake.</p>	
Measure	All Alternatives
<p>Effects to species from impacts to riparian habitat features.</p>	<p>Riparian habitats have low departure from reference conditions and are expected to remain near reference conditions over the next 40-80 years. By implementing the objectives in the action alternatives, there would be more improvement to riparian vegetation habitat features with Alternatives B, C, D and E than with Alternative A. Obj-31 in Alt E would be unique to that alternative and have great opportunities to improve riparian habitat through acquiring in-stream flow water rights.</p>
<p>Effects to species from impacts to tree and rock features.</p>	<p>Tree and rock features are primarily nesting or roosting structures for bald eagles. The bald eagle would be afforded protection under the “Eagle Act” through Guide-WL-2 in Alternatives B-E. The bald eagle would also be afforded additional protection for nest sites under Guide-WL-5 in Alts B-E. These, in connection with designing features to provide the desired conditions for tree features, would provide for bald eagle nest sites.</p>
<p>FP S&G’s relative to sensitive species</p>	<p>The compliance with the “Eagle Act” in all alternatives would ensure that bald eagles were afforded the necessary protection to successfully nest and forage and roost. For all of the alternatives, the combination of the riparian guidelines and the various guidelines for sensitive species would be expected to maintain or improve riparian habitat features associated with sensitive species habitat needs. Guide-WL-2 would include developing breeding season timing restrictions and other project design features to alleviate impacts from disturbance from harvest, prescribed burning, and other resource management activities occurring in the adjacent upland habitats. While most programs may have short term negatives impacts and long term beneficial impacts to habitat components, some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.</p>

Effects to the remainder of the sensitive species will be grouped by PNVT or habitat feature association.

Table 24. Riparian Habitat associated Species – Western red bat	
<p>Riparian Habitat: Western red bat are associated with riparian habitat features, primarily the larger overstory trees for nesting and roosting, respectively. Red bats have also been known to “roost” in the leaf litter in the riparian zone. There are approximately 7,496 acres of suitable understory habitat and 4,247 acres of overstory habitat.</p>	
Measure	All Alternatives
<p>Effects to species from impacts to riparian habitat features.</p>	<p>Riparian habitats have low departure from reference conditions and are expected to remain near reference conditions over the next 40-80 years. By implementing the objectives in the action alternatives, there would be more improvement to riparian vegetation habitat features with Alternatives B, C, D and E than with Alternative A. Obj-31 in Alt E would be unique to that alternative and have great opportunities to improve riparian habitat through acquiring in-stream flow water rights.</p>
<p>FP S&G’s relative to sensitive species</p>	<p>The western red bat would be afforded protection for nest sites under Guide-WL-2 and 6 in Alts B-E. For all of the alternatives, the combination of the riparian guidelines and the various guidelines for sensitive species would be expected to maintain or improve riparian habitat features associated with sensitive species habitat needs. Sensitive species guidelines would include developing breeding season timing restrictions and other project design features to alleviate impacts from disturbance from harvest, prescribed burning, and other resource management activities occurring in the adjacent upland habitats. While most programs may have short term negatives impacts and long term beneficial impacts to habitat components, some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.</p>

Table 25. Rock habitat associated Species.	
<p>Rock habitat features: The peregrine falcon and pale Townsend’s big-eared bat are sensitive species associated with various rock feature habitats including caves, mines, cliffs, ledges, and outcrops. All of these species nest or roost in some way on or in these features. This implies that the sites are typically occupied by young of the respective species. These features can occur in any or all of the various PNVTs. Suitable habitat for the PNF derived from modeling slope associated with digital elevation models with slopes greater than 65% selected to represent cliff habitat showed approximately 8,829 acres of cliff habitat on the PNF for the peregrine and pocketed free-tailed bat. Abandoned mines used by Townsend’s big-eared bats occur on all three districts with the majority of them on the Bradshaw RD. Quality of habitat associated with the mine features is highly variable.</p>	
Measure	All Alternatives
<p>Effects to species from impacts to rock habitat features.</p>	<p>No management actions are prescribed for any rock feature habitat. Numerous guidelines for various resource areas providing for sensitive species habitat management would ensure the maintenance or improvement of sensitive species habitat associated with rock features. Guidelines Locatable minerals-2, Mineral Materials-5, and Guide-WL-5 and 6 provide additional direction for considering wildlife life history and habitat needs associated with rock features.</p>

FP S&G’s relative to sensitive species	The peregrine falcon would be afforded additional protection for nest sites under Guide-WL-5 in Alts B-E. For all of the alternatives, the various guidelines for sensitive species would be expected to maintain or improve rock habitat features associated with sensitive species habitat needs. Sensitive species guidelines would include developing breeding season timing restrictions and other project design features to alleviate impacts from disturbance from harvest, prescribed burning, and other resource management activities occurring on the rock feature or in adjacent vegetation areas. While most programs may have short term negatives impacts and long term beneficial impacts to habitat components, some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.
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Table 26. Northern goshawk			
<p>The northern goshawk is the sensitive species associated with various vegetative features found within both Ponderosa pine PNVTs. The northern goshawk is associated with the ponderosa PNVTs and tree features for every aspect of its life history from nesting, to roosting, to foraging. Goshawks are known to occur within the ponderosa pine type PNVTs on all three districts of the PNF including Mingus Mountain, Camp Wood, Prescott Basin, and Crown King. All fourteen prey species listed for the northern goshawk in the Management Recommendations for Northern Goshawks (MRNG) (Forest Service 1992) are associated with medium/large tree vegetative structural stages (VSSs). Medium/large trees are important habitat components to thirteen of the fourteen prey species for maintaining sustainable populations. Openings are important for maintaining sustainable populations for eight of the fourteen prey species listed in the MRNG. Herbaceous and shrub components are important for thirteen of the fourteen prey species. Ten of the fourteen prey species listed in the MRNG are associated with early seral stages including seedling/saplings and small trees. All fourteen prey species need an interspersions of VSSs to maintain sustainable populations.</p> <p>Salafsky et. al. (2005) suggested that prey density was an important limiting factor of goshawk productivity. Later, studies showed that increased prey density results in increased goshawk reproduction in ponderosa pine (Salafsky, et. al. 2007). Dewey and Kennedy (2001) reported that significantly heavier nestlings from nests with supplemental food had higher survival rates than nestlings in control nests. In 1996, Ward and Kennedy reported that although there was no significant difference in nestling sizes due to additional food availability, they did document higher nestling survival due to increased time spent at nest by female which consequently provided protection from predators. Wiens et. al. (2006) reported that food availability was the primary factor limiting juvenile survival and recommended forest treatments that provide forest structural conditions that allow goshawks to access their prey within breeding areas.</p>			
PP/QUGA & PPE:			
Nesting habitat: Medium/large trees w/ open and closed canopies			
Foraging habitat: Seedling/sapling & small trees with open canopies			
Acres¹⁴	Alternative A	Alternatives B, D & E	Alternative C
Existing nesting	50,489		
Desired	86,774		
20 yrs	62,125	62,761 – 61,636	62,761 – 61,145
40 yrs	63,397	65,302 – 62,415	65,302 – 61,975
Existing foraging	3,522		
Desired	20,388		

¹⁴ The acres reflect the modeled results of implementing the vegetation treatment Objectives for ponderosa pine and ponderosa pine evergreen oak PNVTs.

Table 26. Northern goshawk			
20 yrs	17,524	18,651 - 21,538	18,651 - 22,518
40 yrs	18,996	21,392 – 24,915	24,915 – 25,896
Measure	All Alternatives		
Effects to species from impacts to PNVT and tree features relevant to nesting habitat.	<p>The medium/large tree habitat components required by the goshawk for nesting will be more available across the landscape as the number of acres of medium/large trees increases. Both the Gambel oak and evergreen oak components of the ponderosa pine PNVTs contain desired conditions specific to meeting the goshawk habitat needs (DC-Veg-13,14,17, and 18) including forest stand structure as well as down woody material for prey species habitat needs and complying with current technical guides for the goshawk in the southwest. Sensitive species direction and guidelines would also apply to those places where goshawks are known to occur and potential habitat. Implementing projects designed to meet desired conditions specific for the goshawk and to comply with the guidelines providing for sensitive species habitat needs would ensure that goshawk habitat needs are met and would eliminate or minimize impacts to goshawks in the process. Moving the PPO PNVT toward the desired condition that more closely resembles historic conditions would be expected to improve the habitat for goshawks across the landscape. Increasing the abundance and distribution of medium/large trees across the landscape would provide additional nesting habitat for the goshawk in both of the ponderosa pine PNVTs. Based on the overlap in number of acres projected for nesting habitat in each alternative in the top part of this table, there would not be a discernible difference among the effects of the various proposed treatments within the alternatives for this particular habitat feature. All alternatives would be expected to provide additional and improved nesting habitat for northern goshawks.</p> <p>The projected changes in acres for medium/large trees would also be expected to considerably increase the amount of habitat for all of the prey species similarly among the alternatives. For all of the alternatives, all of the prey species would be expected to experience population increases associated with a greater amount of habitat which would, in turn, have positive impacts to goshawk populations.</p>		
Effects to species from impacts to PNVT and tree features relevant to foraging habitat.	<p>Reducing canopy closure and increasing understory vegetation would improve habitat for goshawk prey species including small mammals and small birds across the landscape. Moving acres into the seedling/sapling and small tree VSSs would create an interspersed of VSSs across the landscape. The diversity of habitats associated with the assortment of vegetative features would support a greater selection of prey species. This would provide conditions supporting a full complement of prey species and habitat less susceptible to catastrophic fire and insect and disease impacts. By providing a diverse suite of prey species, the goshawk prey base would be more resilient to impacts from climate, disease, predation, and prey species population fluctuations.</p>		
Summary effects for foraging habitat changes	<p>With a 5-fold increase in prey species habitat in the seedling/sapling and small tree with openings components, there would be an expected increase in goshawk nestling condition, parental protection, and juvenile survival.</p>	<p>Based on the projected acres displayed at the top of this table, Alternatives B-E project a greater increase in acres of prey species habitat in the seedling/sapling and small tree with openings components than Alternative A. With a 5-6 fold increase in prey species habitat, there would be an even greater expected increase in goshawk nestling condition, parental protection, and juvenile survival than in Alternative A.</p>	
FP S&G's relative	<p>For all of the alternatives, the various guidelines for sensitive species would be expected to</p>		

Table 26. Northern goshawk	
to sensitive species	maintain or improve tree features associated with sensitive species habitat needs. Sensitive species guidelines would include developing breeding season timing restrictions and other project design features to alleviate impacts from disturbance from harvest, prescribed burning, and other resource management activities occurring within both of the ponderosa pine PNVTs. While most programs may have short term negatives impacts and long term beneficial impacts to habitat components, some program areas could have long term negative impacts to the species and its habitat due to legally mandated permits or uses.

Cumulative Environmental Effects:

MSO

Private lands are interspersed with PNF lands that contain restricted habitat and PACs. Activities including residential development, mining, and timber harvest have occurred on private lands, and are expected to continue at some level, thereby elevating the importance of PNF lands in providing suitable MSO habitat. Private, State-owned, and BLM federal lands located outside, but adjacent to the PNF appear to lack potential suitable MSO habitat. Three National Forests are adjacent to the PNF and contain suitable habitat and designated critical habitat within the Basin and Range-West Recovery Unit (Tonto NF) and Upper Gila Recovery Unit (Coconino, Kaibab, and Tonto NFs). The Kaibab and Coconino NFs are currently undergoing analysis for Forest Plan Revision. Regulatory requirements under ESA and NMFA apply; thereby ensuring adequate levels of MSO habitat.

SWWF

In proximity to the PNF, areas where SW willow flycatcher sightings and reported nesting have occurred along the Verde River appear to be located primarily on private lands located outside the PNF in the vicinity of Camp Verde. Conservation status of suitable habitats and potential future impacts due to management on private lands is not known. Additional sightings and designated critical habitat along the Verde River occur within the Tonto NF. ESA requirements ensure that habitats are managed to support the species on adjacent National Forests.

Western yellow-billed cuckoo

Areas containing sightings during the breeding season as well as reported nesting are scattered through western, central, and southeastern Arizona. Those in proximity to the PNF reported within the last 10 years are located primarily east and south of the PNF, along the Verde River and its tributaries, as well as along portions of Ash Creek in the Agua Fria Basin. Ownership in these areas consists of a mix of private, State, BLM, and Forest Service (Coconino and Tonto NFs) lands. Conservation status of suitable habitats and potential future impacts due to management on non-federal lands is not known. The western yellow-billed cuckoo is managed as R3 Sensitive on the Coconino and Tonto NFs; therefore, it is expected that this species’ habitats and populations will be maintained on National Forest System lands. In Arizona, yellow-billed cuckoo is classified as Tier 1A (Species of Greatest Conservation Need), and

managed by Arizona BLM as a sensitive species (BLM 2010); therefore it receives management consideration on lands under both jurisdictions.

Sonoran desert tortoise

Occurrence and known range of Sonoran desert tortoise in Arizona occurs largely outside PNF lands, which contains only one recorded observation of this species and less than 6,000 acres of desert habitat. Lands containing suitable habitats within the distribution of this species in Arizona are under a wide variety of ownerships (FWS 2010c). Those in proximity to the PNF include portions in private, State, BLM, and the Tonto NF. Status and future condition of habitats on private lands are unknown. The species is classified as Tier 1A (Species of Greatest Conservation Need) by the State of Arizona, and managed by Arizona BLM as a sensitive species (BLM 2010); therefore it receives management consideration on lands under both jurisdictions. The species is managed as R3 sensitive on the Tonto National Forest; therefore, this species' habitats and populations are expected to be maintained.

Pale Townsend's big-eared bat

Pale Townsend's big-eared bat roosting habitat is scattered throughout central Arizona, and is expected to occur on both federal and non-federal lands outside the PNF. Inventory and remediation of abandoned mines that pose a potential safety and water quality hazard is identified as a management priority on BLM lands in Arizona, including priorities identified within the Hassayampa watershed (USDI no date?). Townsend's big-eared bat roosting habitat is also expected to occur on adjacent National Forests that include the Kaibab, Coconino, and Tonto NFs. The Kaibab and Coconino NFs are currently undergoing Forest Plan revision, and have considered Townsend's big-eared bats during the revision process. Because this is a R3 sensitive species applicable to all three National Forests, management consideration would be provided to preclude a trend toward federal listing.

Western red bat

Areas where western red bat sightings have occurred are located east and south of the PNF, within the Coconino and Tonto NFs (HDMS 2011). Because the species is R3 sensitive, it is expected that western red bat habitats and populations will be maintained on adjacent National Forests.

American peregrine falcon

Since the nationwide ban on DDT, the threat of pesticide impacts to this species has decreased, and populations show increases in Arizona over the past several decades. Distribution of recorded peregrine falcon breeding is scattered across most of Arizona, with exception of the southwest corner of the State (Corman and Wise-Gervais 2005). Land ownership where nesting occurs varies widely among federal and non-federal entities, with breeding reported for Kaibab, Coconino, and Tonto NFs in addition to the PNF (AGFD 2002). Current and future status of disturbance at potential roost sites on non-federal lands is unknown. Because the species has management status (R3 Sensitive) on adjacent National Forests, it is expected that some level of protection from disturbance of known nest sites would occur on these lands.

Bald eagle

Since the nationwide ban on DDT, the threat of pesticide impacts to this species has decreased, and populations show increases in Arizona over the past several decades. Distribution of recorded bald eagle breeding in Arizona is somewhat concentrated in the central portion of the state, mainly within Yavapai, Maricopa, and Pinal counties (Corman and Wise-Gervais 2005). Land ownership where nesting occurs varies widely among federal and non-federal entities, with breeding reported for Coconino, and Tonto NFs in addition to the PNF (AGFD 2010a). Current and future status of disturbance at potential roost sites on non-federal lands is unknown. Because the species has management status on adjacent National Forests, it is expected that some level of protection from disturbance of known nest sites would occur on these lands.

Northern goshawk

Distribution of recorded goshawk breeding is restricted mainly to upper elevation forested portions of the State, with most concentrated on the Kaibab Plateau and Mogollon Rim (Corman and Wise-Gervais 2005). Land ownership where nesting has been reported is largely associated with National Forest lands. Because the species has management status on adjacent National Forests, it is expected that habitat maintenance as well as protection from disturbance of known nest sites would occur on these lands.

Unavoidable Adverse Impacts

The land management plan provides a programmatic framework that guides site specific actions but does not authorize, fund, or carry out any project or activity. Before any ground-disturbing actions take place, they must be authorized in a subsequent environmental analysis. Therefore none of the alternatives cause unavoidable adverse impacts. Mechanisms are in place to monitor and use adaptive management principles in order to help alleviate unanticipated impacts that need to be addressed singularly or cumulatively.

Irreversible and Irretrievable Commitment of Resources

The land management plan provides a programmatic framework that guides site-specific actions but does not authorize, fund, or carry out any project or activity. Because the land management plan does not authorize or mandate any ground-disturbing actions, no alternatives cause an irreversible or irretrievable commitment of resources.

Compliance with Eagle Act:

Both bald and golden eagles are known to occur on the PNF. The crux of determining compliance with this law is ascertaining if any eagles are “disturbed” to the level of “take”.

Bald eagles are known to occur along the Verde River on the Verde and Chino Valley RDs and at Lynx Lake on the Bradshaw RD. In the winter months, bald eagles roost along the Verde River as well as on the slopes adjacent to Goldwater Lake, a City of Prescott park surrounded by PNF land. Bald eagles are primarily tied to nesting or roosting near water, their primary foraging habitat for waterfowl and fish. They are also known to be opportunistic scavengers. Water in the arid southwestern habitats of the PNF also draws lots of people and recreation activities. Unfortunately, the limited available water-associated habitats present occasions for wildlife-human conflicts. For Alternative A, the requirement to comply with current laws would ensure that projects and activities within and adjacent to nest or roost sites would be designed to avoid causing any “take” under the Eagle Act. For Alternatives B-E, the Wildlife Guideline-2 prescribing design features and mitigation measures for compliance with other laws would also ensure that every opportunity would be pursued to avoid any “take” of bald eagles under those alternatives.

Golden eagles typically nest in rock outcrops or on ledges on cliffs. Suitable habitat for the PNF derived from modeling slope associated with digital elevation models with slopes greater than 65% selected to represent cliff habitat showed approximately 8,829 acres of cliff habitat on the PNF. The only confirmed nest is on the north side of Woodchute Mountain with suitable habitat occurring on all three districts of the PNF. They forage primarily within 8-12 square miles of the nest site. Typical prey includes medium-sized mammals including jack rabbits, ground squirrels, and prairie dogs. Other prey may include turkeys, new born ungulates, or domestic pets. Projects occurring in the upland portions of the landscape may present occasions for impacts to golden eagles including disturbance from machinery, people, smoke, and animals. Most impacts or changes would occur within foraging habitat. Changes to foraging habitat would simply change the available prey for golden eagles and would not be considered to “disturb” eagles enough to warrant a “take”. For Alternative A, the requirement to comply with current laws would ensure that projects and activities within the vicinity of the nest site would be designed to avoid causing any “disturbance” that would lead to “take” under the Eagle Act. For Alternatives B-E, the Wildlife Guideline-2 prescribing design features and mitigation measures for compliance with other laws would also ensure that every opportunity would be pursued to avoid any “take” of golden eagles under those alternatives.

For both species, Guide-WL-5 would afford additional protection at all known eagle nest sites. While Guide-Lands-4 and 5 would include design features to alleviate or minimize adverse impacts to eagles from authorized structures, the possibility of collision and eagle mortality cannot be eliminated. So while there is the possibility that above ground utility lines could be authorized under this forest plan. With that possibility, there is also the possibility that an eagle could be injured or killed by such an authorized structure, resulting in a “take” of an eagle under the definition in the Eagle Act despite measures to prevent this outcome.

Migratory birds Assessment:

In accordance with the Migratory Bird Treaty Act, Executive Order 13186, and the MOU signed December 2008, this plan revision was evaluated for its effects on migratory birds.

A total of 92 species of migratory birds were assessed for their potential to occur on the PNF (Forest Service 2011a).

- 14 species of migratory birds are addressed elsewhere in this analysis based on status such as federally listed under ESA, federally protected under the Eagle Act, Forest Service sensitive, or Forest Plan MIS. All of these species are considered to occur on the PNF.
- 19 other species would be expected to occur on the Prescott NF.
- 13 species are not known whether or not they would occur on the PNF.
- 12 species could potentially or possibly occur on the PNF.
- 32 species would not be expected to occur on the PNF.
- 2 species are yet to be determined regarding their status on the PNF.

For a list of the remaining 46 species of migratory birds considered for the PNF, see the list in Appendix 3.

Effects to migratory birds are grouped by changes to conditions within each PNVT, impacts to habitat features, and potential for impacts from activities to migratory birds. Migratory birds are associated with various aspects, features, and seral stages of the different PNVTs. Moving toward desired conditions that reflect reference conditions would provide habitat components for all migratory bird species on a landscape basis. A summary of the effects of the alternatives relative to how closely each alternative resembles the desired conditions is taken directly from the Vegetation and Fire Report (Forest Service 2011b).

Similarity to Desired Conditions Index

The amount of tree and shrub thinning and prescribed fire proposed under each alternative, as modeled in VDDT, influences the attainment of desired conditions. The Similarity to Desired Conditions Index (or Similarity Index), represents the relative similarity between the “current conditions” and the “desired conditions” for a given vegetation type. This is measured by comparing the relative proportions in each vegetation state at time [0, 10, 20, 40 or 80 yrs] to the proportions expressed in the desired set of conditions for each PNVT. Higher index values are an indicator that ecosystems are retaining their components, processes, and functions under changing environmental conditions.

Similarity Index Consequences Common to All Alternatives:

Model outputs indicate a positive trend in the similarity index values over time for all PNVTs (Table 28) except riparian gallery forest for which not data was available. As a result, all of the alternatives show some improvement in desired conditions over the long-term. None of them show movement away. This movement toward desired conditions may be the result of the passage of time as much as the result from proposed treatments and manipulations to vegetation structure. That said, the more relevant measure is, “To what degree do the alternatives show improvement in desired conditions for each PNVT?”

Similarity Index Consequences Summary by PNVT by Alternatives:

Table 29. Vegetation PNVTs and Similarity Index, by alternative

PNVT	Desired Conditions	Alternative A	Alternatives B, D and E	Alternative C
Semi-Desert Grassland	High	Low Increases to Moderate	Low Increases to High	Low Increases to High Soonest
Great Basin Grassland	High	High Declines to Moderate	High Stays High	
Interior chaparral	High	High Stays High		
Juniper Grassland	High	Moderate Increases to High		
Piñon-Juniper shrubland	High	Low Increases to Moderate		
Piñon-Juniper Woodland	High	High Stays High		
Pine-evergreen oak	High	Low Increases to Moderate		
Pine-Gambel oak	High	Low Stays Low		
Desert Communities	High	High Stays High		
Riparian Gallery	High	Indicator trend data not available		
SUMMARY		Least development toward desired conditions	Moderate development toward desired conditions	Most development toward desired conditions

Table 30. Assessment of effects to Migratory birds				
Measure for MBTA	Alternative A	Alternatives B & E	Alternative C	Alternative D
Changes to PNVTs	Least improved habitat conditions for migratory birds	Moderately improved habitat conditions for migratory birds.	Most improved habitat conditions for migratory birds	Moderately improved habitat conditions for migratory birds.
Effects to Habitat Features	Alternative A would have the least improvement to riparian habitat. Treating the fewest acres in forested habitats, this alternative would have the least improvement in tree feature habitat.	<p>There is no difference among these alternatives in the proposed projects to improve watershed integrity; therefore these aspects of the alternatives would have similar positive effects of improving all aspects of riparian habitat features.</p> <p>With almost double the reaches of stream habitat to improve, Alternative C would improve the most riparian habitat. Obj-31 in Alt E would be unique to that alternative and have great opportunities to improve riparian habitat through acquiring in-stream flow water rights.</p> <p>Changes in tree habitat features would be tied to the changes in the respective PNVTs. Designing projects to move toward or achieve desired conditions would provide tree features across all landscapes.</p>		
Effects of actions	Treating the least number of acres, proposing the least recreation projects, and with few projects proposed for watershed or wildlife, and no new wilderness, this alternative would have the lowest potential for disturbance impacts to migratory birds or their habitats.	Treating a moderate number of acres, proposing a moderate range of recreation projects, and proposing a moderate range of projects for watershed or wildlife, this alternative would have more potential for disturbance impacts to migratory birds or their habitats than Alternative A and less potential for impacts than Alternative C.	Treating the highest number of acres, proposing a moderate range of recreation projects and proposing a moderate range of projects for watershed, and the most projects proposed for wildlife, and no new wilderness, this alternative would have the highest potential for disturbance impacts to migratory birds or their habitats.	Treating a moderate number of acres, proposing the most recreation projects, and proposing a moderate range of projects for watershed or wildlife, this alternative would have a similar potential for disturbance impacts to migratory birds or their habitats to Alternative B.

Relationship of Short-Term Impacts and Long-Term Benefits

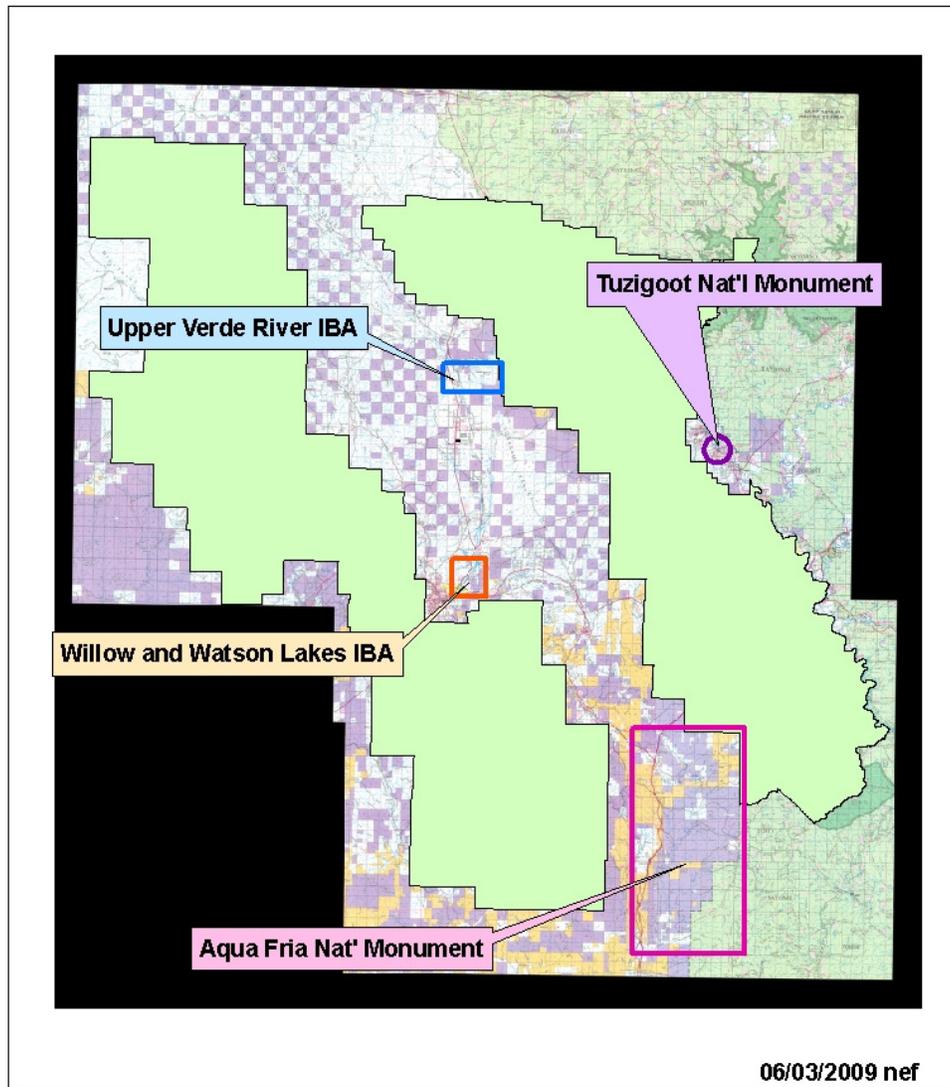
A factor to be considered in this analysis is the short-term impacts to migratory bird species and their habitats from management actions and the long-term benefit to the ecological conditions to support viable populations of these species in the planning area. The following applies to all alternatives.

Forest management actions that have high disturbance levels to vegetation and soils such as fire use, timber harvest, and roads have the greatest potential to impact migratory bird species and their habitats. In general, the larger the area impacted, the higher is the potential for negative effects. Under all alternatives, the use of fire to meet resource objectives and desired conditions would result in low intensity/severity fire and fewer impacts to individuals and their habitats. An exception to this is fire use in chaparral which tends to result in higher intensity burns which is characteristic for this vegetation type. In most cases, vegetative ground cover in all treated areas is expected to recover quickly (within 7 years) and reestablish shrub component vegetation levels to pre-fire heights and densities. In the long term, treatments are expected to restore the historic fire regime in the vegetation types, improve vegetative conditions, and reduce the potential for large, wildfire events.

The other management actions such as timber harvest, fuelwood harvest, mechanical fuels reduction treatments (e.g. brush crushing), recreational developments and activities, would have less short-term impacts to terrestrial ecosystems because of their smaller areas of impacts across the forest.

Important Bird Areas:

Important Bird Areas in the vicinity of the Prescott National Forest



Four Important Bird Areas (IBAs) lie near the Prescott NF (PNF 2011). Guide-WL-2 would provide for site specific projects to consider these IBAs and the Conservation Issues for these areas in project level NEPA under the Migratory Bird Treaty Act. Restoring landscapes to reference conditions would be expected to improve habitat conditions on adjacent IBAs.

Management Indicator Species

The Management Indicator Species (MIS) selection process is documented in the project record (PR DOC#??). For terrestrial habitat, two species were chosen. The northern goshawk (*Accipiter gentilis*) was chosen to represent the ponderosa pine PNVTs on the PNF. The pronghorn (*Antilocapra americana*) was selected to represent the grassland PNVTs on the PNF. Both species are representative of the entire respective PNVT types. The more similar the PNVTs are to the desired conditions based on reference conditions, the more quality habitat should be available for the respective MIS. Acre calculations are taken from the Viability Report (Forest Service 2011d).

Table 31. Pronghorn - MIS			
Habitat for the pronghorn is primarily open grassland with little shrub component. Land ownership is primarily private with some state and federal ownership including both BLM and Forest Service.			
PNVT associations: SDG: Grass/forb/shrub, Perennial grass, Perennial grass w/ shrubs & open canopy GB/GL: Grass/forb/shrub, Grass, Shrubs & trees w/ grass & open canopy JUG: Grass/forb/shrub, Seed/sapling/small trees w/ open canopy			
Acres	Alternative A	Alternatives B, D & E	Alternative C
Existing	202,004		
Desired	198,249		
20yrs	164,351	177,486 – 196,930	196,930 – 203,983
40yrs	145,489	171,246 – 195,669	198,414 – 200,591
The difference between existing and desired habitat of an about 1.8% decrease reflects shifts in relative proportions of conditions/states towards more historic or reference conditions. Objectives 25-27 are specifically designed to improve pronghorn habitat conditions. Where suitable habitat occurs, Objective 28 would also improve pronghorn habitat quality. While the degree of improvement varies among alternatives, all alternatives include projects intended to improve the quality of pronghorn habitat on available on PNF lands. Alt A includes a guideline addressing wildlife fence standards on Page 27. For Alternatives B-D, by following Guide-WL-3, fence specifications, fawning habitat needs, migration corridors, and general habitat improvement would be part of project design and implementation where pronghorn occur and pronghorn habitat needs on PNF lands should be addressed. As the habitat off the PNF becomes less available, PNF habitat for pronghorn will become more crucial to providing for the species. Improving the habitat quality and managing for their habitat needs physically, spatially, and temporally will provide the best possible opportunity for contributing to the habitat needs for pronghorn on the PNF. Guide WL-8, Lands-2 and 4, and Trans-1 would all provide for habitat connectivity for pronghorn movement among suitable habitat pieces.			
Pronghorn objectives:			
O -25: Modify or remove at least 3-5 miles of fence to facilitate pronghorn antelope movement during the 10 years following Plan approval.			
Fence modification	2 miles	3-5 miles	10-15 miles
O -26: Treat 15,000 to 90,000 acres to increase pronghorn habitat quantity and quality during the 10 years following the Plan approval.			
Improve habitat	4,750 acres	15,000 – 90,000 acres	50,000 – 85,000 acres
O -27: Treat 2 to 3 areas to facilitate pronghorn migration during the 10 years following Plan approval.			
Migration corridor	-----	2 to 3 corridors	3 to 6 corridors
O -28: Improve 3 to 15 water developments for wildlife during the 10 years following Plan approval.			

Water developments	5 water developments	B&D: 3 to 15 waters E: Up to 25 existing & 5 new waters	5 to 15 waters
Effects of pronghorn objectives	Modifying 2 miles of fence and 5 water structures would slightly improve pronghorn ability to navigate within and utilize portions of its habitats. Improving the habitat quality on 4,750 acres would improve a small limited distribution of habitat relative to the potential across the landscape. Use of habitat would be even more limited without any corridors treated.	Modifying 3-5 miles of fence and 3-15 water structures would moderately improve pronghorn ability to navigate within and utilize portions of its habitats. Improving the habitat quality on a wide range of acres and treating 2-3 corridors would make more habitat areas accessible to pronghorn. Alt E would have the most potential to improve habitat quality if waters are located in pronghorn habitat.	Modifying 10-15 miles of fence and 5-15 water structures would considerably improve pronghorn ability to navigate within and utilize portions of its habitats. Improving the habitat quality on a higher range of acres and treating 3-6 corridors would make the most habitat areas accessible to pronghorn.
Implications for population trends	This alternative improves the least acres and structures for the pronghorn. Population trends might be expected to remain static or possibly decline with this alternative as PNF lands do not provide enough alternate habitats for pronghorn displaced from non-FS lands.	These alternatives improve a moderate amount of habitat and structures for pronghorn habitat. Population trends might be expected to remain static or possibly increase with this alternative as PNF lands provide alternate habitats for pronghorn displaced from non-FS lands.	This alternative improves the most habitat and the most structures for the pronghorn. Population trends might be expected to possibly increase with this alternative as PNF lands provide alternate habitats for pronghorn displaced from non-FS lands.

Table 32. Northern goshawk				
<p>The northern goshawk is the MIS species associated with various vegetative features found within both Ponderosa pine PNVTs. The northern goshawk is associated with the ponderosa PNVTs and tree features for every aspect of its life history from nesting, to roosting, to foraging. Goshawks are known to occur within the ponderosa pine type PNVTs on all three districts of the PNF including Mingus Mountain, Camp Wood, Prescott Basin, and Crown King. Twelve of the fourteen prey species listed for the northern goshawk in the Management Recommendations for Northern Goshawks (MRNG) (Forest Service 1992) are associated with ponderosa pine forest. All twelve of the pine associated prey species are associated with medium/large tree vegetative structural stages (VSSs). Medium/large trees are important habitat components to all twelve of the prey species for maintaining sustainable populations. Openings are important for maintaining sustainable populations for six of the twelve prey species listed in the MRNG. Herbaceous and shrub components are important for nine of the twelve prey species. Eight of the twelve prey species are associated with early seral stages including seedling/saplings and small trees. All twelve prey species need an interspersed of VSSs to maintain sustainable populations. Salafsky et al (2005) suggested that prey density was an important limiting factor of goshawk productivity. Later, studies showed that increased prey density results in increased goshawk reproduction in ponderosa pine (Salafsky, et. al. 2007). Dewey and Kennedy (2001) reported that significantly heavier nestlings from nests with supplemental food had higher survival rates than nestlings in control nests. In 1996, Ward and Kennedy reported that although there was no significant difference in nestling sizes due to additional food availability, they did document higher nestling survival due to increased time spent at nest by female which consequently provided protection from predators. Wiens et. al. (2006) reported that food availability was the primary factor limiting juvenile survival and recommended forest treatments that provide forest structural conditions that allow goshawks to access their prey within breeding areas.</p>				
PP/QUGA & PPE:				
Nesting habitat: Medium/large trees w/ open and closed canopies				
Foraging habitat: Seedling/sapling & small trees with open canopies				
Acres ¹⁵	Alternative A	Alternatives B, D & E		Alternative C
Existing nesting	50,489			
Desired	86,774			
20 yrs	62,125	62,761 – 61,636		62,761 – 61,145
40 yrs	63,397	65,302 – 62,415		65,302 – 61,975
Existing foraging	3,522			
Desired	20,388			
20 yrs	17,524	18,651 - 21,538		18,651 - 22,518
40 yrs	18,996	21,392 – 24,915		24,915 – 25,896
Measure	Alternative A	Alternative B	Alternative C	Alternative D
Effects to species from impacts to PNVT and tree features relevant to nesting habitat.	The medium/large tree habitat components required by the goshawk for nesting will be more available across the landscape as the number of acres of medium/large trees increases. Both the Gambel oak and evergreen oak components of the ponderosa pine PNVTs contain desired conditions specific to meeting the goshawk habitat needs (DC-Veg-13,14,17, and 18) including forest stand structure as well as down woody material for prey species habitat needs and complying with current technical guides for the goshawk in the southwest. Sensitive species direction and guidelines would also apply to those places where goshawks are known to occur and potential habitat. Implementing projects designed to meet desired conditions specific for the goshawk and to comply with the			

¹⁵ The acres reflect the modeled results of implementing the vegetation treatment Objectives for ponderosa pine and ponderosa pine evergreen oak PNVTs.

	<p>guidelines providing for sensitive species habitat needs would ensure that goshawk habitat needs are met and would eliminate or minimize impacts to goshawks in the process. Moving the PPO PNVT toward the desired condition that more closely resembles historic conditions would be expected to improve the habitat for goshawks across the landscape. Increasing the abundance and distribution of medium/large trees across the landscape would provide additional nesting habitat for the goshawk in both of the ponderosa pine PNVTs. Based on the overlap in number of acres projected for nesting habitat in each alternative in the top part of this table, there would not be a discernible difference among the effects of the various proposed treatments within the alternatives for this particular habitat feature. All alternatives would be expected to provide additional and improved nesting habitat for northern goshawks.</p> <p>The projected changes in acres for medium/large trees would also be expected to considerably increase the amount of habitat for all of the prey species similarly among the alternatives. For all of the alternatives, all of the prey species would be expected to experience population increases associated with a greater amount of habitat which would, in turn, have positive impacts to goshawk populations.</p>	
<p>Effects to species from impacts to PNVT and tree features relevant to foraging habitat.</p>	<p>Reducing canopy closure and increasing understory vegetation would improve habitat for goshawk prey species including small mammals and small birds across the landscape. Moving acres into the seedling/sapling and small tree VSSs would create an interspersed of VSSs across the landscape. The diversity of habitats associated with the assortment of vegetative features would support a greater selection of prey species. This would provide conditions supporting a full complement of prey species and habitat less susceptible to catastrophic fire and insect and disease impacts. By providing a diverse suite of prey species, the goshawk prey base would be more consistent and resilient to impacts from climate, disease, predation, and prey species population fluctuations.</p>	
<p>Summary effects for foraging habitat changes</p>	<p>With a 5-fold increase in prey species habitat in the seedling/sapling and small tree with openings components, there would be an expected increase in goshawk nestling condition, parental protection, and juvenile survival.</p>	<p>Based on the projected acres displayed at the top of this table, Alternatives B-E project a greater increase in acres of prey species habitat in the seedling/sapling and small tree with openings components than Alternative A. With a 5-6 fold increase in prey species habitat, there would be an even greater expected increase in goshawk nestling condition, parental protection, and juvenile survival than in Alternative A.</p>
<p>FP S&G's relative to sensitive species</p>	<p>As a sensitive species, for all of the alternatives, the various guidelines for sensitive species would be expected to maintain or improve tree features associated with goshawk habitat needs. Sensitive species guidelines would include developing breeding season timing restrictions and other project design features to alleviate impacts to goshawks from disturbance from harvest, prescribed burning, and other resource management activities occurring within both of the ponderosa pine PNVTs. Guide-WL-5 would also afford additional protection for nest sites in Alternatives B-E.</p>	
<p>Implications for population trends – nesting habitat</p>	<p>All alternatives improve acres of nesting habitat for the goshawk. For the nesting habitat, all of the alternatives overlap and there is no discernible difference among the alternatives for this habitat feature. There would not be a discernible difference in effects to the goshawk population trend among alternatives for this habitat feature.</p>	
<p>Implications for population trends – foraging habitat</p>	<p>With a 5-fold increase in prey species habitat,</p>	<p>With a 5-6 fold increase in prey species habitat, there would be an even greater expected increase in goshawk nestling condition, parental protection, and juvenile survival than in Alternative A.</p>

	there would be an expected increase in goshawk nestling condition, parental protection, and juvenile survival.		
Population trend	Alternative A	Alternatives B, D & E	Alternative C
Population trend changes	Potential increase in population.	Greater potential increase in population.	

Biological evaluation & determination of effects:

The purpose of this biological evaluation is to document the determination of effects of the proposed action and other action alternatives on animals and habitats federally listed under the Endangered Species Act (ESA), protected under the Eagle Act, or on the Regional Forester’s sensitive species list.

Based on the effects analyses above,

- ✓ I find that this project **may affect and is likely to adversely affect** federally listed Mexican spotted owl, southwestern willow flycatcher and proposed yellow-billed cuckoo and candidate Sonoran desert tortoise.
- ✓ I find that this project will **may result in destruction or adverse modification of** designated Mexican spotted owl, SWWF, and potential YBC Critical Habitats.

Based on the effects analyses above,

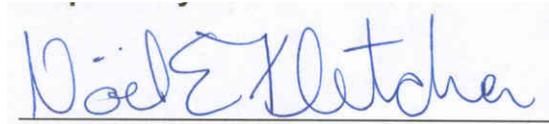
- ✓ I find that this project will pursue every opportunity to avoid take under the “Eagle Act” to federally protected bald and golden eagles.

Based on the effects analyses above,

- ✓ I find that this project is not likely to trend toward listing any Regional Forester sensitive species on the Prescott National Forest.

Signatures:

Prepared by:



January 12, 2014

Noel Fletcher
Wildlife Biologist
Prescott NF

Date

Approved by:

Dan Garcia de la Cadena
Wildlife Biologist
Prescott NF

Date

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APPENDIX 1

Southwestern Willow Flycatcher

Critical Habitat

Primary Constituent Elements

Table 32. Southwestern willow flycatcher – Critical Habitat Primary Constituent Elements
(1) Riparian habitat in a dynamic successional riverine environment (for nesting, foraging, migration, dispersal, and shelter) that comprises:
(a) Trees and shrubs that include Gooddings willow (<i>Salix gooddingii</i>), coyote willow (<i>Salix exigua</i>), Geyers willow (<i>Salix geyerana</i>), arroyo willow (<i>Salix lasiolepis</i>), red willow (<i>Salix laevigata</i>), yewleaf willow (<i>Salix taxifolia</i>), pacific willow (<i>Salix lasiandra</i>), boxelder (<i>Acer negundo</i>), tamarisk (<i>Tamarix ramosissima</i>), Russian olive (<i>Eleagnus angustifolia</i>), buttonbush (<i>Cephalanthus occidentalis</i>), cottonwood (<i>Populus fremontii</i>), stinging nettle (<i>Urtica dioica</i>), alder (<i>Alnus rhombifolia</i> , <i>Alnus oblongifolia</i> , <i>Alnus tenuifolia</i>), velvet ash (<i>Fraxinus velutina</i>), poison hemlock (<i>Conium maculatum</i>), blackberry (<i>Rubus ursinus</i>), seep willow (<i>Baccharis salicifolia</i> , <i>Baccharis glutinosa</i>), oak (<i>Quercus agrifolia</i> , <i>Quercus chrysolepis</i>), rose (<i>Rosa californica</i> , <i>Rosa arizonica</i> , <i>Rosa multiflora</i>), sycamore (<i>Platanus wrightii</i>), false indigo (<i>Amorpha californica</i>), Pacific poison ivy (<i>Toxicodendron diversilobum</i>), grape (<i>Vitis arizonica</i>), Virginia creeper (<i>Parthenocissus quinquefolia</i>), Siberian elm (<i>Ulmus pumila</i>), and walnut (<i>Juglans hindsii</i>).
(b) Dense riparian vegetation with thickets of trees and shrubs ranging in height from 2 m to 30 m (6 to 98 ft). Lower-stature thickets (2 to 4 m or 6 to 13 ft tall) are found at higher elevation riparian forests and tall-stature thickets are found at middle- and lower elevation riparian forests;
(c) Areas of dense riparian foliage at least from the ground level up to approximately 4 m (13 ft) above ground or dense foliage only at the shrub level, or as a low, dense tree canopy;
(d) Sites for nesting that contain a dense tree and/or shrub canopy (the amount of cover provided by tree and shrub branches measured from the ground) (<i>i.e.</i> , a tree or shrub canopy with densities ranging from 50 percent to 100 percent);
(e) Dense patches of riparian forests that are interspersed with small openings of open water or marsh, or shorter/ sparser vegetation that creates a mosaic that is not uniformly dense. Patch size may be as small as 0.1 ha (0.25 ac) or as large as 70 ha (175 ac); and
(2) A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, including: flying ants, wasps, and bees (Hymenoptera); dragonflies (Odonata); flies (Diptera); true bugs (Hemiptera); beetles (Coleoptera); butterflies/moths and caterpillars (Lepidoptera); and spittlebugs (Homoptera).

APPENDIX 2

Mexican spotted owl

Critical Habitat

Primary Constituent Elements

Table 33. Mexican spotted owl – Critical Habitat Primary Constituent Elements
The primary constituent elements for the Mexican spotted owl are:
(A) Primary constituent elements related to forest structure: <ul style="list-style-type: none">(1) A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 to 45 percent of which are large trees with a trunk diameter of 12 inches (0.3 meters) or more when measured at 4.5 feet (1.4 meters) from the ground;(2) A shade canopy created by the tree branches covering 40 percent or more of the ground; and(3) Large dead trees (snags) with a trunk diameter of at least 12 inches (0.3 meters) when measured 4.5 feet (1.4 meters) from the ground.
(B) Primary constituent elements related to maintenance of adequate prey species: <ul style="list-style-type: none">(1) High volumes of fallen trees and other woody debris;(2) A wide range of tree and plant species, including hardwoods; and(3) Adequate levels of residual plant cover to maintain fruits, seeds, and allow plant regeneration.
(C) Primary constituent elements related to canyon habitat include one or more of the following: <ul style="list-style-type: none">(1) Presence of water (often providing cooler and often higher humidity than the surrounding areas);(2) Clumps or stringers of mixed-conifer, pine-oak, pinyon-juniper, and/or riparian vegetation;(3) Canyon wall containing crevices, ledges, or caves; and(4) High percent of ground litter and woody debris.

APPENDIX 3

Table 34. Migratory bird species considered for PNF				
Species	BOCC/PIF	Habitat Type	PNF?	Reference
Band-tailed Pigeon	PIF	Madrean pine/oak	Yes	BBA
Black-chinned Sparrow	BOCC/PIF	Dry chaparral & PJ	Yes	BBA
Black-throated Gray Warbler	BOCC/PIF	PJ & oak woodlands	Yes	BBA AF – Passage UV – Breeding Tritle
Canyon Towhee	BOCC	Chaparral, open PJ, and open evergreen oak	Yes	BBA
Grace's Warbler	BOCC	Open, mature pine	Yes	BBA AF – Mention Tritle
Gray Flycatcher	PIF	Pinyon-juniper	Yes	BBA AF – Breeding TZ - Mention
Gray Vireo	BOCC/PIF	Open PJ	Yes	BBA AF - Passage
Olive Warbler	BOCC	Pine and mixed conifer	Yes	BBA
Phainopepla	BOCC	Open woodlands w/ mistletoe	Yes	BBA
Pinyon Jay	BOCC/PIF	Pinyon-juniper	Yes	BBA UV - nonbreeding
Purple Martin	PIF	Sonoran Desertscrub & Pine	Yes	BBA TZ - Mention
Virginia's warbler	PIF	Chaparral	Yes	BBA AF – Passage TZ – Mention Tritle
Yellow Warbler (<i>sonorana</i> ssp.)	BOCC	Cottonwood/willow riparian	Yes	BBA AF/UV - Breeding
Cordilleran Flycatcher	PIF	Pine, mixed conifer	Yes	BBA - Forest-wide AF – Passage TZ – Mention Tritle
Brewer's Sparrow	BOCC/PIF	Cold desertscrub	Yes	BBA - Williamson Valley – BCR 16 AF/TZ - Passage
Golden eagle	BOCC	Desert scrub to conifer	Yes	BCR 16 – BBA AF – Nonbreeding UV - Breeding
Bell's Vireo (c)	BOCC	Low elevation riparian with willows, mesquite & dense shrubs	Yes	HDMS/BBA - Along Verde River AF – Breeding TZ - Mention
Swainson's Hawk	PIF	High elevation grassland	Yes	Known from Chino Valley AF - Passage
Red-faced Warbler	BOCC/PIF	Mixed conifer and riparian forest	Yes	Known from field observations on PNF
Flammulated Owl	BOCC	Dry coniferous forests	Yes	Known on PNF – from field observations

Table 34. Migratory bird species considered for PNF				
Species	BOCC/PIF	Habitat Type	PNF?	Reference
Ferruginous Hawk	BOCC/PIF	High elevation grassland	Unknown - None reported but would expect them	HDMS/BBA BCR 16 UV – Nonbreeding, passage
Olive-sided Flycatcher	PIF	Pine & Mixed Conifer	Unknown	BBA AF - Mention
Sage Sparrow	PIF	Cold desert scrub	unknown	BBA AF - Mention
Black rosy-finch	BOCC	Unknown	Unknown	BCR 16
Brown-capped rosy-finch	BOCC	Unknown	Unknown	BCR 16
Chestnut-collared Longspur (nb)	BOCC	Unknown	Unknown	BCR 16
Black skimmer	BOCC	Sonoran & Mojave Deserts	Unknown	BCR 33
Gull-billed tern	BOCC	Sonoran & Mojave Deserts	Unknown	BCR 33
Le Conte’s Thrasher	BOCC/PIF	Sonoran Desertscrub	Unknown	BCR 33
Marbled godwit	BOCC	Sonoran & Mojave Deserts	Unknown	BCR 33 WW - Passage
Whimbrel	BOCC	Sonoran & Mojave Deserts	Unknown	BCR 33
Gila woodpecker	BOCC	Sonoran desert	Unknown	BCR 33 – Sonoran & Mojave Desert
Burrowing Owl	PIF	High elevation grassland	Potentially	HDMS/BBA - BCR 33 – Sonoran & Mojave Desert
Cassin’s Sparrow	PIF	Semidesert grassland	Possibly	BBA - Camp Verde
Bendire’s Thrasher	BOCC	Open desert scrub	Possible	BBA AF - Nonbreeding
Elf Owl	BOCC	Saguaros & sycamore cavities	Possible	BBA
Lark Bunting (nb)	BOCC	Desert and grassland	Possible	BBA AF - Passage
MacGillivray’s Warbler	PIF	High elevation riparian	Possible	BBA AF/UV – Passage TZ - Mention
Red-naped Sapsucker	PIF	Aspen and mixed conifer	Possible	BBA AF/UV – Passage TZ - Mention
Sage Thrasher	PIF	Cold desert scrub	Possible	BBA AF – Nonbreeding UV - Passage
Gilded Flicker	BOCC/PIF	Sonoran Desertscrub	Possible	BBA – BCR 33
Costa’s Hummingbird	BOCC/PIF	Sonoran Desertscrub	Possible	BBA – BCR33 AF - Breeding
Prairie falcon	BOCC	Deserts, grasslands, & cliffs	Possible	BCR 16 & 33 - BBA
Lawrence’s goldfinch	BOCC	Riparian	Possible	BCR 33 – BBA AF - Nonbreeding
Pine Grosbeak	PIF	Spruce-fir	Not likely	BBA

Species	BOCC/PIF	Habitat Type	PNF?	Reference
Grasshopper Sparrow	BOCC/PIF	Semi-desert and high elevation grasslands, with scattered mesquite & mimosa	No?	No – HDMS/BBA - Southern AZ BCR 16 AF - Mention
Least bittern	BOCC	Tavaci Marsh	Nearby?	BCR 33 – BBA TZ - Breeding

References:

- BBA – Breeding Bird Atlas
- HDMS – Heritage Database Management System (AZGFD Database)
- BCR – Bird Conservation Region – BOCC
- BNA – Birds of North America (online)
- AF – Aqua Fria IBA Species List
- TZ – Tuzigoot IBA Species List
- UV – Upper Verde IBA Species List
- WW – Watson/Willow Lakes IBA Species List
- Tritle – Michael Nicosia – Field notes

APPENDIX 4

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(The time period for achieving objectives is 10 years unless stated otherwise.)

Existing 1987 Plan as Amended	Public Collaboration Alternative		Vegetation & Wildlife Emphasis Alternative		Dispersed Recreation Emphasis Alternative		Preferred Alternative
NO ACTION: Alternative A	Alternative B		Alternative C		Alternative D		Alternative E
VEGETATION/FIRE							
How much treatment activity is occurring within vegetation types? K = 1,000 acres	13.3K acres	O-1 Semi-Desert Grasslands: Fire	25K to 65K acres	Use more fire to improve grassland conditions	65K to 85K acres	25K to 65K acres	25K to 65K acres
	0.4K acres	O-2 CP/GB Grasslands: Fire	1K to 5K acres	Use more fire to improve grassland conditions	5K to 10K acres	1K to 5K acres	1K to 5K acres
	25K ac. Fire 3.1K ac. Mech	O-3 Juniper Grasslands & PJ Ever. Shrub: Mechanical Treatments or Fire	20K to 90K acres	Treat fewer acres of juniper and PJ shrub	20K to 40K acres	Treat fewer acres of juniper and PJ shrub	20K to 90K acres
	44.4K ac. Fire 1.6K ac. Mech	O-4 Interior Chaparral: Mechanical Treatments, Biomass Removal or Fire	40K to 100K acres	Treat fewer acres of interior chaparral	40K to 60K acres	Treat fewer acres of interior chaparral	40K to 100K acres
	5.6K acres	O-5 P pine & P pine evergreen oak: Timber Harvest	2.5K to 8K acres		2.5K to 8K acres	2.5K to 8K acres	2.5K to 8K acres
	24.3K acres	O-3 P pine & P pine evergreen oak: Fire	25K to 90K acres	Use more fire to improve pine forest conditions	30K to 65K acres	25K to 90K acres	25K to 90K acres
How are NNIS plant populations being managed?	project-level mitigations	O-6 Non-native invasive species: Control or eradicate recently located populations	75 to 95% w/in 1-2 yrs of detection		75 to 95% w/in 1-2 yrs of detection	75 to 95% w/in 1-2 yrs of detection	O-6 Non-native invasive species: Treat recently located populations at least 50% w/in 1-2 yrs of detection
RECREATION							
Developed Recreation Areas?	36	O-7 Add Developed Rec areas	2 to 3 areas	2 to 3 areas	Add fewer Developed Rec areas	1 to 2 areas	O-7 removed
Designated Dispersed Camping Areas?	11	O-8 Add designated dispersed camping areas	1 to 4 areas	1 to 4 areas	Add more designated dispersed camping areas	2 to 6 areas	1 to 4 areas
Developed Sites deferred maintenance? 2002 - \$1,012,420 2010 - \$121,580	88% reduction in Developed Sites DM	O-9 Reduce maintenance backlog	80 to 90% dev sites	80 to 90% dev sites	Reduce maintenance backlog less	50 to 60% dev sites	O-9 Ensure that the dev rec deferred maintenance does not increase does not increase >20% dev sites
Trails deferred maintenance? 2002 - \$949,000 2010 - \$1,122,800 (est.)	18 % increase in Trails DM	O-9 Reduce maintenance backlog	50 to 70% trails	Reduce maintenance backlog less	35 to 50% trails	50-70% trails	O-9 Trails backlog language removed
Target shooting areas that now exist? (existing permit will not be renewed)	1	O-10 designated target shooting areas	1 area	1 area	1 area	1 area	O-10 Develop and implement strategies to raise awareness of safe shooting at least 3
Trailheads needing improvement?	To be determined	O-11 Improve trailheads	5 to 20 trailheads	Improve fewer trailheads	5 to 10 trailheads	Improve more trailheads	10 to 25 trailheads 5 to 20 trailheads
Trail signage maintained annually?	3% - 5% annually	O-12 Maintain signage annually	10 to 20% annually	10 to 20% annually	10 to 20% annually	10 to 20% annually	10 to 20% annually
Recreational fishing opportunities? Horsethief Lake, Lynx Lake, Granite Basin Lake, Mingus Lake	2 treatments	O-13 Work with partners to enhance recreational fishing opportunities	2 lakes or ponds	2 lakes or ponds	2 lakes or ponds	2 lakes or ponds	2 lakes or ponds
Methods for visitor information? signs, paper maps & brochures, face to face contacts	4 methods	O-14 Develop additional methods for providing visitor information	2 to 5 methods	2 to 5 methods	2 to 5 methods	2 to 5 methods	2 to 5 methods
Wilderness boundary currently marked?	To be determined	O-15 Mark Wilderness Boundaries	2 to 3 areas	2 to 3 areas	2 to 3 areas	2 to 3 areas	2 to 3 areas
Number of sites needing improvement or decommissioning: Granite Group Campground Kentuck Springs Campground	2 areas	O-16 Relocate, improve, or rehabilitate recreation areas that show resource damage	2 to 3 areas	2 to 3 areas	2 to 3 areas	2 to 3 areas	2 to 3 areas

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How many trails meet DC conditions now?	To be determined	O-17 Improve designated trails to meet described conditions in DC-Rec-2-Trails	5 to 10 actions		5 to 10 actions	O-17 Improve designated trails to meet DC-Rec-2-Trails	5 to 15 actions		5 to 10 actions
						O-17A Construct New Trails	10 to 20 miles		
						O-17B Decommission Trails	5 miles		
WATERSHED INTEGRITY									
What plan direction exists to address water quality, quantity and timing of delivery?	Estimate 8 to 12 projects	O-18 do projects to improve watershed conditions	20 to 50 projects		20 to 50 projects		20 to 50 projects	O-18 implement projects within EACH high-priority watershed	5 to 50 essential projects
	10 acres and 17 segments improved	O-19 improve conditions in identified improperly functioning and at risk riparian areas within 1 to 3 years of detection.	10 to 40% of identified areas		10 to 40% of identified areas		10 to 40% of identified areas	O-19 Counter critical threats to riparian system functionality	1 to 3 critical threats
	30 miles	O-20 maintain or repair designated motorized roads or trails that impact watershed integrity	20 to 100 miles		20 to 100 miles		20 to 100 miles	O-20 Repair or relocate system roads or trails that impact watershed integrity	20 to 100 miles
	23 miles	O-21 obliterate, close, re-contour, or re-vegetate unauthorized routes that are impacting watershed integrity	minimum 10 miles		minimum 10 miles		minimum 10 miles		minimum 10 miles
	2 crossings	O-22 improve crossings or streams/drainages by roads or trails	15 to 25 crossings		15 to 25 crossings		15 to 25 crossings		15 to 25 crossings
	12 sites	O-23 Enhance and restore ground water dependent ecosystem sites	25 to 55 sites		25 to 55 sites		25 to 55 sites	O-23 Maintain or enhance discrete water dependent ecosystem sites w/ seeps or springs	25 to 55 sites
								O-XX Apply for in-stream flow water rights	at least 8 water rights
AQUATIC AND TERRESTRIAL WILDLIFE HABITAT									
What plan direction exists to address native fish habitat?	76 acres of tamarisk treatment along Verde W/S River	O-24 During the 10 years following Plan approval, work with the Arizona Game and Fish Department to restore native fish species	2 to 3 stream reaches		O-24 During the 10 years following Plan approval, work with the Arizona Game and Fish Department to restore native fish species	4 to 6 stream reaches		2 to 3 stream reaches	2 to 3 stream reaches
What plan direction exists to address pronghorn habitat?	Estimated at 2 miles	O-25 Modify or remove fence to prevent impacting pronghorn antelope movement.	3 to 5 miles		O-25 Modify or remove fence to prevent impacting pronghorn antelope movement.	10 to 15 miles		3 to 5 miles	3 to 5 miles
	4,750 acres improved	O-26 Improve pronghorn habitat quality	15K to 90K acres		O-26 Improve pronghorn habitat quality	50K to 85K acres		15K to 90K acres	15K to 90K acres
		O-27 Treat pronghorn migration corridors to reduce woody species	2 to 3 corridors		O-27 Treat pronghorn migration corridors to reduce woody species	3 to 6 corridors		2 to 3 corridors	2 to 3 corridors
	5 water developments	O-28 Cooperate with AZGFD to improve water developments for wildlife	3 to 15 waters		O-28 Cooperate with AZGFD to improve water developments for wildlife	5 to 15 waters		3 to 15 waters	up to 25 existing & 5 new waters

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OPEN SPACE, LAND ADJUSTMENT, AND SCENIC VALUES									
How much land has been acquired under the current plan?	To be determined	O-29 Act on opportunities to acquire lands in the Verde Verde River and elsewhere to retain open space values and protect and enhance riparian habitat	up to 10		up to 10		up to 10	O-29 Act on opportunities to acquire lands to retain open space values	up to 10
								O-30 Act on opportunities to obtain legal access where historic access has been lost	up to 10
CONCURRENT PROCESSES									
Designated Wilderness Acres	104,483	Additional Recommended Wilderness Acres	43,440	Additional Recommended Wilderness Acres	0	Additional Recommended Wilderness Acres	116,262	Additional Recommended Wilderness Acres	23,137
Juniper Mesa	7,354	Apache Creek A	1,975	Emphasis on improving vegetation and wildlife desired conditions involves more management activity such as prescribed fire, mechanical removal of vegetation, or stream renovation over more areas of the PNF, in order to provide for an increased rate of change toward desired conditions. Therefore no PWAs included.	Apache Creek A	1,975	Apache Creek A	1,975	
Apache Creek	3,498	Apache Creek B	3,813		Apache Creek B	3,813	Juniper Mesa	4,891	
Sycamore	25,870	Bald Mountain	7,662		Arnold Mesa	20,815	Castle Creek Contiguous	4,925	
Woodchute	3,750	Black Canyon	9,617		Ash Creek	16,086	Sycamore Canyon A	4,435	
Cedar Bench	15,999	Castle Creek Contiguous	4,925		Castle Creek Contiguous	4,925	Woodchute	1,510	
Pine Mountain	8,761	Juniper Mesa	4,891		Cedar Bench A	1,949	Cedar Bench A	1,949	
Granite Mt.	9,825	Sycamore Canyon A	4,435		Cedar Bench B	644	Cedar Bench B	644	
Castle Creek	23,226	Sycamore Canyon C	6,122		Fritsche B	15,596	Pine Mountain B	2,808	
		Recommended Wilderness Area selection based on: a) Improvement to existing Wilderness b) Concentration of larger area of non-motorized experience in the Northwest portion of the Forest to blend with Management Area Desired Conditions c) Consideration of public concerns including open space concerns in the Verde Valley and concerns of permittees.			Juniper Mesa	4,891			
						Muldoon	20,428		
					Pine Mountain B	2,808			
					Pine Mountain C	9,476			
					Sycamore Canyon A	4,435			
					Sycamore Canyon B	789			
					Sycamore Canyon C	6,122			
					Woodchute	1,510			
					Emphasis on providing a wide range of non-motorized and motorized experiences and locations. Motorized activity remains nearly the same as Alt A. Expectation is that motorized game retrieval will not impact ability of PWAs to provide wilderness character should they be designated.				