



United States  
Department of  
Agriculture

Forest  
Service

March 2010



# Coronado National Forest

## Working Draft Land and Resource Management Plan

DRAFT

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**Draft Land and Resource Management Plan**  
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### **Important Information for Reviewers**

This document is the first version of a Working Draft, Revised Land and Resource Management Plan (Forest Plan) for the Coronado National Forest (Forest). This Working Draft represents the combined efforts of many people over several years. Please note that its content and format are subject to change based on additional public comments and continuing analyses by Forest resource specialists.

On January 27, 2010 the Forest published a Notice of Intent (NOI) in the Federal Register (<http://www.fs.fed.us/r3/coronado/plan-revision>) announcing its intent to conduct a National Environmental Policy Act (NEPA) review of the Revised Forest Plan. The information provided in this Working Draft supplements the NOI as an additional component of the scoping phase of the NEPA review. You are an important contributor to the Forest Plan. If there is an important detail that was missed, or if you have any other comments to share, please provide us with your feedback. Comments on this Working Draft should be sent to the Coronado National Forest Supervisor's Office by April 30, 2010.

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# Chapter 1: Introduction

## Purpose of Land and Resource Management Plan

The Land and Resource Management Plan (or Forest Plan) is a guide for the management of the Coronado National Forest for approximately<sup>1</sup> the next 15 years. This plan:

- Is strategic in nature. It does not include project and activity decisions. Those decisions are made later, only after more detailed analysis and further public involvement.
- Is adaptive in that new knowledge and information can be analyzed and the plan can be amended, if appropriate, at any time.
- Honors the continuing validity of private, statutory, or pre-existing rights.

## Plan Components

The important elements of the Forest Plan include the plan components and previous plan decisions that remain in place. Previous plan decisions have been incorporated into the components of this revised Forest Plan. Substantive changes to these important elements require a plan amendment. The plan components are:

**Desired Conditions:** The social, economic, and ecological attributes toward which management of the land and resources within the plan area is to be directed.

**Objectives:** Concise projections of measurable, time-specific intended outcomes. Objectives are the means of measuring progress toward achieving or maintaining desired conditions.

**Guidelines and Standards:** Constraints upon projects or activities that will help achieve desired conditions. Variation from guidelines is allowed if it can be demonstrated that the results of the project or activity would be the same. Variation from standards is not allowed.

**Suitability of Areas:** Areas of the National Forest System unit identified as suitable or not suitable for various uses.

**Special Areas:** Areas in the National Forest System unit designated because of their unique or special characteristics.

**Monitoring:** A monitoring plan will be developed to provide a basis for evaluating progress toward desired conditions.

## Other Plan Content

In addition to plan components, there are sections of the Forest Plan that include **General Descriptions**, and also **Management Approaches**:

**General Descriptions:** Explanatory narrative, descriptions of place, and other important information that supports the understanding of, or gives context to, plan components are included throughout the Plan under this heading. General descriptions help managers and the public apply the direction listed within each of the plan components.

**Management Approaches:** Most sections of the Plan include this additional content, which briefly describes the principal approaches to management that the responsible official is inclined to take. Management approaches do not make commitments of resources. They may illustrate suggestions as to how desired conditions and/or objectives could be met, convey a sense of

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<sup>1</sup> May be revised sooner if needed because of important changed conditions.

priority among objectives, or indicate possible future course of change to a program; partnership opportunities and collaborative arrangements may be discussed, as well as potential processes such as further analysis or inventory.

## Plan Structure

The Forest Plan is organized into four chapters. Chapter 1 (this chapter) provides an introduction to the Plan, and to the Coronado National Forest; Chapter 2 describes management direction which applies to the whole Forest; Chapter 3 describes management areas that may occur in several places on the Forest, but have specific management direction; and Chapter 4 identifies Geographic Areas with management direction based on unique places, called Ecosystem Management Areas. There is also an appendix that addresses the suitability of various uses across the Forest.

## Overview of the Coronado National Forest

The Coronado National Forest Land and Resource Management Plan (Forest Plan) covers all National Forest System (NFS) lands within the boundary of the Coronado National Forest (NF or Forest). While management direction is limited to Forest administrative boundaries, broader scales are also considered in the Forest Plan. Influential counties include Cochise, Graham, Pima, Pinal and Santa Cruz Counties in the State of Arizona, and Hidalgo County in the State of New Mexico, as well as outlying counties such as Maricopa County to the north. There are 12 federally recognized tribes with a potential interest in the natural, historical, cultural, and other resources of the Coronado NF. These tribes include Ak-Chin Indian Community, Fort McDowell Mohave-Apache Indian Community, Fort Sill Chiricahua-Warm Springs Apache Tribe, Gila River Indian Community, Hopi Tribe, Mescalero Apache Tribe, Pascua Yaqui Tribe, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, Tohono O'odham Nation, White Mountain Apache Tribe, Yavapai-Apache Nation, and the Pueblo of Zuni. The southernmost portion of the Coronado NF shares a contiguous international border with the Republic of Mexico.

The lands comprising the present day Coronado NF have been inhabited for many thousands of years by indigenous cultures. Although now part of the United States, in earlier centuries these lands were under Spanish and Mexican rule. The Forest was named for Francisco Vasquez de Coronado, who journeyed in 1540 to the Zuni and Hopi villages through part of what is today the Coronado NF.

The present day Coronado NF had its origins in 1902, when the Santa Rita, Santa Catalina, Mount Graham and Chiricahua Forest Reserves were established to protect timber and watershed resources. Over the years, Forest units were combined, expanded, and reduced to result in the current configuration, which was established in 1953. Today, the scattered holdings of the Coronado NF cover around 2,700 square miles of land ranging in elevation from 3,000 to over 10,000 feet (atop Mount Graham) in southeastern Arizona and southwestern New Mexico.

The Coronado NF is organized as five Ranger Districts and the Supervisor's Office. Each Ranger District administers several "sky island" mountain ranges, with the Supervisor's Office providing oversight for all administrative functions on the Forest. The Douglas Ranger District, located in Douglas, Arizona, administers the Chiricahua, Dragoon, and Peloncillo Mountains. The Nogales Ranger District, located in Nogales, Arizona, administers the Santa Rita, Atascosas, Pajaritas, and

Tumacacori Mountains. The Safford Ranger District, located in Safford, Arizona, administers the Galiuro, Santa Teresa, Winchester, and Pinaleno Mountains. The Santa Catalina Ranger District, located in Tucson, Arizona, administers the Santa Catalina and Rincon Mountain Ranges. The Sierra Vista Ranger District, located in Sierra Vista, Arizona, administers the Huachuca, Patagonia, and Whetstone Mountains and the Canelo Hills.

The Coronado NF is representative of basin and range topography often characterized as “sky islands.” The sky islands form distinct mountain ranges located in southeastern Arizona and western New Mexico, twelve of which make up the Forest. They offer an unusual range of vegetative types and climates. These tree-covered mountains rising from grassy savannas and the Sonoran and Chihuahuan Desert lowlands are home to plant and animal communities described as among the most diverse found on Earth.

As an administrative component of the National Forest System, the Coronado NF has jurisdiction over 1,783,632 acres of National Forest lands. These include general National Forest System Lands, the Sabino Canyon Recreation Area, eight Wilderness Areas, three Wilderness Study Areas, six Research Natural Areas, and other special management areas. National forests across the United States were established to provide natural resource based goods and services to American citizens and to be a retreat from day-to-day living. Management of national forests is jointly based in the principles of conservation and multiple-use. The Coronado NF contributes a wide array of goods and services to its visitors.

Among the most recognizable goods and services provided by the Coronado NF are recreational opportunities, rangeland forage, fuelwood and minerals. Lesser known services and commodities include skiing, historic interpretation, access to private inholdings, and forest products such as beargrass for baskets, fiddleneck ferns for flower arrangements and manzanita branches for birdcage perches. Of increasing importance is the Forest’s ability to capture infrequent precipitation that recharges aquifers supplying domestic water sources to the cities and towns surrounding the Forest.

The Coronado National Forest has been providing goods and services to the American people for more than a century. Over time, the Forest has cycled through many changes in the emphasis on the goods, services, and products provided. The current management emphasis of the Coronado NF is reflected in its mission and vision statements:

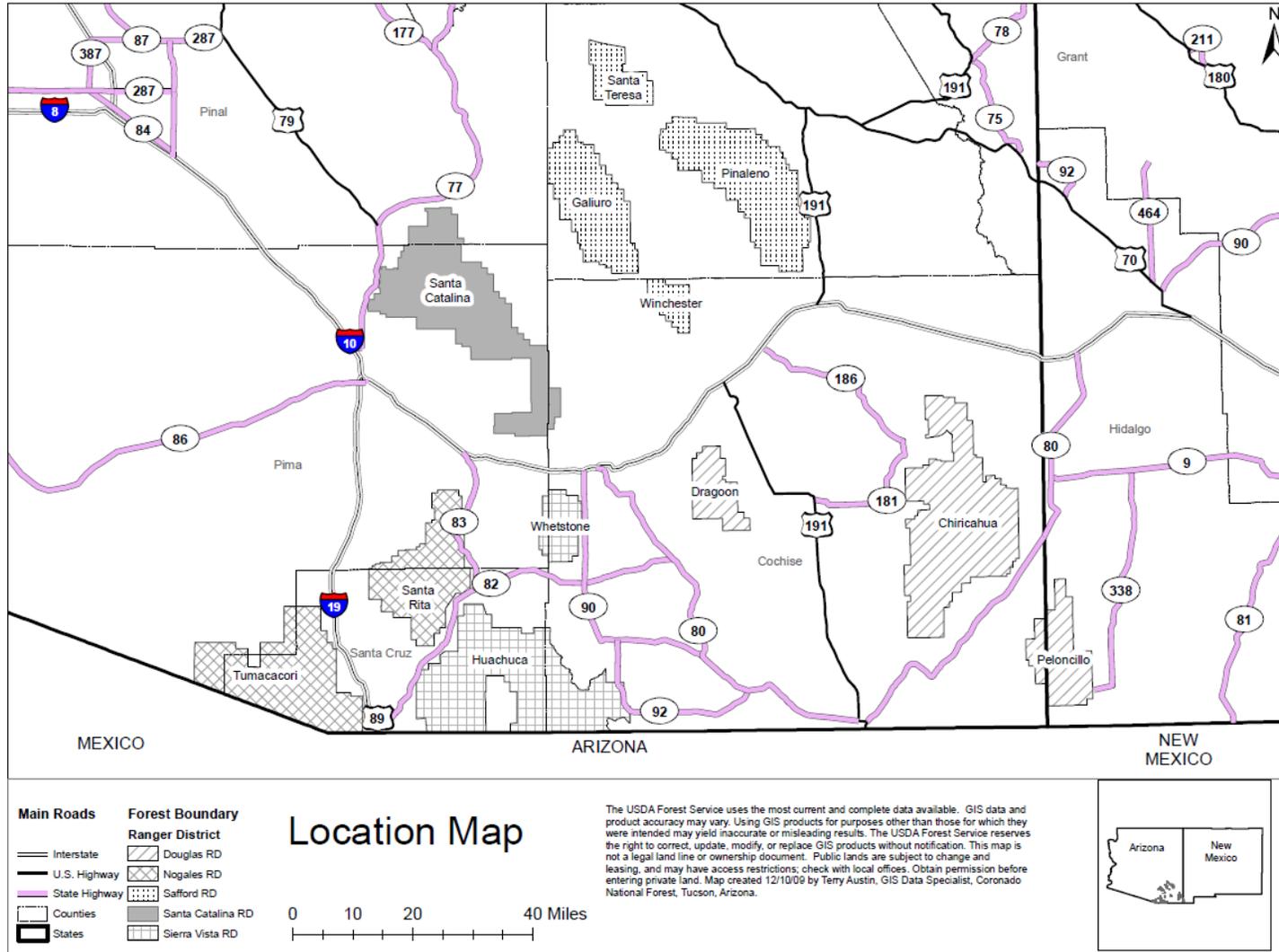
#### **Mission**

Our Forest mission is to sustain the unique biodiversity of the sky island ecosystems and provide a variety of high quality visitor opportunities and services within the capabilities of these ecosystems. We promote the use of prescribed fire as an important tool in maintaining healthy ecosystems. We will continue to enhance our organizational effectiveness and community partnerships.

#### **Vision**

The sky islands of the Coronado National Forest are healthy ecosystems with an abundant and diverse flora and fauna. They provide an array of high quality outdoor recreation opportunities with an emphasis on enhancing visitor understanding and enjoyment of the Forest’s special natural and cultural resources. Rural communities and urban residents collaborate with the Forest Service. Our employees are highly valued as conservation leaders.

**Figure 1: Vicinity Map of the Coronado National Forest**



## Chapter 2: Forestwide Management

### Vegetation Communities

#### Desert Communities

##### General Description

Desert communities range in elevation from 2,600 to 3,200 feet, although they may extend beyond this range on steep southern exposures. Annual precipitation averages from 10 to 13 inches. The predominant species are shrubs, desert trees, and succulents, with lesser amounts of grasses and forbs. Important species occurring in desert communities include: catclaw acacia, triangle bursage, littleleaf paloverde, mesquite, desert ironwood, creosote bush, desert broom, desert willow, brittlebush, desert zinnia, barrel cactus, hedgehog cacti, cholla and prickly pear, saguaro, threeawn grasses, bush muhly, and club moss. Gravel and rock cover ranges from 5 to 65 percent in floodplains, and from 35 to 85 percent on upland sites. Bedrock outcrops can be as high as 10 percent in uplands. Active erosion and sedimentation occurs in channels on floodplains.

##### Desired Conditions

###### Landscape Scale (10,000+ acres)

The predominant plant species are native shrubs and succulents. There is sparse to dense vegetation cover that includes cacti and agave species, desert grasses, desert scrub, and varying amounts of annual species. Fires are rare with mean fire return intervals estimated at over 100 years. Ground cover consists primarily of gravel, cobble and rock. Perennial plant basal area is low and ranges from 1 to 3 percent of the soil surface. Cover of annual forbs and grasses can be high after exceptionally wet winter or summer seasons, but is short lived. Plant litter occupies 5 to 30 percent of the soil surface. There are no signs of compaction or accelerated erosion. The ability of soil to maintain resource values and sustain outputs is high. High quality habitat exists for desert mule deer, desert tortoise, javelina, whitewing dove, and Gambel's quail. Traditional food and material plants thrive here, including bluedicks, careless weed, sotol, ephedra, yucca, buckhorn cholla, tulip prickly pear, limberbush, creosote bush, mesquite, and saguaro.

###### Mid-Scale (100 to 1,000 acres)

On steep hillslopes, ridgetops, and moderately sloping pediments where soils have formed in place on acid igneous and related metamorphic parent materials like granite, gneiss and rhyolite, the predominant species are foothill paloverde, saguaro, prickly pear, cholla, hedgehog cactus, ocotillo, coursetia, limber bush, false mesquite, brittlebush, triangle bursage, bush muhly, tanglehead, slender grama, purple threeawn, janusia, and spike moss. Annual forbs and grasses, an important part of this plant community, fluctuate with precipitation from nearly nothing in dry years to several hundred pounds per acre in wet years. Plant basal cover ranges from 1 to 3 percent, and cover by plant litter ranges from 5 to 30 percent. Canopy cover ranges from 0 to 10 percent for grasses, 1 to 10 percent for forbs, and 2 to 15 percent for shrubs and succulents. Tree canopy cover is 1 to 10 percent.

On moderately steep hillsides and fan piedmont where alkaline soils are formed in alluvium from mixed parent materials, the predominant species are foothill paloverde, saguaro, prickly pear, cholla, barrel cactus, ocotillo, false mesquite, triangleleaf bursage, bush muhly, slender grama, curly mesquite, spidergrass, tanglehead, purple threeawn, janusia, ayenia and globe mallow. Annual forbs and grasses, an important part of this plant community, fluctuate with precipitation

from nearly nothing in dry years to several hundred pounds per acre in wet years. Plant basal cover ranges from 1 to 3 percent, and cover by plant litter ranges from 10 to 75 percent. Canopy cover ranges from 1 to 20 percent for grasses, 1 to 15 percent for forbs, and 5 to 20 percent for shrubs and succulents. Tree canopy cover is 1 to 10 percent.

On moderately steep hillsides and fan piedmont where non-alkaline soils are formed in alluvium from mixed parent materials, the predominant species are foothill paloverde, saguaro, prickly pear, cholla, ocotillo, whitethorn acacia, creosote bush, false mesquite, range ratany, desert zinnia, bush muhly, black grama, slim tridens, fluff grass, janusia, desert senna, and twinberry. Annual forbs and grasses, an important part of this plant community, fluctuate with precipitation from nearly nothing in dry years to several hundred pounds per acre in wet years. Plant basal cover ranges from 1 to 3 percent, and cover by plant litter ranges from 5 to 45 percent. Canopy cover ranges from 1 to 10 percent for grasses, 1 to 10 percent for forbs, and 5 to 20 percent for shrubs and succulents. Tree canopy cover is 1 to 10 percent.

On nearly level floodplains, low stream terraces and canyon bottoms where soils are formed in recent alluvium from mixed parent materials, the predominant species are foothill and blue paloverde, mesquite, catclaw acacia, desert willow, desert hackberry, wolfberry, big bursage, burrobrush, desert honeysuckle, bush muhly, sand and spike dropseed, sideoats grama, tanglehead, spidergrass, and mesa threeawn. Annual forbs and grasses fluctuate with precipitation from nearly nothing in dry years to several hundred pounds per acre in wet years. Plant basal cover ranges from 2 to 5 percent, and cover by plant litter ranges from 5 to 45 percent. Canopy cover ranges from 10 to 20 percent for grasses, 1 to 15 percent for forbs, and 5 to 15 percent for shrubs and succulents. Tree canopy cover is 10 to 15 percent.

## **Objectives**

- Remove buffelgrass on at least 2,500 acres of Sonoran Desert within 10 years of plan approval using herbicides and hand-pulling methods.
- Allow harvesting of forest products on up to 5 acres over the 10 year period following plan approval.

## **Guidelines**

1. Any proposed activity that occurs in an area occupied by buffelgrass should include measures to eradicate buffelgrass during or following the activity completion, or at minimum, limit the potential for its spread into unoccupied areas.

## **Standards**

1. Do not use fire as a management activity in desert communities.

## **Management Approaches**

The following management approaches will help to achieve the desired conditions and objectives for desert communities:

- Designing projects within this vegetation community to comply with the Arizona Interagency Desert Tortoise Team's Recommended Standard Mitigation Measures (2008) to the extent practicable.
- Supporting or assisting partners in monitoring Sonoran desert plants and animals and their habitats in areas within, or near, the Forest boundary.

## **Semi-Desert Grassland Communities**

### **General Description**

Elevations range from 3,200 to 4,600 feet in the desert grassland communities, although they may extend beyond this range on steep southern exposures. Annual precipitation averages from 12 to 16 inches. Ground cover consists mainly of gravel, cobble, and rock, ranging from 15 to 65 percent on steep and moderate slopes, and 10 to 35 percent in bottomlands. Bedrock outcrops can be as high as 15 percent on steep and moderate slopes, with the exception on moderate slopes with limestone parent material where bedrock outcrops range from 0 to 5 percent. In washes and bottomlands, bedrock outcrops are 2 percent or less. Channel areas are active with both erosion and sedimentation

### **Desired Conditions**

#### **Landscape Scale (10,000+ acres)**

In the desert grassland communities, the predominant species are native grasses. There is moderate to dense vegetation cover that includes desert grasses and forbs, succulent species, sub-shrubs, and some herbaceous cover of annuals. Species include: hairy grama, black grama, sideoats grama, tanglehead, plains lovegrass, curly mesquite, spidergrass, purple and blue threeawn, slim tridens, spreading ratany, false mesquite, velvet-pod and catclaw mimosa, prickly pear, agave, ocotillo, shin-dagger, and sotol. Fires are common with mean fire return intervals estimated at between 10 and 25 years. Plant basal area ranges from 5 to 15 percent of the soil surface. Plant litter occupies 5 percent to 45 percent of the soil surface. There are no signs of compaction or accelerated erosion. The ability of soil to maintain resource values and sustain outputs is high. High quality habitat exists for desert mule deer, Coues whitetail deer, desert bighorn sheep, blacktail rattlesnake, javelina, mourning dove, and scaled and Gambel's quail. Traditional food and material plants thrive here, including pigweed, coyote melon, canaigre, sacaton, agave species, sotol, ocotillo, soaptree and banana yucca, staghorn cholla, Engleman prickly pear, oneseed juniper, and mesquite.

#### **Mid-Scale (100 to 1,000 acres)**

On steep hillslopes and ridgetops where soils have formed in place on acid igneous and metamorphic parent materials like granite, rhyolite, gneiss, schist and quartzite, the potential native plant community is dominated by perennial grasses and sub-shrubs with lesser amounts of large shrubs and succulents. The predominant species are black, sideoats, slender, sprucetop, Santa Rita and hairy grammas, tanglehead, cane beardgrass, plains lovegrass, ocotillo, sotol, kidneywood, mimosa species, false mesquite, shrubby buckwheat, dalea, shin-dagger, agave, wire lettuce, penstemon, herbaceous sage, and ferns. Plant basal cover ranges from 5 to 12 percent, and cover by plant litter ranges from 25 to 40 percent. Canopy cover ranges from 20 to 50 percent for perennial grasses, 1 to 10 percent for forbs, and 10 to 15 percent for shrubs and succulents. Tree canopy cover is 0 to 2 percent and may include species like one-seed juniper, mesquite, and Arizona rosewood.

On moderately sloping pediments where soils have formed in place on acid igneous and metamorphic parent materials like granite, gneiss, schist and rhyolite, the potential native plant community is dominated by perennial grasses and sub-shrubs with lesser amounts of large shrubs and succulents. The predominant species are black, sideoats, slender, sprucetop, Santa Rita and hairy grammas, tanglehead, Arizona muhly, curly mesquite, ocotillo, false mesquite, range and spreading ratany, shrubby buckwheat, dalea, agave, mimosa species, wire lettuce, penstemon,

trailing four o'clock, spike moss, and shrubby deervetch. Plant basal cover ranges from 6 to 15 percent, and cover by plant litter ranges from 25 to 40 percent. Canopy cover ranges from 20 to 50 percent for perennial grasses, 0 to 3 percent for forbs, and 10 to 25 percent for shrubs and succulents. Tree canopy cover is 0 to 2 percent and may include species like one-seed juniper and mesquite.

On steep hillslopes, ridgetops, and mesas where soils have formed in place on basic and intermediate igneous parent materials like basalt, andesite and welded volcanic tuff and ash, the plant community is dominated by native perennial grasses with lesser amounts of shrubs and succulents. The predominant species are sideoats grama, cane beardgrass, plains lovegrass, green sprangletop, purple and hairy gramas, curly mesquite, tanglehead, ocotillo, mimosa species, false mesquite, shrubby buckwheat, shin-dagger, agave, prickly pear, penstemon, bluedicks, herbaceous sage, globe mallow, and ferns. Plant basal cover ranges from 5 to 15 percent, and cover by plant litter ranges from 25 to 55 percent. Canopy cover ranges from 25 to 65 percent for perennial grasses, 1 to 10 percent for forbs, and 5 to 15 percent for shrubs and succulents. Tree canopy cover is 0 to 2 percent and may include species like one-seed juniper, mesquite and netleaf hackberry.

On steep hillslopes and ridgetops where soils have formed in place on limestone parent materials, the plant community is dominated by native perennial grasses, shrubs and succulents. The predominant species are sideoats grama, black grama, slim tridens, tanglehead, Hall's panic, New Mexico feathergrass, ocotillo, mariola, false mesquite, feather dalea, whitethorn acacia, sandpaper bush, creosote bush, twinberry, stool, shin-dagger, banana yucca, prickly pear, bahia, dogweed, croton, bladderpod, and ferns. Plant basal cover ranges from 3 to 8 percent, and cover by plant litter ranges from 10 to 25 percent. Canopy cover ranges from 15 to 30 percent for perennial grasses, 1 to 10 percent for forbs, and 15 to 40 percent for shrubs and succulents. Tree canopy cover is 0 to 5 percent and may include species like one-seed juniper, mesquite and rosewood.

On moderately steep hillsides and fan piedmont where soils have formed in loamy alluvium from mixed sources, the plant community is dominated by native perennial grasses and sub-shrubs with lesser amounts of large shrubs and succulents. The predominant species are sideoats, slender, black, sprucetop and hairy gramas, tanglehead, cane beardgrass, plains lovegrass, wolftail, spidergrass, purple threeawn, false mesquite, range ratany, shrubby buckwheat, agave, prickly pear, barrel cactus, banana yucca, globe mallow, bluedicks, and wire lettuces. Plant basal cover ranges from 6 to 15 percent, and cover by plant litter ranges from 10 to 50 percent. Canopy cover ranges from 20 to 60 percent for perennial grasses, 1 to 15 percent for forbs, and 2 to 20 percent for shrubs and succulents. Tree canopy cover is 0 to 1 percent and may include species like one-seed juniper, catclaw acacia and mesquite.

On moderately steep hillsides, fan piedmont, and ballenas where soils have formed in coarse loamy, calcareous alluvium and colluviums, the plant community is dominated by native perennial grasses, shrubs and succulents. The predominant species are sideoats grama, black grama, bush muhly, slim tridens, shortleaf tridens, tanglehead, Hall's panic, spike pappusgrass, blue threeawn, ocotillo, condalia, mariola, false mesquite, range ratany, feather dalea, Wright's beebrush, mormon tea, twinberry, desert zinnia, banana yucca, prickly pear, bahia, dogweed, croton, paperflower, and trailing four o'clock. Plant basal cover ranges from 6 to 15 percent, and cover by plant litter ranges from 10 to 50 percent. Canopy cover ranges from 20 to 60 percent for perennial grasses, 1 to 5 percent for forbs, and 5 to 30 percent for shrubs and succulents. Tree canopy cover is 0 to 1 percent and may include species like one-seed juniper and mesquite.

On nearly level floodplains, low stream terraces and canyon bottoms where soils are formed in recent alluvium from mixed parent materials, the plant community is dominated by native trees and shrubs with lesser amounts of perennial grasses, vines, and forbs. The predominant species are mesquite, catclaw acacia, desert willow, blue paloverde, netleaf hackberry, western soapberry, burrobrush, desert honeysuckle, clematis, greythorn, sacaton, bush muhly, sand and spike dropseed, sideoats grama, tanglehead, green sprangletop, plains bristlegrass, spidergrass, mesa threeawn, coyote melon, canaigre, pigweed, morning-glory, ragweed, and wishbone bush. Plant basal cover ranges from 6 to 17 percent, and cover by plant litter ranges from 30 to 75 percent. Canopy cover ranges from 15 to 50 percent for grasses, 1 to 15 percent for forbs, and 2 to 20 percent for shrubs and succulents. Tree canopy cover ranges from 15 to 30 percent.

### **Guidelines**

1. Paniculate agaves should be protected during vegetation treatments in grasslands.

## **Plains Grassland and Savanna Grassland Communities**

### **General Description**

Elevations range from 4,000 to 5,500 feet in the plains grassland and savanna communities although they may extend beyond this range on steep southern exposures. Annual precipitation averages from 16 to 20 inches. Ground cover by gravel, cobble, and rock ranges from 10 to 57 percent except in bottomlands with loamy soils. Bedrock outcrops can be as high as 10 percent in steeper areas.

### **Desired Conditions**

#### **Landscape Scale (10,000+ acres)**

In the plains grassland and savanna communities, the predominant species are native perennial grasses. There is moderate to dense vegetation cover that includes mid and short grasses and forbs, succulent species, sub-shrubs, taller shrubs and some trees. Species occurring in plains grassland and savanna communities include: sacaton, sideoats grama, purple grama, blue grama, hairy grama, black grama, curly mesquite, plains lovegrass, bullgrass, cane beardgrass, green sprangletop, Texas bluestem, crinkleawn, wooly bunchgrass, beggartick threeawn, spreading ratany, false mesquite, velvet-pod and catclaw mimosa, Parry and Palmer's agave, beargrass, sotol, cliffrose, mountain mahogany, oak, and juniper species. Fires are common with mean fire return intervals estimated at between 5 and 20 years. Plant basal area ranges from 10 to 20 percent of the soil surface. Plant litter occupies 20 percent to 70 percent of the soil surface. There are no signs of compaction or accelerated erosion. The ability of soil to maintain resource values and sustain outputs is high. High quality habitat exists for Coues whitetail deer, desert mule deer, javelina, mountain lion, winter sparrow species, Gould's turkey, and Mearn's quail. Traditional food and material plants thrive here, including sacaton, yerba mansa, Hopi tea, skunkbush, yerba de pasmo, herbaceous sage, annual sunflower, sotol, agave, yucca, beargrass, oak, walnut, mesquite, and juniper.

#### **Mid-Scale (100 to 1,000 acres)**

On steep hillslopes and ridgetops where soils have formed in place on acid igneous and metamorphic parent materials like granite, rhyolite, gneiss, schist, and quartzite, the plant community is dominated by an open canopy of oak with an understory of native perennial grasses and sub-shrubs with lesser amounts of large shrubs and succulents. The predominant species are Emory oak, Mexican blue oak, Arizona white oak, sideoats grama, cane beardgrass, plains lovegrass, bullgrass, Texas bluestem, crinkleawn, wooly bunchgrass, ocotillo, beargrass, sotol,

mimosa species, manzanita, Gregg's dalea, California bricklebrush, coralbean, skunkbush, turpentine bush, shrubby buckwheat, Palmer's agave, trailing fleabane, herbaceous sage, and ferns. Plant basal cover ranges from 10 to 18 percent, and cover by plant litter ranges from 35 to 70 percent. Canopy cover ranges from 15 to 45 percent for perennial grasses, 1 to 10 percent for forbs, and 1 to 5 percent for shrubs and succulents. Tree canopy cover is 5 to 25 percent; primarily the live oak species but including species like alligator and one-seed juniper, border piñon, mesquite, and Arizona rosewood.

On moderately sloping pediments where soils have formed in place on acid igneous and metamorphic parent materials like granite, gneiss, schist, and rhyolite, the plant community is dominated by native perennial grasses and sub-shrubs with lesser amounts of large shrubs, trees and succulents. The predominant species include oak and juniper, black, sideoats, slender, sprucetop, Santa Rita and hairy grammas, wolftail, Arizona muhly, bullgrass, plains lovegrass, Orcutt's threeawn, ocotillo, false mesquite, spreading ratany, shrubby buckwheat, Gregg's dalea, Yerba de pasmo, Palmer's agave, mimosa species, Manzanita, skunkbush, beargrass, wire lettuce, penstemon, and snake cotton. Gravel and rock cover ranges from 15 to 65 percent. Plant basal cover ranges from 7 to 15 percent, and cover by plant litter ranges from 20 to 70 percent. Canopy cover ranges from 20 to 50 percent for perennial grasses, 0 to 2 percent for forbs, and 5 to 25 percent for shrubs and succulents. Tree canopy cover is 0 to 7 percent and may include species like Emory oak, Arizona white oak, alligator and one-seed juniper, and mesquite.

On steep hillslopes, ridgetops, mesas, and moderately sloping pediments where soils have formed in place on basic and intermediate igneous parent materials like basalt, andesite and welded volcanic tuff and ash, the potential plant community is dominated by native perennial grasses with lesser amounts of shrubs, trees and succulents. The predominant species include Emory oak, Arizona white oak, alligator juniper, sideoats grama, cane beardgrass, plains lovegrass, green sprangletop, bullgrass, Texas bluestem, purple and hairy grammas, curly mesquite, tanglehead, ocotillo, mimosa species, whiteball acacia, yerba de pasmo, shrubby buckwheat, Palmer's agave, banana yucca, prickly pear, penstemon, bluedicks, herbaceous sage, vetch, and lotus. Plant basal cover ranges from 8 to 18 percent, and cover by plant litter ranges from 25 to 70 percent. Canopy cover ranges from 15 to 65 percent for perennial grasses, 1 to 15 percent for forbs, and 2 to 15 percent for shrubs and succulents. Tree canopy cover ranges from 5 to 15 percent; primarily the live oak and juniper species but including species like border piñon, mesquite, and netleaf hackberry.

On steep hillslopes, ridgetops, and scarps where soils have formed in place on limestone parent materials, the plant community is dominated by large native shrubs with an understory of native perennial grasses, sub-shrubs, and succulents. The dominant species are mountain mahogany, cliffrose, Mearn's sumac, desert ceanothus, sideoats grama, woolly bunchgrass, crinkleawn, bullgrass, purple muhly, black grama, blue threeawn, rough tridens, tanglehead, Hall's panic, New Mexico feathergrass, ocotillo, false mesquite, feather dalea, sotol, banana yucca, prickly pear, Parry agave, pectis, macrosyphonia, acalypha, blue penstemon, and ferns. Plant basal cover ranges from 5 to 10 percent, and cover by plant litter ranges from 20 to 50 percent. Canopy cover ranges from 15 to 40 percent for perennial grasses, 1 to 10 percent for forbs, and 10 to 30 percent for shrubs and succulents. Tree canopy cover ranges from 1 to 10 percent and may include species like alligator and one-seed juniper, Emory, Arizona white and Mexican blue oak, mesquite, and rosewood.

On moderately steep hillsides, ridgetops, and saddles where soils have formed in loamy alluvium from mixed sources, the plant community is dominated by native perennial grasses and sub-

shrubs with lesser amounts of succulents and trees. Palmer agave reaches its highest density on these areas. The predominant species are sideoats, sprucetop and hairy gramas, wolftail, tanglehead, cane beardgrass, plains lovegrass, Texas bluestem, bullgrass, green sprangletop, false mesquite, yerba de pasmo, shrubby buckwheat, Palmer's agave, talinum, bundleflower, rosary bean, sida, evolvulous, bluedicks, and lotus. Plant basal cover ranges from 8 to 18 percent, and cover by plant litter ranges from 20 to 50 percent. Canopy cover ranges from 30 to 70 percent for perennial grasses, 1 to 20 percent for forbs, and 4 to 20 percent for shrubs and succulents. Tree canopy cover ranges from 0 to 10 percent and may include species like Emory, Arizona white and Mexican blue oaks, and alligator and one-seed juniper. Most trees occur on north aspects.

On moderately steep hillsides, where soils have formed in coarse loamy, calcareous alluvium and colluviums, the plant community is dominated by perennial grasses, shrubs, and succulents. Sotol and beargrass are abundant on these sites. Other dominant species are sideoats grama, black grama, slim, rough and shortleaf tridens, tanglehead, Hall's panic, New Mexico feathergrass, woolly bunchgrass, crinkleawn, blue threeawn, ocotillo, false mesquite, range ratany, feather dalea, bahia, Hopi tea, blue penstemon, croton, scurfpea, and trailing four o'clock. Plant basal cover ranges from 8 to 18 percent, and cover by plant litter ranges from 10 to 50 percent. Canopy cover ranges from 30 to 70 percent for perennial grasses, 1 to 5 percent for forbs, and 4 to 30 percent for shrubs and succulents. Tree canopy cover ranges from 0 to 5 percent and may include species like Emory, Arizona white and Mexican blue oaks, and alligator and one-seed juniper. Most trees occur on north aspects.

On fan terraces, plains, and piedmont where soils have formed in loamy alluvium from mixed sources, the plant community is dominated by perennial grasses and sub-shrubs with lesser amounts of succulents and trees. The predominant species are blue, black, sideoats, sprucetop and hairy gramas, wolftail, vine mesquite, cane beardgrass, plains lovegrass, green sprangletop, false mesquite, yerba de pasmo, shrubby buckwheat, Palmer's agave, talinum, bundleflower, rosary bean, sida, evolvulous, bluedicks, and lotus. Plant basal cover ranges from 7 to 20 percent, and cover by plant litter ranges from 20 to 65 percent. Canopy cover ranges from 30 to 75 percent for perennial grasses, 1 to 5 percent for forbs, and 1 to 5 percent for shrubs and succulents. Tree canopy cover ranges from 0 to 5 percent and includes species like Emory oak, Arizona white oak, and alligator and one-seed juniper.

On fan terraces, ridgetops, and piedmont where soils have formed in mixed, calcareous alluvium, the plant community is dominated by native perennial grasses, shrubs, and succulents. Soaptree yucca is abundant. Other dominant species are beargrass, sotol, sideoats grama, black grama, slim tridens, plains muhly, Hall's panic, New Mexico feathergrass, woolly bunchgrass, blue threeawn, ocotillo, false mesquite, range ratany, feather dalea, bahia, Hopi tea, blue penstemon, croton, scurfpea, and trailing four o'clock. Plant basal cover ranges from 5 to 17 percent, and cover by plant litter ranges from 10 to 40 percent. Canopy cover ranges from 20 to 45 percent for perennial grasses, 1 to 5 percent for forbs, and 2 to 20 percent for shrubs and succulents. Tree canopy cover ranges from 0 to 2 percent and includes species like Emory oak, Arizona white oak, and alligator and one-seed juniper.

On nearly level floodplains, low stream terraces, alluvial fans, and canyon bottoms where soils are formed in recent alluvium from mixed parent materials, the plant community is dominated by trees with lesser amounts of native perennial grasses, vines and forbs. The predominant species are Arizona sycamore, Arizona white oak, Emory oak, Alligator juniper, Arizona walnut, Arizona ash, mesquite, desert willow, netleaf hackberry, western soapberry, wild grape, batamote, sacaton, sideoats grama, green sprangletop, plains bristlegrass, Orcutt's threeawn, buffalo gourd,

canaigre, pigweed, morning-glory, ragweed, and camphor weed. Channel areas are active with natural rates of erosion and sedimentation. Plant basal cover ranges from 4 to 15 percent, and cover by plant litter ranges from 50 to 85 percent. Canopy cover ranges from 20 to 60 percent for grasses, 1 to 10 percent for forbs, and 0 to 5 percent for shrubs. Tree canopy cover ranges from 20 to 50 percent.

On nearly level floodplains, swales, and low stream terraces where soils are formed in recent alluvium from mixed parent materials, the plant community is dominated by native perennial grasses and grass-like plants and forbs. The predominant species are sacaton, sideoats grama, vine mesquite, mat muhly, blue grama, sedges, rushes, yerba mansa, xanthocephalum, annual sunflower, goldeneye, pigweed, and ragweed. Plant basal cover ranges from 20 to 40 percent, and cover by plant litter ranges from 25 to 65 percent. Canopy cover ranges from 30 to 85 percent for grasses, 0 to 10 percent for forbs, and 0 to 2 percent for shrubs. Trees can include species like Arizona white oak, Emory oak, and desert willow, and canopy cover ranges from 0 to 2 percent.

### **Objectives**

- Within 10 years following plan approval, treat at least 70,000 acres using planned ignitions and unplanned natural ignitions, and 2,500 acres using thinning and mastication.
- Allow harvesting of forest products on up to 120 acres over the 10 years following plan approval.

### **Guidelines**

1. Some larger individuals of shrubby species, such as mesquites and yuccas, should be retained undamaged during fuel-reduction projects.
2. Management activities should favor the development of native grasses in areas where they have the potential to establish and grow.
3. Paniculate agaves should be protected during vegetation treatments in grasslands.

## **Interior Chaparral**

### **General Description**

Interior chaparral occurs throughout the Coronado NF as a discontinuous band of vegetation. The majority of this vegetation type exists at mid-elevations (3,002 to 6,004 feet). It is bordered and intermixed with Madrean encinal woodland at the upper elevations, and semi-desert grassland or Sonoran desert at the lower elevations. Shrub live oak and manzanita shrubs are the most common species within interior chaparral, however, a wide range of other shrubs and trees are also found.

### **Desired Conditions**

#### **Landscape Scale (10,000+ acres)**

The interior chaparral varies from widely scattered pockets within grasslands and woodlands to more extensive areas on steep mountain slopes. Species composition and dominance varies across the broad range of soils and topography, but are dominated by shrubs including one or some of the following: shrub live oak, birchleaf mountain mahogany, pointleaf manzanita, desert ceanothus, pringle manzanita, yellow leaf silktassel, Arizona oak, and Emory oak. The canopy is nearly closed in about 90 percent of the community. Where it is more open, there is a grass and forb component including native species found in the adjacent grassland and woodland communities. Ground cover consists primarily of shrub litter covering 35 percent to 45 percent of the soil surface. Fire regimes are a natural dynamic that provide landscape diversity, wildlife

habitat, and soil stability, and maintain a variety of densities and age classes. Fire occurs at intervals of 20 to 100 years, and is usually stand replacing.

**Fine Scale (10 acres or less)**

Soil condition indicators of 35 to 45 percent of total ground cover by litter and plant basal area and no signs of compaction or accelerated erosion signify that soil function is being sustained and soil is functioning properly and normally. The ability of soil to maintain resource values and sustain outputs is high.

Vegetation structure in chaparral stands immediately adjacent to high risk components of the wildland urban interface (WUI<sup>2</sup>) has an arrangement that is horizontal and close to the ground. Typical fire behavior is dramatically reduced as a result of the rearrangement of the natural fuel profile.

**Objectives**

- Treat at least 5,000 acres over the 10 years following plan approval using planned ignitions and unplanned natural ignitions.
- Allow harvesting of forest products on up to 20 acres within 10 years following plan approval.

**Guidelines**

1. Fuel reduction and habitat restoration projects should retain clusters of shrubs to benefit species that require these structures for breeding, feeding, shelter, and other needs.
2. Vegetation treatments in interior chaparral should provide for the protection of paniculate agaves.
3. Mastication should not be used in areas that are classified to have a potential natural vegetation community of interior chaparral, except in the WUI.

**Madrean Encinal Woodland**

**General Description**

Madrean encinal, or oak, woodland occurs throughout the Coronado NF, discontinuously distributed in the mountain foothills at elevations ranging from 3,600 to 6,500 feet. These woodlands grade into grasslands at lower elevations and pine-oak woodlands at higher elevations. Emory oak is present throughout the range of Madrean encinal; however, Mexican blue oak, and Arizona white oak are the most common oak species. Alligator and single-seed juniper are also common. Chaparral species, such as manzanita, silktassel, ceanothus, skunkbush sumac, catclaw acacia, mountain mahogany, and rosewood, are common understory shrubs. Warm season perennial bunchgrasses, such as sideoats grama, blue grama, hairy grama, plains lovegrass, deer grass, and longtongue muhly, dominate the understory.

**Desired Conditions**

**Landscape Scale (10,000+ acres)**

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<sup>2</sup> WUI areas include those of resident human populations at imminent risk from wildland fire. These areas may also include critical communications sites, municipal watersheds, high voltage transmission lines, observatories, church camps, scout camps, research facilities, and other structures that if destroyed by fire would result in hardship to communities. These areas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites, regardless of the distance involved.

The Madrean encinal woodland is dominated by an open stand of oaks (5 to 25 percent) with denser stands of oaks on north facing slopes and in drainages (25 to 50 percent canopy). Species composition of the overstory is dominated by Emory oak, Mexican blue oak, Arizona white oak, gray oak, alligator juniper, and single seed juniper. Ground cover is dominated by grasses such as threeawns, blue grama, sideoats grama, Rothrock grama, Arizona cottontop, plains lovegrass, curly-mesquite, green sprangletop, degrass, longtongue muhly, or Texas bluestem. These native, perennial, generally warm season bunchgrasses in the understory create a wide overlap with the grasslands. Additional ground cover consists primarily of tree and grass litter covering 10 percent of the soil surface in the open stands to 40 percent of the soil surface in the denser stands. Fires occur on average every 3 to 7 years. They are generally low intensity, and occur between April and July, resulting in an overstory canopy of less than 20 percent on about 60 percent of the landscape.

#### **Mid-Scale (100 to 10,000 acres)**

The size and number of patches of dense trees varies depending mostly on aspect, and to a lesser degree disturbance, soil type, and site productivity. Patch sizes vary, but are mostly tens of acres. Grasses, forbs, shrubs, tree litter, and small trees provide fuel for the natural fire regime with a greater proportion of the ground cover as grasses and forbs as opposed to litter.

Vegetation structure in the wildland urban interface (WUI<sup>2</sup>) has a broad mix of different landscapes, such as open areas and scattered groups or clumps of woodland tree species.

#### **Fine Scale (10 acres or less)**

Within patches, single large trees or small groups of trees are widely spaced between large expanses of grasses and shrubs. Total ground cover by litter and plant basal area is 15 to 65 percent, and no signs of compaction or accelerated erosion indicate that the soil is functioning properly. The ability of soil to maintain resource values and sustain outputs is high.

#### **Objectives**

- Treat at least 350,000 acres using planned ignitions and unplanned natural ignitions, and at least 17,500 acres using mechanical treatments (thinning and mastication) within 10 years following plan approval.
- Allow harvesting of forest products on up to 120 acres over the 10 years following plan approval.

#### **Guidelines**

1. Fuel reduction and habitat restoration projects should leave clusters of trees and shrubs (including pointleaf manzanita) to benefit species that require these structures for breeding, feeding, shelter, and other needs.
2. Fuel reduction and habitat restoration projects should leave the largest trees and snags for wildlife value.
3. One hundred percent of slash should be treated within cleared right-of-way boundaries.
4. Within foreground distance zones of sensitivity level 1 and 2 (trails, roads, use areas, and water bodies) one hundred percent of slash should be treated.
5. Slash from fuel wood harvest should be limited to an amount compatible with Forest Service ability to protect the remaining resources.
6. The lower elevations of this vegetation zone should be managed as an open canopy savannah, and the upper elevations should be managed as woodland with a denser canopy.
7. The development of native grasses should be favored in areas where they have the potential to establish and grow.

8. Large diameter trees and shrubs should be retained during silvicultural treatments, and they should be protected from scorching in subsequent burn treatments.
9. Silvicultural treatments should result in structure and composition that fall within the historic range of variability.
10. Paniculate agaves should be protected during vegetation treatments in grasslands.
11. Large wood debris, such as logs, slabs, and bark should be retained.

## **Madrean Pine-Oak Woodland**

### **General Description**

Madrean pine-oak woodlands are bounded by Madrean encinal woodlands, and plains and savannah grasslands at the lowest elevations. The upper elevations are bounded by ponderosa pine-evergreen shrub and dry mixed conifer. The species mixture varies along an elevational gradient. Mexican blue oaks and Emory oaks dominate the lower elevations (below 5,500 feet), whereas silverleaf oak and Arizona white oak are more common above 5,000 feet. Border piñon pine is found above 5,000 feet and Apache, Arizona, and ponderosa pines are common above 5,900 feet, where the Madrean pine-oak woodland transitions into the ponderosa pine-evergreen shrub forest. Chaparral species as manzanita, silktassel, ceanothus, skunkbush sumac, catclaw acacia, mountain mahogany, and rosewood are common understory shrubs. Perennial bunch grasses sideoats grama, blue grama, hairy grama, tanglehead, green sprangle top, and bull grass are also common species found throughout these pine-oak woodlands.

### **Desired Conditions**

#### **Landscape Scale (10,000+ acres)**

The Madrean pine-oak woodland varies from generally open with large trees providing 10 percent canopy with a grass understory to groups of 50 percent canopy. Approximately 30 percent of the area is in the open condition, the remainder is closed. The predominant tree species are Arizona white oak, Emory oak, silverleaf oak, Apache pine, and Chihuahua pine. The oaks are generally tree form, but do not dominate the community. Other commonly occurring trees include alligator juniper, Arizona madrone, Arizona cypress and border piñon. A shrub layer is present and often contains species such as: beargrass, littleleaf sumac, evergreen sumac, yellow leaf silktassel, birchleaf buckthorn, and Ceanothus species. Grasses are common, including long tongue muhly and bullgrass. In addition to plant basal area, tree and shrub litter ranges from 10 percent in the open areas to 90 percent in the closed areas. Ground cover is sufficient to carry fire through the landscape at low or moderate severity every 5 to 20 years.

#### **Mid-Scale (100 to 1,000 acres)**

The size and number of patches of dense trees varies with disturbance, elevation, soil type, aspect, and site productivity. Patch sizes vary but are mostly in tens of acres. Grasses, forbs, shrubs, needle cast, and small trees provide fuel for the natural fire regime with a greater proportion of the ground cover as grasses and forbs as opposed to needle cast.

Vegetation structure in the wildland urban interface (WUI<sup>2</sup>) will have a broad mix of different landscapes, such as open areas and scattered groups or clumps of woodland tree species.

#### **Fine Scale (10 acres or less)**

Within patches, single large trees or small groups of trees are widely spaced between large expanses of grasses and shrubs. Total ground cover by litter and plant basal area ranges from 20 to 100 percent, and there are no signs of compaction or accelerated erosion. The soil is

functioning properly and the ability of soil to maintain resource values and sustain outputs is high.

## Objectives

- Treat at least 20,000 acres using planned ignitions and unplanned natural ignitions, and at least 5,000 acres using thinning and mastication over the 10 years following plan approval.
- Allow harvesting of forest products on 120 acres over the 10 years following plan approval.

## Guidelines

1. Management activities should favor the development of native grasses in areas where they have the potential to establish and grow.
2. Trees and shrubs that are retained during silvicultural treatment should be protected from scorching in subsequent burn treatments.
3. Vegetation treatments should favor the retention of large trees, snags and hardwoods.
4. Silvicultural treatments should result in structure and composition that fall within the historic range of variability.
5. Paniculate agaves should be protected during vegetation treatments in grasslands.
6. Large wood debris, such as logs, slabs, and bark, should be retained.
7. When thinning, conifer snags 18 inches or greater diameter at breast height (DBH) at 1-2 snags per acre and oak snags 10 inches or greater should be retained.
8. When thinning, downed logs 12 inches or greater at midpoint and at least 8 feet long, at an average of 3 logs per acre should be retained.
9. When thinning, a range of 3 to 10 tons of downed trees and logs per acre should be retained.
10. Clusters of trees and shrubs should be maintained in treatment areas to benefit species that require these structures for breeding, feeding, shelter, and other needs.
11. One hundred percent of slash should be treated within cleared right-of-way boundaries.
12. One hundred percent of slash should be treated within foreground distance zones of sensitivity level 1 and 2 (trails, roads, use areas, and water bodies).
13. Slash piles should be burned in locations and at times that will minimize scorching of adjacent trees and shrubs.
14. Slash from fuel wood harvest should be limited to a level compatible with Forest Service ability to protect the remaining resources.

## Ponderosa Pine-Evergreen Shrub

### General Description

Ponderosa pine-evergreen shrub generally occurs at elevations ranging from approximately 5,000 to 7,500 feet. This community is dominated by ponderosa and Arizona pines and can be distinguished from the Madrean pine-oak woodland by somewhat more even-aged stand dynamics. Ponderosa pine-evergreen shrub has two subclasses: one with a more continuous layer of perennial grasses and a relatively minor shrub component; and one with an understory of primarily evergreen shrubs including manzanita, turbinella oak, sumac species, and mountain mahogany species.

### Desired Conditions

#### Landscape Scale (10,000+ acres)

At the landscape scale, the ponderosa pine-evergreen shrub is composed of trees from structural stages ranging from young to old. Old growth is well distributed in the landscape. Forest stand appearance is variable but generally uneven-aged and open; areas of even-aged structure are

present. The forest arrangement is in small clumps and groups of trees interspersed within variably-sized openings of moderate to high density shrubs and limited grass cover. Openings typically range from 10 percent in more productive sites to 70 percent in the less productive sites. Size, shape, number of trees per group, and number of groups per area are variable across the landscape. All structural stages of oak are present, with old trees occurring as dominant individuals or in small groups. Denser tree conditions exist in some locations, such as north-facing slopes and canyon bottoms.

The ponderosa pine –evergreen shrub is composed predominantly of vigorous trees and shrubs, but declining trees and shrubs are a component. Declining trees provide for snags, top-killed, lightning- and fire-scarred trees, and coarse woody debris (greater than 3 inches in diameter), all well-distributed throughout the landscape. Ponderosa pine snags are typically 18 inches or greater DBH and average 1 to 2 snags per acre; large oak snags (greater than 10 inches) are a well-distributed component. Downed logs (greater than 12-inch diameter at mid-point and more than 8 feet long) average 3 logs per acre within the forested area of the landscape. Coarse woody debris, including downed logs, ranges from 3 to 10 tons per acre.

The composition, structure, and function of vegetative conditions are resilient to the frequency, extent, and severity of disturbances and climate variability. The landscape is a functioning ecosystem that contains all its components, processes, and conditions that result from natural disturbances (e.g. insects, diseases, fire, and wind), including old growth. Dwarf-mistletoe occurs in less than 15 percent of trees in uneven-aged forest structures and less than 25 percent in even-aged forest structures. Limited grasses, forbs, and a moderate density of shrubs, needle cast, and small trees maintain the natural fire regime. Organic ground cover and herbaceous vegetation provide protection of soil, moisture infiltration, and contribute to plant and animal diversity and to ecosystem function. Low- to mixed-severity fires (Fire Regimes I and III) are characteristic in this type, including throughout goshawk home ranges. Natural and anthropogenic disturbances are sufficient to maintain desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling.

#### **Mid-Scale (100 to 1,000 acres)**

At the mid-scale, the ponderosa pine-evergreen shrub is characterized by variation in the size and number of tree groups depending on elevation, soil type, aspect, and site productivity. The more biologically productive sites contain more trees per group and more groups per area. Tree density within forested areas generally ranges from 20 to 80 square foot basal area per acre. Openings typically range from 10 percent in the more productive sites to 70 percent in the less productive sites.

The mosaic of tree groups comprises a mix of even-aged and uneven-aged patches with all age classes and structural stages present. The mix of natural disturbances sustains the overall age and structural distribution.

Fires are of low- to mixed-severity, burning on the forest floor as well as in the overstory. Crown fires occur in small patches.

Forest structure in the wildland urban interface (WUI<sup>2</sup>) has smaller, more widely spaced groups of trees than in the non-WUI. There are no stand-replacement fires in the WUI. As ignitions occur, flame lengths will typically be less than four feet. Forest stands are able to withstand and recover from periodic naturally occurring or unwanted, human-initiated wildland fires.

Forest conditions in goshawk post-fledging family areas (PFAs) are similar to general forest conditions except that these forests contain 10 to 20 percent higher basal area in the mid-age to old tree groups than goshawk foraging areas and the remainder of the forest. Goshawk nest areas have forest conditions that are multi-aged but are dominated by large trees with relatively dense canopies.

### **Fine Scale (10 acres or less)**

Trees typically occur individually or in small groups in which they are variably-spaced with some tight clumps. Crowns of trees within mid- to old-age groups are interlocking or nearly interlocking. Openings in between tree groups are variably-shaped and comprised of shrubs, forbs, and grasses. Some openings may contain a high density of shrubs and/or individual trees, including large oaks. Trees within groups are of similar or variable ages and may contain species other than ponderosa pine. The size of tree groups is typically less than 0.5 acres.

### **Objectives**

- Over the 10 years following plan approval, treat at least 10,000 acres using planned ignitions and unplanned natural ignitions, and at least 2,500 acres using mechanical treatments (thinning and mastication).
- Allow harvesting of forest products on 350 acres over the 10 years following plan approval.

### **Guidelines**

1. Management activities should favor the development of native grasses in areas where they have the potential to establish and grow.
2. Trees and shrubs that are retained during silvicultural treatments should be protected from scorching in subsequent burn treatments.
3. Large trees, snags, and hardwood trees should be retained where possible.
4. Silvicultural treatments should result in structure and composition that fall within the historic range of variability.
5. Large wood debris, such as logs, slabs, and bark should be retained.
6. One hundred percent of slash should be treated within cleared right-of-way boundaries.
7. Within foreground distance zones of sensitivity level 1 and 2 (trails, roads, use areas, and water bodies) one hundred percent of slash should be treated.
8. Slash from fuel wood harvest should be limited to an amount that is compatible with the Forest's ability to protect the remaining resources.

### **Standards**

1. When thinning, retain conifer snags 18 inches or greater DBH at 1-2 snags per acre and oak snags 10 inches or greater.
2. When thinning, retain downed logs 12 inches or greater at midpoint and at least 8 feet long, at an average of 3 logs per acre.
3. When thinning, retain a range of 3 to 10 tons of downed trees and logs per acre.

## **Dry Mixed Conifer**

### **General Description**

This forest type is transitional with increasing elevation between ponderosa pine-evergreen shrub and wet mixed-conifer forest types and generally occurs at elevations ranging from approximately 5,500 to 9,500 feet. Dry mixed conifer forests are dominated by mainly shade-intolerant trees such as ponderosa pine, southwestern white pine, Douglas-fir, and Gambel oak, with a lesser

presence of aspen and shade-tolerant species such as white fir. This forest type typically occurs with an understory of grasses, forbs, and shrubs. Fires occur frequently and are generally not limited by lack of fuel connectivity or high fuel moistures.

## **Desired Conditions**

### **Landscape Scale (10,000+ acres)**

At the landscape scale, the dry mixed conifer type is a mosaic of forest conditions composed of structural stages ranging from young to old trees. Old growth occurs as groups of old trees, often mixed with groups of younger trees or occasionally as a patch comprised mostly of old trees. Forest stand appearance is variable but generally uneven-aged and open; occasional patches of even-aged structure are present. The forest arrangement is in small clumps and groups of trees interspersed within variably-sized openings of grass, forb, and shrub vegetation associations similar to historic patterns. Size, shape, number of trees per group, and number of groups per area are variable across the landscape. Openings typically range from 10 percent in more productive sites to 70 percent in the less productive sites. Where they naturally occur, groups or patches of aspen and all structural stages of oak are present. Denser tree conditions exist in some locations such as north facing slopes and canyon bottoms.

The dry mixed conifer type is composed predominantly of vigorous trees, but declining trees are a component and provide for snags, top-killed, lightning- and fire-scarred trees, and coarse woody debris (greater than 3 inches in diameter), all well-distributed throughout the landscape. Snags are typically 18 inches or greater DBH and average 3 per acre. Downed logs (those greater than 12 inches in diameter at mid-point and more than 8 feet long) average 3 per acre within the forested area of the landscape. Coarse woody debris, including downed logs, ranges from 5 to 15 tons per acre.

The composition, structure, and function of vegetative conditions are resilient to the frequency, extent, severity of disturbances, and to climate variability. The landscape is a functioning ecosystem that contains all its components, processes, and conditions that result from endemic levels of disturbances (e.g. insects, diseases, fire, and wind), including old growth. Dwarf-mistletoe occurs in less than 15 percent of trees in uneven-aged forest structures and less than 25 percent in even-aged forest structures. Grasses, forbs, shrubs, needle cast (fine fuels), and small trees maintain the natural fire regime. Organic ground cover and herbaceous vegetation provide protection of soil, moisture infiltration, and contribute to plant and animal diversity and to ecosystem function. Frequent, low-severity fires (Fire Regime I) are characteristic in this type, including throughout goshawk home ranges. Natural and anthropogenic disturbances are sufficient to maintain desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling.

### **Mid-Scale (100 to 1,000 acres)**

At the mid-scale, the dry mixed conifer type is characterized by variation in the size and number of tree groups depending on elevation, soil type, aspect, and site productivity. The more biologically productive sites contain more trees per group and more groups per area. Tree density within forested areas generally ranges from 30 to 100 square foot basal area per acre. Openings typically range from 10 percent in more productive sites to 70 percent in the less productive sites.

The mosaic of tree groups generally consists of an uneven-aged forest with all age classes and structural stages. Occasionally, small patches (generally less than 50 acres) of even-aged forest structure are present. Disturbances sustain the overall age and structural distribution.

Fires burn primarily on the forest floor and do not spread between tree groups as crown fire.

Forest structure in the wildland urban interface (WUI<sup>2</sup>) has smaller and more widely spaced groups of trees. Forest stands are open, greatly reducing stand-replacement fire occurrence. Grasses and forbs are abundant, with overall diversity and forest health enhanced through a mosaic of even-aged and uneven aged stands.

Forest conditions in goshawk post-fledging family areas (PFAs) are similar to general forest conditions except these forests contain 10 to 20 percent higher basal area per mature tree group than in goshawk foraging areas and in the remainder of the forest. Goshawk nest areas have forest conditions that are multi-aged but dominated by large trees with relatively dense canopies.

### **Fine Scale**

Trees typically occur in irregularly shaped groups and are variably-spaced with some tight clumps and with crowns of mid- to old-aged trees interlocking (clumped trees) or nearly interlocking. Openings surrounding tree groups are variably-shaped and comprised of a grass, forb, and shrub mix. Some openings contain individual trees or snags. Trees within groups are of similar or variable ages and represent one or more species. Tree groups are typically less than 1 acre in size, and at the mature and old stages consist of 2 to approximately 50 trees.

### **Objectives**

- Treat at least 17,800 acres using planned ignitions and unplanned natural ignitions, and thin at least 1,300 acres within 10 years following plan approval.
- Allow harvesting of forest products on up to 230 acres over the 10 years following plan approval.

### **Guidelines**

1. One hundred percent of slash should be treated within cleared right-of-way boundaries.
2. Within foreground distance zones of sensitivity level 1 and 2 (trails, roads, use areas, and water bodies), one hundred percent of slash should be treated.
3. Slash piles should be burned in locations and at times that will minimize scorching of adjacent trees and shrubs.
4. Slash from fuel wood harvest should be limited to an amount that is compatible with the Forest's ability to protect the remaining resources.
5. Management activities should favor the development of native bunchgrasses in areas where they have the potential to establish and grow.
6. Trees and shrubs that are retained during silvicultural treatments should be protected from scorching in subsequent burn treatments.
7. Large trees, snags, and hardwood trees should be retained where possible.
8. Silvicultural treatments should result in structure and composition that fall within the historic range of variability.
9. Large wood debris, such as logs, slabs, and bark should be retained.
10. Vegetation treatments should be avoided within 100 feet of areas where high densities of Mount Graham red squirrel occur.
11. High-impact wildfire suppression activities should be avoided, if possible, in areas occupied by Mount Graham red squirrel.

### **Standards**

1. When thinning, retain conifer snags 18 inches or greater DBH at 1-2 snags per acre and oak snags 10 inches or greater.

2. When thinning, retain downed logs 12 inches or greater at midpoint and at least 8 feet long, at an average of 3 logs per acre.
3. When thinning, retain a range of 3 to 10 tons of downed trees and logs per acre.
4. No new recreational residences or developed recreation facilities (e.g. campgrounds) will be established within the range of the Mount Graham red squirrel.

## **Wet Mixed Conifer**

### **General Description**

The wet mixed conifer forest type generally occurs at elevations ranging from approximately 5,500 to 10,000 feet. Tree species composition varies depending on seral stage, elevation, and moisture availability. This forest type can be composed of early seral species such as aspen, Douglas-fir, New Mexico locust, southwestern white pine and Rocky Mountain maple, and late seral species such as white fir and Engelmann spruce. Ponderosa pine may be present in minor proportions and decreases with increasing elevational gradients. This forest type intergrades with the spruce-fir forest type at its upper elevation range with ever increasing amounts of Engelmann spruce and corkbark fir in the later seral stages. Disturbances in this type typically occur at two spatial and temporal scales: large scale infrequent disturbances (mostly fire) and small scale frequent disturbances (fire, insect, disease, and wind). Fire occurrence and behavior in this type are generally limited more by higher fuel moisture than by lack of woody fuels. Wet mixed conifer has an understory of a wide variety of shrubs grasses, and forbs depending on soil type, aspect, elevation, disturbance, and other factors.

### **Desired Conditions**

#### **Landscape Scale (10,000+ acres)**

The wet mixed conifer forest type is a mosaic of structural and seral stages ranging from young to old trees. The landscape arrangement is an assemblage of variably-sized and -aged groups and patches of trees and other vegetation associations similar to historic patterns. Tree groups and patches are comprised of variable species composition depending on forest seral stages. An approximate balance of seral stages is present across the landscape, each seral stage characterized by distinct dominant species composition and biophysical conditions. Old growth occurs as patches on the landscape. Canopies in this forest type are generally more closed than in dry mixed conifer. An understory consisting of native grass, forbs, and/or shrubs is present.

The wet mixed conifer type is composed predominantly of vigorous trees, but older declining trees are a component and provide for snags, top-killed, lightning- and fire-scarred trees, and coarse woody debris, all well-distributed throughout the landscape. Snags are typically 18 inches or greater DBH and range from 1 to 5 snags per acre, with the lower range associated with early seral stages and the upper range associated with late seral stages. The amount of downed logs (those that are greater than 12 inches in diameter at mid-point and more than 8 feet long) and coarse woody debris (greater than 3 inches in diameter) varies by seral stage.

The composition, structure, and function of vegetative conditions are resilient to the frequency, extent, and severity of disturbances and climate variability. The forest landscape is a functioning ecosystem that contains all its components, processes, and conditions that result from endemic levels of disturbances (e.g. insects, diseases, wind, and fire), including old growth. Dwarf-mistletoe occurs in less than 15 percent of trees in uneven-aged forest structures and less than 25 percent in even-aged forest structures. Organic ground cover and herbaceous vegetation provide protection of soil, allow for infiltration of water, and contribute to plant and animal diversity and

to ecosystem function. Mixed-severity fire (Fire Regime III) is characteristic of this type. High-severity fires (Fire Regime IV & V) rarely occur. Natural and anthropogenic disturbances are sufficient to maintain desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling.

### **Mid-Scale (100 to 1,000 acres)**

At the mid-scale, the size and number of groups and patches vary depending on disturbance, elevation, soil type, aspect, and site productivity. Patch sizes vary but are frequently in the hundreds of acres and occasionally in the thousands of acres. Groups and patches of tens of acres or less are relatively common. A mosaic of primarily even-aged groups and patches, which vary in size, species composition, and age, is present. Grass, forb, and shrub openings created by disturbance may comprise 10 to 100 percent of the mid-scale area depending on the disturbance type and scale. Aspen is occasionally present in large patches.

Density ranges from 20 to 110 square foot basal area per acre depending upon disturbance and seral stages of groups and patches. Coarse woody debris, including downed logs, varies by seral stage, with averages ranging from 5 to 20 tons per acre for early-seral stages; 20 to 40 tons per acre for mid-seral stages; and 80 tons per acre or greater for late-seral stages.

Mixed- (Fire Regime III) and high-severity (Fire Regime IV) fires and other disturbances maintain desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling. High-severity fires generally do not exceed 1000 acre patches of mortality. Other smaller disturbances occur more frequently.

Forests in the wildland urban interface (WUI<sup>2</sup>) are dominated by early-seral fire-adapted species growing in an overall more open condition than the remainder of the forest. These conditions result in fires that burn primarily on the forest floor and rarely spread as crown fire.

Forest conditions in goshawk post-fledging family areas (PFAs) are similar to general forest conditions except that these forests contain 10 to 20 percent higher basal area than goshawk foraging areas and the general forest. Nest areas have forest conditions that are multi-aged but are dominated by large trees with relatively dense canopies.

### **Fine Scale (10 acres or less)**

Trees are typically variably-spaced with crowns interlocking (grouped and clumped trees) or nearly interlocking. Trees within groups can be of similar or variable species and ages. Small openings are present as a result of disturbances.

### **Objectives**

- Treat at least 2,200 acres using planned ignitions and unplanned natural ignitions, and thin at least 1,200 acres within 10 years following plan approval.
- Allow harvesting of forest products on up to 120 acres over the 10-year period following plan approval.

### **Guidelines**

1. One hundred percent of slash should be treated within cleared right-of-way boundaries.
2. Within foreground distance zones of sensitivity level 1 and 2 (trails, roads, use areas, and water bodies) one hundred percent of slash should be treated.
3. Slash piles should be burned in locations and at times that will minimize scorching of adjacent trees and shrubs.

4. Slash from fuel wood harvest should be limited to an amount that is compatible with the Forest's ability to protect the remaining resources.
5. Vegetation treatments should be avoided within 100 feet of areas where high densities of Mount Graham red squirrel.
6. High-impact wildfire suppression activities should be avoided, if possible, in areas occupied by Mount Graham red squirrel.
7. Seed tree development of corkbark fir, Engelmann spruce, and Douglas-fir should be encouraged.
8. Trees and shrubs being retained during silvicultural treatments should be protected from scorching.
9. Vegetation treatments should favor the retention and growth of large trees, snags, and hardwoods.
10. Silvicultural treatments should result in structure and composition of the vegetation communities that fall within the historic range of variability.
11. Large wood debris, such as logs, slabs, and bark should be favored for retention.
12. Forest pests and disease should be controlled, using chemicals if necessary, before they affect forests at the stand level.

### **Standards**

1. No new recreational residences or recreation facilities will be established within the range of the Mount Graham red squirrel.
2. When thinning, retain conifer snags 18 inches or greater DBH at 1-2 snags per acre and oak snags 10 inches or greater.
3. When thinning, retain downed logs 12 inches or greater at midpoint and at least 8 feet long, at an average of 3 logs per acre.
4. When thinning, retain a range of 3 to 10 tons of downed trees and logs per acre.

## **Spruce-fir**

### **General Description**

The spruce-fir forest type generally occurs at elevations ranging from approximately 8,500 to the highest elevations on the Coronado NF at 10,750 feet. This forest type intergrades with the wet mixed conifer forest type at the lower elevation range. It is dominated by Engelmann spruce, but contains other species dependant on elevation and local physical site factors. Understory species commonly include currants, maples, honeysuckle, whortleberry, alpine clover, and sedges. Spruce-fir forests occur on the coldest, wettest, highest elevation mountain tops on the Coronado NF.

The climax stages of Engelmann spruce co-dominates with corkbark fir (sub-alpine fir). The common seral tree species are aspen, Douglas-fir, and Southwestern white pine. Disturbances in this type typically occur at two spatial and temporal scales: large scale infrequent disturbances (mostly fire) and small scale frequent disturbances (fire, insect, disease, and wind).

### **Desired Conditions**

#### **Mid-Scale (100 to 1,000 acres)**

At the mid-scale, the size and number of groups and patches vary depending on disturbance, elevation, soil type, aspect, and site productivity. Patch sizes vary but are mostly in the hundreds of acres and occasionally in the thousands of acres. There may be frequent small disturbances resulting in groups and patches of tens of acres or less. A mosaic of primarily even-aged groups

and patches, which vary in size, species composition, and age, are present. Grass, forb, and shrub openings created by disturbance may comprise 10 to 100 percent of the mid-scale area depending on the type of disturbances. Aspen is occasionally present in large patches.

Density ranges from 20 to 250 square foot basal area per acre, depending upon disturbance and seral stages of the groups and patches. Coarse woody debris, including downed logs, varies by seral stage, ranging from 5 to 20 tons per acre for early-seral stages; 20 to 40 tons per acre for mid-seral stages; and 80 tons per acre or greater for late-seral stages.

Mixed- (Fire Regime III) and high-severity (Fire Regime IV and V) fires and other disturbances maintain desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling.

The wildland urban interface (WUI<sup>2</sup>) is comprised primarily of grass, forb, and shrub vegetation. Man-made structures in the WUI are surrounded by grassy openings with very few or no trees. These conditions generally result in surface fires. Stand replacement fires do not occur.

Forest conditions in goshawk post-fledging family areas (PFAs) are similar to general forest conditions except they may contain greater basal area than goshawk foraging areas and the general forest. Nest areas have forest conditions that are multi-aged but are dominated by large trees with relatively dense canopies.

#### **Fine Scale (10 acres or less)**

Trees grow tightly together with interlocking crowns and are generally of the same height and age during early group/patch development but may be multilayered in late development. Small openings are present as a result of disturbances. Ground cover consists primarily of needle cast, which ranges from 90 percent to 95 percent of the soil surface; plant basal area occupies the remaining 5 to 10 percent of the soil surface, contributing to a nearly completely covered ground surface. There are no signs of compaction or accelerated erosion, and the soil is functioning properly. The ability of soil to maintain resource values and sustain outputs is high.

#### **Objectives**

- Plant 500 acres of Engelmann spruce and corkbark fir within 10 years following plan approval.

#### **Guidelines**

1. Vegetation treatments should be avoided within 100 feet of areas where high densities of Mount Graham red squirrel occur.
2. High-impact wildfire suppression activities should be avoided, if possible, in areas occupied by Mount Graham red squirrel.
3. One hundred percent of slash should be treated within cleared right-of-way boundaries.
4. One hundred percent of slash should be treated within foreground distance zones of sensitivity level 1 and 2 (trails, roads, use areas, and water bodies).
5. Slash from fuel wood harvest should be limited to a level compatible with the Forest's ability to protect the remaining resources.
6. Trees and shrubs that are retained during silvicultural treatments should be protected from scorching in subsequent burning treatments.
7. Treatments should favor the retention and growth of large tree, snags, and hardwood trees.
8. Silvicultural treatments should be designed so that the structure and composition fall within the historic range of variability.

9. Silvicultural treatments should favor the retention of large wood debris, such as logs, slabs, and bark.
10. Forest pests and diseases should be treated, using chemicals if necessary, before they affect forests at the stand level.

### **Standards**

1. No new recreational residences or recreation facilities will be established within the range of the Mount Graham red squirrel.
2. When thinning, retain conifer snags 18 inches or greater DBH at 1-2 snags per acre and oak snags 10 inches or greater.
3. When thinning, retain downed logs 12 inches or greater at midpoint and at least 8 feet long, at an average of 3 logs per acre.
4. When thinning, retain a range of 3 to 10 tons of downed trees and logs per acre.

## **Wildland–Urban Interface**

### **General Description**

The wildland-urban interface (WUI<sup>2</sup>) includes those areas of human populations and their residences at imminent risk from wildfire, as well as human developments having special significance. These areas may include critical communications sites, municipal watersheds, high voltage transmission lines, church camps, scout camps, research facilities, and other structures that if destroyed by fire, would result in hardship to communities. These areas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites, regardless of the distance involved.

### **Desired Conditions**

As a result of vegetation management, most wildfires in the WUI are low- to mixed-severity surface fires resulting in limited loss of structures or ecosystem function. Patterns of treatments are effective in modifying fire behavior.

WUI residents and visitors are knowledgeable regarding wildfire protection of their homes and property, including defensible space. People using WUI areas are educated about the potential danger of wildlife, particularly black bears and mountain lions, and measures they can take to prevent encounters.

WUI areas are accessible and provide a safer fire suppression environment than the general forest.

### **Objectives**

- Treat 5,000 to 10,000 acres in the WUI every year to reduce the risk of fire hazard to communities and the Forest.

### **Management Approaches**

The following management approaches will help to achieve the desired conditions and objectives for the Wildland-Urban interface:

- Encouraging the development of community Wildfire Protection Plans.
- Planning for wildfire protection across jurisdictional boundaries.

## Montane Meadows

### General Description

High elevation, or montane, meadows generally occur only within mixed conifer and spruce-fir vegetation types. Size ranges from less than one acre to 30 acres. Montane meadows may have a defined channel system, generally at the lowest elevation.

### Desired Conditions

Vegetation composition includes junegrass, various sedges and docks, hemlock-parsley, native iris, native onion, and false hellebore. Trees are not common with the exception of alder, which may be present near the edges of meadows. Soil is not compacted, and over 70 percent of the surface is occupied by plant basal area and herbaceous litter.

### Guidelines

1. There should be no new water diversions in meadows unless it can be demonstrated that there would be no significant changes to the native plant assemblage, such as biological diversity, biomass, and presence of rare species.
2. Meadows should not be used as staging areas for off-highway vehicles (OHVs) or livestock, or for storage of equipment or forest products.

## Wetlands

### General Description

Wetlands consist of springs, seepages, wet meadows, and cienegas, and are characterized by low water flow and soils that are frequently or periodically saturated by ground or surface water. Wetland habitats contain a distinctive native plant community typical of saturated soils - plants may include sedges, rushes, mosses, monkey flowers, lilies, and algae.

### Desired Conditions

Macro-invertebrates are abundant and diverse. Water flow patterns and recharge rates in wetlands are similar to historic levels. Plant and animal species that require wetland habitats have healthy, extant populations, within the natural constraints of the particular wetland community. Endemic populations are stable. Non-native wetland species are non-existent or do not significantly impact native species; non-native grasses are not present, or are present in amounts that do not alter the fire-regime.

### Objectives

(Other relevant objectives are located under Natural Water Sources.)

- Restore native vegetation and natural water flow patterns on at least 6 acres of wetlands within 5 years of plan approval.
- Maintain, or increase, the existing acreage of wetlands on the Forest over the 10 year period following plan approval.
- Every 5 years, acquire water rights to at least one diversion that is currently limiting wetland recharge and restoring water flow to as near to the natural pattern and volume as possible.

### Guidelines

1. Livestock grazing in wetlands should only be allowed when a site-specific analysis has determined that there would be no significant deleterious effects to wetland form or function.

Analysis should consider grazing season, timing, intensity, duration, and frequency.

## **Standards**

1. The total acreage of existing wetlands will not be diminished due to management activities.
2. Diverting water sources that recharge wetlands is not allowed. Assess potential impact to wetland recharge and water table drawdown of all projects occurring within the watershed of a wetland.

## **Riparian Areas**

### **General Description**

Riparian areas occur in channels throughout all vegetation types. Vegetation supported within riparian areas varies with watershed size, geology, elevation and aspect. Natural disturbances, including flooding, scouring, and drying out, result in changes that promote a diverse channel community structure necessary for recruitment of riparian species.

### **Cottonwood Willow Riparian Forest**

Where soil and channel confinement conditions permit, this low elevation type is found along channels within desert communities, desert grasslands, plains grasslands and savannah communities, interior chaparral, and Madrean encinal woodlands. Species include but are not limited to Fremont cottonwood, velvet ash, Arizona sycamore, Arizona walnut, Goodding willow, yewleaf willow, and Arizona cypress. Channel banks may be composed of bedrock, boulders, or soil.

### **Mixed Broadleaf Forest**

This mid-elevation vegetation is found along channels within desert grasslands, plains grasslands and savannah communities, interior chaparral, Madrean encinal woodlands, and Madrean pine-oak woodlands. Vegetation includes many tree species, both upland and true riparian. True riparian species include but are not limited to Fremont cottonwood, Arizona sycamore, velvet ash, Arizona walnut, and a variety of willows. The forest often contains oaks and conifers from upstream and adjacent uplands. The majority of trees and ground vegetation are native. Channel banks may be composed of bedrock, boulders, or soil.

### **Montane Willow Forest**

This high-elevation vegetation type is found along channels within Madrean pine-oak woodlands, ponderosa pine-evergreen oak forest, mixed conifer forest, and spruce-fir forest vegetation types. There are many tree species, both upland and true riparian. Species include but are not limited to box elder, Arizona sycamore, velvet ash, Arizona walnut, Arizona alder, Arizona cypress, and willows. The forest often contains oaks and conifers from upstream and adjacent uplands. All trees and ground vegetation are native. Channel banks may be composed of bedrock, boulders, or soil.

### **Desired Conditions**

Channels and their adjacent floodplains are capable of filtering sediment, capturing bedload, aiding floodplain development, improving flood-water retention, and increasing ground-water recharge. Vegetation and root masses stabilize streambanks against the cutting action of water currents. The ecological condition of riparian areas is resilient to animal and human use. Tree canopy cover is between 30 and 100 percent. Soil banks are 70- to 100-percent occupied by

vegetation.

Where water is perennial, stream flows and water quality characteristics (as described in the desired conditions for Natural Water Sources) support aquatic wildlife. Native fish and other aquatic species are present, and habitat conditions are capable of providing self sustaining populations. Native fish and amphibian populations are free from or minimally impacted by non-native predation and diseases. Habitat and ecological conditions are capable of providing self-sustaining populations of native, riparian-dependent plant and animal species. Fire rarely burns through this vegetation type, and fire in the surrounding watershed periodically provides slight increases in sediment and water that cause minimal channel modification.

## **Objectives**

Riparian area objectives ensure that riparian vegetation communities are sustainable and water of sufficient quantity and quality is available to satisfy habitat needs. At the end of the first decade following plan approval:

- Apply for at least 10 instream flow water rights on streams to enable the Forest to start providing for channel and floodplain maintenance and recharge of riparian aquifers.
- Treat 2,500 to 10,000 acres of uplands with vegetation treatments or soil and watershed restoration treatments to maintain watershed stability and, thereby, the structure and function of streams, floodplains, and riparian vegetation.

## **Guidelines**

1. Livestock grazing in riparian areas should only be allowed when a site-specific analysis has determined that there would be no significant deleterious effects to wetland form or function. Analysis should consider grazing season, timing, intensity, grazing period and frequency.
2. Vegetation treatments should favor the retention of snags and growth of large riparian trees.
3. Silvicultural treatments in riparian communities should be designed so that the resulting vegetation structure and composition fall within the historic range of variability.
4. Vegetation treatments should favor the retention of large diameter woody debris in and near stream channel.
5. New water diversions should not be established in riparian areas unless it can be demonstrated that there are no significant changes to the native plant assemblage, such as biological diversity, biomass, and presence of rare species.
6. New or realigned roads should not be located in riparian areas.
7. Riparian areas should not be used as points of ignition for prescribed burns.

## **Management Approaches**

The following management approach will help to achieve the desired conditions and objectives for riparian areas:

- Cooperating with neighboring agencies and landowners when making decisions about managing riparian areas.

## **Biophysical Features**

### **Desired Conditions**

Caves, abandoned mines, and adits provide habitat for species that require specialized niches for roosting and overwintering (e.g., bats). These structures maintain moisture and temperature levels consistent with historic conditions. Archeological, geological, and biological features of caves and mines are not disturbed by visitors. Caves, mines, and adits that are known to be important

for species of conservation concern are intact or provide adequate habitat for these species.

Cliffs and rock outcrops continue to support nesting, roosting, and feeding habits of birds of prey, desert bighorn, bats, snails, western barking frogs, and other species. Rock climbing and related recreational activities do not diminish the quantity or quality of specialized vegetation, such as mosses, lichens, and fleabanes, nor do these activities disrupt life processes of rare or threatened species. Rockslides and talus slopes are natural, undisturbed features that provide habitat for wildlife such as lizards, snakes, and land snails. Talus slopes maintain near-historic levels of calcium carbonate and moisture, and are free from excessive sedimentation. In areas where there are species of conservation concern, there is a near-historic level of high-quality rocky habitat. Standing dead trees, tree hollows, cavities, loose bark, downed woody debris, burrows, and similar biological attributes are available in all vegetation communities for retention of wildlife values.

### **Objectives**

- Install an average of 2 wildlife-friendly closures at mines identified as a public safety hazard each year during the plan period.

### **Guidelines**

1. Calcium carbonate and moisture levels should be maintained in talus slopes that contain talussnails.
2. Any activity that would contribute to increased sedimentation in talus slopes, particularly those characterized by a north-facing aspect, should be avoided.
3. Rocky outcroppings should not be physically modified during project implementation; characteristics of the microhabitat surrounding these features should be maintained.
4. Environments in caves, abandoned mines, and adits should not be altered, unless it can be shown that there would be no deleterious effects to animals that rely on these features.
5. Measures for protection of caves should include avoidance of the alteration of cave entrances; limitation of management activities within an area draining into a cave if they may affect the cave ecosystem; avoidance of diversion of surface drainage into caves; and limitation of public access if required to prevent damage to cave resources or if there are safety hazards.
6. Identified bat roosts should be managed as a sensitive resource and to provide for the enhancement of populations. Protection measures may include seasonal closures, public education, and wildlife-friendly gates.

### **Standards**

1. Caves and mines where lesser long-nosed bats are roosting cannot be entered without written clearance from the District Biologist, the US Fish and Wildlife Service (species lead), and Arizona Game and Fish Department (non-game biologist) or the New Mexico Department of Game and Fish (depending on jurisdiction).
2. Any cave that has an endemic species must be managed for the protection of that species over all other uses.
3. Rockslides that contain any species of plant or animal that is endemic, or rare (e.g., talussnails) will not be altered and materials will not be removed.
4. When closing mine features and caves to public entry, always conduct pre-closure inspections to determine if cave dependent or other species utilize them as habitat. Wildlife-friendly gates will be installed where these species are present unless public safety concerns warrant closure by a different method.
5. Withdraw from mineral entry those areas needed to protect caves from mining activities.
6. Excavation to locate caves will be analyzed and permitted on a case by case basis.

Exploration inside caves, including excavation, will be commensurate with identified resource values and permitted on a case by case basis.

7. Entry permits required for caves shall be based on specific resource considerations.

## **Management Approaches**

The following management approaches will help to achieve desired conditions and objectives for biophysical features:

- Preparing specific management prescriptions for caves with high resource, educational or recreational values; hazardous conditions: or heavy use. These prescriptions should include guidelines for appropriate use, necessary restrictions and monitoring requirements. Planning priority is for those caves currently under permit.
- Managing bat roosts in consultation with state and federal wildlife agencies.

## **Natural Water Sources**

### **Desired Conditions**

#### **Landscape Scale**

Watersheds, streams, and riparian areas have characteristics, processes, and features consistent with their natural condition. Water quality, stream channel stability, and aquatic habitats retain their inherent resilience to natural and other disturbances. Water resources maintain the capability to respond and adjust to disturbances without long-term adverse changes. Vegetation conditions (as described in each section above) contribute to maintaining downstream water quality, quantity, and aquatic habitat features. Upland soil erosion contributes sediment in amounts that do not impair stream function or water quality.

#### **Mid-Scale**

Instream flows provide for channel and floodplain maintenance, recharge of riparian aquifers, and water quality. Stream flows provide connectivity among fish populations and provide unobstructed routes critical for fulfilling the needs of aquatic, riparian-dependent, and many upland species of plants and animals. Water quantity and quality meet the needs for livestock, recreation, road construction, fire fighting, domestic use, and other authorized activities. Stream channels and floodplains are dynamic and resilient to disturbances. The water and sediment balance between streams and their watersheds allow a natural frequency of low and high flows. Extreme flooding rarely occurs while occasional flooding does not disrupt normal stream characteristics (e.g., water and sediment transport, woody material) or considerably alter stream dimensions (e.g., bank-full width, depth, slope, sinuosity). Floodplains are functioning and lessen the impacts of floods on human safety, health, and welfare. Water quality meets or exceeds State of Arizona, State of New Mexico, and/or Environmental Protection Agency standards for designated uses. Water quality meets critical needs of aquatic species. Non-point source pollution of streams and lakes from sediment, excessive nutrients, or hazardous chemicals does not reduce water quality beyond the state standards for Arizona and/or New Mexico.

### **Objectives**

- Apply for at least 10 in-stream flow water rights on streams to enable the Forest to start providing for channel and floodplain maintenance and aquatic species benefits within 10 years of plan approval.
- Develop at least 3 springs within 10 years of plan approval to provide aquatic habitat for the recovery of plant and/or animal species.
- Complete 3 stream restoration and/or development projects to benefit aquatic species of

conservation concern within 10 years of plan approval.

### **Guidelines**

1. Projects in upland habitats adjacent to streams should be designed to minimize input of sediment to streams.

### **Standards**

1. All natural springs shall be protected.

### **Management Approaches**

The following management approach will help achieve desired conditions and objectives for natural water sources:

- Cooperating with Arizona Department of Environmental Quality and New Mexico Environment Department to meet water quality standards.
- Actively participating in the Gila River water rights adjudication in order to meet water needs for livestock, recreation, and other authorized activities.
- Implementing Total Maximum Daily Load plans to enable the Forest to meet or exceed State of Arizona or Environmental Protection Agency water quality standards for designated uses.

## **Constructed Waters**

### **Desired Conditions**

Artificial structures for holding standing water, such as earthen stock ponds, reservoirs, wildlife drinkers, and habitat restoration ponds, are perennial in areas where species of conservation concern exist. Constructed ponds that are used for livestock watering are also used by native species, but do not encourage the movement or reproduction of aquatic invasive species, such as American bullfrogs, northern crayfish, green sunfish, non-native tiger salamanders, non-native mollusks, and non-native aquatic plants. Constructed ponds do not contribute to the spread of disease. Water quality is high, and organic pollutants such as nitrates, nitrites, phosphates, and sulphur compounds are at levels that are non-toxic to native species. Constructed ponds have structures that encourage the reproduction of native aquatic organisms.

### **Objectives**

- Within 5 years of plan approval, 80 percent of above-ground artificial waters will have wildlife escape ramps installed.

### **Guidelines**

1. Artificial waters constructed for livestock should be designed to provide a drinking resource to native wildlife.
2. All other treatment options should be considered before using piscicides for eradicating non-desirable aquatic species.

### **Standards**

1. No constructed water sources will be removed or altered such that water quantity is reduced, unless alternative water sources are constructed.

### **Management Approaches**

The following management approaches will be helpful in achieving desired conditions and objectives for artificial water sources:

- Working closely with Fish and Wildlife Service and state wildlife management agencies to ensure the viability of native aquatic species
- Cooperating with range permittees and state wildlife management agencies to maximize the benefits of artificial water developments for all uses.

## Soil

### Desired Conditions

Ecological and hydrologic functions are not impaired by soil compaction. Soil condition rating is satisfactory across the Forest as described in the Regional soil condition handbook. Vegetation and litter limit rills, gullies, pedestalling, excessive soil deposition, and topsoil loss. Soils provide for diverse native plant species. Vegetative ground cover is distributed across the soil surface as described in forestwide vegetation community desired conditions to promote nutrient cycling and water infiltration.

### Objectives

- Enhance or restore 2,500 to 15,000 acres of uplands with vegetation treatments or soil and watershed restoration treatments to attain soil condition indicators of ground cover by litter and ground cover by plant basal area as described in the following table within 10 years of plan approval.

**Table 1: Soil condition indicators of ground cover for soil objective**

Vegetation Type	Desired Litter Component	Desired Plant Basal Area	Comments
Semi-desert Grasslands	15%	45%	
Madrean encinal Woodland	5% to 40%	5% to 30%	Total of 15% to 65% combined

### Management Approaches

The following management approaches will help achieve the desired conditions and objectives for soils:

- Prioritizing watershed improvement projects based on cooperation with partners, likelihood of success, and cost efficiency.
- Implementing objectives for vegetation communities.

## Air

### Desired Conditions

Air quality above the Coronado NF meets state air quality standards including visibility and public health. Air Quality Related Values, including high quality visual conditions, are maintained within the Class I airsheds over the Galiuro and Chiricahua Wildernesses.

### Management Approaches

The following management approaches will help achieve desired conditions for air quality:

- Participating with the states of Arizona and New Mexico in the air quality regulatory process by reviewing air permit applications for new and modified industrial facilities to ensure that their air emissions do not adversely impact the air quality related values (such as visibility) of

federally-protected wilderness areas.

- Considering Class I and Class II airsheds when determining the response to wildland fires.

## Wildlife, Fish, and Rare Plants

### Desired Conditions

Naturally occurring native ecosystems are present and sustainable across the Coronado NF, providing habitat to support a full complement of plants and animals. Habitats are interconnected, allowing for movement of wide-ranging species and promoting natural predator-prey relationships, while minimizing human-wildlife conflicts. The distribution of wildlife, fish, and rare plants is consistent with their potential natural range, and any changes in distribution are not caused by management activities. No species have been added to the threatened or endangered species lists or to the Regional Forester's sensitive species list.

Native species that were present during the first decade of the twentieth-century continue to exist, and none have been extirpated. Fire-adapted native plants are relatively abundant due to the managed use of fire as a critical natural process, resulting in a mosaic of burned and unburned landscapes. Trees in terrestrial and riparian areas provide structural features that accommodate arboreal species, such as cavity-nesting birds. Naturally occurring ground structures similarly allow for resting, breeding, and foraging activities by a variety of species. Bats and other cave-dependent wildlife utilize caves and abandoned mine features that pose no risk to human safety. Permitted activities, such as livestock grazing, outfitter guiding, and ecotourism guiding, do not compromise healthy populations of native species, nor do they modify habitat components. Hunting and other wildlife-based recreation is encouraged where populations are flourishing. Non-native species occur only where populations are manageable and/or desirable; generally, they are rare across the Forest.

### Guidelines

1. A minimum of 3 goshawk nest areas and 3 replacement nest areas should be located per goshawk 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<sup>3</sup>.
2. Goshawk post-fledging family areas (PFAs) of approximately 420 acres in size should be designated surrounding the nest sites<sup>4</sup>.
3. In goshawk foraging areas and PFAs, groups of 3 to 5 reserve trees should be retained within management-created openings greater than 1 acre in ponderosa pine-evergreen shrub and dry mixed conifer communities, and 6 reserve trees should be retained within management-created openings greater than 0.5 acres in wet mixed conifer and spruce-fir communities<sup>5</sup>.
4. Human presence should be minimized in goshawk nest areas during the nesting season – March 1<sup>st</sup> through September 30<sup>th</sup><sup>6</sup>.
5. Forest landscapes should be managed such that replacement structural stages are proportionally present to assure continuous representation of old growth over time.
6. Activities should be restricted at nest areas of Mexican spotted owls, roosts of lesser long-nosed bats, and middens and dens of Mt. Graham red squirrels during their respective

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<sup>3</sup> Adopted from: Reynolds et al, 1992. Management Recommendations for the Northern Goshawk in the Southwestern United States; pages 21-22, Nest Area Management Recommendations.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

breeding seasons.

7. Wildlife-proof food storage boxes and trash cans should be available at all developed recreation areas. Existing facilities should be retrofitted and new developed areas should have them installed.
8. Potential changes in climate should be considered when designing projects and the effects of proposed projects on wildlife species; those that have been identified as being sensitive to change, should especially be assessed. Factors to consider include migration patterns, habitat use, drought, breeding season, and fecundity.

## **Standards**

1. The current configuration of existing Protected Activity Centers (PACs) will be retained as functional units for the conservation of Mexican spotted owls.
2. New PACs will be established as breeding Mexican spotted owls are newly discovered.

## **Management Approaches**

The following management approaches will help to achieve desired conditions and objectives for wildlife fish and rare plants:

- Maintaining strong partnerships between the Forest Service, state and federal agencies, and non-government organizations.
- Participating as an active partner in interagency and non-agency conservation planning and strategizing.
- Using results from the monitoring of Management Indicator Species to design adaptive management strategies to benefit species conservation needs.
- Taking the lead in monitoring activities for species that are required under law, regulation, and policy, when needed.
- Coordinating with Animal and Plant Health Inspection Service, Wildlife Services, and state and federal game and fish agencies about animal and plant damage concerns on Forest Service-administered lands.
- Assisting and cooperating with state, federal, and non-government organizations to re-establish extirpated species, including, but not limited to: Tarahumara frog, Chiricahua leopard frog, lowland leopard frog, and Mexican gartersnake.
- Cooperating with state and federal wildlife management agencies to limit conflicting wildlife resource issues related to hunted, fished, and trapped species.
- Participating in the simultaneous lesser long-nosed bat surveys conducted annually by interagency partners.

## **Invasive Species Management**

### **Desired Conditions**

Infestations of invasive exotic plants do not contribute to the loss of native species or impairment of ecosystem function. Invasive vertebrates occur in low numbers and do not significantly affect the productivity or sustainability of native wildlife.

### **Objectives**

See objectives within sections for individual forestwide vegetation communities.

## Management Approaches

The following management approaches will help to achieve the desired conditions for invasive species management:

- Detecting and treating new populations of invasive species before they become established.
- Eradicating or managing invasive species with a coordinated Forest-wide approach using integrated pest management.
- Coordinating the Forest-wide integrated pest management approach with the plans and efforts of other federal, state, and local agencies, non-governmental organizations and landowners.
- Developing treatment plans and actions that are responsive to current guidance regarding public and ecosystem health, and contribute to the protection and recovery of federally-listed and Forest Service sensitive wildlife and plant species.
- Following the Forest Service Guide to Noxious Weed Prevention Practices.

## Forest Products

### Desired Conditions

The Coronado NF provides a sustainable supply of wood products (e.g. small roundwood, sawlogs, biomass, firewood) and other products (e.g., Christmas trees, beargrass, cactus, ferns, and fungi) within the capacity of the land to produce these goods. Silvicultural treatments reflect natural disturbance regimes and contribute to ecosystem sustainability. Timber and other forest products are made available for the public either through personal-use permits or commercial sales.

### Management Approaches

The following management approaches will help to achieve the desired conditions for forest products:

- Working with agencies and private organizations to promote forest product use where it is available as a result of forest management activities.
- Encouraging use of forest products in lieu of onsite burning or chipping.
- Ensuring the continued sustainability of special forest products, such as tree boughs, firewood, posts and poles, wildflowers, mushrooms, grasses, seeds, nuts, cones, and berries, through monitoring commercial sales and free-use permit harvest levels.
- Recognizing the rights of members of tribes whose aboriginal territories include the land now administered by the Coronado NF to collect forest materials for traditional, cultural, and religious uses without permits.
- Collaborating through nation-to-nation agreements with tribal governments on the management of species important to maintaining the social and cultural well-being of tribes.

## Minerals

### Desired Conditions

Opportunities for environmentally sound minerals development are available. Important wildlife habitats, visually sensitive areas, and areas with large capital investments are protected through surface occupancy restrictions imposed on locatable mineral activities. Adverse surface resource impacts are minimized through the appropriate administration of mineral laws and regulations.

## **Guidelines**

1. Construction of roads across sensitive soils and scenic lands should be avoided to the extent possible.
2. Talus slopes should not be used as a source of road building materials.

## **Management Approaches**

The following management approaches will help to achieve the desired conditions for forest products:

- Using operating plans and bonds for rehabilitation to protect and restore surface resources.

## **Public Access**

### **Desired Conditions**

Permanent legal access to and through National Forest System (NFS) lands by public and administrative users is available on a system of Forest arterial, collector, and local roads and trails which are interconnected with public roads, highways, and trails (state, county, and other federal) within and adjacent to the Coronado NF.

All access points and routes are available for use by public lands users, unless restricted for administrative purposes.

Exclusive private access issues regarding use of NFS roads, trails, and lands from non-federal lands within and adjoining the Forest have been resolved.

### **Objectives**

- Within the first decade following plan approval, increase the number of permanent legal access points by acquiring 10-20 easements using a variety of methods.

### **Guidelines**

(Guidelines to be developed for Public Access)

### **Management Approaches**

Management approaches that will help achieve desired conditions and objectives for public access include:

- Working closely with the state, counties, and other Federal agencies to resolve rights-of-way issues and to ensure that public access to the various parts of the Forest on state, county, or permanent NFS roads meets management objectives for all ownerships.
- Obtaining necessary public access for all permanent roads and trails within the Coronado NF boundary.
- Prioritizing permanent legal access within these Ecosystem Management Areas (EMAs):
  - a) Whetstone EMA (all sides)
  - b) Galiuro EMA (all sides)
  - c) Santa Teresa EMA (all sides)
  - d) Winchester EMA (all sides)
  - e) Dragoon EMA (northwest and southeast sides)
  - f) Peloncillo EMA (north side and southeast corner)
  - g) Tumacacori EMA (north and east sides)

## Motorized Transportation System

### Desired Conditions

The Coronado NF has a designated system of routes open for motor vehicle use by the public. The motorized transportation system is environmentally sustainable and meets public needs and desires. It provides access to National Forest System (NFS) lands for public and administrative use. Visitors are respectful and stay on designated routes: they do not create new routes or expand existing trails, they avoid sensitive habitats like wetlands and meadows, and they cross streams only at fords where the road or trail intersects the stream. Each NFS road has a clear purpose, and redundancy is minimized. Class of vehicle is appropriate for a given road level, and user conflicts are minimal.

Arterial access roads are readily identifiable and have surfaces that are suitable for passenger car use and emergency vehicles. There is adequate signing to assist travelers in finding their destination. The occurrence of gullies, washouts, or slides is minimal. Road edges are intact and safe even for excessive traffic areas. There are adequate turnouts or passing areas and adequate sight distances available to the public.

High clearance roads and motorized trails are available for exploring the Forest in off-highway vehicles (OHVs) in a responsible and respectful manner. Users do not cause unanticipated resource damage or create unauthorized routes. Roads are suitable for low traffic volume and low speed. Road surfaces are rough or primitive, but most are available for use by the more experienced traveler in vehicles with high ground clearance. These roads provide opportunities in appropriate places for safe, responsible motorized recreation and provide varying backcountry touring experiences for a variety of vehicle classes.

The existing road system provides adequate access for resource management activities, sufficient legal public access to the forest and its amenities such as campgrounds and trailheads, and access for homeland security purposes near the international border.

Unneeded roads are closed and rehabilitated to reduce human disturbance to wildlife, and to reduce soil erosion. Some closed roads have been converted to non-motorized trails for recreational use by hikers, mountain bikers, and horseback riders.

### Objectives

- Complete maintenance on at least 100 miles of high clearance (maintenance level 2) roads annually throughout the plan period.
- Complete maintenance on at least 200 miles of passenger car (maintenance level 3, 4, and 5) roads annually throughout the plan period based on a safety prioritization.
- Decommission, close, and restore 3 to 10 miles of unwanted non-system roads annually throughout the plan period.
- Where erosion, sedimentation, or risks to water quality from road-stream crossings are affecting wildlife habitat, install at least one hardened road surface at the crossing to prevent downstream effects each year.
- Realign or remove 2 miles of roads in wetlands or meadows over the next 10 years.

### Guidelines

1. Roads in need of maintenance that cannot be serviced because of budget constraints should be closed if unacceptable resource damage is occurring.

2. Where impacts to archeological sites from road maintenance are unavoidable, they should be mitigated by adding fill to protect sites, ensuring lead-out ditches and other features are not excavated within sites, or conducting archaeological data recovery.
3. Road construction or maintenance in wetlands or meadows should be avoided. If those activities are necessary, they should be designed and implemented so that water flow, wetland recharge, and ecosystem function are not impaired.

## **Standards**

1. Prohibit motor vehicle use beyond the designated system of roads, trails, and areas, as defined on Motor Vehicle Use Maps (MVUMs), except for those uses authorized by law, permits, and orders in connection with resource management and public safety.

## **Management Approaches**

The following management approaches will help to achieve desired conditions and objectives for the motorized transportation system:

- Seeking road maintenance agreements with local government agencies and private organizations to supplement Forest Service funded maintenance.
- Conducting road maintenance activities with the priorities of protecting the road investment, protecting other resources, user safety, and user economy.

## **Recreation**

### **Desired Conditions**

The diverse landscapes of the Coronado NF offer a variety of settings for a broad range of recreational opportunities and a place for visitors to escape from busy urban life into quiet, natural, wild places. Landscapes range from primitive settings that provide opportunities for solitude, to more developed, rustic settings that provide opportunities for social interaction and greater human comforts. Although development and population in the region continue to grow, recreation settings on the Coronado NF are stable, retaining their natural character, and loss of remote, undeveloped settings does not occur. Recreation activities are balanced with the ability of the land to support them, and create minimal user conflicts. The Coronado NF fulfills a unique and vital role as a place of learning and caring about the environment.

Recreation on the Coronado NF focuses on four-season, mainly short-duration activities. Much use occurs along popular recreation corridors and scenic byways. Backcountry and Wilderness areas provide places to explore and to experience quiet and solitude.

Growing demand for recreation is accommodated within the capacity of the land to support it, and areas that can accommodate additional use (such as at Peña Blanca Lake) are fully utilized. Recreation on the Coronado NF enhances the quality of life for residents and provides tourist destinations, which contribute to local economies. Visitors not only understand how to reduce their impacts on ecosystems, but actively help support the Coronado NF's efforts to protect natural resources and wilderness values. Low impact motorized and non-motorized recreation principles are promoted and widely practiced by the visiting public.

Developed recreation facilities such as campgrounds and picnic areas are clean, safe, and in good repair. Most meet current accessibility guidelines. Visitor centers are open to the public on busy days and provide places where visitors can find information and learn about natural and cultural resources on the Coronado NF. Heritage sites provide unique opportunities for visitors to connect

with the past. Interpretive features help people learn about the special places they visit. Facilities and infrastructure are maintained and replaced as needed using a sustainable mix of federal and other funds and partners. Developed sites blend with the natural setting and uses at these areas do not cause damage to ecologically sensitive areas. Potable water is provided in high-use areas.

Special use permits augment the variety of suitable outdoor recreation experiences on the Coronado NF. Permitted facilities blend well into the natural landscape.

Dispersed recreation activities on the Coronado NF include scenic driving, hiking, bird watching, rock climbing, horseback riding, camping, and hunting, among others. Visitors use off-highway vehicles (OHVs) responsibly, staying on designated routes and in identified camping areas. Forestwide dispersed recreation sites are small and clean, and resource damage is minimal. Activities such as paintballing, geo-caching, and rock climbing do not detract from the natural character of the forest, impact resources such as aesthetics, soils, vegetation, and wildlife, or contribute to user conflicts.

Opportunities exist in appropriate places for responsible motorized recreation with varying experiences for a variety of vehicle classes. Forest visitors can enjoy primitive to semi-primitive motorized recreation and explore the backcountry in OHVs along designated routes. Noise from motorized vehicles is infrequent away from areas of higher road density. In other areas, the presence and impact of people and machines is unobtrusive. These areas offer non-motorized recreation opportunities in a variety of settings that provide differing levels of challenge and seclusion, while limited primitive or high-clearance roads allow for motorized access.

A system of well-marked and well-maintained trails provides opportunities for visitors to explore the Forest. Access roads to trailheads are open and maintained, and trailheads provide adequate parking and vehicle turnaround space. Damage to resources from trailheads and trails is minimal and within the ability of the forest to mitigate. Historic trails are preserved and reestablished where appropriate and feasible. Unplanned “wildcat” trails are rare.

Visitors enjoy the beautiful scenery, while understanding that fire and vegetation management projects are necessary for the health of vegetation communities within the Forest landscape. Recreation sites and settings along the international border with Mexico are clean; border security infrastructure blends well with the landscape; and visitors understand the risks associated with illegal border activity and are informed about appropriate safety precautions.

## **Objectives**

- Reduce the backlog of recreation deferred maintenance by 20 percent within 5 years of plan approval.

## **Guidelines**

1. The Recreation Opportunity Spectrum (ROS) maps should be used as projects are planned and implemented. When managers make a choice, they should opt for management actions that result in more primitive settings (rather than less primitive settings).
2. Recreation sites should be managed for capacities that do not cause unacceptable resource damage.
3. When possible, activities that affect visitors should be scheduled outside of the major recreation season.
4. The Coronado NF’s paint color guidelines, the USFS’s Built Environment Image Guide, and the Coronado NF’s Architectural Guidelines for Recreation Residences should be used for

- public and private facilities across the Forest.
5. Designated motorized dispersed camping access routes should be located away from floodplains and environmentally sensitive areas.
  6. Where appropriate, visitor information should be provided in Spanish.
  7. Rock climbing should be managed to balance demand for the activity and the need to protect plants, animals, and other natural resources.

## Standards

1. Prohibit motor vehicle use beyond the designated system of roads, trails, and areas, as defined on Motor Vehicle Use Maps (MVUMs), except for those uses authorized by law, permits, and orders in connection with resource management and public safety.

## Management Approaches

The following management approaches will help to achieve desired conditions and objectives for recreation:

- Utilizing recommendations from various recreation plans (such as concept plans, corridor management plans, and interpretive plans).
- Completing plans to help manage recreation as needed. This may include concept plans, corridor management plans, interpretive plans, and sign plans.
- Encouraging local communities, partnerships, volunteers, and permit holders to help the Forest manage a sustainable recreation program, and ensuring that partners benefit from their roles in providing recreational opportunities.
- Visiting campgrounds and dispersed sites on a regular basis to make public contacts and ensure fee compliance, provide information, and promote responsible recreation principles
- Establishing long-term partnerships to help the Forest maintain trails and address international border-related impacts such as trash and trail damage.
- Considering additional partnerships to help the Coronado NF provide recreation opportunities.
- Working closely with the Department of Homeland Security and the Border Patrol to manage recreation settings and opportunities and visitor safety in the international border region.
- Managing international border-related trash by prioritizing cleanup efforts at high visibility recreation areas (including Cave Creek, Madera Canyon, Peña Blanca Lake, Parker Canyon Lake, and Carr Canyon).
- Using the Coronado NF's Transition Plan to prioritize projects and improve accessibility for visitors.
- Completing the evaluation of desired ROS settings.
- Developing sign plans as needed for Scenic Byways and other popular areas that provide improved visitor information and a strong and consistent Forest Service image.
- Evaluating potentially-eligible Wild & Scenic Rivers, and when appropriate, recommending designation.
- Designating special areas when appropriate to help manage recreation and/or enhance recreation opportunities.
- Providing interpretive facilities and conservation education programs to help visitors and the increasingly urban population in southeastern Arizona learn about and appreciate nature and wild places.
- Creating additional semi-primitive non-motorized (SPNM) opportunities by closing roads which are determined to be unnecessary.
- Designating, in the MVUM, those routes that are appropriate for people to use vehicles to access dispersed campsites.

- Increasing recreation opportunities within the capacity of the land to accommodate the population of southeastern Arizona by expanding existing developed recreation sites and encouraging use at underutilized recreation sites.
- Establishing an ongoing program of trail maintenance, reconstruction, and trash cleanup to mitigate the ecological damage caused by illegal border crossers.
- Considering the use of permit systems to preserve the integrity of the Forest's natural resources and to reduce visitor conflicts where recreation impacts cannot otherwise be reasonably managed. Examples include activities in wilderness areas, popular rock climbing locations, and dispersed activities with the potential for resource damage or visitor conflicts, such as paintballing and geo-caching.
- Using the following references for information on effective management of recreation:
  - Recreation Facility Analysis Program of Work
  - 1986 Recreation Opportunity Spectrum (ROS) Book
  - The Built Environment Image Guide (FS-710)
  - Architectural Guidelines for Recreation Residences
  - Forest Service Outdoor Recreation Accessibility Guidelines
  - Forest Service Trail Accessibility Guidelines
  - USDA Forest Service Exhibit Accessibility Checklist
  - Accessibility Guidebook for Outfitter/Guides Operating on Public Lands (FS-757)
  - Accessibility Guidebook for Ski Areas Operating on Public Lands (FS-703)
  - Coronado National Forest Transition Plan
  - Cave Creek Recreation Concept Plan
  - Patagonia-Sonoita Scenic Road Corridor Management Plan
  - Swift Trail Parkway Corridor Management Plan
  - Sky Island Scenic Byway Corridor Management Plan
  - Sabino Canyon Recreation Concept Plan
  - Sabino Canyon Interpretive Plan

## Scenic Quality

### Desired Conditions

Scenic resources on the Coronado NF are in excellent condition and are sustainable and resilient to short-term disturbances. Visitors enjoy vast open spaces and a variety of natural landscapes, including deeply carved desert canyons, riparian corridors with towering sycamores and cottonwoods, golden rolling native grasslands, dense oak woodlands, and mountaintop conifer forests. The Forest's sky islands provide a visual backdrop to cities and roads in the surrounding deserts.

The Coronado NF continues to be the primary provider of large-scale, natural, public lands in southeastern Arizona. Scenery on the Coronado NF enhances the quality of life for residents and provides tourist destinations, which contributes to local economies. In the rare instances where visitors see utilitarian structures (such as communications towers, transmission lines, astrophysical facilities, and administrative sites), these elements blend into the landscape well. Mining activities are rarely seen, and mines that are no longer operational have been completely naturalized by restoring topography and vegetation from the natural landscape.

Most landscapes on the Coronado NF feature a mosaic of plant species, structures, ages, and densities. Older aged vegetation communities and large trees are common. Disturbances, including insect and disease outbreaks and wildfire, occur within their natural scale and do not

diminish large viewsheds or major portions of any ecosystem management area. Scenic quality is affected for short periods of time by vegetation management projects, as described in the objectives for forestwide vegetation communities. These areas resume a natural appearance as quickly as possible

Along scenic byways and other popular travel routes, visitors find occasional developed recreation sites that provide desired amenities (restrooms, picnic tables, etc.), but these facilities are in character with the National Forest System setting. Occasionally, visitors see small historic sites – these areas are positive scenic elements, providing a glimpse of times past. Private cabins appear rustic, and blend in with the landscape.

Landscapes away from roads provide opportunities for dispersed recreation, solitude, and spending time in pristine wildlands with minimal evidence of human activity.

### **Guidelines**

1. The Coronado NF's Scenery Management System maps (including scenic integrity, scenic class, concern levels, and Scenic Integrity Objectives) should be used as projects are planned and implemented.
2. Facilities should be designed to complement the character of the surrounding natural landscape. This applies to public recreation sites, administrative sites, and private structures.
3. New facilities, such as electronic sites, astrophysical complexes, and administrative sites, should be clustered within existing areas. Facility colors and materials should blend with the landscape, structures should generally be below the height of vegetation, and vegetation that screens views to facilities should be protected or created.
4. Vegetation management projects should avoid even spacing of retained trees, leave a diversity of tree species and sizes, leave large trees whenever possible, cut stumps at ground level and angle them away from viewing locations, remove slash as soon as possible, and naturalize disturbed areas.
5. Utility lines should be buried in areas with sensitive scenic resources, such as areas with a scenic integrity objective of Very High, along scenic byways, and within recreation areas.

### **Standards**

1. Use only native or non-persistent seed and plant materials when re-vegetating disturbed sites.

### **Management Approaches**

The following management approaches will be helpful in achieving the desired conditions and objectives for scenery resources:

- Improving scenic quality in areas where it has been negatively impacted as other project work is accomplished and/or funds are available.
- Designating special places, where appropriate, to help protect scenic resources.
- Interpreting vegetation treatments and natural disturbance events when they occur along major roads or trails.
- Scheduling activities that effect scenic quality outside of the major recreation season.
- Using the following references for information on effective management of scenery resources:
  - Landscape Aesthetics, A Handbook for Scenery Management (FSH 701)
  - The Built Environment Image Guide (FS-710)
  - Architectural Guidelines for Recreation Residences
  - Patagonia-Sonoita Scenic Road Corridor Management Plan
  - Swift Trail Parkway Corridor Management Plan

- Sky Island Scenic Byway Corridor Management Plan

## Special Use Management

### Desired Conditions

Special use activities on National Forest System (NFS) lands provide needed services to communities that cannot be reasonably accommodated on non-federal lands. These activities supplement and complement services that the Coronado NF provides. Any negative environmental, social, and visual impacts are minimized; the permit area and duration are the minimum necessary to accommodate the use.

### Guidelines

1. Recreation residences should be managed utilizing the forestwide policy, generally outlined in the Architectural Guidelines for Recreation Residences on the Coronado NF (the Guidelines). Items not covered in the Guidelines will be managed by a committee consisting of the District Rangers of Douglas, Safford and Santa Catalina Ranger Districts, and the Forest Supervisor or Deputy Forest Supervisor.
2. Isolated cabins, privately-owned buildings, and residences which are not part of the recreation residence program, are not suitable uses on the Coronado NF and should be phased out by December 31, 2025.
3. Facilities should be sited and designed to blend into the landscape as much as possible. Whenever possible, heights of structures should be kept below the height of surrounding vegetation, and vegetation that screens views to utilitarian facilities should be protected and encouraged.
4. Phone and power distribution lines that cross NFS lands to access private inholdings or Forest Service facilities should be designed so as to be screened by the landscape or vegetation as much as possible.
5. Requests for phone or power distribution lines to cross NFS lands to access private lands outside the Forest boundary should be discouraged.
6. New or reconstructed utility lines should be placed underground when possible to meet the scenic integrity objective unless this is not feasible because of overriding environmental concerns or technical considerations.
7. New utilities should be located in existing corridors that meet the scenic integrity objective. Existing corridors that do not meet the scenic integrity objective should be relocated when construction becomes necessary.
8. Public access to special use areas such as communication sites should not be restricted unless there are safety concerns.
9. Equestrian activities authorized under special use permits should be limited to existing NFS trails and roads.
10. Motorized uses authorized under special use permits should be limited to existing NFS roads and motorized trails, as identified on the Motor Vehicle Use Maps (MVUMs).

### Standards

1. Wildlife-viewing outfitters may not use audio playback equipment, vocalizations, or other means to locate wildlife.
2. Special use permits that authorize commercial collecting or large-scale personal collections must be approved by a journey-level district biologist.
3. A special use permit is required for collection of plants or animals in all Zoological and/or Botanical Areas.

4. Communications sites will be managed to the following standards:
  - a. Maximize co-location of existing buildings.
  - b. Site use shall be allocated on a facility-need basis.
  - c. Maintenance of NFS roads and trails to access communication sites, above and beyond normal Forest Service maintenance, will be carried out by the facility owner or association only after obtaining the proper authorizing document (e.g., Road Use Permit).
  - d. Clearing of vegetation will be limited to that which poses a hazard to facilities and operational efficiency.
  - e. High and low power communication uses will be authorized only where designated as such in the communications site plans. Any potential electromagnetic interference must be resolved by the site users before construction can proceed. Senior uses on a site have priority over new or proposed uses. Microwave corridors will be protected.
  - f. All new and replacement towers must be self-supporting.
  - g. New and replacement antennas and towers will be below the height for which the Federal Aviation Administration requires lights because of the interference with the fire lookout tower and aesthetics.
  - h. All utility lines connecting to communications sites will be placed underground.
  - i. All buildings & towers will meet color requirements set forth in the Coronado NF's Architectural Guidelines for Recreation Residences. Microwave dishes will utilize dark grey covers. Other antennas will be dark grey when available through the manufacturer.
5. Limit group size authorized in outfitter-guide permits in wilderness areas to 10 persons.
6. Limit non-pedestrian activities (e.g., bicycle and equestrian) authorized under special use permits to existing NFS trails and roads.
7. Limit motorized special use activities to existing NFS roads and NFS motorized trails.
8. Require rehabilitation of non-NFS trails created by activities authorized under special use permits.

## Management Approaches

The following management approaches will help to achieve the desired conditions for special use management.

- Maintaining existing communications sites and completing site management plans for all sites with the cooperation of user groups.
- Continuing to establish user groups or organizations for each site.
- Favoring consolidation or co-location of facilities within existing sites over opening new sites or expanding existing sites.
- Grouping uses according to compatibility (governmental vs. private).

## Heritage Resources

### General Description

Coronado NF heritage resources provide the public with opportunities to gain a broader understanding of southeastern Arizona's over 12,000-year history of human habitation. Heritage resources help people connect with the past, not only to enhance their sense of time and place, but also to illuminate aspects of Arizona history that are relevant to modern life and land-use decisions.

### Desired Conditions

Heritage resources on the Coronado NF, including known Native American sacred sites and traditional cultural properties, are preserved, protected, and/or restored for their cultural and

scientific importance and are generally free from inappropriate impacts. Landscapes, sites, traditions, and stories contribute to the Forest community's appreciation of the diverse human communities who have lived in the region, and how they adapted to the cultural and physical environment. As appropriate, eligible and historically-significant heritage properties are listed on the National Register of Historic Places. The Forest's Priority Heritage Assets are protected and preserved. Archaeological, ethnographic, and historical data guide efforts to manage current ecosystems and in some cases restore historic ones.

Forest facilities that are eligible for the National Register of Historic Places are available for continued use, for forest administration, public recreation and interpretation, and tribal events, as appropriate. Important archaeological artifacts are protected, either in-place in their original contexts or in secure curation facilities. The Forest's historic documents, including photographs, maps, journals, and Forest Service (FS) program management records, are available for research and interpretation by the FS, other agencies, universities, tribes, and the public.

### **Objectives**

- Complete 200 acres of non-project inventory each year, so that the Forest's currently unidentified heritage resources can be recorded, evaluated, and protected. Over the planning period, nominate 5 to 10 individual sites or 2 to 4 districts to the National Register of Historic Places. Over the planning period, develop management and treatment plans for 5 significant heritage sites. Conduct stabilization or maintenance at 1 to 5 priority heritage assets per year. Host, sponsor, or participate in 2 to 5 interpretive events for the public each year. Develop a 5-25 page cultural history overview for one EMA per year.
- Prepare an administrative history for one district every 2 years.
- Over the planning period, develop or renew 2 to 12 Memoranda of Understanding to facilitate tribal consultation in the National Historic Preservation Act Section 106 process.
- Develop a database of fire-sensitive sites and structures that would be available for fire management, one EMA per year, congruent with Firescape schedule.
- Provide opportunities for volunteers to participate in heritage resource conservation activities at 2 to 5 archaeological sites or historic properties per year.
- Within 10 years of plan signing, enter 2 to 10 historic sites in the Arizona "Rooms with a View" cabin rental program.
- Incorporate into a Geographic Information System (GIS) database 15 to 30 digitized historic maps or plats per year.
- Inspect each priority heritage asset at least once every five years.

### **Guidelines**

1. During the conduct of undertakings, the preferred management of historic properties listed in, nominated to, eligible for, or potentially eligible for the National Register should be avoidance and protection. Unevaluated sites should be managed as if eligible, unless consultation with the State Historic Preservation Officer indicates otherwise.
2. Cultural resources should be preserved in place under the following conditions:
  - a. where the cultural values derive primarily from qualities other than research potential, and where those values are fully realized only when the cultural remains exist undisturbed in their original context(s) (e.g., association with significant historical persons or events, special ethnic or religious values, or unique interpretive values);
  - b. where present methods of investigation and data recovery cannot realize the current research potential of the sites, or where the sites are likely to have greater importance for addressing future research questions than current ones;
  - c. where cultural resources are important primarily for the quality of their architecture and

- the integrity of their setting; and
- d. where preservation in place is necessary to accomplish the objectives of the State Historic Preservation Plan.
3. Contracts, permits, and leases which have the potential to affect cultural resources should include appropriate clauses on protection responsibilities and liability for damage.
  4. Historic values should be considered in the development and modification of facilities.

## Management Approaches

The following management approaches will be helpful in achieving the desired conditions and objectives for heritage resources:

- Maintaining and enhancing coordination and cooperation with other land-managing agencies, tribes, and public-private alliances that advance the stewardship of the Nation's diverse heritage. Cooperative efforts can include fostering the educational, aesthetic, inspirational, cultural, and economic benefits of historic preservation and conservation as outlined in the Arizona State Historic Preservation Plan; encouraging public interpretation at historic sites where it contributes to the region's sense of community and inter-cultural understanding; and facilitating cross-boundary heritage tourism to contribute to the region's economy and sense of place.
- Maintaining and enhancing the partnerships with tribes, universities, colleges, professional organizations, volunteers, and avocational archaeologists that play an integral role in the management of Heritage resources.
- Developing appropriate measures to protect cultural resources from deterioration due to natural forces, visitor use, and vandalism. Protective measures may include signing, fencing, administrative closure, patrolling, interpretive signs, and stabilization or data recovery.
- Pursuing opportunities to interpret heritage resources to the public. On-site interpretation can include interpretive trails, signs, exhibits, and self-guided and specialist-guided tours at historic and prehistoric sites. Off-site interpretation can include lectures, professional reports and publications, brochures, programs and displays. Interpretation of cultural resources can be integrated with other resource interpretation, and with other recreation facilities and programs. The Forest can pursue opportunities to develop cooperative efforts with other Federal and State agencies interested in cultural resource interpretation, such as the Bureau of Land Management and other National Forests, and with private partners.
- Maintaining architectural National Register properties for rehabilitation and re-use, in accordance with the Secretary of the Interior's standards and guidelines, and developing programmatic memoranda of agreement for the maintenance and treatment of structures listed in the National Register to ensure proper long-term treatment and facilitate consultation with the State Historic Preservation Officer.
- Prioritizing areas to survey as follows: (1) areas suspected to have high site density; (2) areas suspected to have under-represented site types; (3) areas of traditional importance to tribes; and (4) areas where site densities or ongoing impacts are unknown and need to be assessed.
- Prioritizing sites or districts to nominate to the National Register of Historic Places as follows: (1) sites or districts of high traditional, scientific, or community value; (2) sites or districts where National Register status would facilitate management, by heightening public appreciation, acknowledging or highlighting tribal history, or increasing eligibility for grants.
- Prioritizing sites that need management or treatment plans for sites as follows: (1) sites subject to ongoing impacts or deterioration; (2) sites of high traditional, scientific, or community value; (3) historic buildings or facilities with high potential for adaptive reuse.
- Prioritizing stabilization or maintenance based on new and existing management and treatment plans, determined as above.
- Prioritizing interpretive events as follows: (1) potential for collaboration and partnerships; (2)

integration with State, regional, and tribal initiatives; (3) potential for outreach to kids and under-served populations; (4) potential for productive hands-on activities that benefit heritage and natural resources of the forest.

- Preparing a forest-wide heritage plan.

## **Tribal Relations**

### **General Description**

Tribes with aboriginal territories and traditional ties to the land now administered by the Forest include the Ak-Chin Indian Community, the Fort Sill Apache Tribe, the Gila River Indian Community, the Hopi Tribe, the Mescalero Apache Tribe, the Pascua Yaqui, the Pueblo of Zuni, the Salt River Pima Maricopa Indian Community, the San Carlos Apache Tribe, the Tohono O'odham Nation, the White Mountain Apache Tribe, and the Yavapai-Apache Nation. All tribes whose aboriginal territories are now part of the Coronado NF are recognized as having important roles in the stewardship of the land.

### **Desired Conditions**

Traditional lands on the Forest provide a setting for the education of tribal youth in culture, history, and land stewardship. Interpretive and educational exhibits, events, and other media that focus on the history of the lands now managed by the Coronado NF provide the general public with a greater understanding and appreciation of native history, culture, and traditions.

Traditional tribal uses, such as the collection of medicinal plants, wild plant foods, basketry materials, and fuel wood, are facilitated. Tribal members have access to sacred sites for individual and group prayer and traditional ceremonies and rituals, and the integrity of sacred sites is maintained or improved whenever feasible. When available, Forest administrative sites can be used by tribal families and organizations through government-to-government agreements. All sacred objects, human remains, funerary objects, and objects of cultural patrimony removed from forest land are repatriated to the appropriate tribe under the Native American Graves Protection and Repatriation Act (NAGPRA).

### **Objectives**

- Within 5 years of plan approval, the Forest will have completed NAGPRA repatriations of all items collected prior to 1990.

### **Management Approaches**

The following management approaches will help achieve the desired conditions and objectives for tribal relations:

- Initiating a multi-property, multi-forest Apache traditional cultural property National Register nomination study.
- Initiating a multi-property, multi-forest, multi-tribe traditional cultural property National Register nomination study.
- Honoring through words and actions the trust responsibilities toward tribes, and acknowledging the historic and legal basis of tribal rights.
- Working together with tribes to build respectful, collaborative relationships.
- Consulting with tribes at early stages of planning and project design, so that tribal perspectives and needs as well as traditional knowledge can be incorporated into project design and decisions.
- Making decisions that are transparent, and reflect the results of tribal consultation.

- Working with tribes to develop ways of accomplishing mutual desired conditions and objectives and resolving potential conflicts.
- Providing training to Forest employees about the trust responsibilities Federal agencies have for tribes, and the specific ways in which the Coronado NF honors and implements those responsibilities.
- Working together with tribes to identify opportunities for collaboration in ecosystem restoration, and coordinate tribal and Forest plans.
- Identifying opportunities where traditional lands on the Forest can provide a setting for the education of tribal youth in culture, history, and land stewardship.
- Developing interpretive and educational exhibits or other media that focus on the history of the Coronado NF in collaboration with tribes to provide the general public with a greater understanding and appreciation of their history, culture, and traditions.
- Collaborating with tribes in providing tribal relations training and specialist services.
- Collaborating with tribes, federal and state agencies, private foundations, and landowners to facilitate management by landscape rather than jurisdiction, so that tribes, the public, contractors, and researchers can cross from one federal agency's jurisdiction to another without encountering contradictory rules or cumbersome red tape.
- Developing government-to-government relationships with tribal officials, to meet requirements of Executive Order 13175.
- Providing Forest employees opportunities to receive training so they understand the unique legal relationship between the federal government and Indian Tribes, set forth in the U.S. Constitution, treaties, statutes, executive orders, and court decisions.
- Encouraging tribal members to engage in traditional activities, such as the collection of medicinal plants, wild plant foods, basketry materials, and fuel wood for personal use.
- Ensuring that tribal members have access to sacred sites for individual and group prayer and traditional ceremonies and rituals, and that the integrity of sacred sites is maintained or improved whenever feasible.
- Making Forest recreational or administrative sites available for use by tribal families and organizations through government-to-government agreements.
- Developing interpretive information about history and human occupation of the lands now part of the Coronado NF in collaboration with tribes.
- Initiating a multi-forest Western Apache traditional cultural property study.
- Initiating a multi-forest, multi-tribal traditional cultural property study.
- Developing a tribal relations orientation program for new line and staff officers.
- Developing 2 to 12 consultation protocols to facilitate consultation between the FS and tribes.
- Developing or renewing 2 to 12 memoranda of understanding to facilitate tribal consultation in the National Historic Preservation Act Section 106 process.

## **Range Management**

### **Desired Conditions**

The Coronado NF provides forage for grazing in support of domestic livestock production as a viable, sustainable economic activity. Communities surrounding the Coronado NF benefit from the interactions of livestock production activities with other economic sectors, and from the social, cultural and ecological values tied to conservation ranching.

Domestic livestock grazing maintains the desired composition and structure of plant communities. Rangeland ecosystems are diverse, resilient, and functioning within a healthy,

sustainable landscape. Areas that are grazed have stable soils, functional hydrology and biotic integrity.

By supporting livestock production from working landscapes with an extensive, low impact land use, the Coronado NF contributes to preserving large areas of un-fragmented open space. These open spaces sustain biological diversity and ecological processes, and help to preserve the rural cultural heritage of southeastern Arizona and southwestern New Mexico.

## Guidelines

1. In general, utilization levels should be kept at 45 percent or lower except in cases of experimental, scientific, fuels reduction, invasive plant control, or other targeted grazing<sup>7</sup> objectives are necessary.
2. Under normal circumstances, burned areas should be given sufficient rest, especially during the growing season, to ensure plant recovery and vigor.
3. Construction or reconstruction of livestock fencing should follow the established wildlife-friendly fencing<sup>8</sup>.
4. Livestock grazing activity should maintain or promote ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological site.
5. Range improvements should be used and/or located in a way that does not conflict with riparian functions or should be relocated or modified when found incompatible with riparian function or health.
6. The use and perpetuation of native species should be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands, non-intrusive, non-invasive, non-native plant species may be appropriate where native species: (a) are not available; (b) are not economically feasible; (c) cannot achieve ecological objectives as well as nonnative species; and/or (d) cannot compete with already established non-native species.
7. Intensity, timing, duration, distribution, and frequency of livestock grazing should provide for growth and reproduction of desired plant species.
8. Management practices to achieve desired plant communities should consider protection and conservation of known cultural resources, including historical sites, and prehistoric sites and plants of significance to Native American peoples.

## Management Approaches

The following management approaches will help achieve the desired conditions and objectives for range management:

- Following the monitoring protocols found in the Forest Service's Region 3 Rangeland Management Training Guide, Technical Interagency Guide, Utilization Guidelines and Standards Paper.
- Collaborating with permittees, other agencies, University of Arizona Cooperative Extension, and other stakeholders to develop consistency in monitoring protocols, and to leverage resources to accomplish landscape scale monitoring.
- Reviewing each active allotment management plan at least once every five years to identify any necessary adaptations in management based on changes in conditions or circumstances.
- Completing implementation monitoring at least once every three years, to assess short-term

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<sup>7</sup> **Targeted grazing** is the carefully controlled grazing of livestock to accomplish specific vegetation management objectives. Unlike conventional grazing management, livestock are used as a tool for improving land health by performing weed control, reducing wildland fire, and aiding in restoration projects.

<sup>8</sup> **Wildlife-friendly fence** is 4 wires or less with bottom wire 16 inches off ground, top wire 12 inches above second wire, and fence height less than or equal to 42 inches.

goals such as utilization levels and patterns, range improvement (structural and non-structural) conditions, noxious weed presence, and grazing strategy success.

- Establishing, where feasible, grass reserves<sup>9</sup> to help reduce conflict between fuel management/reduction objectives and livestock grazing.

## Land Ownership Adjustments and Boundary Management

### Desired Conditions

The complexity of the forest's landownership pattern and fragmentation of the ecosystem has been reduced through land adjustments (by donation, exchange, purchase, sale, transfer, or a combination thereof). Greater protection is afforded valuable natural resources and desired forest landscape conditions are attained within large consolidated and contiguous blocks of NFS land.

Non-federal lands that are valuable for public access, open space, habitat (wildlife, fish, and rare plants), recreation, riparian, and scenic resources are consolidated into federal landownership and large contiguous blocks of NFS land.

Large administrative complexes costly to maintain and manage (deferred maintenance) and/or NFS lands encumbered by long-term land occupancy commitments and authorizations which have lost their NFS character and provide minimal benefit to the general public are disposed of through landownership adjustments.

Property lines between NFS and non-federal (private) lands are located, well-marked, and posted to protect resources and prevent future trespass and encroachments.

### Objectives

- Acquire 10 to 15 percent of the current 70,582 acres non-federal lands within the Coronado National Forest for public access, habitat, recreation and riparian resources within the first decade following plan approval.

### Guidelines

1. Any excessive clearing of property lines should be avoided.

### Standards

1. On all vegetation and fuel control projects, searches will be made for all land survey corners and bearing trees will be protected.
2. All fences to be constructed along Forest boundaries will be located by a Forest Surveyor or cooperative surveyor.

### Management Approaches

The following management approaches will help to achieve the desired conditions and objectives for land ownership adjustments and boundary management:

- Minimizing future encroachment cases and resolving present encroachments will be considered a priority.
- Considering opportunities to consolidate small private land holdings into NFS lands through

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<sup>9</sup> A **Grass reserve** is an area that is normally not allocated or permitted for livestock grazing, although may be used when an authorized pasture or allotment is unavailable.

the land adjustment program.

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## Chapter 3: Management Areas

### Wilderness Areas

The Coronado National Forest has eight designated Wilderness Areas. Table 2 displays the size of the Wilderness Areas, and the Ecosystem Management Area (EMA) that each is located within (see Chapter 4 for descriptions of EMAs).

**Table 2: Wilderness Areas**

Wilderness Areas	Acres	Ecosystem Management Area
Chiricahua Wilderness	87,700	Chiricahua
Galiuro Wilderness	76,317	Galiuro
Miller Peak Wilderness	20,191	Huachuca
Mt. Wrightson Wilderness	25,260	Santa Rita
Pajarita Wilderness	7,422	Tumacacori
Pusch Ridge Wilderness	56,933	Santa Catalina
Rincon Mountain Wilderness	38,950	Santa Catalina
Santa Teresa Wilderness	26,780	Santa Teresa

### Descriptions

**Chiricahua Wilderness.** The 87,700-acre Chiricahua Wilderness lies at the heart of the Chiricahua EMA. It was designated by the 1964 Wilderness Act. Dense brush, steep elevations, precipitous canyon walls, and an undependable water supply limit recreational use mostly to the 13 established trails in the Wilderness. Portions of Rucker Canyon, Turkey Creek, and Cave Creek are contained within its boundary. The designated Wilderness acreage in the mountain range is augmented to the north by the Chiricahua National Monument Wilderness, managed by the National Park Service.

**Galiuro Wilderness.** Much of the Galiuro Mountain range was designated as Wilderness with the 1964 Wilderness Act. The 76,317-acre area, Galiuro Wilderness abuts Bureau of Land Management-administered Redfield Canyon Wilderness to the south. Lightly-used trails traverse the ridges and valleys, accessing springs that provide the only sources of water in a range without perennial stream flow.

**Miller Peak Wilderness.** Named for the highest point in the Huachuca Mountains, Miller Peak Wilderness encompasses 20,190 acres of the Huachuca EMAs upper elevations, and was established in 1984 with the Arizona Wilderness Act. From atop 9,466-foot Miller Peak, wide-reaching views stretch into Mexico and across southeastern Arizona, taking in many mountain ranges in all directions. The Arizona Trail traverses the wilderness (and a major portion of the EMA) before reaching its southern terminus at the U.S.-Mexico border; this and other trails crisscross slopes and ridgelines, navigating sheer cliffs and deep canyons – features that collectively support over 170 species of birds, 78 species of mammals, and over 60 lizard species. Access is plentiful from all directions, although most visitors use southern and eastern entrance points.

**Mt. Wrightson Wilderness.** At the core of the Santa Rita Mountains, 25,260-acre Mt. Wrightson Wilderness has rough hillsides, deep canyons, and lofty ridges surrounded on all sides by semiarid hills and sloping grasslands. Ponderosa pine and Douglas-fir dominate higher reaches of the area while lower and more exposed slopes are covered with oak woodlands. Stream-fed canyons support an abundance of plant and animal life, including many montane Mexican plants that grow nowhere else north of the international border. The diversity which characterizes wilderness serves as a powerful attraction to nature lovers who value wildlife watching as a vital element of their wilderness experience.

**Pajarita Wilderness.** The Pajarita Wilderness, in the Tumacacori EMA is an ecological treasure-chest, encompassing a good portion of Sycamore Canyon, California Gulch, Goodding Research Natural Area, and its proposed Extension. More than 660 species of plants have been identified within its borders, 17 of them found nowhere else on earth. Pajarita is a Spanish word meaning “little bird”, an appropriate name for a wilderness area where more than 160 species of birds have been identified. Butterflies abound here as well, with more than 200 species sighted. Two major trails lead into the Pajarita Wilderness: Sycamore Canyon Trail heads south from Hank and Yank Spring through that showplace of biological diversity, and the Border Trail skirts the international border from Summit Motorway, a rough four-wheel drive road that parallels the eastern edge of the wilderness. The 7,420-acre Pajarita Wilderness was designated in 1984 with the Arizona Wilderness Act.

**Pusch Ridge Wilderness.** Pusch Ridge towers over Tucson and the surrounding Sonoran desert as one of the most prominent features of the Santa Catalina EMA – stemming from it in all directions lies the 56,933-acre Pusch Ridge Wilderness. Elevations range from 2,800 to 8,800 feet, offering diversity of biological community (from desert to mixed conifer) and topography (razorback ridges to montane meadows). The wildlife community that inhabits such a varied setting is diverse as well. Black bears and coatimundis, Steller’s jays and cactus wrens, saguaro cactus and Douglas fir can all be found here. Finger Rock Canyon harbors a well-studied collection of xeroriparian vegetation, a common and important habitat type utilized by many species here and across the Forest. Pusch Ridge’s extensive trail network and proximity to a major metropolitan area make it the Forest’s most heavily visited Wilderness. Still, solitude, detachment from modern-day mechanization, and quiet recreation have been valued in the area since it was designated in 1978.

**Rincon Mountain Wilderness.** At the southeastern edge of the Santa Catalina EMA, Rincon Mountain Wilderness spans 38,590 acres along the Forest boundary. It is contiguous with the nearly doubly-large Saguaro Wilderness, administered by Saguaro National Park. A sense of remoteness prevails despite its location nearly adjacent to the Tucson Valley because sights and sounds of city life are hidden by massive Rincon and Mica Mountains. Another reason for its seclusion is that, except for a few rough 4-wheel drive roads at the northern boundary and some trails leading into it from the Park, Rincon Mountain Wilderness is accessible mainly via a single two-wheel drive road (NFSR 35) at the eastern boundary. Elevations in the area range from 3,880 to 7,325 feet.

**Santa Teresa Wilderness.** Located in the Santa Teresa Mountains, the 26,780 acre Santa Teresa Wilderness was designated in the Arizona Wilderness Act of 1984. Bordered to the northeast by Bureau of Land Management’s North Santa Teresa Wilderness, this area is one of the more remote and lightly visited wildernesses on the Forest. More than anything else, visitors to the area will find solitude, quiet recreation, wild experiences, and opportunities to test their self-reliance

and navigational skills. Several foot trails cut through the deep canyons and bald summits, but are lightly used and may be difficult to follow; cowboys are these trails' most frequent users, maintaining them through periodic livestock drives. Water – a rare commodity in southeastern Arizona – is available year-round at several springs.

### **Desired Conditions**

Wilderness across the Coronado NF provides unconfined opportunities for exploration, solitude, natural risk, challenge, and primitive recreation. Boundaries are posted and noticeable to visitors. When traveling on trails human encounters are generally limited. When traveling cross country, almost no human encounters are expected. Ecological disturbance processes such as fire, insects and disease are the primary factors affecting landscape patterns within wilderness and wilderness study areas. Every designated wilderness has an approved wilderness management plan. Fire functions as a natural ecological process and ecological conditions are affected primarily by natural disturbances, with the appearance of little or no human intervention.

There is little evidence of man-made structures. There is little or no evidence of camping activity, unauthorized trails, trash, or other human impacts on the environment. The non-motorized trail system enhances the wilderness character. Where needed, outfitters and guides provide services to visitors seeking a wilderness experience. Visitor use is in balance with wilderness characteristics.

### **Guidelines**

1. Wilderness and Wilderness Study Areas should be managed for a Scenic Integrity Objective Very High.
2. The existing Recreation Opportunity Spectrum (ROS) classification composition should be maintained or increased from Primitive (P) and Semi-primitive Non-motorized (SPNM) opportunities by closing adjacent roads which are deemed unnecessary.
3. Wilderness character and opportunities for solitude and primitive and unconfined recreation should be maintained.
4. Natural materials should be used in the construction and signing of trails within wilderness, except in the Pusch Ridge Wilderness.
5. Livestock improvements should be located and constructed in such a way as to blend in with the natural environment.
6. Minimum Impact Suppression Tactics should be used in the control and management of fire.
7. New trail construction may be considered if the objective is the enhancement of the wilderness character (e.g., control overuse, limit resource degradation).
8. Trail work should be coordinated around anticipated visitor high-use periods to minimize visitor conflict.
9. Trails that are minimally used and detract from the wilderness character should be obliterated.
10. Wildfires ignited by lightning should be evaluated to determine if resource benefits can be obtained, and if so, may burn under established conditions determined at the time of the fire.
11. Planned ignitions should be considered to create favorable conditions that enable naturally occurring fires to return to their historic role or to achieve wilderness desired conditions.
12. Fire management activities should be conducted in a manner compatible with the overall wilderness management objectives.
13. Fire camps, helispots, and other temporary facilities should be located outside the wilderness boundary whenever possible.
14. Whenever possible, fire lines and spike camps (i.e., a remote camp usually near a fire line) should not be constructed adjacent to trails or camp areas.

**Standards**

1. Limit group size to no more than 10 people and 15 riding/packstock animals in all Wilderness except the Pusch Ridge and Mt. Wrightson Wildernesses.
2. Limit group size to no more than 15 people in the Pusch Ridge and Mt. Wrightson Wildernesses.
3. Prohibit dogs and domestic goats and sheep in the Pusch Ridge Wilderness.
4. Prohibit geo-caching.
5. Prohibit permanent rock anchors.

**Management Approaches**

The following management approaches will help to achieve the desired conditions and objectives for Wilderness and Wilderness Study Areas:

- Cooperating with Saguaro National Monument to implement as nearly identical management of the Rincon Mountain Wilderness as possible.
- Removing unneeded or unused livestock improvements such as fences, pipelines, and water troughs.
- Completing and carrying out wilderness management plans and wilderness use capacities for each designated wilderness, including comprehensive vegetation inventories.
- Restricting group size if wilderness experience levels or values are adversely impacted.
- Prioritizing trail reconstruction based on potential for loss of wilderness values, impacts to wilderness recreation experience, and the trails which receive the greatest use.

**Wilderness Study Areas**

The Coronado National Forest has three designated Wilderness Study Areas (WSA). Table 3 displays the size of the WSAs, and the Ecosystem Management Area (EMA) that each is located within (see Chapter 4 for descriptions of EMAs).

**Table 3: Wilderness Study Areas**

<b>Wilderness Study Areas</b>	<b>Acres</b>	<b>Ecosystem Management Area</b>
Mt. Graham Wilderness Study Area	61,214	Pinaleño
Bunk Robinson Wilderness Study Area	17,482	Peloncillo
Whitmire Canyon Wilderness Study Area	10,889	Peloncillo

**General Descriptions**

**Mount Graham Wilderness Study Area.** Designated through the Arizona Wilderness Act of 1984, this 62,000-acre delineation circles the high peaks of the Pinaleño Mountains. It is characterized by steep mountainsides and canyons. As a result of its unusual shape, access is more readily available from the interior of the WSA, where Swift Trail Parkway winds steadily upwards, than from lower elevation trailheads. One access point, at the end of Marijilda Canyon Road (NFSR 57), points hikers up a rare perennial drainage into the WSA – a canyon thought to harbor the greatest diversity of lizard species in the United States. The Coronado NF recommended formal wilderness designation for Mount Graham WSA in the 1986 Forest Plan, and will continue to manage for the area’s wilderness character until a Congressional determination is reached.

**Bunk Robinson and Whitmire Canyon Wilderness Study Areas.** The New Mexico Wilderness Act of 1980 created both the Bunk Robinson and Whitmire Canyon Wilderness Study Areas (WSA), occupying a large portion of the Peloncillo EMA. Each was enlarged with the Arizona Wilderness Act of 1984, for a total of 15,960 acres in the Bunk Robinson WSA and 12,840 in the Whitmire Canyon WSA. To allow for flexibility in managing wildlife habitat, and because their ecosystems are well-represented in other Arizona wilderness areas, both WSAs were recommended for non-wilderness designation in the 1986 Forest Plan. Until Congress makes a decision, Bunk Robinson and Whitmire Canyon WSAs will continue to be managed to maintain their existing wilderness character.

### **Desired Conditions**

Wilderness Study Areas are natural in appearance and essence. They provide unconfined opportunities for exploration, solitude, natural risk, challenge, and primitive recreation. When traveling on trails, human encounters are generally limited. When traveling cross country, almost no human encounters are expected. There is little evidence of human developments or human activities. Ecological disturbance processes such as fire, insects and disease are the primary factors affecting landscape patterns in wilderness study areas.

There is little or no evidence of camping activity, unauthorized trails, or trash. Where needed, outfitters and guides provide services to visitors seeking a wilderness experience. Visitor use is in balance with wilderness characteristics.

### **Guidelines**

1. New recreation facilities should not be constructed.
2. Timber harvest should not be permitted.
3. Gathering of forest products for sale should not be permitted.
4. Mechanized or motorized trails should not be designated.
5. New roads should not be constructed.

## **Recommended Wilderness Areas**

### **Background**

In 2009, Coronado NF lands were evaluated to determine potential wilderness areas. (See the draft wilderness evaluation reports on the Forest's web site for more information: <http://www.fs.fed.us/r3/coronado/plan-revision/plan-revision-documents.shtml>. Note: the Coronado NF is seeking public input on the need for additional wilderness.)

If any areas are administratively recommended, the following plan components would apply.

### **Desired Conditions**

The wilderness characteristics of each recommended wilderness remain intact until a Congressional decision on wilderness designation is made. Characteristics include naturalness, opportunities for solitude, opportunities for primitive and unconfined recreation, and identified special features.

### **Guidelines**

1. Existing wilderness character should be maintained.

## Eligible Wild and Scenic Rivers

### Desired Conditions

Each river's outstanding features, free-flowing characteristics and potential classification are protected, including the bed, bank, and one-quarter mile on either side of the ordinary high-water mark. The actual river corridor varies in order to protect the outstanding remarkable values.

Wild Rivers are free of impoundment. The shoreline is essentially primitive with little or no evidence of human activity. The area is inaccessible except by trail and no developed recreation facilities exist. The water quality meets or exceeds state standards.

Scenic Rivers are free of impoundment. The shoreline is largely primitive and undeveloped, and there is no substantial evidence of human activity. Evidence of human activities generally diminishes over time. Roads may reach or bridge the river. Improvements that occur are minimally intrusive in the landscape.

Recreation Rivers are generally readily accessible by road or trail. Encounters with people are expected and recreation opportunities vary depending on their compatibility with the outstandingly remarkable value of the eligible segment. Vegetation management is used to enhance recreation river values. Improvements, such as primitive roads, trails, bridges, fences, or signs, may dominate the landscape. Facilities are visually complementary with the landscape.

**Table 4: Eligible Wild and Scenic River Segments**

Eligible Wild and Scenic River Segments	Classification	Outstandingly Remarkable Values (ORVs)	Length (miles)	Ecosystem Management Area
Ash Creek	Recreation	Scenic, Recreation, Wildlife, Fish, Historic, Cultural, and Ecological	6.2	Pinaleño
Cima (Winn Falls) Creek	Wild	Scenic, Recreation, Wildlife, Historic, Cultural, and Riparian	2.5	Chiricahua
Grant Creek	Recreation	Scenic, Recreation, Wildlife, Fish, Historic, Cultural, and Ecological	5	Pinaleño
Lower Canada del Oro	Recreation	Scenic, Wildlife, Fish, and Historic	3.4	Santa Catalina
Lower Cave Creek	Recreation	Scenic, Recreation, Geologic, Fish, Wildlife, Historic, Cultural, Ecological, and Riparian	7	Chiricahua
Lower Romero Canyon	Recreation	Recreation, Wildlife, Fish, Historic, and Cultural	2.2	Santa Catalina
Lower Sabino Creek	Recreation	Scenic, Recreation, Wildlife, Fish, Historic, and Cultural	3.2	Santa Catalina
Lower South Fork Cave Creek	Scenic	Scenic, Recreation, Wildlife, Fish, Geologic, Cultural, Riparian, and Ecological	1.4	Chiricahua

<b>Eligible Wild and Scenic River Segments</b>	<b>Classification</b>	<b>Outstandingly Remarkable Values (ORVs)</b>	<b>Length (miles)</b>	<b>Ecosystem Management Area</b>
Post Creek	Scenic	Scenic, Recreation, Wildlife, Fish, and Cultural	2.2	Pinaleño
Redfield Canyon	Scenic	Scenic and Wildlife	9.1	Galiuro
Rucker Creek	Wild	Scenic, Recreation, Wildlife, Fish, and Geologic	5.9	Chiricahua
Sycamore River	Scenic	Scenic, Recreation, Wildlife, Fish, Historic, Cultural, and Ecological	5	Tumacacori
Upper Canada del Oro	Wild	Scenic, Wildlife, and Fish	6	Santa Catalina
Upper Romero Canyon	Wild	Scenic, Recreation, Wildlife, Fish, and Cultural	6.1	Santa Catalina
Upper Sabino Creek	Wild	Scenic, Recreation, Wildlife, Historic, and Cultural	8	Santa Catalina
Upper South Fork Cave Creek	Wild	Scenic, Recreation, Wildlife, Fish, Historic, and Riparian	6.2	Chiricahua

**Guidelines**

1. The conditions that support the classification and outstandingly remarkable values should be maintained when implementing projects.

**Land Use Zones**

There are four land use zones on the Coronado National Forest:

**Table 5: Land Use Zone Acres**

<b>Land Use Zone</b>	<b>Acres</b>
Wild Backcountry	646,456
Roaded Backcountry	609,104
Motorized Recreation	50,872
Developed Recreation	36,115

**Wild Backcountry**

**Description**

This land use zone is managed for a range of non-motorized uses. It includes Inventoried Roadless Areas, areas adjacent to Wilderness areas, and other relatively pristine areas. It makes up 628,500 acres, or about 35 percent of the Coronado NF.

**Desired Conditions**

The wild character of these areas is preserved. Settings are natural, and the sights and sounds of motorized vehicles, crowds or other urban elements are not evident. A few primitive or high-

clearance roads allow motorized access into limited areas. Dispersed camping sites are used infrequently. Vegetation within these sites is vigorous and quickly recovers from the impacts of camping activities. Quiet experiences are available in this entire zone, with the exception of areas directly adjacent to the small number of access roads.

### **Guidelines**

1. Lands should be managed to maintain the primitive character of the areas.
2. Temporary roads should be allowed only for administrative access, national security, tribal needs, forest health projects, or fires.
3. New roads should be allowed only as needed to restore motorized public access to NFS land.
4. When roads and temporary facilities are no longer needed, they should be removed or converted to trails.
5. Scenic resources should be managed per the Coronado NF's Scenic Integrity Objective (SIO) maps. Wild Backcountry would generally be managed for an SIO of Very High.
6. New utility structures and power lines should not be allowed.
7. Vegetation treatments should reflect the natural disturbance regimes for the site.

## **Roaded Backcountry**

### **Description**

This land use zone is managed for a range of dispersed uses and motorized access, with an emphasis on quiet recreation. These areas are managed to retain the natural character and limit the level and type of development. Roaded Backcountry makes up 623,400 acres, or about 35%, of the Coronado NF.

### **Desired Conditions**

Settings are natural and there are very few permanent facilities. Opportunities for quiet recreation exist away from roads. Dispersed campsites are clean and impacts from campers are minimal. National Forest System roads provide access to trailheads; remote, undeveloped camping areas; and occasionally developed recreation facilities or administrative sites. Most roads are unpaved.

### **Guidelines**

1. The level and type of development should be limited in order to protect the natural character inherent in this zone.
2. When demand warrants, managers should consider expanding the ability of existing facilities before proposing new facilities.
3. When facilities are no longer needed, they should be removed.
4. New roads may be constructed, reconstructed, or relocated for a variety of public and administrative uses and needs.
5. When roads are no longer needed for public or administrative access, they should be closed or converted to trails.
6. Scenic resources should be managed per the Coronado NF's Scenic Integrity Objective (SIO) maps. Roaded Backcountry should generally be managed for an SIO of High.

## **Motorized Recreation**

### **Description**

This land use zone is assigned to areas that have a high level of motorized use. Management of these areas is focused on providing a wide variety of recreational experiences, including Off

Highway Vehicle (OHV) use and driving for pleasure, while mitigating effects of motorized use and minimizing conflicts with other users. This land use zone covers 46,000 acres, or around 3 percent of the Coronado NF.

### **Desired Conditions**

Forest visitors can enjoy casual, semi-primitive motorized recreation and explore in off-highway vehicles along designated roads and routes. Several scenic highways provide opportunities for driving for pleasure. Long distance loop routes exist that provide varying experiences for different vehicle classes. Separate motorized trails (e.g., single track motorized trails for dirt bikes and All Terrain Vehicles (ATV)) exist to minimize conflicts among OHV vehicle types. Where non-motorized trails traverse this land use zone, adequate signing and enforcement deters motorized use of these trails. OHV and ATV use is concentrated in defined areas that promote a high-quality, motorized use experience. The sights and sounds associated with OHV use are only incidentally apparent outside of these areas. There are opportunities for managed shooting. Shooters promote a safe experience and do not cause resource damage.

### **Guidelines**

1. The level and type of development in this zone should be focused on providing OHV facilities to protect the natural resources.
2. When facilities are no longer needed, they should be removed.
3. Scenic resources should be managed per the Coronado NF's Scenic Integrity Objective (SIO) maps. Backcountry Recreation would generally be managed for an SIO of High.

## **Developed Recreation**

### **Description**

These are the major public access corridors into the Coronado National Forest. The roads in this land use zone are mostly paved, and are popular sightseeing routes. In some cases, the main roads are designated as scenic byways. Visitors often spend the day in these areas, and destinations include campgrounds, picnic areas, vista points, visitor centers, and lakes. Organization camps and recreational residences are found in some areas. There are many popular trailheads in these areas, and hiking trails generally provide access to Roaded Backcountry, Wild Backcountry and Wilderness. This Land Use Zone covers 36,115 acres, or around 2 percent of the Coronado NF.

### **Desired Conditions**

Facilities are in good condition and blend into the forest setting. Visitors can enjoy natural settings with a high level of comfort. Roads are well maintained, and accommodate all types of vehicles.

### **Guidelines**

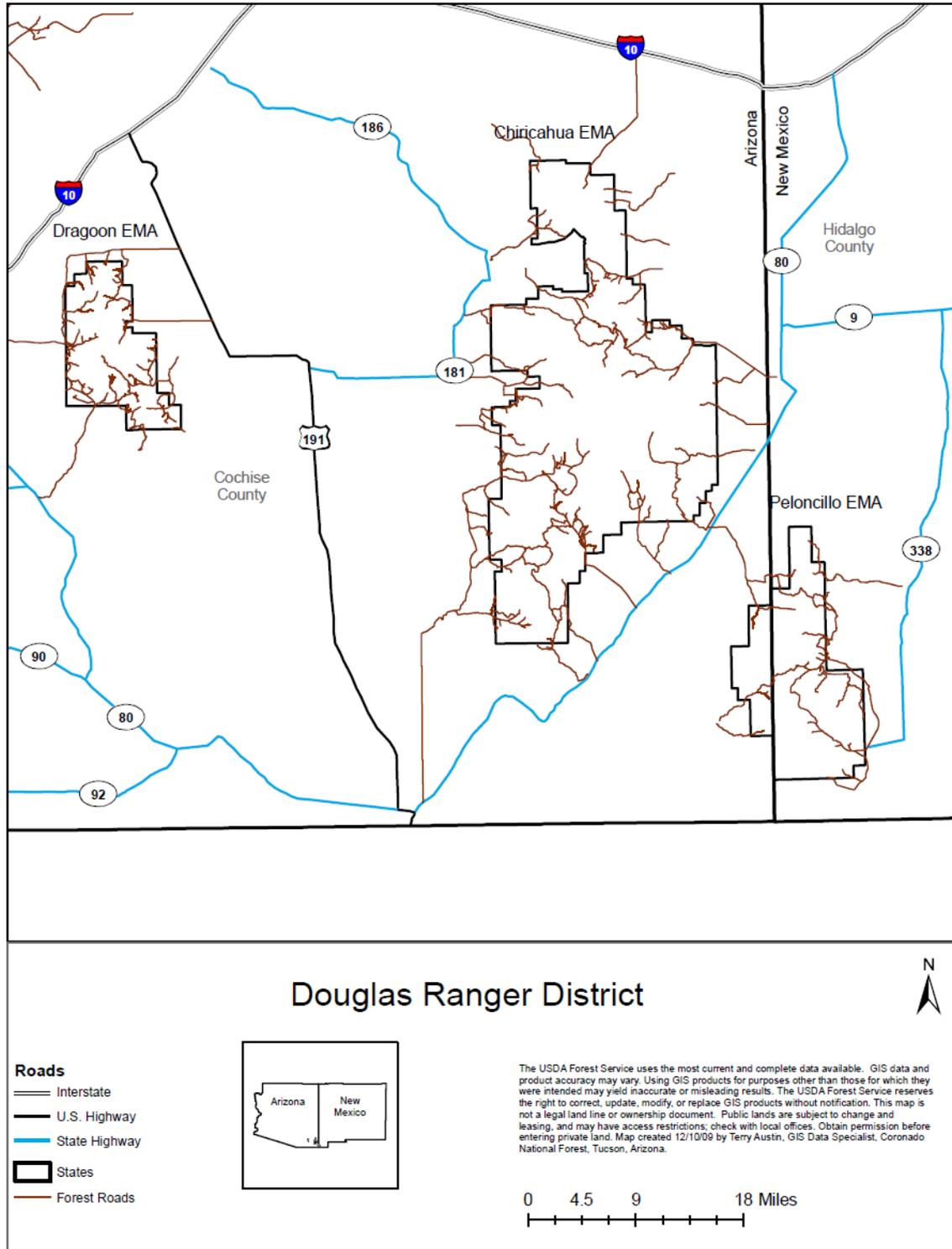
1. These areas should be managed to protect the natural character and in according with guidance provided in existing plans (such as Corridor Management Plans, Recreation Concept Plans, etc.).
2. Facilities should be well maintained and would blend into the forest setting.
3. As public facilities are constructed or renovated, they should be made more accessible to meet or exceed accessibility guidelines.
4. Scenic resources should be managed per the Coronado NF's Scenic Integrity Objective (SIO) maps. These areas should be managed for an SIO of High. and areas with facilities (such as campgrounds and picnic areas) should generally be managed for an SIO of Moderate.

5. New utility structures and power lines should not be allowed.
6. Wood gathering in recreation sites should be limited to 'dead and down'.
7. In general, livestock grazing should not be permitted within Developed Recreation sites, except where designated allotments overlap with recreation area boundaries, or for the purposes of targeted grazing for vegetation management.

DRAFT

## Chapter 4: Geographic Areas

### Douglas Ranger District



## Chiricahua Ecosystem Management Area

### Description

The Chiricahua Ecosystem Management Area (EMA) includes 291,496 acres of National Forest System land, encompassing nearly all of the Chiricahua Mountains. Steep canyons with densely timbered slopes dissect the range, radiating in all directions from 9,797-foot Chiricahua Peak. Host to a wide variety of flora and fauna, Chiricahua EMA offers many opportunities for biological appreciation. The area surrounding Barfoot Park is world-renowned for uncommon bird and reptile species, including the largest known population of twin-spotted rattlesnakes (*Crotalus pricei*). Spectacular rock formations are visible from many vantage points throughout the EMA. At the heart of the Chiricahua EMA lies 87,700-acre Chiricahua Wilderness.

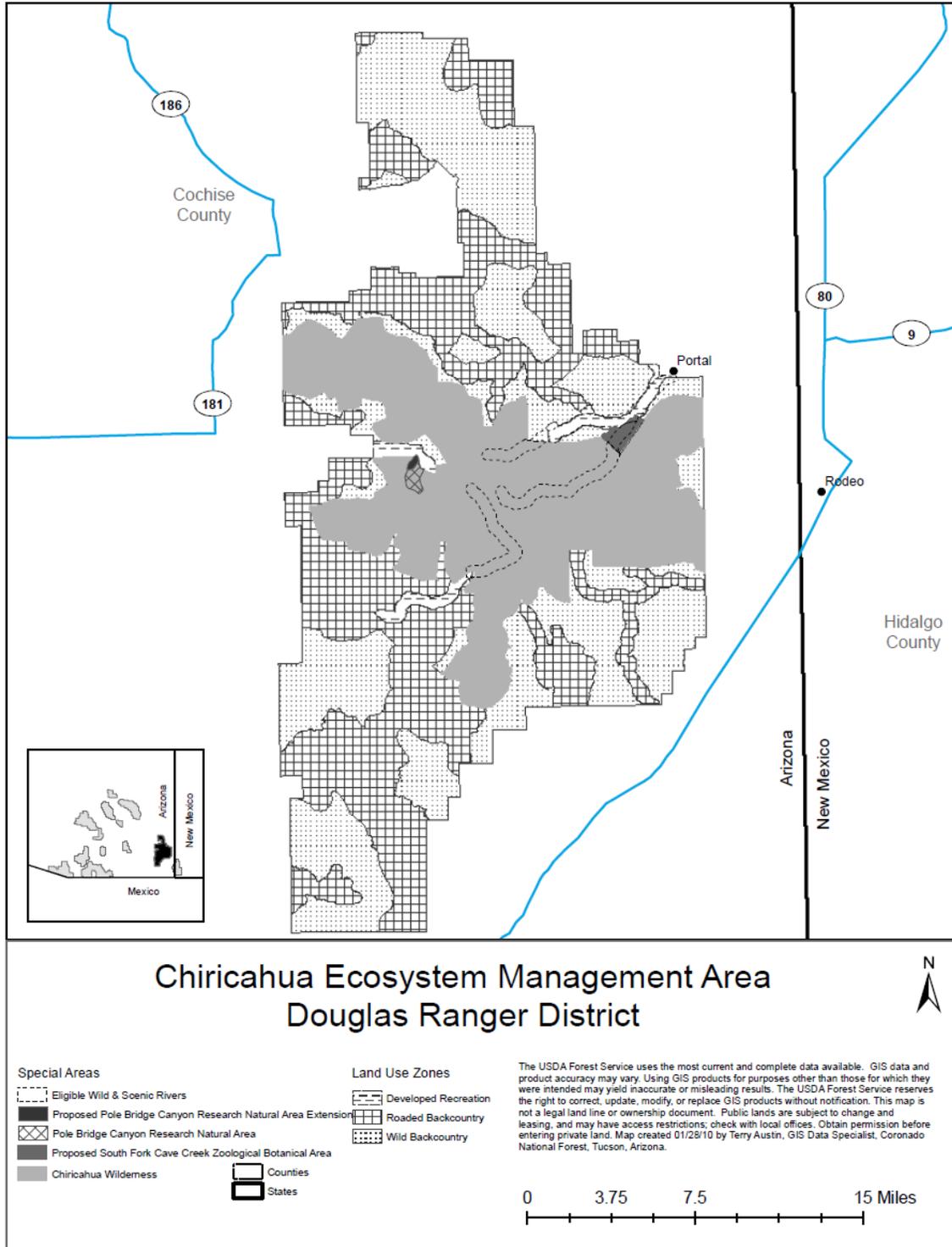
Several rugged four-wheel drive roads cross Chiricahua EMA at the northern and southern extents. A single two-wheel drive accessible road crosses the range from east to west over Onion Saddle, but is usually closed in the winter. Numerous developed sites have camping and picnicking facilities and are all accessible with a two-wheel drive vehicle. Dispersed areas are also available throughout the Chiricahua EMA for recreation use. In particular, the ridges and drainages surrounding Cochise Head - the single largest rock outcrop on the Coronado National Forest - remain rugged and remote with access limited primarily to on- and off-trail travel. West of this landmark, in the northern portion of the EMA, Chiricahua National Monument is contiguous with the Forest on three sides.

The Chiricahua Mountains, along with all the lands in the southeastern corner of Arizona, were once part of the Chiricahua Apache Reservation, and the mountains continue to be a special place for the descendants of the Chiricahua Apaches. Many of these descendants now live in Oklahoma and New Mexico, as part of the Mescalero and Chiricahua-Warm Springs-Fort Sill Apache Tribes, though the San Carlos Apache Tribe in Arizona also counts Chiricahua descendants among its members. Ancestors of members of the White Mountain and San Carlos Apache Tribes frequented the mountain ranges of the Douglas Ranger District and Apache Scout camps were located in the Chiricahua Mountains in the nineteenth century. Today, members of the Mescalero Apache Tribe make trips to the Chiricahua EMA to teach tribal youth about their history and heritage.

**Pole Bridge Canyon Research Natural Area** (RNA) was established in 1931 to feature distinctive tree populations of the Mexican pine-oak ecosystem, particularly Apache pine (*Pinus engelmanni*), southwestern white pine (*P. strobiformis*), border piñon (*P. discolor*), and Arizona pine (*P. arizonica*). An additional 105 acres have been proposed for inclusion as the **Pole Bridge Canyon Research Natural Area Extension**. The addition encompasses excellent examples of two Chihuahua pine habitat types, Chihuahua pine/Arizona white oak and Chihuahua pine/Silverleaf oak, providing a more complete representation of the Sierra Madrean pine-oak ecosystem within this RNA. Both the Pole Bridge Canyon RNA and the proposed Extension are encompassed by the Chiricahua Wilderness.

**Proposed South Fork of Cave Creek Zoological and Botanical Area.** Recommended for designation in the 1986 Forest Plan, the 762-acre Proposed South Fork of Cave Creek Zoological and Botanical Area (ZBA) shares two borders with the Chiricahua Wilderness within the northeastern portion of the EMA. This special area protects a diverse assemblage of migratory and year-round wildlife, as well as the rare riparian setting that attracts these species. Recent research has found Cave Creek Canyon, including the Proposed South Fork of Cave Creek ZBA, to harbor the United States' densest known population of breeding raptors. Not surprisingly,

world-class birding is a highlight of the area.



**Desired Conditions**

The Chiricahua EMA offers a wide spectrum of developed recreation opportunities for a growing public, while large tracts of undeveloped areas remain available for primitive and dispersed

recreation. Pinery Road over Onion Saddle provides a scenic driving experience and vehicular access to high elevations. Recreation facilities are sufficient in size and number to accommodate demand while supporting a high quality, outdoor experience. Administrative sites, such as Rucker, Pinery, Rustler Park, and Cima Administrative sites, are in good condition and available for Forest Service, tribal, and public use as part of the “Rooms with a View” cabin rental program, as appropriate. Recreation residences and the organization camp blend well with the natural landscape and do not expand beyond their authorized footprint.

Cultural and historic properties such as Camp Rucker, Rustler Park, Cima Cabin, Barfoot Lookout, Monte Vista Lookout Cabin, retain integrity of setting, location, association, materials, design, workmanship, and feeling, to provide the public and Forest Service employees a long-term perspective on the region’s spirit, character, and identity, and impart information about the mountains’ past. Historic Apache Scout camps have been identified and are protected, in partnership with the White Mountain and San Carlos Apache Tribes. Archaeological sites of the Chiricahua Mountains provide tribes, researchers, and the public with scientific data about, as well as tangible links to, the long and diverse history of southeastern Arizona.

Descendants of the Chiricahua Apaches feel welcome in their traditional homeland, and make use of campgrounds, dispersed camping areas, and administrative sites for cultural and educational events. Medicinal plants, wild plant foods, ceremonial plants, basketry materials and other traditional resources are available for collection by Tribal members. Sites that have been identified as sacred or holy for the Chiricahua Apache are available to Chiricahua Apache descendants and members of the Fort Sill and Mescalero Apache Tribes for individual and group prayer and traditional ceremonies and rituals.

High-elevation meadows are dominated by native grasses and grass-like plants, and are relatively free of trees and shrubs. Elements of spruce-fir communities, including stands of Engelmann spruce, exist in the mixed conifer forests above 8,500 feet. Cave Creek Canyon supports a full cohort of native nesting birds, particularly cavity-nesting birds, and provides opportunities for world-class birding. Unique wildlife and vegetation species are perpetuated in the South Fork of Cave Creek Zoological-Botanical Area and the Pole Bridge Research Natural Area. Recreation activities and other uses do not degrade these values. Cave Creek and South Fork of Cave Creek retain the characteristics required to be designated an “Outstanding Arizona Water” by Arizona Department of Environmental Quality.

## **Objectives**

- Within 10 years of plan approval, the vegetation on 20 percent of the landscape in the Chiricahua EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.
- Within 5 years of plan approval, the Forest Service and Mescalero Apache Tribe will have an MOU in place to facilitate tribal events in the Chiricahua EMA.

## **Guidelines**

1. Cattle should be excluded from Camp Rucker to foster protection of the historic buildings and ruins.
2. Within the Pole Bridge RNA, livestock grazing should not impair vegetation or soils.

## **Standards**

- Within Pole Bridge RNA:

1. Vegetation cutting is prohibited, including harvest of forest products and fuelwood.
  2. New roads or other improvements are prohibited; the use of existing roads and trails is allowed for fire management purposes.
  3. Camping is prohibited.
  4. There shall be no removal of mineral materials. Mineral withdrawal is unnecessary because wilderness area management supersedes mineral management for RNAs.
- Within Proposed Pole Bridge Canyon RNA Extension:
    1. Vegetation cutting is prohibited, including harvest of forest products and fuelwood.
    2. There shall be no removal of mineral materials. Mineral withdrawal is unnecessary because wilderness area management supersedes mineral management for RNAs.
    3. Livestock grazing shall not be permitted.
  - Within Proposed South Fork of Cave Creek ZBA:
    1. There shall be no removal of mineral materials. Withdrawals from mineral entry will be completed and maintained.
    2. Surface occupancy for leasable minerals is not allowed.
    3. A special use permit is required for any plant or animal collection.
    4. A special use permit is required for scientific research that would involve placing anything on Forest lands within the Proposed ZBA.

## Management Approaches

The following management approaches will help to achieve the desired conditions and goals for the Chiricahua EMA:

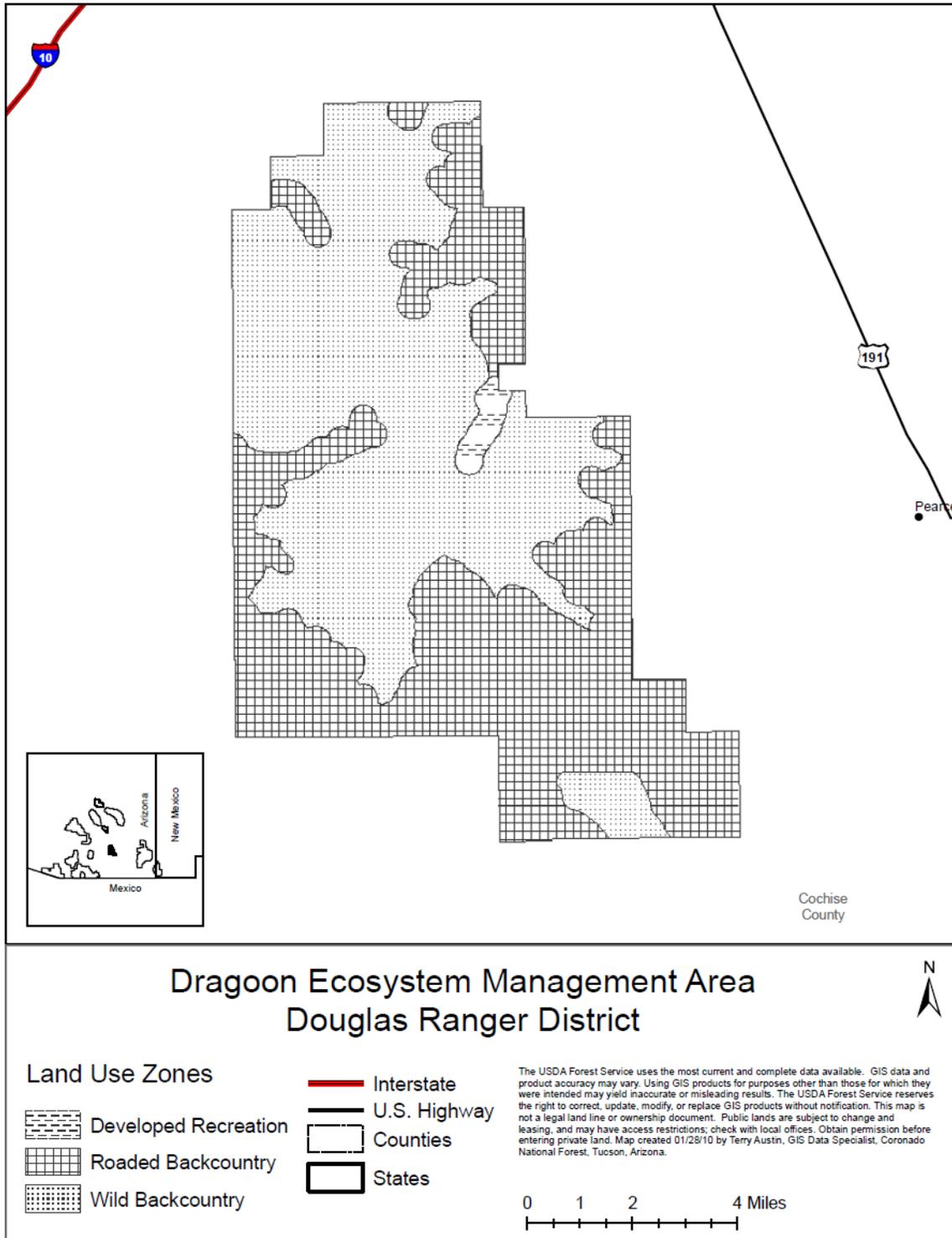
- Making the Rucker Administrative Site and other suitable facilities available for tribal and public use under the “Rooms with a View” cabin rental program
- Consulting with the Mescalero, Ft Sill, San Carlos, and White Mountain Apache Tribes to develop stewardship plans for archaeological sites and other traditionally important places, and fosters collaborate stewardship with Ft Bowie.

## Dragoon Ecosystem Management Area

### Description

The rugged Dragoon Ecosystem Management Area contains 54,211 acres of the Dragoon Mountains and adjoining semi-desert grasslands and savannahs. Elevations range from 4,600 feet to the 7,519-foot Mt. Glenn. The Dragoon Mountains, and specifically Cochise Stronghold (both East and West Stronghold Canyons), have long been recognized as a special place for the descendants of the Chiricahua Apaches (including Mescalero, San Carlos, and Chiricahua-Warm Springs-Fort Sill Apache Tribes). Members of the Four Southern Tribes collect basketry materials at the lower elevations of the Dragoons, as their ancestors probably did centuries ago.

The natural fortress of Cochise Stronghold’s granite domes and rock formations invite modern-day rock climbers, photographers, wildlife-viewers, and hikers from around the country to recreate in the scenic landscape. East Stronghold Canyon offers developed recreation opportunities while West Stronghold Canyon features a more dispersed recreational experience. Access throughout much of the EMA is via unpaved roads.



**Desired Conditions**

The Drought EMA offers a wide spectrum of developed recreation opportunities for a growing public, while large tracts of undeveloped areas remain available for dispersed recreation. The unroaded core of the EMA is wild in character and opportunities for quiet recreation exist. Geologic features and rock formations that dominate the Drought EMA provide outstanding

rock-climbing opportunities. Rock climbers do not cause resource damage and abide by restrictions needed for wildlife protection. Well-contained dispersed campsites are available along the western edge of the EMA, and campers do not cause permanent damage to soils or vegetation. The East Stronghold Canyon area offers opportunities for developed recreation and interpretation of the history and ecology of the area.

Stands of Arizona cypress exist in the cool drainages on the east side of the Dragoon EMA. An open savanna vegetation structure occurs along portions of the west flank of the Dragoon EMA.

Properties previously located outside of the EMA boundaries in East Stronghold Canyon have been acquired and are now managed by the National Forest. Permanent legal public road and trail access into the north, south, east, and western sides of the EMA is established, easily accessible by public land and administrative users, and interconnected to state, county, local public, and other federal roads and trails.

### **Objectives**

- Within 10 years of plan approval, the vegetation on 15 percent of the landscape in the Dragoon EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

### **Guidelines**

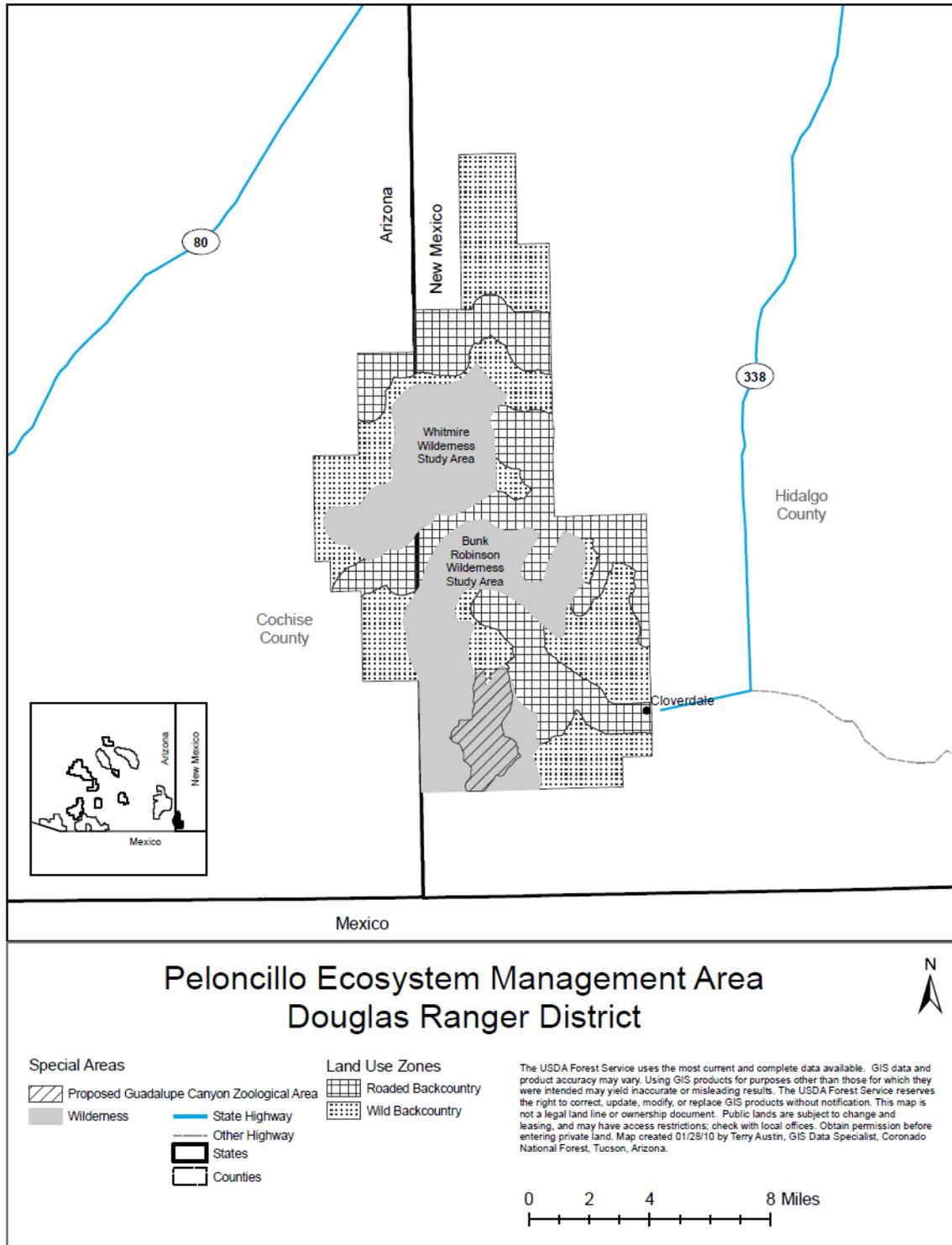
1. Existing dispersed camping areas on the west side of the EMA should be contained, and no new areas should be allowed to develop.

## **Peloncillo Ecosystem Management Area**

### **Description**

The Peloncillo Ecosystem Management Area is one of the most remote portions of the Coronado NF. Access is limited to primitive roads, primarily Geronimo Trail (NFSR 63), and there are no developed recreation sites. Large unroaded areas are valued for their solitude and unconfined recreation opportunities. The relatively narrow range of elevation (from 4,593 to 6,624 feet) supports a surprising diversity of wildlife, most notable for reptile and amphibian species. Although mostly xeric, Cloverdale Cienega is one of the Peloncillo's rare aquatic features. The EMA's 87,985 acres straddle the Arizona-New Mexico border, with 81 percent arranged in New Mexico. Situated southeast of the Chiricahua Mountains and just north of the U.S.-Mexican border, this southern portion of the Peloncillo range was occupied for millennia by farmers and foragers who had trading and cultural ties with neighboring groups, and was within the heartland of Chiricahua Apache territory. The 15,690 acre Bunk Robinson Wilderness Study Area and the 12,840 acre Whitmire Canyon Wilderness Study Area flank the Geronimo trail to the south and north, respectively.

**Proposed Guadalupe Canyon Zoological Area.** This area was recommended for designation in the 1986 Forest Plan to protect 3,478 acres of habitat for unique wildlife associations. It would complement the Bureau of Land Management's Outstanding Natural Area in lower Guadalupe Canyon, recognized for its exceptional birding habitat. The Proposed Guadalupe Canyon Zoological Area forms part of the Peloncillo EMAs southern boundary and is entirely contained within the Bunk Robinson WSA.



### Desired Conditions

Recreation opportunities are primarily undeveloped, and the entire EMA is available for primitive and dispersed recreation. Geronimo Trail, NFSR 63, provides opportunities for scenic driving and vehicular access through the EMA.

The Cloverdale Cienega is dominated by perennial graminoid species such as spike rush, deergrass, and sedges. Flood flows, when they occur, are spread across the floodplain, and not concentrated in channels. Unique wildlife species are perpetuated in the Guadalupe Canyon Zoological Area. Other uses do not degrade these unique values. Species that have historically moved freely between habitat in Mexico and within the Peloncillo EMA continue to do so.

Reasonable permanent legal public access to the northern end and southeastern corner of the EMA is established, easily accessible by public land and administrative users, and interconnected to state, county, local public, and other federal roads and trails. The complex landownership patterns (checkerboard ownership) on the eastern (New Mexico) side of the EMA are consolidated into contiguous blocks of private land surrounded by NFS land and are easily identifiable and recognizable by public land users, private landowners, and Forest Service personnel.

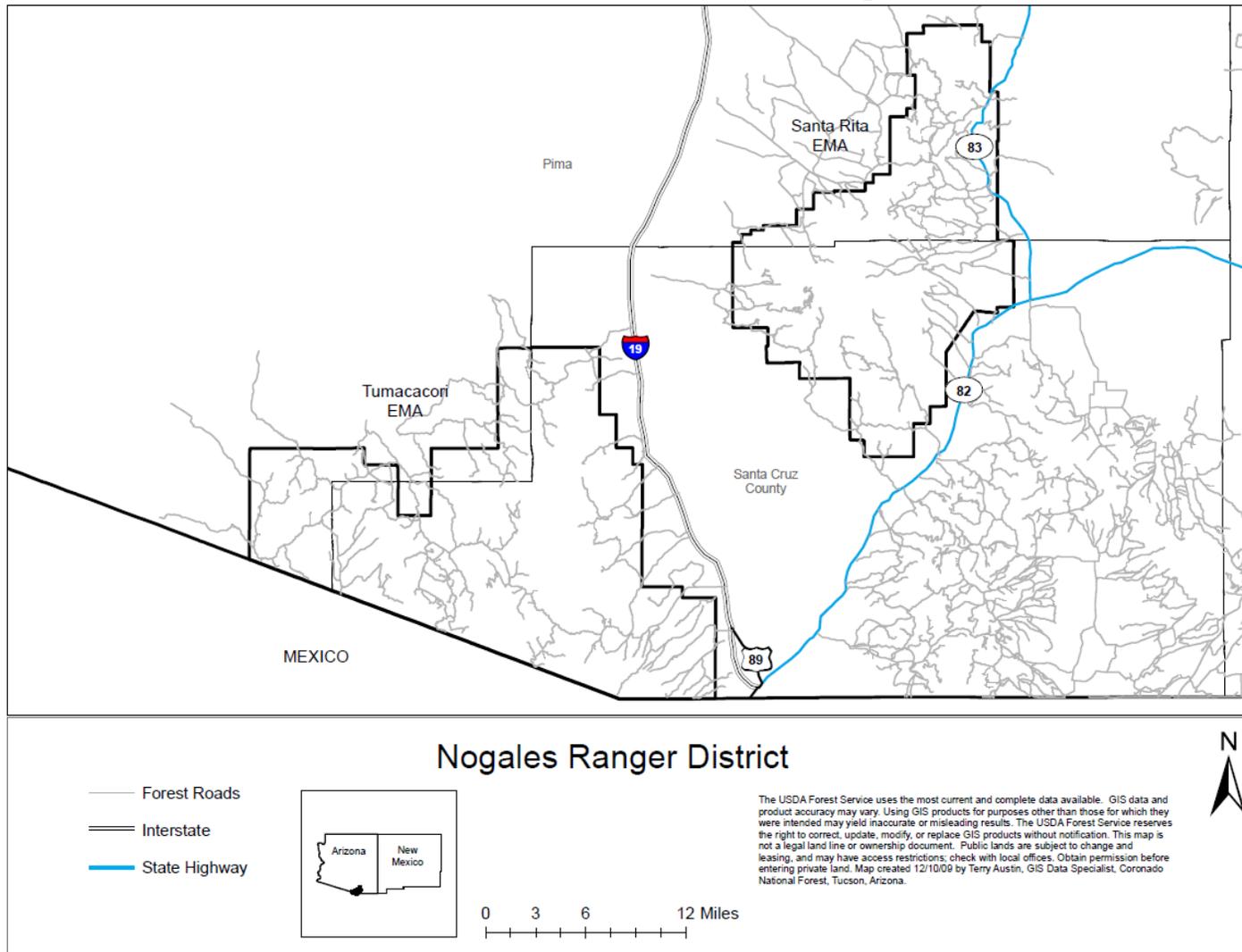
### **Objectives**

- Within 10 years of plan approval, the vegetation on 35 percent of the landscape in the Peloncillo EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

### **Standards**

- Within Proposed Guadalupe Canyon Zoological Area:
  1. There will be no removal of mineral materials. Withdrawals from mineral entry will be completed and maintained.
  2. Surface occupancy for leasable minerals is not allowed.
  3. A special use permit is required for any plant or animal collection.
  4. A special use permit is required for scientific research that would involve placing anything on Forest lands within the Proposed ZA.

## Nogales Ranger District



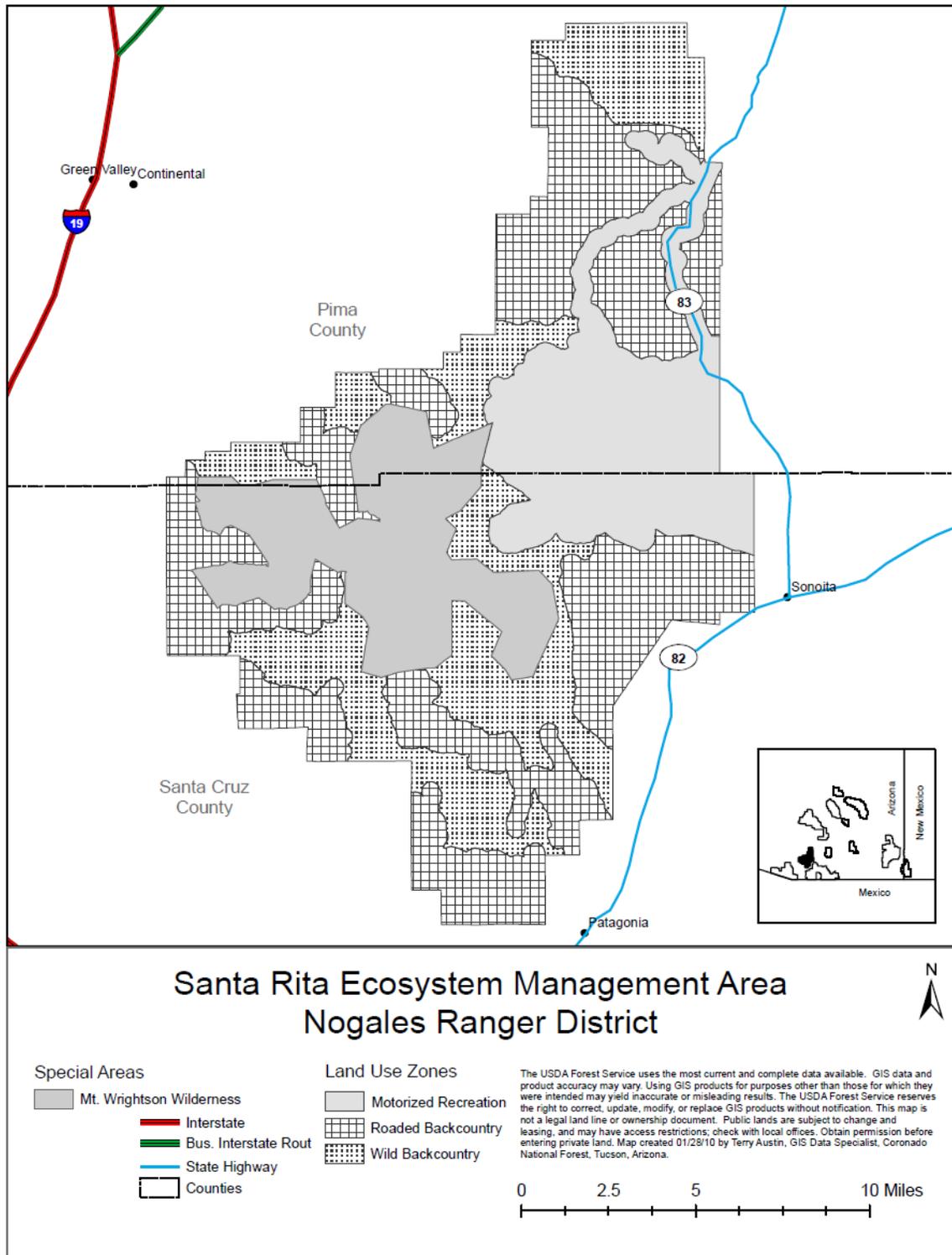
## **Santa Rita Ecosystem Management Area**

### **Description**

The Santa Rita Ecosystem Management Area takes its name from the impressive mountain range it encompasses – the summit of which is 9,462-foot Mt. Wrightson. Its distinctive pyramid-shaped profile towers above the surrounding savannas and deserts, visible from much of southeastern Arizona, and creating a striking backdrop for people traveling along Interstate 10 and Highways 82 and 83. Notably, the two State highways were designated “Patagonia-Sonoita Scenic Road” by Arizona Department of Transportation in 1985. The 148,421-acre Santa Rita EMA is visible from metropolitan Tucson and second only to the Santa Catalina Mountains in terms of recreational appeal. Madera Canyon, well-known as a popular birding area, offers developed recreation, including rental cabins at the Santa Rita Lodge and a gift shop; the east side of the EMA offers opportunities for off-highway vehicle use and dispersed recreation, not limited to camping, hunting, and foot-trail-based pursuits. An unmistakable feature known as Elephant Head, at the EMAs northwest extent, attracts backcountry rock climbers and serves as an attractive goal for cyclists along the Elephant Head Mountain Bike Route. The Arizona Trail traverses the range from south to north. At the core of the Santa Rita Mountains is the 25,260-acre Mount Wrightson Wilderness.

The Santa Rita EMA has a long-history of human use prior to its development as a popular recreation area. Archaeological sites dating back thousands of years testify to hunting, farming, and plant collecting practices; members of the Four Southern Tribes, the San Carlos Apache Tribe, and the Pascua Yaqui still visit the range to collect important traditional plants. Extensive mining and ranching became prevalent in the late nineteenth-century, and continues at a smaller scale today.

Forest Service administration and Federal relief programs of the Great Depression are visible in old ranger residences and a Civilian Conservation Corp camp. A century-old partnership between the Forest Service and the University of Arizona resulted in construction of the Florida Station, which serves as headquarters for the Santa Rita Experimental Range, just beyond the northern boundary of the EMA. Another joint venture, between the University of Arizona and the Smithsonian Institution, has placed a telescope and observatory at the top of the EMA’s second highest peak, Mount Hopkins, where research and public education continue today.



**Desired Conditions**

The Santa Rita EMA offers a wide spectrum of developed recreation opportunities for a growing public, while large tracts of undeveloped areas remain available for primitive and dispersed recreation. In Madera Canyon, there are opportunities to camp in a developed recreation facility

or in undeveloped campsites. Trailheads are well marked, and lead to a network of well maintained hiking trails. World-class bird watching opportunities exist along roads and trails. The Santa Rita EMA offers an environment in which to recreate where risks are predominately natural and visitors do not feel threatened.

Kentucky Camp National Historic District is preserved and interpreted to provide the public with an understanding of the role mining and ranching has played in the development of southeastern Arizona. The Kent Springs Center and Kentucky Camp are available to the public and to tribes for a variety of recreational and educational experiences. Areas around Kentucky Camp and along the Greaterville Road continue to provide tribes with places to collect traditional basketry materials and plant foods. The Forest continues to collaborate with the University of Arizona and the local communities to preserve historic Florida Station, and expand its use and functionality as an environmental education center for youth and adults.

The Santa Rita backcountry touring routes offer motorized and dispersed camping recreation opportunities. Elephant Head Mountain Bike Route offers a combination of lightly-traveled roads and remote trails designed to both challenge a rider's skill and to provide a scenic, backcountry experience.

Water quality in Mansfield Canyon meets the State of Arizona's water quality standards. Onyx Cave and Cave of the Bells offer caving opportunities in a manner that protects the natural cave environment. The dark skies above the Santa Rita EMA present conditions conducive to astronomical research. Mt. Hopkins telescope offers educational opportunities and promotes scientific discovery.

Outstanding mineral interests in non-federal ownership (split estates—50 percent non-federal ownership) is consolidated into a contiguous block of surface and subsurface federal ownership affording greater protection of valuable natural resources and desired forest landscape conditions. The complex landownership pattern (fragmented checkerboard ownership intermingled with irregular shaped parcels) on the northern and eastern sides of the EMA are consolidated. The remaining boundaries are easily located and maintained.

### **Objectives**

- Within 10 years of plan approval, the vegetation on 20 percent of the landscape in the Santa Rita EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

## **Tumacacori Ecosystem Management Area**

### **Description**

The Tumacacori Ecosystem Management Area is the Forest's most southwesterly land mass, encompassing 203,800 acres. Bounded by the Santa Cruz River on the east and the Altar Valley on the west, Tumacacori EMA also shares XX miles on its southern boundary with the U.S.-Mexico international border. At 6,422 feet, Atascosa Peak forms the summit of the EMA, presiding over the rugged and rocky Atascosa Mountains and Tumacacori Highlands. Vast rolling landscapes of grasslands and oak woodlands cascade in all directions from these dominating features. Water is a comparatively abundant feature of this EMA. Aliso Spring, on the northwest slope of the Tumacacori Mountains, provides rare habitat for lowland leopard frogs and other aquatic-obligates. Further south, canyons of the Pajarito Mountains open into Mexico, harboring

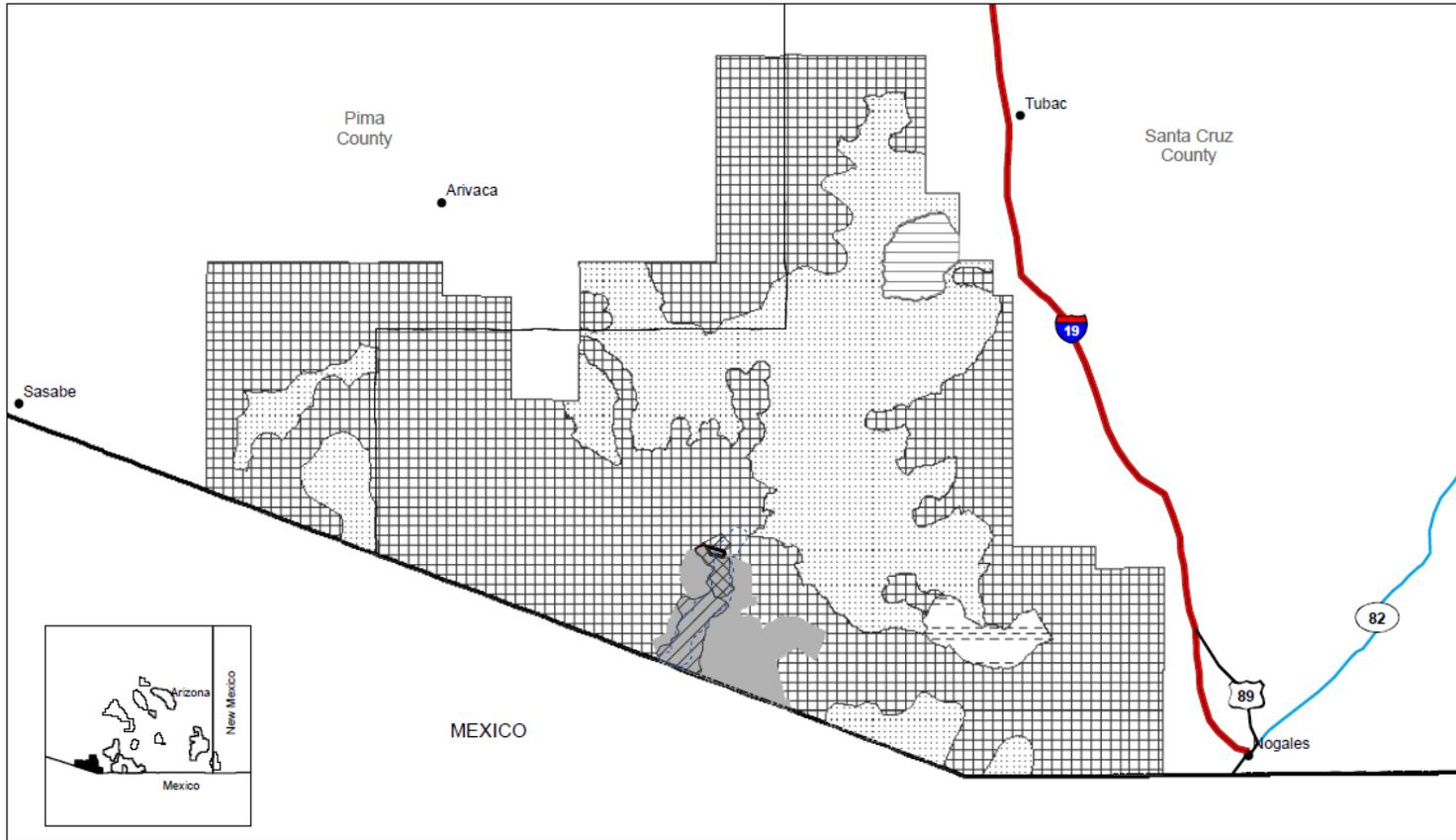
riparian vegetation and a fantastic diversity of birds, mammals, and reptiles. One such drainage, Sycamore Canyon, has long been world-renowned for bird watching opportunities and was recognized in 2003 as an Important Birding Area by the Arizona Chapter of the Audubon Society. Tumacacori EMA generally remains wild in character, with developed recreation centered around Pena Blanca and Arivaca Lakes, and dispersed recreation abundant throughout its interior. The 7,420-acre Pajarita Wilderness lies in the southern portion of the EMA.

In addition to outstanding biophysical features, the Tumacacori Highlands are also rich in cultural history. The area was associated first and foremost with the O'odham people. They were the group living in and around the area when Europeans arrived, and though decimated in the first century of direct contact, were still using the area on a regular basis into the 20<sup>th</sup> century. Other groups including Apaches, and particularly Western Apaches, visited often in the eighteenth and nineteenth centuries and lived just east of the EMA at the presidio community of Tubac in the nineteenth century. The Yaquis, or Yoemem, are best known for their use of the Highlands area in the early twentieth century, but whose presence dates to time of initial Jesuit entry into the region. Other groups have more limited historic-period connections with the area. Both the Hopi and Zuni have connections from the standpoint that they consider some of the ancestors of tribal members to have migrated from southern Arizona. The O'odham occupation of the Tumacacori EMA ended abruptly in 1916 when the main Papago Indian Reservation was created and those Tohono O'odham living outside the boundaries were forced to leave the Tumacacori Highlands and move to the reservation.

**Goodding Research Natural Area.** Originally established as Sycamore Scenic Area in 1962, the 545-acre Goodding RNA was renamed and given RNA status in 1970. All but 7 acres are also located within the Pajarita Wilderness. Widely recognized for its aesthetic and biological diversity, Leslie N. Goodding, the renowned Arizona botanist for whom it was named, called Goodding RNA a "hidden botanical garden". Besides sustaining rare and varied riparian vegetation and wildlife, the area was designated for its representation of the oak savannah vegetation community. An additional 1,670 acres were later proposed as the **Goodding Research Natural Area Extension**. 1,470 of these are located adjacent to the southern boundary of the existing RNA, all within the Pajarita Wilderness; the remaining 200 acres straddle the wilderness boundary beyond the northern edge of the existing RNA – 47 are within Wilderness. The Proposed Goodding RNA Extension would protect additional populations of rare plants and animals, including the supine bean (*Phaseolus supinus*).

**Wild Chile Botanical Area.** This 2,836-acre area within the Rock Corral Canyon sub-watershed was designated in 1999 to provide additional notoriety, protection, and research opportunities for the wild chile (*Capsicum annuum* var. *aviculare*) and other plants of economic importance or conservation concern. The primarily oak woodlands, interspersed with desert grasslands and deciduous riparian vegetation, harbor wild chile plants occurring at the northernmost edge of wild chile populations found anywhere in the world. Known as *chiltepinas* in Mexico, where they are more common, wild chiles have been traditionally harvested in the area for decades, if not centuries, and are an important food crop worldwide. Wild cotton (*Gossypium thurberi*), tepary beans (*Phaseolus acutifolius*), and two species of wild gourds (*Cucurbitia* spp.) are also found in the Wild Chile Botanical Area.

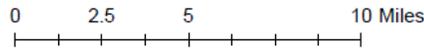
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- Special Areas**
- Eligible Wild & Scenic River
  - Goodding Research Natural Area
  - Proposed Goodding RNA Extension\_north
  - Wild Chill Botanical Area
  - Pajarito Wilderness

- Land Use Zones**
- Developed Recreation
  - Roaded Backcountry
  - Wild Backcountry
- Interstate  
 U.S. Highway  
 State Highway  
 Counties  
 States

## Tumacacori Ecosystem Management Area Nogales Ranger District



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## Desired Conditions

The Tumacacori EMA offers a wide spectrum of developed recreation opportunities for a growing public, while large tracts of undeveloped areas remain available for primitive and dispersed recreation. The core mountainous and roadless area has a wild and rugged character. Ruby Road, Forest System Road 39, provides scenic driving and vehicular access through the Tumacacori EMA. Fishing and boating opportunities are provided at Pena Blanca and Arivaca Lakes. Well maintained visitor facilities, including a boat ramp, a lakeshore trail, overnight accommodations, picnic areas, and fishing docks are available at Pena Blanca Lake. Water based recreational activities do not contribute to the spread of invasive aquatic species. California Gulch and Sycamore Canyon offer outstanding bird watching opportunities. The Tumacacori EMA offers an environment in which to recreate where the risks are predominately natural and visitors do not feel threatened.

Plants that are traditionally important to the O'odham people, including acorn-bearing oaks, agaves, banana yucca, beargrass, walnuts, mulberry, chiltepinos, and sayas, are available for sustainable traditional and cultural uses. Historically significant buildings, such as the Atascosa Lookout, are maintained and rehabilitated for continued use. Multiple-use management of the Wild Chile Botanical Area perpetuates the existence of wild chiles. Traditional uses of wild chiles do not threaten existing populations.

Activities related to the international border minimally impact natural resource quality and the viewscape. Species that have historically moved freely between habitat in Mexico and within the Tumacacori EMA continue to do so. Coordination with the Department of Homeland Security results in the protection of archeological sites during law enforcement activities.

Permanent legal public access to the northern and eastern side of the EMA has been established, is easily accessible by public land and administrative users, and connected to state, county, local public, and other federal roads and trails. The complex landownership patterns (fragmented checkerboard ownership intermingled with irregular shaped parcels) within the EMA have been reduced through landownership adjustments and are easily identifiable and recognizable by public land users, private landowners, and Forest Service personnel.

## Objectives

- Within 10 years of plan approval, the vegetation on 25 percent of the landscape in the Tumacacori EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

## Guidelines

- Within the Wild Chile Botanical Area:
  1. Use seasonal planned and unplanned ignitions prior to wild chile flowering and fruiting.
  2. Protect wild chile plants from burning when high-intensity fire threatens the population.
  3. Prevent disturbance of archeological sites during research and monitoring activities.

## Standards

- Within the Wild Chile Botanical Area:
  1. Maintain the grazing non-use season consistent with the plant growth period of wild chiles, approximately August to November.
  2. Require a special use permit for any plant or animal collection (excluding traditional uses) and for research activities that involve placing anything on Forest lands.

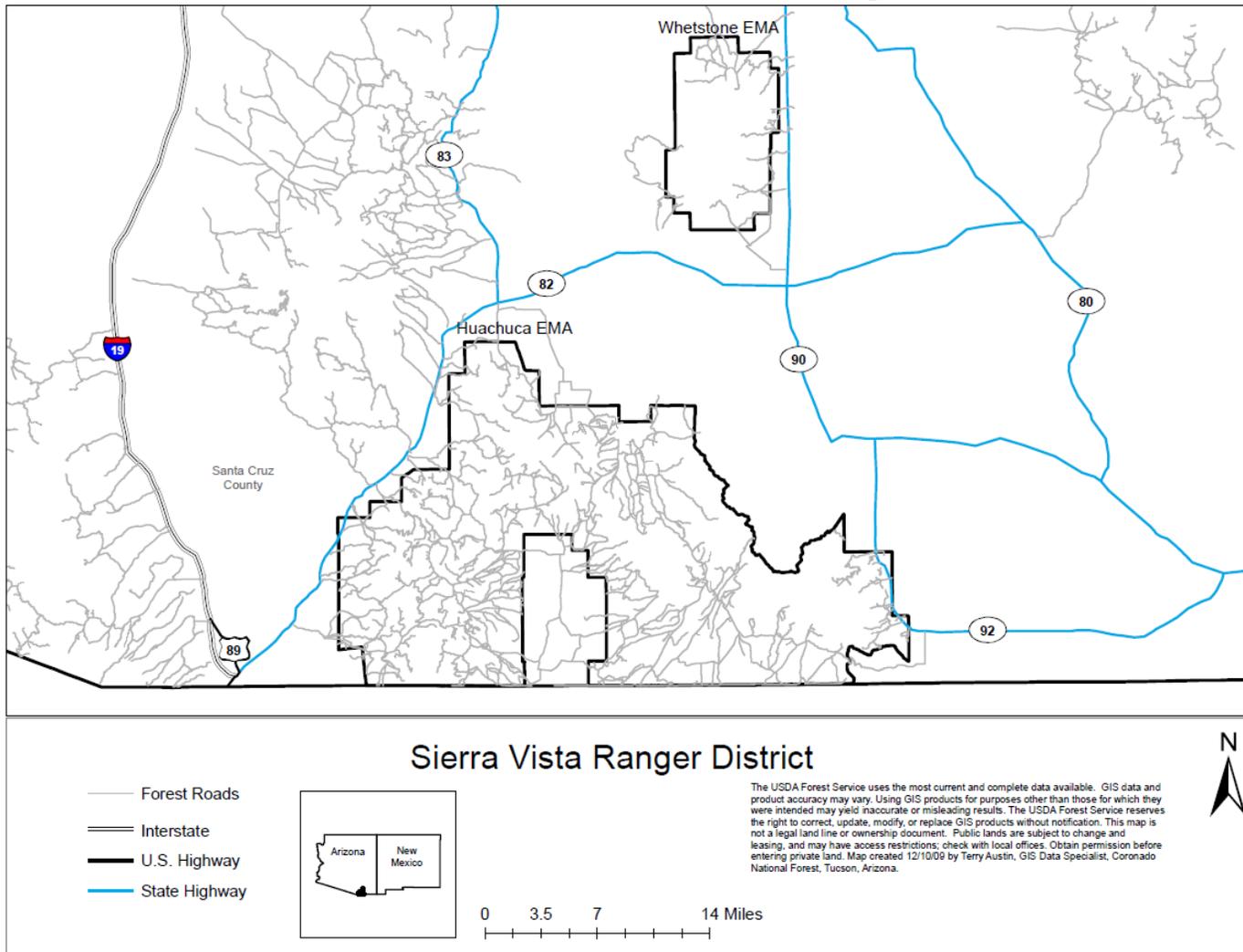
- a. Collection permits can be issued to Native Seeds/Search for up to 10 years to include:
    - 1) continued plant monitoring,
    - 2) limited removal of plant parts,
    - 3) establishment of small enclosures, and
    - 4) mist-netting, small animal trapping and/or invertebrate collections consistent with state game department requirements.
  - b. A permit may also be issued to authorize Native Seeds/S.E.A.R.C.H. the responsibility to conduct and manage research and other tours of the Wild Chile Botanical Area in the interest of scientific investigation.
- Within Goodding RNA and Proposed Goodding RNA Extension:
    1. There will be no removal of mineral materials. Withdrawals from mineral entry will be completed and maintained for all portions of the existing and proposed RNAs not already withdrawn through overlapping wilderness designation.
    2. Surface occupancy for leasable minerals is not allowed.
    3. Exclude livestock grazing.
    4. Harvest of forest products, including fuelwood, is prohibited.

### **Management Approaches**

The following management approaches will help to achieve the desired conditions for the Tumacacori EMA:

- Fostering collaborative research to explore Native American history and heritage, such as working with the Pascua Yaqui to investigate the battle site near Bear Valley Ranch.
- Supporting continued research and monitoring of wild chiles by Native Seeds / S.E.A.R.C.H. and other non-profit or educational organizations.
- Providing opportunities for Tribes and the local communities to collect mesquite wood for personal use as part of vegetation management treatments.

## Sierra Vista Ranger District



## Huachuca Ecosystem Management Area

### Description

An expansive area containing 276,350 acres of land, the Huachuca Ecosystem Management Area includes the massive Huachuca Mountains, the smaller Patagonia Mountains and Canelo Hills, and the vast, rolling grasslands of San Rafael Valley. Fort Huachuca shares the EMAs northeastern border, and the entire south edge of the EMA lies on the international boundary with Mexico. The Miller Peak Wilderness encompasses 20,190 acres of the EMAs upper elevations in the Huachuca Mountains.

Ancestors of the Chiricahua Apache, the Western Apache, and the O'odham once used the entire EMA and continue to visit areas near Fort Huachuca for acorn collection. Noted by seventeenth-century Spanish Captain Juan Mateo Manje, the Huachuca range (or Sierra de Huachuca) most likely got its name from a nearby Piman village.

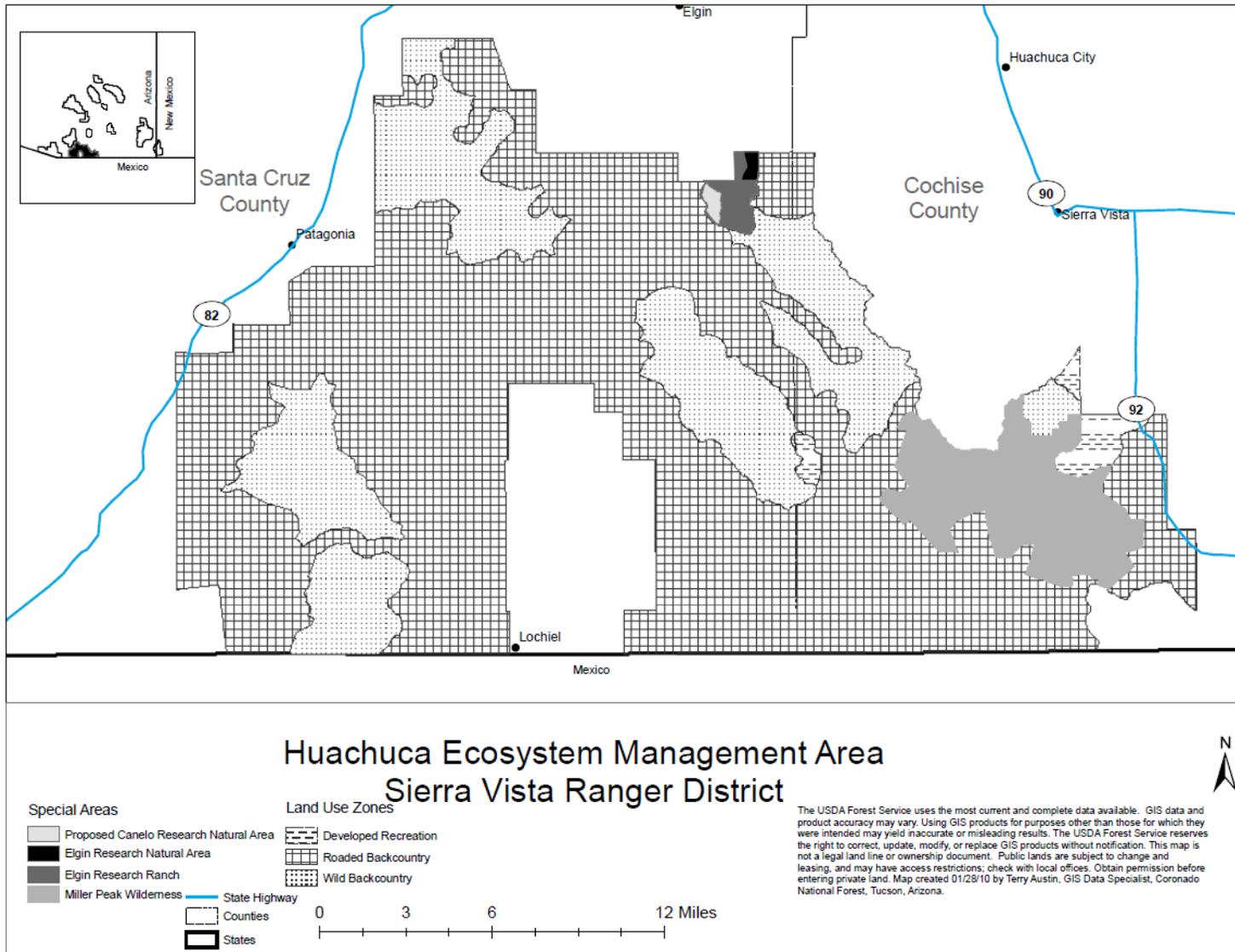
Numerous access roads penetrate Huachuca EMA, connecting to a network of unpaved roads within. Montezuma Pass to Sonoita, via Parker Canyon Lake, is a favorite scenic drive navigable to two-wheel drive vehicles despite being dirt in most sections. Visitors concentrate along Carr Canyon, within campgrounds and picnic areas surrounding Parker Canyon Lake, and at eastside access points near the thriving community of Sierra Vista. Highway 82 closely borders the west side of the EMA, providing additional access for visitors to the Patagonia Mountains.

Just south of Elgin at the north-northeastern edge of the EMA, lies the **Appleton-Whittell Research Ranch** (Research Ranch), a cooperative partnership among the National Audubon Society, U.S. Forest Service, Bureau of Land Management, the Nature Conservancy, Swift Current Land and Cattle Co., LLC, and the Research Ranch Foundation. Of a total 7,543 acres, the Coronado National Forest is the landowner of 2,375 acres. The Research Ranch is managed under a memorandum of understanding that emphasizes research, education, conservation, and restoration; it is particularly valued as a scientific control area. Special area designations on Forest property within the Research Ranch contribute to these objectives, including Elgin Research Natural Area.

**Elgin Research Natural Area** (RNA) was created in 1974 to provide opportunities to research shortgrass open grassland associations near the southwestern extremity of their normal range. Additionally, since domestic livestock have been absent for much of the latter half of the 20<sup>th</sup> century, the RNA offers an excellent opportunity to study natural trends in vegetation composition and soil stability following removal of livestock grazing. The 480-acre tract of land is a mixture of state, federal, and private landownership, all within the Research Ranch boundary; 290 acres are National Forest lands.

Recommended for designation in the 1986 Forest Plan, **Proposed Canelo RNA** would set aside 350 acres of Forest lands within the southern portion of the Research Ranch. Like the Elgin RNA, this area offers an excellent opportunity to monitor long-term ecological changes in the absence of livestock grazing; however, instead of representing the open grassland shortgrass association, Canelo RNA would feature open oak (Encinal) woodlands, a vegetation community that is currently lacking in the Southwestern Region's RNA system. Turkey Creek flows perennially through the western portion of Proposed Canelo RNA, supporting diverse riparian habitat and rare aquatic species.

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## Desired Conditions

The Huachuca EMA offers a wide spectrum of developed recreation opportunities for a growing public, while large tracts of undeveloped areas remain available for primitive and dispersed recreation. Parker Canyon Lake provides developed recreation opportunities, including boating, sport-fishing, camping, and picnicking. Recreational activities do not contribute to the spread of aquatic invasive species. Vistas from Montezuma Pass scenic route retain high scenic integrity. The Arizona Trail offers opportunities for hiking, cycling, and horseback riding across the EMA along a continuous north – south trending transect. A well maintained road network provides ample opportunities for vehicle-related activities without compromising the wild character of un-roaded areas. World-class birding opportunities exist throughout the EMA. Acorn collection is facilitated for cultural, personal, and traditional use.

The Huachuca EMA offers an environment in which to recreate where risks are predominately natural. Activities related to the international border minimally impact natural resource quality and the viewscape. Wildlife species that have historically moved freely between habitat in Mexico and within the Huachuca EMA continue to do so.

The proclaimed National Forest Boundary includes the San Rafael De La Zanja Grant and surrounding non-federal land previously located outside the proclaimed boundary. The complex landownership patterns fragmented checkerboard ownership intermingled with irregular shaped parcels within the EMA have been reduced through landownership adjustments.

Scientists from colleges and universities, state and federal agencies, non-profit organizations, and independent associations use the Research Ranch as a control or reference area to evaluate the effects of various land uses, including ranching, hunting, restoration activities, and recreation, on grassland ecosystems.

## Objectives

- Within 10 years of plan approval, the vegetation on 25 percent of the landscape in the Huachuca EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

## Standards

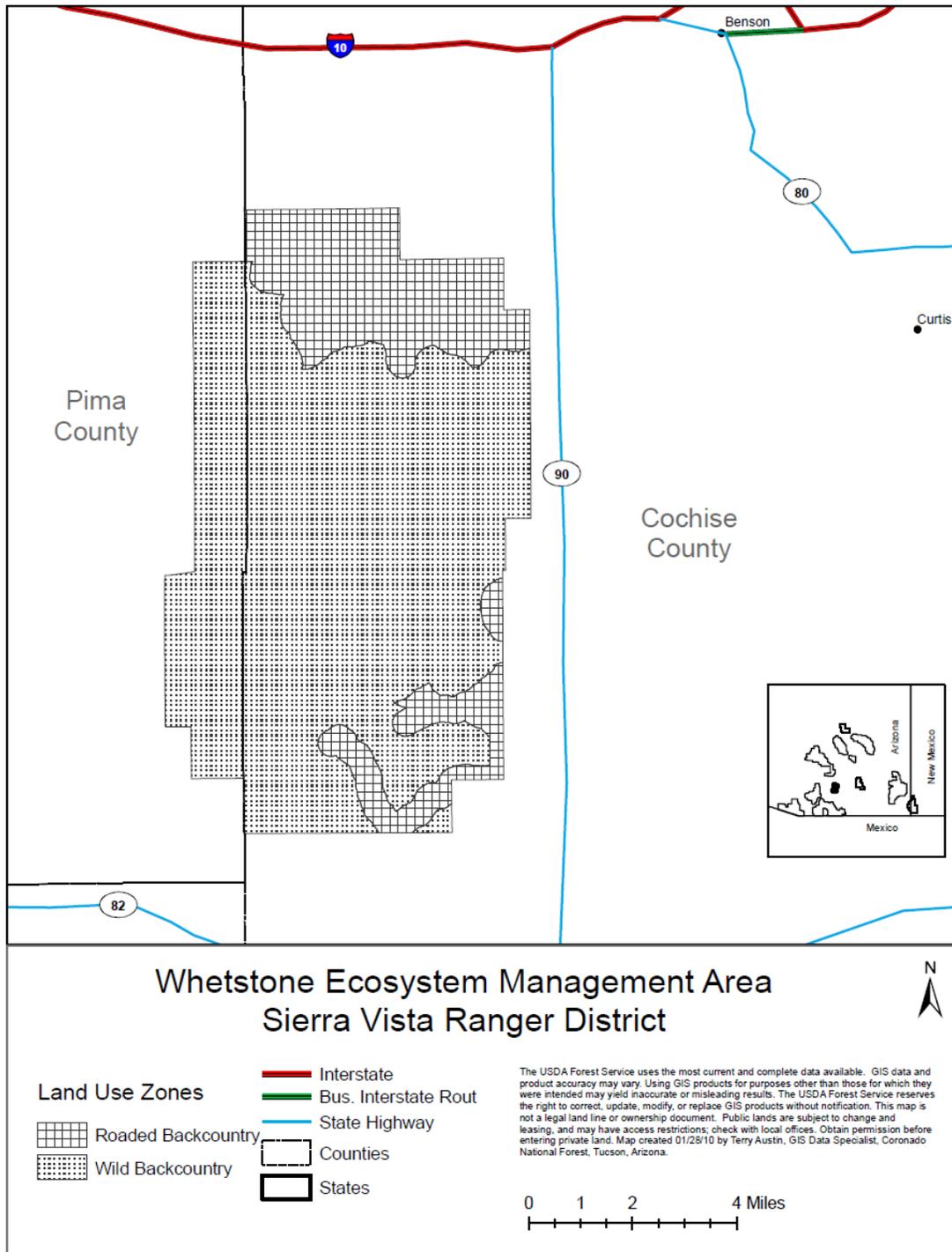
- Within Elgin RNA and Proposed Canelo RNA:
  1. There will be no removal of mineral materials. Withdrawals from mineral entry will be completed and maintained.
  2. Surface occupancy for leasable minerals is not allowed.
  3. Do not permit livestock grazing.
  4. Prohibit harvest of forest products, including fuelwood.

## Whetstone Ecosystem Management Area

### Description

At 45,023 acres, Whetstone Ecosystem Management Area is the Forest's second smallest administrative land unit. Its namesake range, the Whetstone Mountains, provide a scenic backdrop for drivers along Interstate 10, with precipitous cliff bands rising dramatically from a sea of desert scrub and desert grassland. Apache Peak is the range's focal point – appropriately named for the Western Apaches that considered these mountains part of their territory.

Historically, the Whetstone Mountains were also within the territory of the Chiricahua Apache, and archaeological sites indicate long use by Hohokam, ancestral O'odham. Today, access is via primitive roads and trails, as this is one of the least developed EMAs on the Forest. Trails originating in Karchner Caverns State Park at the northern border of the EMA are popular. Developed recreation sites are absent, but opportunities for dispersed recreation abound.



## **Desired Conditions**

The wild character of the Whetstone EMA is preserved and there are ample opportunities for solitude and quiet. Recreation opportunities are primarily undeveloped, and the entire EMA is available for primitive and dispersed recreation, hunting. Riparian resources of French Joe Canyon provide a refuge for migratory birds and other riparian species.

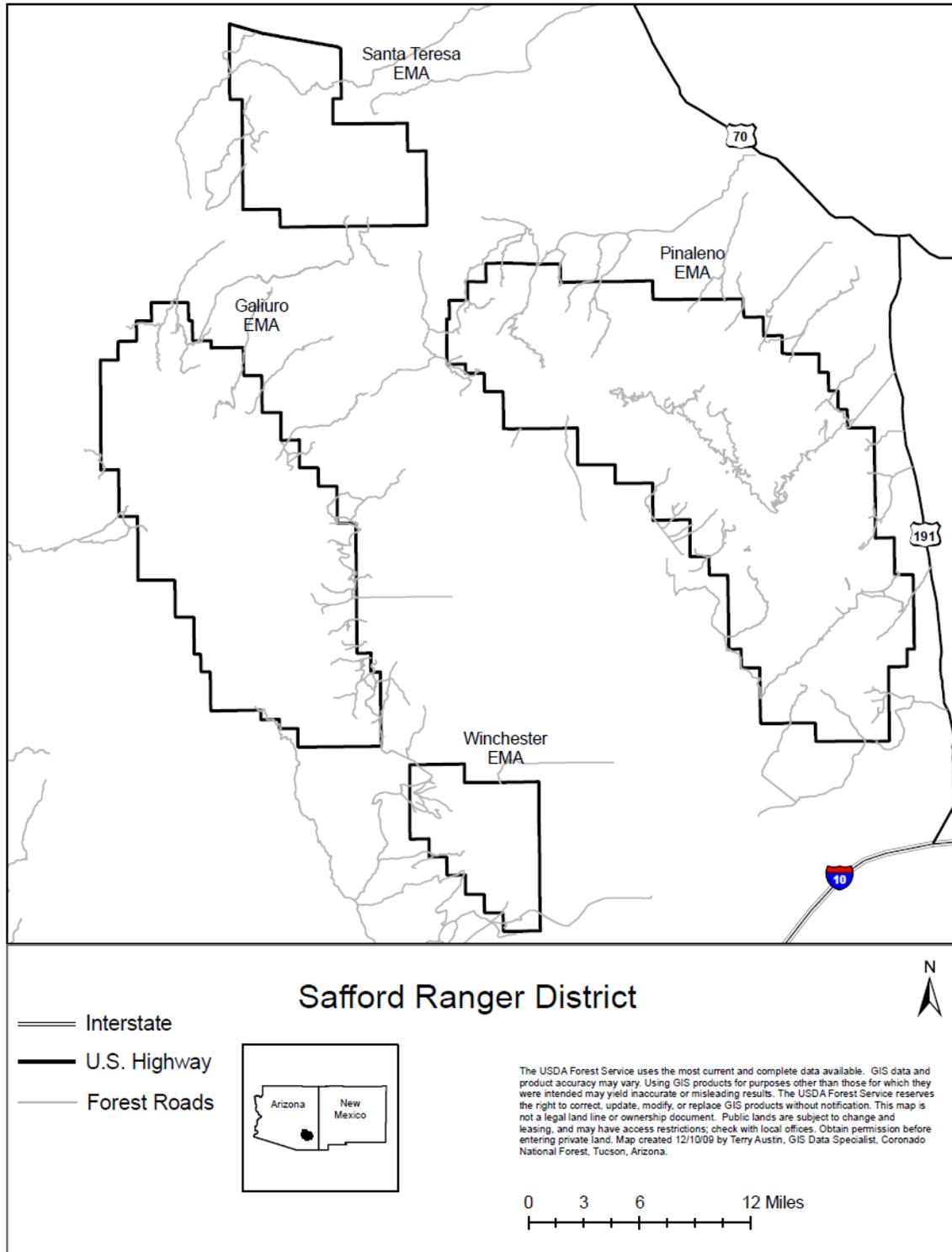
The EMA is one contiguous block of federal land within its proclaimed boundaries. There is permanent legal public road and trail access into the north, south, east, and western sides of the EMA, and is easily accessible by public land and administrative users, and connected to state, county, local public, and other federal roads and trails.

## **Objectives**

- Within 10 years of plan approval, the vegetation on 15 percent of the landscape in the Whetstone EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

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## Safford Ranger District

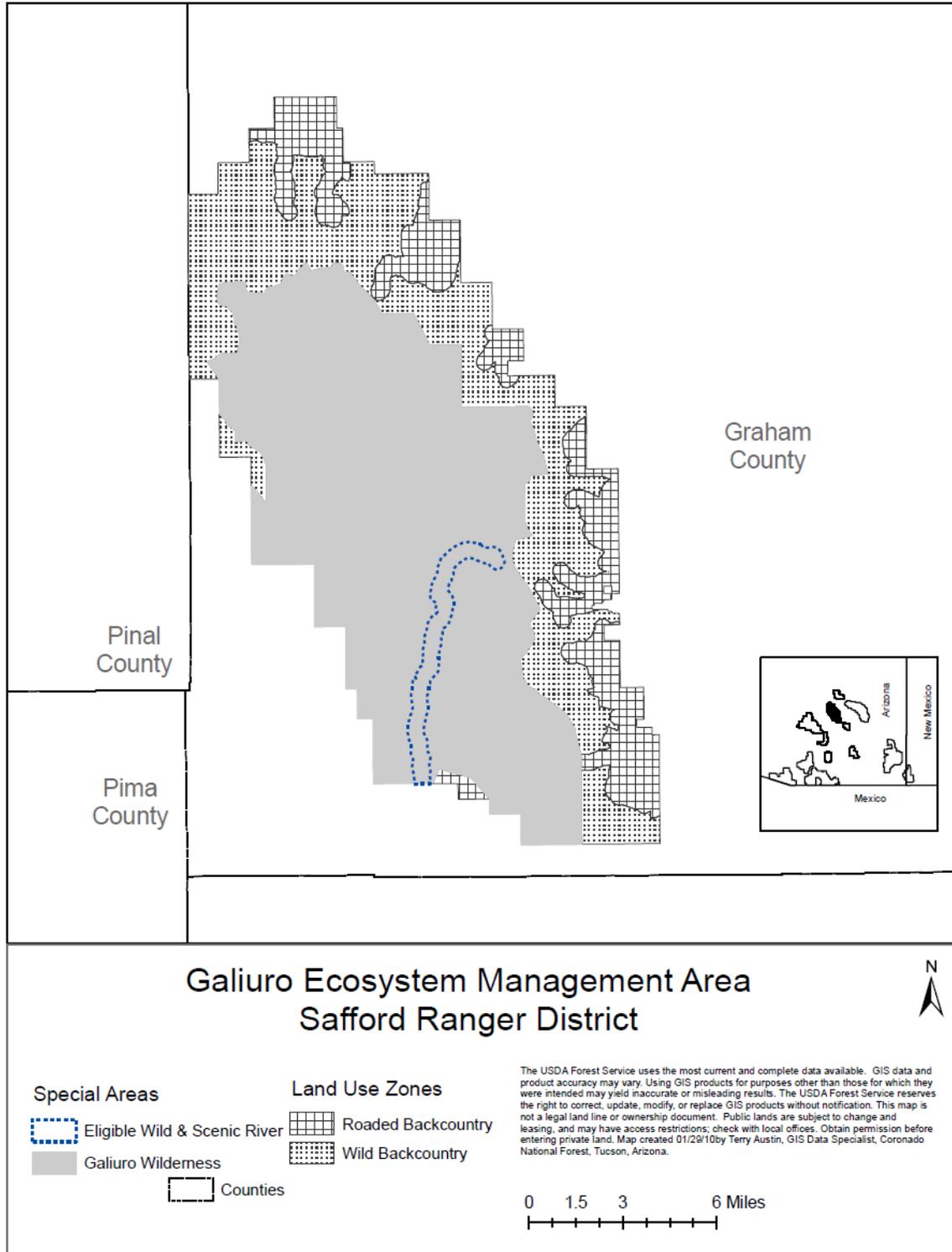


## **Galiuro Ecosystem Management Area**

### **Description**

The rugged and precipitous Galiuro Ecosystem Management Area encompasses 134,517 acres of primarily undeveloped lands; 714 acres are private inholdings. Two major canyons, Rattlesnake and Redfield, and twin ridges running northeast to southwest, form the dominant geologic features of the area. From golden grasslands, 7,651-foot Bassett Peak rises up to form the EMA's highest point. Access is mainly via gravel and dirt roads, most lying on the east side of the mountain, with travel generally restricted to foot and horseback in the interior of the range. There are no developed recreation areas in Galiuro EMA, but dispersed areas throughout the mountains offer a wealth of opportunities for backcountry hiking, camping, and solitude. The 76,317-acre area, Galiuro Wilderness abuts Bureau of Land Management-administered Redfield Canyon Wilderness to the south.

The Galiuro Mountains are rich in both cultural and natural history. The EMA was historically within the territory of the Western Apaches. The Hopi Tribe and Zuni Pueblo have ancestral sites in the San Pedro Valley, to the west, and likely used the Galiuro Mountains in centuries past. At Power's Cabin, deep within the mountain range, one of the most famous of old west shoot-outs took place in 1918. Wolves roamed the range until the mid-1950s, and black bear and mountain lion are still plentiful today.



**Desired Conditions**

The wild character of the Galiuro EMA is preserved, and there are ample opportunities for quiet recreation and solitude. Recreation opportunities are primarily undeveloped and the entire EMA is available for primitive and dispersed recreation. Powers Cabin is preserved as an historic site.

The EMA is one contiguous block of federal land from its original boundaries to the Winchester EMA – the proclaimed National Forest Boundary at the southeast corner connects with the northwest corner of the Winchester EMA.

There is permanent legal public road and trail access into all sides of the EMA, and it is easily accessible by public land and administrative users, and connected to state, county, local public, and other federal roads and trails.

### **Objectives**

- Within 10 years of plan approval, the vegetation on 10 percent of the landscape in the Galiuro EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

## **Pinaleño Ecosystem Management Area**

### **Description**

The Pinaleño Ecosystem Management Area encompasses a massive mountain range of 198,879 acres. Rising from surrounding semi-desert grasslands to the Forest's only representative spruce-fir vegetation community, the Pinaleño Mountains dwarf surrounding ranges with elevations well over 10,000 feet. Residents of the Gila Valley (Safford, Thatcher, and other communities) consider Mount Graham a special place - part of a tradition of retreating to the mountain for relief from summer heat. The entire range (or *Dzil nchaa si'an*), has been formally recognized as a Traditional Cultural Property important to the Western Apache groups, including White Mountain, San Carlos, and Yavapai Apache, and as a place of outstanding significance in Western Apache religion, culture, and history. The mountain continues to play a vital role in Western Apache life ways and tribal well-being. *Dzil Nchaa Si'an* is home to mountain spirits, serves as a source of natural resources and traditional medicine for ceremonial uses, and is used as a place of prayer and a source of power to Western Apache people. The Hopi Tribe, the Pueblo of Zuni, and the Four Southern Tribes of Arizona also have sacred sites and shrines within the Pinaleño Mountains. The entire EMA has been determined eligible for listing on the National Register of Historic Places.

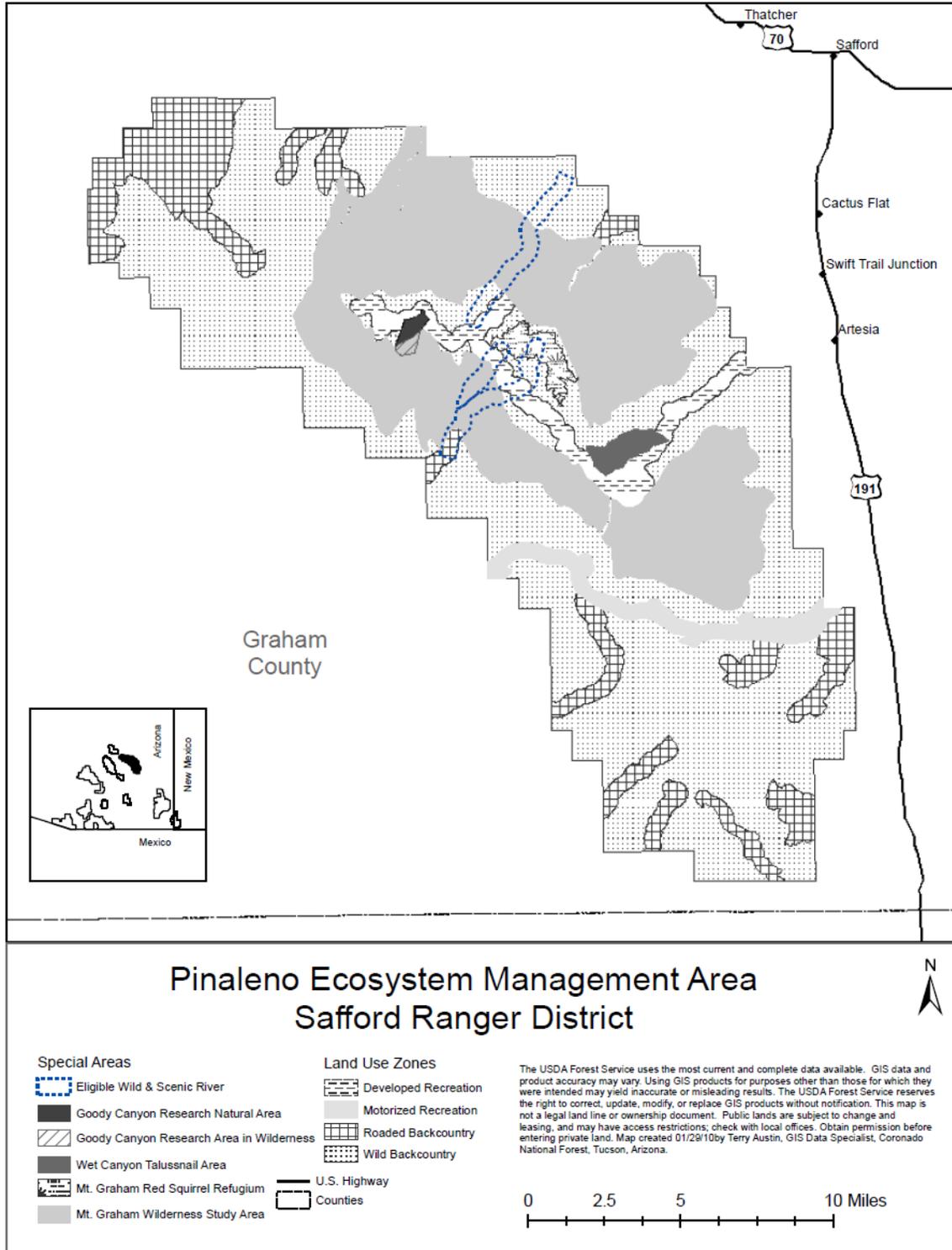
Primary access into the mountains is via State Highways 366 (which was designated "Swift Trail Parkway" by Arizona Department of Transportation in 1992) and 266 (over Stockton Pass). Non-motorized trails penetrate the range for travel by foot and horseback. One of these, Arcadia Trail #328, was named "Arcadia National Recreation Trail" by the Chief of the Forest Service in 1979. Visitor facilities include developed campgrounds and picnic areas, and a visitor center staffed by volunteers. There are also many popular locations for dispersed recreation. Large unroaded areas, including the Mount Graham Wilderness Study Area, offer opportunities for backcountry hiking and solitude. Additionally, two Special Management/Emphasis Zones contribute to the uniqueness of the EMA: the Wet Canyon Talussnail Area and the Mt. Graham Red Squirrel Refugium. University of Arizona's Mount Graham International Observatory (MGIO), has become an important astrophysical research facility and contributes to the rich multiple-use history of the range. The 62,000 acre Mount Graham Wilderness Study Area circles to high peaks of the EMS.

**Goudy Canyon Research Natural Area.** A portion of the EMA's mixed conifer forests within Goudy Canyon were designated a Research Natural Area in 1972 to provide opportunities to

study Mexican white pine and Douglas fir in near optimal stand conditions. Pure stands of Mexican white pine are rare across the Forest, but well-represented here. The naturally steep topography discourages motorized and off-trail travel, livestock grazing, and other uses, making it an ideal location for research. The Mount Graham WSA overlaps the entire RNA. Motorized access to the northern boundary of Goudy Canyon RNA is easily available via the Swift Trail, providing opportunities for wilderness-oriented recreation to occur.

**Wet Canyon Talussnail Area.** On the eastern slope of the Pinaleño Mountains, 1,220 acres of the Wet Canyon talussnail's (*Sonorella macrophallus*) optimal habitat and the watershed that surrounds it, is protected with this special area, recognized in a 1998 Forest Plan amendment. As the name implies, this land snail is restricted to talus slopes in canyon bottoms, and is barely more than a half an inch in diameter. It is endemic to the Pinaleño Mountains, and perhaps even to the Wet Canyon watershed. Five other talussnails are also endemic to the Pinaleño Mountains; they share common habitat requirements and are therefore mutually benefited by the existence of the Wet Canyon Talussnail Area.

**Mount Graham Red Squirrel Refugium.** Originally believed to be extinct in the 1950's, then rediscovered in the 1970's, the endangered Mount Graham red squirrel is a distinct subspecies of red squirrel found only in the Pinaleño Mountains. Most of the Refugium, which was established in a 1989 Forest plan amendment, was designated critical habitat by the U.S. Fish and Wildlife Service in 1990. It covers the very top of Mount Graham, protecting much of the red squirrel's spruce-fir habitat and some of its more recently recognized mixed conifer habitat. The MGIO site is partially overlapped by this special area.



### Desired Conditions

The Pinaleno EMA offers a wide spectrum of developed recreation opportunities for a growing public, while large tracts of undeveloped areas remain available for primitive and dispersed recreation. The Swift Trail Parkway, a State designated scenic byway, provides vehicular access

to the EMA's primary recreational opportunities year-round, and access to high elevations from spring to fall. The scenic, natural qualities valued by visitors are retained. Interpretive signs along the Swift Trail provide educational information about the surrounding natural and cultural resources. Trails in the Mt. Graham Refugium are open to hikers and visitors there are provided with information about the cultural significance of the area and the ways to be respectful. Recreation facilities are sufficient in size and number to accommodate demand and support a high quality, outdoor experience. Riggs Lake and Frye Mesa Reservoir offer opportunities for fishing and other lake-based recreation. These activities do not contribute to the spread of invasive aquatic species. Up-to-date, locally focused, and science-based natural and cultural information is available to visitors at the Columbine Visitor Center. Horse corrals at several recreation sites along Swift Trail offer equestrians places to organize rides and to camp. Recreation residences and the Columbine organization camp blend well with the natural landscape and do not expand beyond their authorized footprints.

The integrity of the Western Apache Traditional Cultural Property is retained or improved wherever feasible. Members of the White Mountain and San Carlos Apache Tribes and the Yavapai Apache Nation have access to Dzil Nchaa Si'an for ceremonial, religious, collecting, and gathering activities. The mountain provides a setting for the education of tribal youth in culture, history, and land stewardship. When available, Forest administrative sites can be used by tribal families and organizations through government-to-government agreements. Interpretive and educational exhibits or other media that focus on the history of the Forest are developed in collaboration or consultation with the Western Apache tribes, so that the general public gains a greater understanding and appreciation of Apache history, culture, and traditions. Traditional uses, such as the collection of medicinal plants, wild plant foods, basketry materials, and fuel wood, are allowed without restriction.

The dark skies above the Pinaleño EMA present conditions conducive to astronomical research. Existing telescopes offer educational opportunities and promote scientific discovery. University of Arizona researchers, employees, students, volunteers who visit the MGIO, and Observatory employees are informed about the importance of Dzil Nchaa Si'an to Western Apache people and how to be respectful when visiting, living, residing, or working on the mountain.

High-elevation meadows are dominated by native grasses and grass-like plants, and are relatively free of trees and shrubs. The spruce-fir vegetation community is regenerating with species representative of a healthy mix of spruce-fir seral stages. Wet Canyon Watershed provides habitat for the Wet Canyon Talussnail. The Mt. Graham Red Squirrel Refugium provides habitat for the Mt. Graham Red Squirrel. Recreational uses or management activities do not degrade these special habitats.

## **Objectives**

- Within 10 years of plan approval, the vegetation on 20 percent of the landscape in the Pinaleño EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.
- Within 5 years of plan approval, at least one existing building or a proposed building site within the Western Apache traditional cultural property will be made available to the San Carlos Apache Tribe through a long-term Granger-Thye free-use permit.
- Within 10 years of plan approval, the Pinaleño EMA will be nominated for designation as a Special Area in recognition of its importance to the Western Apache tribes.

## Guidelines

1. No paid public tours or other for-profit recreational activities should be authorized on the sacred mountain.
2. The forest should consult with White Mountain and San Carlos Apache Tribes to protect the physical integrity of the Dzil Ncha Si an Traditional Cultural Property, restore the ecosystem, and mitigate the effects of the MGIO and other developments on the mountain
3. The Mount Graham International Observatory permittee should be notified of all wildland fires that may affect the observatory.
- Within Mount Graham Red Squirrel (MGRS) Refugium:
  1. Red squirrel habitat needs will supersede the needs of all other species of plants and animals.
  2. Allow hiking at use levels that do not negatively impact wildlife habitat or individuals of the MGRS.
  3. Recommend withdrawal from mineral entry and mineral leasing on 2,629 acres to protect habitat for Federal and State listed threatened and endangered species and astronomical research operations. Mineral withdrawal is automatic with wilderness designation for the remaining 442 acres.
  4. Avoid doing vegetation treatments within 90 ft (check guidance) of areas where high densities of MGRS occur.
  5. Encourage non-intrusive recreation in areas occupied by MGRS.
  6. Avoid high-impact wildfire suppression activities, if possible, in areas occupied by MGRS.

## Standards

- Within Goudy Canyon RNA:
  1. There will be no removal of mineral materials. Mineral withdrawal is unnecessary because wilderness area management supersedes mineral management for RNAs.
  2. Exclude livestock grazing.
  3. Wildlife habitat improvement, water yield improvement, and related improvement projects are prohibited.
  4. Vegetation manipulation, including timber sale and harvest of forest products, will not be allowed except for approved research purposes.
  5. Recreational uses, particularly hunting and hiking, may continue.
- Within the Wet Canyon Talussnail Area:
  1. Grazing is prohibited.
  2. Use planned and unplanned ignitions to reduce the potential for sedimentation, diminished water quality, and soil erosion in talussnail habitat resulting from uncontrolled fire.
  3. There will be no removal of mineral materials for any purpose. As needed, recommend withdrawal from mineral entry and mineral leasing for the entire area. Issue “no surface occupancy” stipulations for mineral leasing activities.
- Within Mount Graham Red Squirrel Refugium:
  1. No new recreational residence or developed recreation area will be established.
  2. Exclude domestic and recreational livestock grazing.
  3. There will be no removal of materials for any purpose. Recommend withdrawal from mineral entry and mineral leasing on 2,629 acres to protect habitat for Federal and State listed threatened and endangered species and astronomical research operations. Mineral withdrawal is unnecessary for the remaining 442 acres because designated wilderness is withdrawn from mineral entry.

## Management Approaches

The following management approaches will help to achieve the desired conditions and objectives for the Pinaleño EMA:

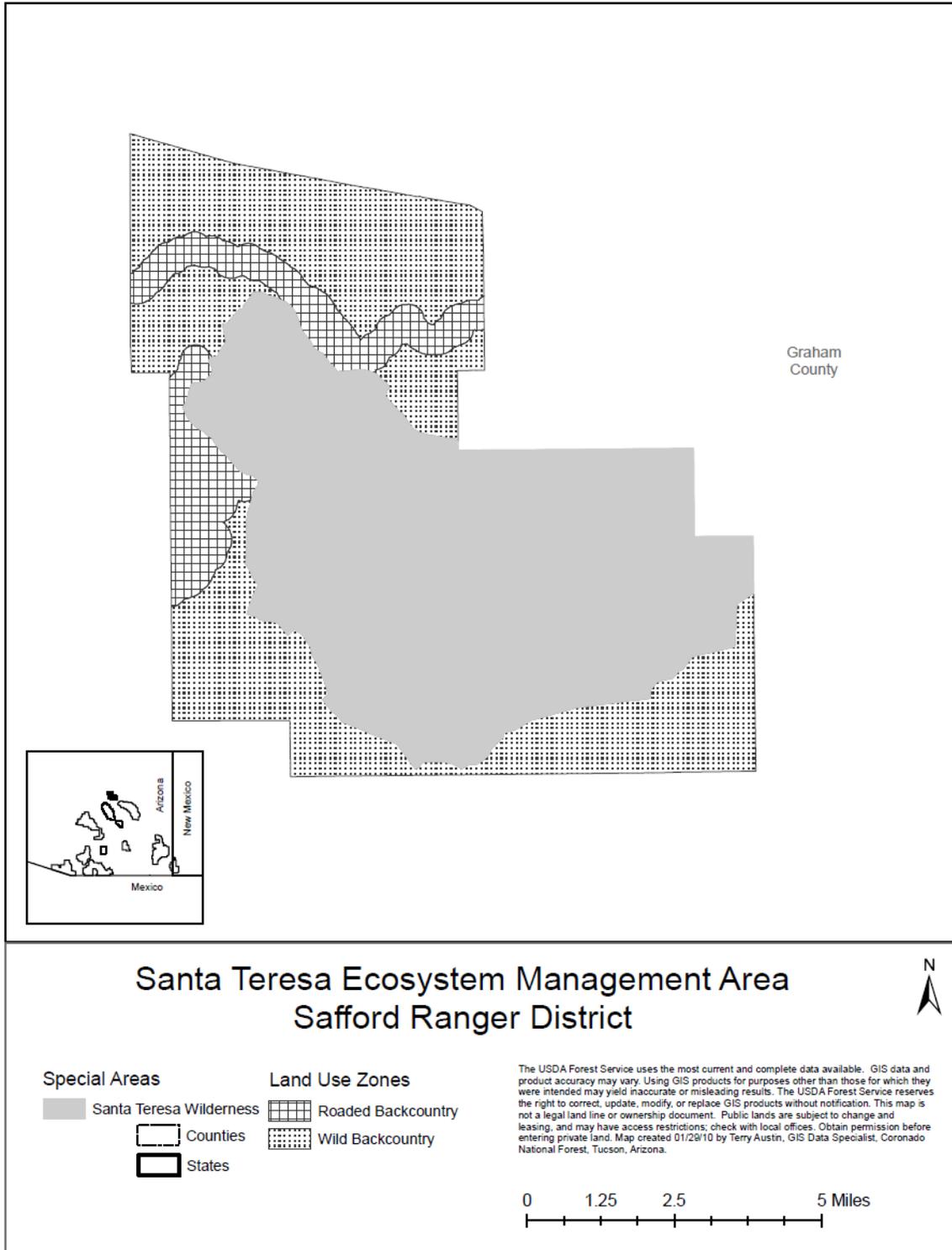
- Managing for the protection and physical integrity of the sacred site in full partnership with the Western Apache tribes.
- Encouraging the Western Apache tribal members to pursue careers in the Forest Service, and contribute to the Coronado National Forest's ability to adapt traditional knowledge to modern land management practices.
- Working with the University of Arizona and the Western Apache Tribes to mitigate or reduce the effects of the MGIO on the traditional cultural property
- Encouraging scientific investigation of talussnail life history traits (including reproduction, recruitment, mortality, population trends, ecology, etc.) to increase understanding of, and the ability to manage, this unique taxon.
- Using education to improve understanding of wildlife values within Mount Graham Red Squirrel Refugium and Wet Canyon Talussnail Area.
- Acquiring and maintaining instream water rights on Wet Canyon Creek.

## Santa Teresa Ecosystem Management Area

### Description

The 49,852-acre Santa Teresa Ecosystem Management Area makes up the Forest's most northerly land mass, located just beyond and between the Galiuro and Pinaleño mountains. The EMA's Santa Teresa range is a network of rugged mountains with bald summits, deep canyons, and sprawling mesas. Extremely rugged Holdout Canyon typifies the Santa Teresa Mountains: abundant caves and alcoves hollow into eroded cliffs with picturesque formations. Vegetation is predominantly thick chaparral with forests of ponderosa pine occupying high ridges. A stand of Douglas-fir grows on the sheltered north slope of Cottonwood Peak, the highest in the range, at 7,481 feet. The 26,780 acre Santa Teresa Wilderness encompasses more than half of the EMA.

Bordering the EMA to the north is the San Carlos Apache Reservation, also part of the Santa Teresa range. These mountains also lie within the aboriginal territories of the Western Apaches and the Four Southern Tribes, and may have been part of the migration routes used by ancestral pueblo groups. As one of the least developed EMAs within the Coronado NF, access into Santa Teresa EMA is via gravel and dirt roads, or by hiking trails. There are no developed recreation areas, although opportunities for backcountry hiking, camping, and picnicking are abundant.



**Desired Conditions**

The wild character of the Santa Teresa EMA is preserved, and there are ample opportunities for quiet recreation and solitude. Recreation opportunities are primarily undeveloped. The entire EMA is available for primitive and dispersed recreation. There is permanent legal public road and

trail access into the north, south, east, and western sides of the EMA, and is easily accessible by public land and administrative users, and connected to state, county, local public, and other federal roads and trails.

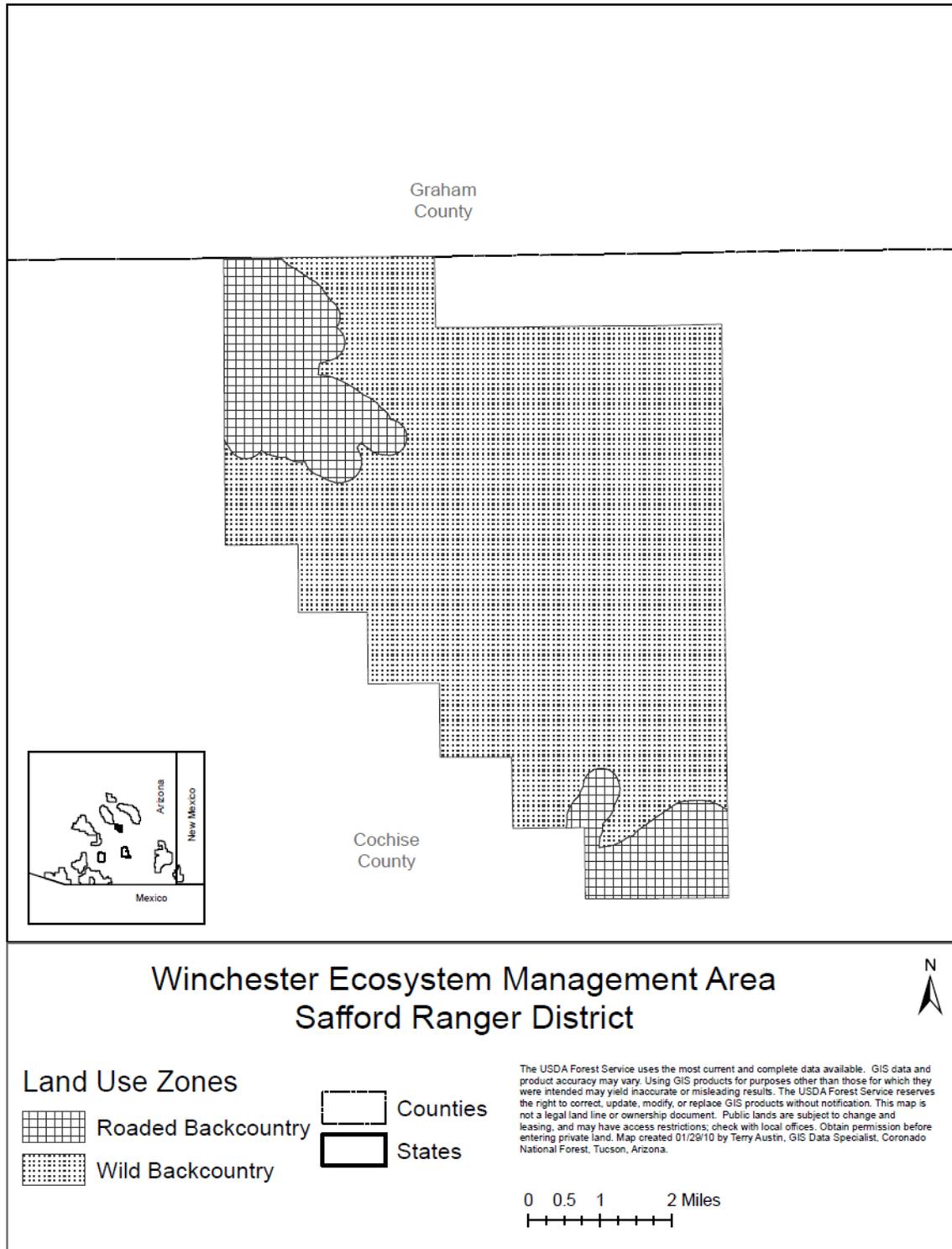
### **Objectives**

- Within 10 years of plan approval, the vegetation on 40 percent of the landscape in the Santa Teresa EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

## **Winchester Ecosystem Management Area**

### **Description**

Less than half the size of the next largest EMA, Winchester Ecosystem Management Area contains 19,272 acres. The administrative boundary is considerably larger, yet a significant portion of that acreage is owned by the State of Arizona. The mountains that give this EMA its name are a small range situated just southeast of the Galiuro Mountains; Rilay Peak forms the apex of the Winchester Mountains, rising to over 7,500 feet in elevation. Part of the Apache territory when Euroamericans entered the region, this range was evidently visited by Native American groups for thousands of years. Winchester EMA offers opportunities for primitive-end recreation and solitude. Access is via primitive roads, with much of the EMA accessible only by hiking cross-country. There are no developed recreation areas in the EMA, and there are good opportunities for backcountry hiking, camping, and solitude.



**Desired Conditions**

The wild character of the Winchester EMA is preserved, and there are ample opportunities for quiet recreation and solitude. Recreation opportunities are primarily undeveloped. The entire EMA is available for primitive and dispersed recreation.

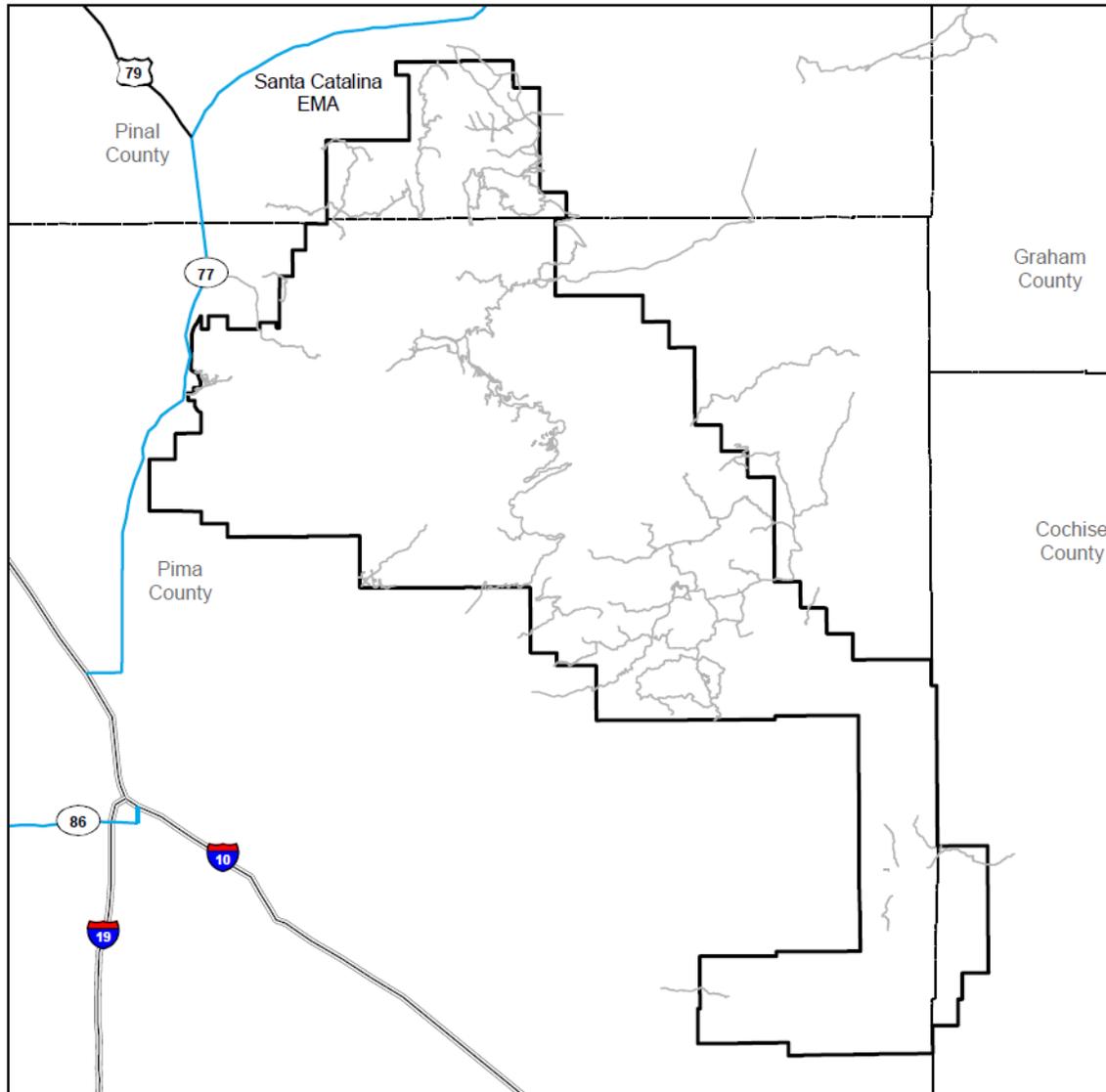
The EMA is one contiguous block of federal land to the Galiuro EMA. The proclaimed National Forest Boundary at northwest corner of the EMA connects with the southeast corner of the Galiuro EMA. There is permanent legal public road and trail access into the north, south, east, and western sides of the EMA, and is easily accessible by public land and administrative users, and interconnected to state, county, local public, and other federal roads and trails.

### **Objectives**

- Within 10 years of plan approval, the vegetation on 10 percent of the landscape in the Winchester EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

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## Santa Catalina Ranger District



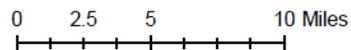
### Santa Catalina Ranger District



-  Interstate
-  State Highway
-  Forest Roads
-  County



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## Santa Catalina Ecosystem Management Area

### Description

The 265,142 acre Santa Catalina Ecosystem Management Area wraps around the northern and eastern sides of the Tucson basin, dominating the viewshed from most parts of the city of Tucson. Elevations range from 2,200 feet at the valley edges to 9,200 feet on Mount Lemmon. The EMA is comprised of two mountain ranges, the Rincon Mountains and Santa Catalina Mountains. Nearly all of the Forest's vegetation communities are represented within the Santa Catalina EMA. Historically, both ranges were within the aboriginal territories of the O'odham and the Apaches. Large archaeological sites in the foothills and small shrines atop peaks are important to the Zuni and the Hopi. There are two designated Wilderness Areas in the EMA, the 56,933 acre Pusch Ridge Wilderness in the Santa Catalina Mountains, and the 38,590 acre Rincon Wilderness in the Rincon Mountains. The boundary of the Rincon Wilderness is shared with Saguaro National Park.

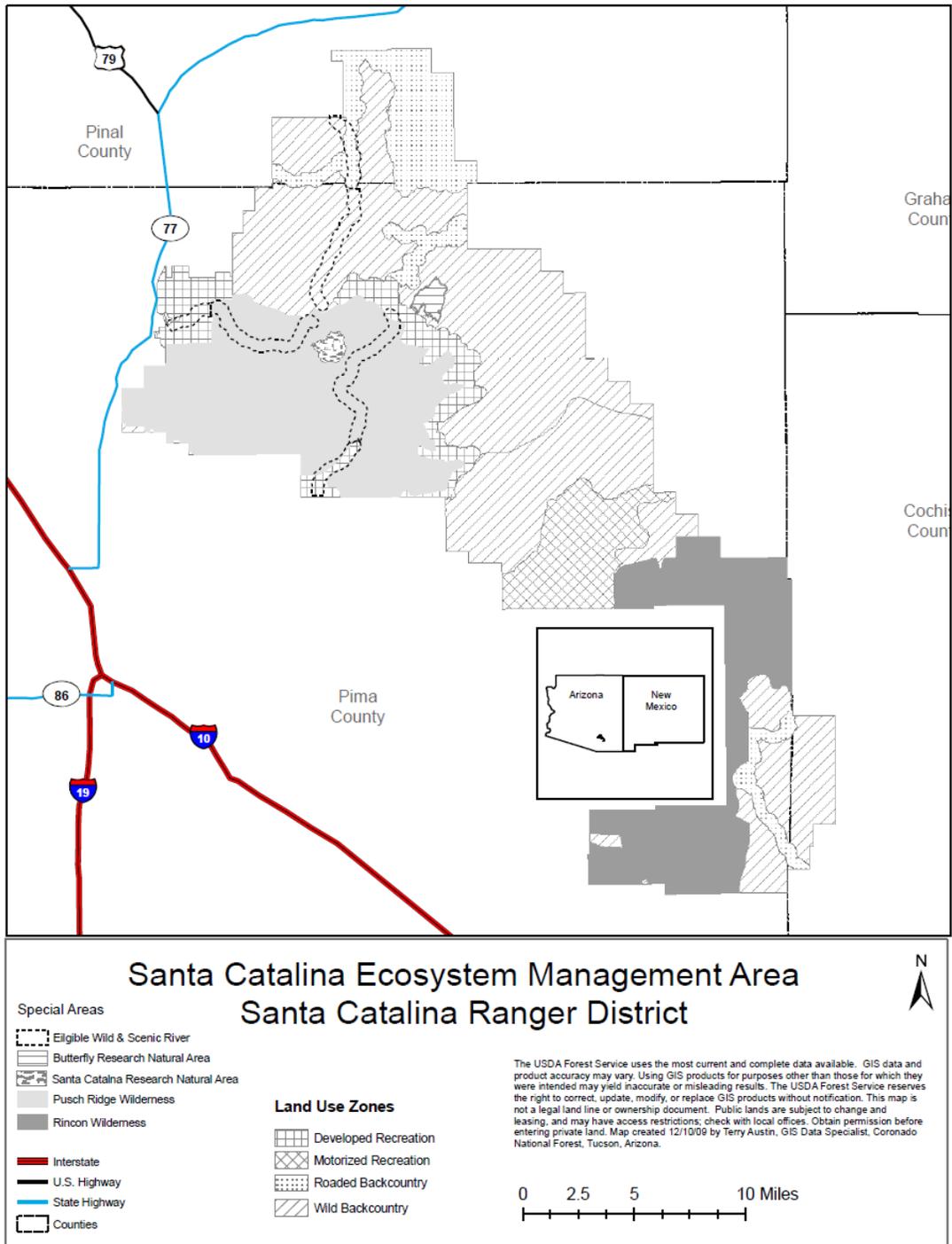
The north-facing portion of the Santa Catalina Mountains exhibit a number of natural features of interest: Samaniego Ridge and Reef of Rocks dramatically rise to the crest of the range, parallel ridges harboring Santa Catalina's longest drainage, Canado del Oro, at nearly 25 miles in length. This canyon and Sabino Canyon are the only known drainages in this range to have historically contained native fishes. Alder Canyon, on the east slope of the Santa Catalina Mountains, is notable for its large deposits of limestone and dolomite, which are uncommon within the range at these concentrations. An interrupted perennial stream flows from multiple springs and seasonal snowmelt making Alder Canyon particularly lush; it is probably second only to Sabino Canyon in terms of biological diversity. Lowland leopard frogs, canyon tree frogs, coatimundi, and riparian vegetation are abundant.

This EMA receives more visitors than any other part of the Coronado National Forest. It provides a sanctuary to desert dwellers during the intense heat of summer, and an opportunity to enjoy snow each winter. Mount Lemmon's Ski Valley is the southernmost ski area in the continental U.S., offering rare skiing opportunities and a popular "sky ride" during non-snowy months. Trails wander the many canyons, ridges, valleys, and forests of the Santa Catalina EMA, many stemming from the Arizona Trail as it traverses both mountain ranges. The primary access route into the Santa Catalina Mountains is the Catalina (or General Hitchcock) Highway. The highway was designated a Scenic Route by Pima County, the "Sky Island Scenic Byway" by the Chief of the Forest Service in 1995, and "Sky Island Parkway" by Arizona Department of Transportation in 2001. Visitor facilities are concentrated along this route, throughout Sabino Canyon, and in Catalina State Park, which is managed by the State of Arizona and administered by the Forest. Dispersed recreation is abundant within designated Wilderness, as well as on the northern and eastern aspects of the Santa Catalina Mountains and throughout the Rincon Mountains.

**Butterfly Peak Research Natural Area.** One-thousand acres of land at the head of Alder Canyon on the eastern slope of the Santa Catalina Mountains were set aside in 1935 as Butterfly Peak RNA. The area was noted to contain one of the largest varieties of trees and shrubs in any one place in the Southwest, including at least seven coniferous species, eleven broadleaf species, and a wide range of shrubs and herbs. Steep topography naturally limits timber harvest, livestock grazing, and mineral exploration, while the only trail that enters the area would be considered strenuous by most hikers. As such, visitation is low, making it an ideal place to conduct research within the ponderosa pine-evergreen shrub vegetation community.

**Santa Catalina Research Natural Area** was designated in 1927 as the nation's first RNA. The

original 4,464 acres were advocated by the Tucson Natural History Society for the study of flora as well as for appreciation of the outdoors and other purposes. Adjustments to the original size have been made twice since establishment: once, in 1962, in a small reduction made for special uses that were in conflict with RNA system intentions; and again, in 1986, to eliminate a large area heavily used for dispersed recreation. The now 890-acre Santa Catalina RNA sits within the dramatic landscape of the Wilderness of Rocks area where spectacular views are abundant. Vegetation is dominated by widely-dispersed ponderosa pines. Congressionally-designated Pusch Ridge Wilderness overlaps the area entirely.



## Desired Conditions

The Santa Catalina EMA offers a wide spectrum of developed recreation opportunities for a growing public, while large tracts of undeveloped areas remain for primitive and dispersed recreation. In Sabino Canyon, developed recreation opportunities exist along the roadways, including access to the biologically rich Sabino Creek, and opportunities for dispersed and quiet recreation exist away from the main travel corridor. In Redington Pass, backcountry touring routes are available for visitors who operate OHVs and ATVs responsibly. Recreational target shooting occurs in safe and well monitored locations. The Sky Island Scenic Byway retains the qualities that earned national designation as a scenic byway. It provides year-round vehicular access to natural scenery and high elevations for a variety of developed and undeveloped recreational opportunities. Interpretive signs help visitors learn about and respect the natural and cultural resources in the area.

Fishing opportunities at Rose Canyon Lake are available to the public. Water based recreational activities do not contribute to the spread of invasive aquatic species. Up-to-date, locally focused, and science-based natural and cultural information is available to visitors at the Palisades and Sabino Canyon Visitor Centers. Recreation residences and organization camps blend well with the natural landscape and do not expand beyond their authorized footprints. The geologic features and rock formations that dominate the Santa Catalina viewscape sustain a rich heritage of rock-climbing. Rock climbers do not cause resource damage and abide by restrictions needed for wildlife protection. Ski Valley, the continental United States' southernmost ski area, offers periodic snow-based and other year-round recreation opportunities. The Arizona Trail offers opportunities for hiking, cycling, and horseback riding across the EMA along a continuous north – south trending transect. Existing telescopes offer educational opportunities and promote scientific discovery.

Small stands of corkbark fir exist on cool wet sites at the highest elevations. Buehman Canyon retains the characteristics required to be designated an “Outstanding Arizona Water” by Arizona Department of Environmental Quality. Sabino Creek supports a diverse assemblage of native aquatic species, including but not limited to Gila chub, Gila topminnow, longfin dace, Chiricahua leopard frog, Mexican garter snake, and Sabino Canyon damselfly. Habitat exists for bighorn sheep.

## Objectives

- Within 10 years of plan approval, the vegetation on 25 percent of the landscape in the Santa Catalina EMA will have been treated to create resiliency to un-natural disturbances; treatments will be consistent with the objectives for Forestwide vegetation communities and resources.

## Standards

- Within Santa Catalina RNA:
  1. There will be no removal of mineral materials. Mineral withdrawal is unnecessary because wilderness area management supersedes mineral management for RNAs.
  2. Exclude livestock grazing.
  3. Hunting and fishing are not allowed. Other recreational uses may continue.
  4. Timber cutting is prohibited.
- Within Butterfly Peak RNA:
  1. There will be no removal of mineral materials. Withdrawals from mineral entry will be completed and maintained.

2. Surface occupancy for leasable minerals is not allowed.
3. Exclude livestock grazing.
4. Timber cutting is prohibited.

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## Appendix A: Suitable Uses

### Introduction

This appendix describes the appropriateness of applying certain resource management practices to a particular area of land. A unit of land may be suitable for a variety of individual or combined management practices. The land units considered in the suitability determinations are the Land Use Zones and Wilderness, both described in Chapter 3, and Research Natural Areas, described in Chapter 4. Table 6 addresses selected activities that may be allowed on the Coronado NF, and is not inclusive of all activities that may be considered over the planning period. Table 7 addresses the suitability of activities that require Special Use Permits issued by the Coronado NF.

### Suitability of Selected Activities

Suitable Uses	Wild Backcountry	Roaded Backcountry	Motorized Recreation	Developed Recreation	Wilderness	Research Natural Areas
Motorized Access	Yes	Yes	Yes	Yes	No	No
ATV Focused Recreation	No	No	Yes	No	No	No
Dispersed Motorized Camping	Yes	Yes	Yes	Yes	No	No
Recreation Facilities	No	Yes	Yes	Yes	No	No
Timber Harvest (for Ecosystem Restoration)	Yes	Yes	Yes	Yes	No	By Exception <sup>10</sup>
Timber Production	No	No	No	No	No	No
Livestock Grazing	Yes	Yes	Yes	No	Yes	By Exception <sup>11</sup>
Forest Products (Commercial)	Yes	Yes	Yes	No	No	No
Forest Products (Traditional)	Yes	Yes	Yes	Yes	Yes	No
Fuelwood Products	No	Yes	Yes	No	No	No

<sup>10</sup> Only if allowed in the Establishment Record for the RNA.

<sup>11</sup> Ibid.

## Definitions

**Motorized Access (Motorized Routes):** Use of motorized vehicles on National Forest system roads or trails that are designated for motor vehicle use.

**ATV Focused Recreation:** Facilities, routes or events specifically for ATV users.

**Dispersed Motorized Camping:** Camping with motorized vehicles outside of developed campsites.

**Recreation Facilities:** Facilities and structures that support recreational uses.

**Timber Harvest (for ecosystem restoration, wildlife habitat improvement or watershed protection):** Removal of trees for the purposes other than timber production, such as ecosystem restoration, wildlife habitat improvement or watershed protection.

**Timber Production:** Growing, tending, harvesting, and regenerating crops of trees on a regulated basis to produce logs or other products for industrial or consumer use.

**Livestock Grazing:** Use of forage by domestic livestock, under a livestock grazing permit, in a designated grazing allotment.

**Forest Products (Commercial):** Plants or plant part harvested under a forest products permit.

**Forest Products (Traditional):** Plants or plant parts harvested by Native American Tribes.

**Fuelwood Products:** Wood removed for firewood.

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### Suitability of Special Use Permits

<b>Special Use Permit Category</b>	<b>Wild Backcountry</b>	<b>Roaded Backcountry</b>	<b>Motorized Recreation</b>	<b>Developed Recreation</b>	<b>Wilderness</b>	<b>Research Natural Areas</b>
Group Use	Not Suitable	Not Suitable	Not Suitable	Suitable	Not Suitable	Not Suitable
Individual Use	Designated Areas	Suitable	Suitable	Designated Areas	Not Suitable	Not Suitable
Private Lodging	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Hotel, Motel, and Resort	Not Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Facility Related Activities (Except Recreation Event)	By Exception	By Exception	Suitable	Suitable	Not Suitable	Not Suitable
Recreation Event	Non-motorized Suitable	Suitable	Suitable	By Exception	Not Suitable	Not Suitable
Facility Related Service (Except Outfitter and Guide Service)	Not Suitable	Not Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Outfitter and Guide Service	Suitable	Suitable	Suitable	By Exception	Suitable	Not Suitable
Winter Recreation	Not Suitable	Not Suitable	Not Suitable	Suitable	Not Suitable	Not Suitable
Crops and Agricultural Improvements	Not Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Range Facilities	Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Convenience Enclosure	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable
Group Use and Other Religious Meetings	Not Suitable	Suitable	Not Suitable	Designated Areas	Not Suitable	Not Suitable
Native American Traditional Religious Activity	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable
Religious Facilities	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Public Information	Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Sanitary Systems	Not Suitable	Not Suitable	Not Suitable	Suitable	Not Suitable	Not Suitable

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<b>Special Use Permit Category</b>	<b>Wild Backcountry</b>	<b>Roaded Backcountry</b>	<b>Motorized Recreation</b>	<b>Developed Recreation</b>	<b>Wilderness</b>	<b>Research Natural Areas</b>
Community Residence	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Service uses	Not Suitable	Not Suitable	By exception	By exception	Not Suitable	Not Suitable
Encroachments	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Feasibility, Site and Resource Survey	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable
Research	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable
Training	Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Cultural Resources Nondisturbing and Disturbing Use	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable
Treasure Hunting	Suitable	Suitable	By exception	Not Suitable	Not Suitable	Not Suitable
Historical Building, Improvements, and Sites	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable
Construction Camps and Residence	Not Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Storage	Not Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Manufacturing	Not Suitable	Not Suitable	Not Suitable	Suitable	Not Suitable	Not Suitable
Weighing or Scaling Station	Not Suitable	Not Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Arts	Suitable	Suitable	Suitable	Suitable	By exception	Suitable
Timber	Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Powerplants Under the Authority of the Federal Energy Regulatory Commission	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Wind Power Facility	Not Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Fossil Fuel Powerplant	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Oil and Gas Development	Not Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable

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<b>Special Use Permit Category</b>	<b>Wild Backcountry</b>	<b>Roaded Backcountry</b>	<b>Motorized Recreation</b>	<b>Developed Recreation</b>	<b>Wilderness</b>	<b>Research Natural Areas</b>
Electric Distribution	Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Electric Transmission	Not Suitable	Suitable in designated corridors	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Aircraft Facilities	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable	Not Suitable
Marine	Not Suitable	Not Suitable	Not Suitable	Suitable	Not Suitable	Not Suitable
Railroad	Not Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Department of Transportation Easement	Not Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Road and Trail Authorization	Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Pipeline - Non-Energy Related	Not Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Tramway and Conveyor	Not Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Communication Use	Suitable on designated sites*	Suitable on designated sites*	Suitable on designated sites*	Suitable on designated sites*	Not Suitable	Not Suitable
Telephone and Telegraph	Suitable	Suitable	Suitable	Not Suitable	Not Suitable	Not Suitable
Water Transmission	Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Water Impoundment	Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Water Development	Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable
Water Measurement	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable
Water Treatment	Not Suitable	Suitable	Suitable	Suitable	Not Suitable	Not Suitable

\*except Department of Homeland Security