



United States Department of Agriculture

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Cibola National Forest Mountain Ranger Districts Plan Revision

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Preliminary Draft Land and Resource Management Plan

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Chapter 1. Introduction

Background

The land and resource management plan (Plan) is the principal document that guides forest managers' decisions about management of the land and resources. Forest plans are required by the National Forest Management Act of 1976. The current Cibola National Forest Plan was originally approved in 1985. Since then, the Plan has been amended 14 times to adjust for situations in specific projects or to reflect changes in social, economic, or ecological conditions. The 1985 Plan was written following the guidance in the 1982 forest planning regulations and the Cibola is now in the process of revising the 1985 plan using the provisions of the 2012 planning rule as outlined in 36 Code of Federal Regulations (CFR) Part 219, April 2012. This preliminary draft Plan addresses the Cibola's four mountain districts; the Kiowa, Rita Blanca, Black Kettle, and McClellan Creek National Grasslands are addressed separately in the Kiowa, Rita Blanca, Black Kettle, and McClellan Creek National Grasslands Land and Resource Management Plan, which was completed in 2012.

The 2012 planning rule differs from the previous planning rule by creating an adaptive framework that will allow the Forest Service to meet modern and future needs, taking into account new understanding of science, land management, and the all-lands context for managing resources. It focuses on outcomes, rather than outputs, and will help units identify their unique roles in the broader landscape and create land management plans to guide proactive contributions to ecological, social, and economic sustainability. The 2012 planning rule emphasizes collaboration, requires improved transparency, and strengthens the role of public involvement and dialogue throughout the planning process. It also requires the use of the best available scientific information to inform decisions.

The Cibola has embraced the requirement for collaboration and increased public involvement in the development of this preliminary draft Plan and has partnered with a variety of cooperating agencies (local, State, and Federal units of governments, including land grants and Tribes). These cooperating agencies have formed landscape teams, centered around the four mountain ranger districts of the Cibola. This approach has been instrumental in engaging with the broader public and the Cibola hopes this model will continue into the future as a final Plan is implemented.

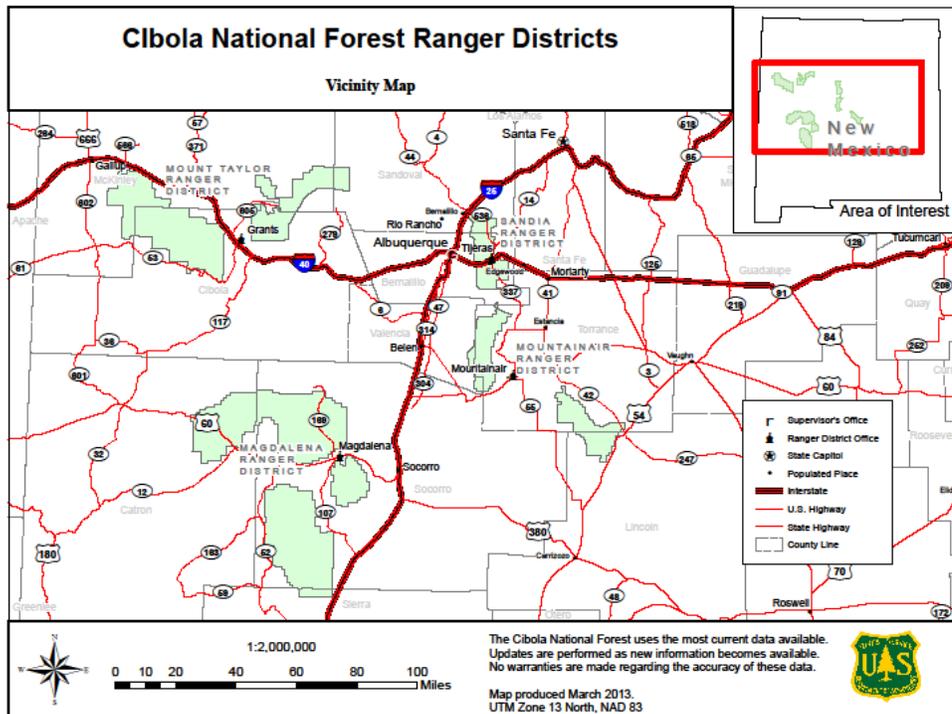
This document is a preliminary draft Plan and has been compiled by an interdisciplinary team (IDT) comprised of Cibola planning and resource specialists and cooperating agencies noted above. This preliminary draft Plan is shared with the public at this time as an extension of scoping efforts. As such, this document is not complete and the Cibola has made every effort to include placeholders to indicate where information or sections have yet to be completed. Feedback received on this preliminary draft Plan will be used as the Cibola revises the Plan as well analyzes alternatives in detail per the National Environmental Policy Act. No detailed analysis as occurred yet during the development of this preliminary draft Plan.

Plan Area

The Cibola National Forest and National Grasslands (Cibola) is one of five National Forests in New Mexico and includes four mountain districts as well as the Kiowa, Rita Blanca, McClellan Creek, and Black Kettle National Grasslands. This preliminary draft Plan addresses the National Forest System lands within the Cibola's mountain districts which are located within McKinley, Cibola, Sandoval, Bernalillo, Tarrant, Valencia, Lincoln, Socorro, Catron, and Sierra Counties. The

1 Kiowa, Rita Blanca, Black Kettle, and McClellan Creek National Grasslands are addressed
2 separately in the Kiowa, Rita Blanca, Black Kettle, and McClellan Creek National Grasslands
3 Land and Resource Management Plan, which was completed in 2012.

4 This plan area of the Cibola covers more than 1.6 million acres, with elevations ranging from 5,300
5 feet to over 11,300 feet (Figure 1). The four ranger districts addressed in the preliminary draft Plan
6 are the Mount Taylor, Magdalena, Mountainair and Sandia ranger districts (RDs). Within these four
7 districts are ten separate mountain ranges (“sky islands”) scattered throughout central New Mexico.
8 They are: Zuni, Mount Taylor, Magdalena, Bear, Datil, San Mateo, Manzano, Gallinas, Manzanita
9 and Sandia mountains.



10
11 **Figure 1 Cibola National Forest Mountain Ranger Districts**

12 Roles and Contributions of the Cibola National Forest 13 Mountain Ranger Districts

14 The Cibola provides unique resources and opportunities that attract a wide spectrum of forest
15 users. These include but are not limited to ecosystems and wildlife habitat, recreation and scenery,
16 livestock grazing, timber and forest products, energy development, heritage and paleontological
17 resources, and scientific investigations. The distinctive history and characteristics of the Cibola and
18 its surrounding communities frame the roles and contributions it provides to the local area, State,
19 region, and nation, as expressed in the Vision and Niche statements below.

20 Vision statements represent the collective values and vision for future management of the Cibola,
21 while Niche statements describe the unique characteristics and contributions of each ranger
22 district. These vision and niche statements are used to guide the revised Forest Plan.

1 **Vision and Niche Statements**

2 **Cibola-wide Vision Statement**

3 We envision a Forest that is collaboratively managed to promote ecologic and
4 socioeconomic health and sustainability and the continued historical and
5 contemporary multiple uses including domestic water resources, grazing, hunting,
6 recreation, and use of forest products.

7 **Mount Taylor Ranger District**

8 **Vision**

9 We envision a landscape that is sustained in health by and through a commitment to
10 stewardship as our most basic and deeply held value.

11 We envision a landscape that is sustained collaboratively by a rich and growing
12 partnership of individuals, groups, and institutions, recognizing the legal status of
13 the USDA Forest Service as the government’s designated management agency
14 representing the people of the United States, and appreciating its commitment to
15 partnership as a guiding principle of informed functioning. We are mutually
16 committed to finding common ground and using that commonality as a strong basis
17 for continuing success.

18 We envision a landscape that is managed in a manner which respects and recognizes
19 the historic, cultural, and spiritual significance of the area to multiple constituencies,
20 both native and nonnative, and both protects and facilitates appropriate access to
21 areas which are considered special places.

22 We envision a landscape that is managed for multiple sustainable uses; for
23 vegetation, for wildlife, for valued water resources, for reduced risk of wildfire, for
24 forest industries, for raw materials, for viable agriculture, for recreation and for
25 tourism. We recognize that some specific portions of the landscape may merit
26 special management area emphasis within a policy of multiple use, but we believe
27 that the principle that potentiates and ensures multiple use of our forest is access.

28 We envision a landscape that is actively managed to develop and sustain healthy
29 local economies. Fundamental to our local economies are ranching and other
30 agriculture, forest products industries, extraction industries, and tourism. These
31 activities entail stewardship and responsible planning, with proper attention to
32 sustainable use and public health. Granted this approach, they are to be encouraged
33 in forest management policy. Viable local economies are intimately linked to good
34 forest management.

35 We envision a landscape that is enhanced by a proactive policy of educating and
36 informing the public, one which involves outreach to local schools, clubs,
37 community groups, and businesses. Education also plays an important role in
38 tourism. Visitors to our forest should have access to user-friendly information, both
39 centrally and on-site, that enriches their understanding and elevates their
40 appreciation of our forest.

41 We envision a landscape that is managed with attention to dynamic action. Planning
42 should be strategic, and action should be efficient and effective. Good customer

1 service is important and is fundamental to effective collaboration. We see
2 collaboration as key to long-term success, and we plan to use our partnerships to
3 create consensus and actively both pursue and acquire funding to further our vision
4 of a healthily functioning forest.

5 **Niche: Four Seasons of Fun**

6 Mount Taylor Ranger District, located about an hour west of Albuquerque, consists of lands
7 north of I-40 in the San Mateo Mountains (Mount Taylor Unit) and lands south of I-40 in the
8 Zuni Mountains (Zuni Mountain Unit). The elevation ranges from 6,500 to 11,300 feet,
9 providing diversity in vegetation and terrain. Both mountain ranges have been managed for
10 multiple resources including recreation, grazing, mining, and logging. The District is rich in
11 historic and paleontological history and is a gateway to other renowned sites like El Morro
12 National Monument and Chaco Canyon National Historic Park.

13 The District is enriched by the boundaries shared with diverse and long-standing
14 communities including, pueblos, ranches, and land grant communities. Home to a segment
15 of the Continental Divide National Scenic Trail, several special-use endurance events, and
16 world-class mountain biking, Mount Taylor attracts recreationists from throughout the
17 country. Several winter recreation activities include snowshoeing, tubing, snowmobiling, and
18 the annual tradition of cutting the family Christmas tree. The District offers a full spectrum
19 of hunting opportunities including elk, mule deer, black bear, turkey, and cougar.

20 A mutual concern about high fire risks, the need to restore a culturally important landscape
21 and watershed, and the desire to support local forest-based industries, led to the development
22 of the Zuni Mountain Collaborative Forest Landscape Restoration Program. This program has
23 received grants to restore the Zuni Mountain landscape to historic vegetation conditions using
24 thinning and prescribed fire. Materials from the thinning will provide firewood for personal
25 use and commercial contracts. When completed, the landscape will have fewer, but larger,
26 trees; and more open areas to allow grass and herbs to recover. This will increase resilience to
27 climate change and may increase water availability.

28 **Magdalena Ranger District**

29 **Vision**

30 We support the vision of continued historical multiple uses including grazing,
31 hunting, recreation, mining, and forest products. We also foster continued
32 sustainability of the forest through responsible resource management and support of
33 the communities through responsible land and water development, utilization of the
34 forest, and continued partnerships with research entities (specifically, the Magdalena
35 Ridge Observatory, Langmuir Laboratory and the Very Large Array).

36 **Niche: A Last Bastion of the Great American Old West**

37 The nearly 800,000-acre Magdalena Ranger District is located in west-central New Mexico,
38 and remnants of the old west still linger in the District's Magdalena, San Mateo, Bear,
39 Gallinas, Datil, and Sawtooth Mountains. The Ranger District is over 100 miles from the
40 population centers of Albuquerque and Las Cruces and El Paso, Texas, and offers
41 outstanding natural settings and opportunities for true solitude. Local communities include
42 Magdalena, Socorro, Alamo, Datil, and Truth or Consequences. The Ranger District's past

1 and current history includes large remote ranches, small- and large-scale mining, and
2 interaction with the Apache, Navajo, and Pueblo Tribes.

3 Considered an “undiscovered jewel” because many parts of the District are remote and
4 difficult to access, the District represents an important and valued contribution to the local
5 communities and Tribes. The Magdalena and San Mateo Mountains rise to over 10,000 feet
6 with spruce-fir, mixed conifer, and ponderosa pine forests, and elevations drop to less than
7 6,000 feet along the southeast boundary adjacent to Elephant Butte Lake, with mesquite and
8 creosote bush desert. Home to two designated wilderness areas, a segment of the Continental
9 Divide National Scenic Trail, the Old Timers’ Festival, and Langmuir Research Laboratory,
10 the District offers outstanding opportunities for backcountry pursuits, hunting, dispersed
11 recreation, and solitude.

12 Mountainair Ranger District

13 **Vision**

14 The Forest Plan will emphasize watershed health through sustainability,
15 regeneration, and protection of natural resources while ensuring that local adjacent
16 communities benefit from the implementation of the Plan and the use of the forest
17 through improved water quality and quantity, forest related economic development
18 opportunities, access for traditional and multiple uses. Watershed health as the over-
19 arching goal will ensure a legacy for future generations.

20 **Niche: The Country Next to the City**

21 Close to Albuquerque and situated around the rural village of Mountainair lie the Manzano
22 and Gallinas Mountains, which together at 205,903 acres, form the Mountainair Ranger
23 District. The District ranges in elevation from about 6,000 feet in the lowlands to over
24 10,000 feet on Manzano Peak. The Manzanos are bordered by seven Spanish land grants:
25 Chilili, Tajiue, Torreon, and Manzano on the east; and Tomé, Lo de Padilla, and Casa
26 Colorada on the west. The communities of these Spanish land grants represent many
27 generations of Hispanic heritage in the area. Adjacent to the northern end of the district
28 boundary is the Isleta Pueblo Indian Reservation. The Gallinas Mountains are just west of
29 the town of Corona and are entirely surrounded by private lands within Torrance, Valencia,
30 Bernalillo and Lincoln Counties.

31 The District provides day-use recreation for hunting, hiking, horseback riding, picnicking,
32 bird-watching, enjoying scenery and mountain biking. Several overnight campgrounds are
33 available for longer outings. Land grant communities are connected to the land and have a
34 vested interest in the District. The District is known for heritage sites including Pueblo
35 Blanco, Pueblo Colorado, and the westernmost Civil War outpost of the Union soldiers, as
36 well as the spectacular fall colors of bigtooth and Rocky Mountain maples in 4th of July
37 Canyon, which attract thousands of visitors from throughout central New Mexico and
38 beyond. The 36,970-acre Manzano Mountain Wilderness offers backcountry opportunities
39 and solitude—characterized by rugged steep slopes, rocky outcrops, and deep canyons, this
40 area can only be accessed by a well-developed trail system.

41 The Manzano and Gallinas Mountains provide habitat for a wide variety of wildlife
42 including elk, black bear, cougar, mule deer, turkey, and Rocky Mountain bighorn sheep.
43 The crest of the Manzanos is an important migration corridor in the spring and fall for
44 hawks, falcons and eagles, as well as many other migratory birds in the daytime and hoary

1 bats in the evening. Three large, recent wildfires in the Manzanos have greatly changed the
2 vegetation of the areas burned—what once was mostly ponderosa pine and pinyon-juniper is
3 now mostly scrub oak, adding to the overall diversity of wildlife habitat of the Manzanos.

4 Sandia Ranger District

5 **Vision**

6 *Currently under development.*

7 **Niche: Albuquerque’s Backyard Playground**

8 The Sandia Ranger District offers an easy getaway from the city and summer heat. It is a
9 “sky island” surrounded on the north, northwest, and east by an urban interface that varies
10 from Albuquerque subdivisions to a more rural interface of 1- to 2-acre parcels with houses
11 on them. The lesser-known southern part of the District includes the Manzanita Mountains,
12 which form a low ridge between the Manzano Mountains to the south and the Sandias to the
13 north. A portion of this area is in the Military Withdrawal, where public use has been
14 restricted since 1943. The Military Withdrawal and adjacent Forest Service land has been the
15 subject of intensive ecosystem planning to reduce fuel loads and the risk of wildfire, to
16 enhance wildlife habitat and ecosystem health, and to improve recreational opportunities.

17 The Sandias are part of the signature of Albuquerque’s unique sense of place. They serve as
18 a premier open space refuge to a population of over 700,000 people in the extended
19 metropolitan area. Over one-third of the State’s school-age population lives within an hour’s
20 drive of the Sandias, and there is a great demand for fire prevention, fire ecology, and other
21 environmental education programs. The District offers a variety of day-use recreational
22 opportunities including biking, hiking, picnicking, and viewing scenery along the Sandia
23 Crest Highway. Mountain biking is experiencing the biggest growth among all activities.

24 Sandia Mountain is a landmark in the spiritual universe of many active traditional Indian
25 beliefs. It is regularly visited for ceremonial purposes by the Sandia Pueblo and at least
26 annually by many other pueblos. It also has direct ties to Spanish land grant communities
27 established by the King of Spain in the 1700s and Mexican land grants from the 1820s.
28 Some Spanish land grants adjoining the Sandias are still active. Water sources are not only
29 sacred to Indian beliefs, but also played a key role in sustaining the agricultural bases of the
30 land grant communities. Several ditch systems still function today, including one actively
31 maintained in Las Huertas Canyon as an "acequia madre" for a community's agricultural
32 water. These traditional communities are encountering greater conflicts with the growing
33 recreational uses of the Sandias.

34 The forested portions of the district are facing large-scale tree mortality from various
35 pathogens and drought. This has led to an incredible fuel load on both the Sandia and
36 Manzanita Mountains. There is the threat here of a large, uncharacteristic wildfire with the
37 potential for loss of valuable infrastructure on both the federally managed lands and adjacent
38 private lands. To address these concerns, an aggressive forest health program has been
39 initiated in the wildland-urban interface. Objectives range from fuels treatments along
40 subdivision boundaries to restoring aspen stands along the Sandia Crest National Scenic
41 Byway.

1 Summary of the Management Situation

2 As required by the 2012 Forest Planning Rule, the Cibola evaluated existing information about
3 relevant ecological, economic, and social conditions, trends, and sustainability and their relationship
4 to the land management plan within the context of the broader landscape. This evaluation was begun
5 in 2013 and consolidated into the 2015 Cibola Assessment report, which can be accessed online at:
6 <http://www.fs.usda.gov/detail/cibola/landmanagement/planning/?cid=stelprd3857289>.

7 The key findings presented were shared with Cibola's interested public through a series of public
8 meetings held at various locations on the mountain ranger districts. Needs-for-change statements
9 were developed collaboratively with the public by comparing conclusions on conditions, trends, and
10 risks from the respective topic areas of the assessment with the plan direction of the 1985 Cibola
11 Forest Plan. Needs-for-change statements were published in a *Notice of Intent* in the Federal Register
12 (February 9, 2015) to develop a draft revised forest plan and alternatives and analyze their respective
13 effects in a draft environmental impact statement. As noted above, this document is a preliminary
14 draft Plan and represents an intermediate step before release of a draft revised forest plan and
15 alternatives analyzed in an environmental impact statement.

16 The Assessment, Needs for Change and Notice of Intent highlighted linkages between the conditions
17 of the Cibola's primary ecosystem services such as vegetation, soil, water, air and wildlife and the
18 social, economic, and cultural uses and benefits enjoyed by the public. For example:

- 19 • *Throughout the Plan-* There is a need to address, either by plan direction or other plan
20 content, how all resource management should be prioritized given varying levels of funding
21 There is a need to redraw the management area configuration used in the 1985 Plan. There is
22 a need to update plan component language for the resources, goods, and services provided
23 by the Cibola, and to remove plan components that are redundant with existing law,
24 regulation, or policy. There is a need to better recognize and potentially enhance the role of
25 the Cibola National Forest in supporting local economies through both commodity
26 production and services-such as recreation and tourism.
- 27 • *Across Multiple Resource Areas-* There is a need to include plan direction addressing
28 potential climate change effects and invasive species on the Cibola and to include a plan
29 monitoring program. There is a need to provide direction for an integrated resource approach
30 to the use of planned fire and to address fuel accumulations in the Wildland Urban Interface
31 (WUI).
- 32 • *Ecological Integrity-* There is a need to provide direction for achieving sustainability and
33 resiliency for and minimizing risks to vegetation community composition and structure and
34 for restoring natural disturbance cycles where appropriate. There is a need to provide
35 direction to promote the achievement and maintenance of satisfactory soil condition. There
36 is a need to provide updated management direction for the protection, maintenance, and
37 restoration of riparian vegetation and channel morphology in the plan area and for
38 restoration of priority watersheds. There is a need to provide direction on the sustainable
39 management of groundwater, springs, wetlands, riparian areas, and perennial waters and
40 their interconnections. There is a need to update plan direction on providing a sustainable
41 water supply for multiple uses (wildlife, livestock, recreation, and mining) and public water
42 supplies. There is a need to provide direction pertinent to riparian management zones around
43 all lakes, perennial and intermittent streams, and open water wetlands. There is a need to
44 update direction addressing air quality and forest management. There is a need to develop
45 plan direction to contribute to the recovery and conservation of federally recognized species,
46 maintain viable populations of species of conservation concern, and maintain common and

- 1 abundant species within the plan area. There is a need to provide direction addressing
2 habitat(s) for plant and animal species important to tribes and other traditional communities.
3 There is a need to provide direction for managing aquatic passage and terrestrial habitat
4 connectivity.
- 5 • *Cultural and Historic Resources*- There is a need to update direction on the stabilization and
6 preservation of historic properties and address the role of management of historic properties
7 in economic development. There is a need to update management direction for American
8 Indian and non-Indian traditional cultural properties and sacred sites. There is a need to
9 provide direction addressing management of historic and contemporary cultural uses by
10 federally recognized Indian tribes and traditional communities not considered under tribal
11 relations. There is a need to address, at either the management or geographic area scale, the
12 inventory and management of historic properties and other cultural resources and uses. There
13 is a need to provide direction that addresses the alignment of management of historic
14 properties and landscapes, sacred sites, contemporary uses, and tribal cultural needs with
15 other resource management objectives (particularly but not limited to ecosystem restoration).
16 There is a need to provide direction on the identification and documentation of historic
17 properties at risk of damage or destruction from catastrophic wildland fire. There is a need to
18 update direction addressing immitigable adverse effects to historic properties.
 - 19 • *Areas of Tribal Importance*- There is a need to update direction addressing consistency of
20 activities with legally mandated trust responsibilities to tribes. There is a need to update
21 direction regarding sacred sites, sacred places, natural and cultural resources important to
22 tribes, and requests for reburial of human remains and cultural items. There is a need to
23 update plan direction regarding administration of temporary closure orders to ensure privacy
24 for tribes engaged in cultural and ceremonial activities. There is a need to update direction
25 on design, location, installation, maintenance, and abandonment of towers, facilities, and
26 alternative infrastructure within communication and energy generation sites, giving due
27 consideration to the value and importance of high places (mountaintops and ridges) that may
28 be sacred sites or important cultural landscapes to tribes.
 - 29 • *Multiple Uses*- There is a need to provide plan direction for restoration treatments for those
30 geographic areas and vegetation types that are most outside of the natural range of variability
31 while considering capability of local infrastructure, contractors, and markets. There is a need
32 to provide direction for management and removal of miscellaneous forest products for
33 commercial, noncommercial, tribal and/or land grant use. There is a need to provide
34 direction to the livestock grazing program that incorporates adaptive management toward
35 ecosystem-based desired conditions.
 - 36 • *Recreation*-There is a need to integrate sustainable recreation management with that of other
37 Forest resources and to provide guidance for managing a sustainable trails program while
38 addressing use conflicts. There is a need to provide management direction on the Continental
39 Divide National Scenic Trail. There is a need to provide guidance for managing recreation
40 activities that occur in areas sensitive to resource degradation or at risk due to high
41 visitation. There is a need to update direction on managing recreational aviation activities,
42 caves, and recreational activities associated with wildlife, fish, and cultural/historic sites.
43 There is a need to update plan direction and guidance for implementing the Recreation
44 Opportunity Spectrum classification system and incorporating scenic integrity objectives for
45 managing scenic resources.

- 1 • *Designated Areas:* There is a need to update direction for managing designated Inventoried
2 Roadless Areas, eligible Wild and Scenic Rivers, designated Research Natural Areas, and for
3 managing designated wilderness. There is a need to provide direction on management of
4 areas that may be recommended for wilderness, during the interim period while Congress is
5 considering designation. There is a need to provide direction for areas that may be
6 recommended for various other designations.
- 7 • *Infrastructure:* There is a need to update direction on the management of infrastructure and
8 for road maintenance in watersheds identified as being impaired or at-risk.
- 9 • *Land Status and Ownership, Use and Access:* There is a need to update direction for
10 obtaining legal access that addresses public, private landowner, tribal, land grant, and
11 management needs and for progressing toward a contiguity of the land base and a reduction
12 of small unmanageable tracts.
- 13 • *Energy, Minerals and Special Uses* There is a need to provide updated direction regarding
14 management of recreational mining, mineral exploration and extraction, and the use of
15 common minerals. There is a need to update plan direction for managing existing or
16 proposed transmission corridors and renewable energy generation. There is a need to provide
17 direction addressing safety concerns pertinent to maintenance activities associated with
18 existing energy and communication corridors.

19 These recurring linkages helped inform the development of four core themes for the revised plan.
20 These themes guide and summarize work, provide additional strategic focus, and strengthen
21 collaboration through shared stewardship. The four themes are:

22 1) Respecting Cultural and Traditional Landscapes and Uses: The Land is a life-sustaining
23 resource that shapes who we are, helps form individual and community relationships,
24 and strengthens ancestral connections. The Cibola has a rich history of people connected
25 to this ancient landscape. We recognize that American Indians, land grant heirs, historic
26 communities and residents of contemporary communities are here because of the land
27 and the value they place on it.

28 Our forest management will serve the needs of present and future generations by
29 acknowledging and honoring the different forest-based cultures, traditions, values, and
30 economic benefits.

31 2) Valuing Unique Places and Features: Our sky islands contain a multitude of hidden
32 gems waiting to be explored off the beaten path... spectacular geologic features, scenic
33 vistas, landscape contrasts and stark transitions. These features give sense of place,
34 promoting harmony between humans and nature. These features contribute to society
35 through provision of nature-based education opportunities, spiritual renewal, artistic
36 inspiration, employment and economic development, and outdoor play and exercise.
37 These services are critical for the cultural and physical health of our society. It is where
38 people come to “get away from it all” and experience solitude in four congressionally-
39 designated wilderness areas, and is also a special gathering place for extended families
40 and groups.

41 3) Managing Holistically for Watershed and Ecosystem Health: The Cibola National
42 Forest plan revision has a responsibility to reduce the potential for uncharacteristic
43 wildfire and the effects of climate change, as well as consider the regenerative capacity

1 of the land and restoration economies. The “restoration economy” refers to the
2 employment, capital, resources, and economic activity that emerge from investments in
3 ecological restoration. Restoration projects can include restoring functional physical
4 landscape processes, growing and planting native plants, supporting springs and
5 pollinators, enhancing habitat, and improving water quality. While investments in
6 restoration benefit the environment, restoration projects also require workers, materials,
7 and services to implement. The marketplace for these goods and services can create
8 employment, spur business and workforce development, and increase activity in local
9 economies. Through holistic management this plan will provide a framework for
10 supporting restoration economies, multiple uses and benefits for this generation and for
11 generations to come.

12 4) **Managing For Sustainable Recreation:** The Cibola National Plan has a responsibility to
13 provide a recreation program that is resilient and relevant for current and future
14 generations, fosters social and economic opportunities, and sustains the health, diversity,
15 and productivity of the land. This is achieved by collaborating with local communities
16 and partners, and recognizing their contributions and connections to the land, as well as
17 the role they share with us as stewards of the land. The recreation program should be
18 integrated into all resource management decisions and support the Forest’s management
19 priorities.

20 **Plan Content**

21 This preliminary draft plan includes plan components and other plan content as described in the
22 2012 planning rule. Plan components guide future project and activity decision-making once
23 approved, any substantive changes to plan components would require a plan amendment with
24 appropriate analysis as required under the National Environmental Policy Act (NEPA). A change
25 to other plan content may be made using an administrative correction process. Administrative
26 corrections are used to make changes such as updates to data and maps, management approaches,
27 and relevant background information, and to fix typographical errors. The public is notified of all
28 administrative corrections of the plan.

29 **Plan Components**

30 Plan components should provide a strategic and practical framework for managing the plan area,
31 should be applicable to the resources and issues of the plan area, and should reflect the plan
32 area’s distinctive roles and contributions. Plan components include: desired conditions, objectives,
33 standards, guidelines, suitability of lands, and goals. With the exception of goals, these are all
34 required by the 2012 planning rule. It must be clear to the public, governmental entities, and Forest
35 Service employees where those plan components apply. To that end, the Cibola must also identify
36 management areas and/or geographic areas. At the time of release of this preliminary draft Plan, only
37 management areas have been identified. Plan components should not reiterate existing law,
38 regulation, or policy. The plan components in this preliminary draft plan have been developed
39 collaboratively with input from a variety of external and internal stakeholders with broad
40 interdisciplinary representation. An interdisciplinary team refined the preliminary draft plan and
41 organization to make it as understandable, useable, and integrated as possible.

42 **Desired Conditions** are descriptions of specific social, economic, and/or ecological characteristics of
43 the plan area, or a portion of the plan area, toward which management of the land and resources
44 should be directed. They must be described in terms that are specific enough to allow progress toward their

1 achievement to be determined, but do not include completion dates. They describe the aspiration picture of
2 the Cibola. They are not commitments or final decisions approving projects or activities; rather, they
3 guide the development of projects and activities. The Cibola released a set of draft desired conditions
4 to the public in July 2015 and the comments received on that document have guided the development
5 of this preliminary draft plan.

6 **Objectives** are concise, measurable and time-specific statement of a desired rate or progress toward
7 a desired condition or conditions and should be based on reasonably foreseeable budgets. In some
8 ways, objectives set the intent for management direction. This preliminary draft plan does not
9 contain objectives at this time because it is too soon for the Cibola to set that intent. Feedback
10 received on this preliminary draft plan will help guide the development of objectives.

11 **Standards** are mandatory constraints on project and activity decision-making, established to help
12 achieve or maintain desired condition or conditions, to avoid or mitigate undesirable effects, or to
13 meet applicable legal requirements. Standards differ from guidelines in that standards do not allow
14 for any deviation without a plan amendment.

15 **Guidelines** are constraints on project and activity decision-making that allows for departure from its
16 terms, so long as the purpose of the guideline is met. Guidelines are established to help achieve or
17 maintain desired condition or conditions, to avoid or mitigate undesirable effects, or to meet
18 applicable legal requirements. A guideline allows for departure from its terms, so long as the intent
19 of the guideline is met. Deviation from a guideline must be specified in the decision document with
20 the supporting rationale. When deviation from a guideline does not meet the original intent, a plan
21 amendment is required.

22 **Suitability of lands** addresses which specific lands within a plan area will be identified as
23 suitable for various multiple uses or activities based on the desired conditions applicable to those
24 lands. The plan will also identify lands within the plan area as not suitable for uses that are not
25 compatible with desired conditions for those lands. The suitability of lands need not be identified
26 for every use or activity. Suitability identifications may be made after consideration of historic
27 uses and of issues that have arisen in the planning process. Every plan must identify those lands
28 that are not suitable for timber production. However, other types of suitability are at the discretion
29 of the responsible official.

30 **Goals** are optional plan components that are broad statements of intent, other than desired
31 conditions, usually related to process or interaction with the public. Goals are expressed in broad,
32 general terms, but do not include completion dates. This preliminary draft plan does not contain
33 any goals at this time.

34 **Management Areas** describe how plan components apply to specific parcels of National Forest
35 System land, with locations shown on maps. Management areas are delineated areas with a common
36 set of plan components that differ from the Forest-wide plan components and are established to
37 meet specific management needs. Management Areas are based on *purpose*.

38 **Geographic Areas** also describe how plan components apply to specific parcels of National Forest
39 System land, also with locations shown on maps. Geographic Areas are delineated areas with a
40 common set of plan components that differ from the Forest-wide plan components and are
41 established to address the needs of a specific area. Geographic Areas are based on *place*.

42 **Other Plan Content**

43 In addition to requiring that a plan have plan components, the 2012 planning rule includes other

1 plan content, some required and some optional. The required content includes the identification of
2 priority watersheds, a description of the distinctive roles and contributions of the plan area, a plan
3 monitoring program, and proposed and possible actions. Optional plan content in this preliminary
4 draft plan includes background information, existing conditions, management approaches, and
5 contextual information. Management approaches are not plan decisions, but they help clarify how
6 plan direction may be applied. Management approaches include information and guidance for
7 projects and activity decision making to help achieve desired conditions and objectives.
8 Management approaches describe priorities, considerations, and strategies for achieving desired
9 conditions and articulate the strategies needed to effectively make progress toward desired
10 conditions within the context of the operating environment of the plan.

11 **Resource Requirements for Integrated Plan Components**

12 A Forest Plan provides vision, strategy, and constraints to guide integrated resource management of
13 the plan area. The 2012 planning rule requires that new or revised plans provide for social,
14 economic, and ecological sustainability within the Forest Service authority and consistent with the
15 inherent capability of the plan area. Forest Plans must also maintain the diversity of plant and animal
16 communities and the persistence of native species in the plan area. In addition to the first two
17 requirements, the Forest Plan must also provide for ecosystem services and multiple uses including
18 outdoor recreation, range, timber, watershed, wildlife, and fish, within the Forest Service authority
19 and the inherent capability of the plan area. These resource requirements should be addressed
20 through integrated plan components.

21 **Plan Organization**

22 **Chapter 1 – Introduction** briefly describes the background for this document, introduces the
23 planning area, and describes plan components and other plan content in this preliminary draft
24 plan. Later drafts of this document will include information about the analysis of alternatives, but
25 at this time that information is not available.

26 **Chapter 2 – Forest-wide Desired Conditions** includes forest-wide desired conditions, objectives
27 (to be included in later drafts), standards, and guidelines. Standards and guidelines are typically
28 located in the relevant activity section of the plan, but when standards or guidelines pertain to
29 multiple activities, they are located in the applicable resource section.

30 **Chapter 3 – Management Areas and Designated Areas** contains the plan components applicable
31 to specific areas that call for site-specific management. The management areas chapter is divided
32 into two sections: “Designated Areas” and “Management Areas” (MAs). Designated areas have
33 specific designations such as wilderness or botanic areas and MAs have separate management
34 direction determined by *purpose*.

35 **Chapter 4 (to be developed) – Suitability** is the appropriateness of applying certain resource
36 management practices to a particular area of land in consideration of the relevant social, economic,
37 and ecological factors. Suitability is determined based on compatibility with desired conditions and
38 objectives in the plan area. The suitability of lands need not be identified for every use or activity;
39 however per the 2012 planning rule, all plans must identify those lands that are not suitable for
40 timber production. Descriptions of the criteria used in making the determinations are provided
41 along with the results. The identification of an area as suitable for a particular use or uses is
42 guidance for project and activity decision making and is not a commitment or a final decision
43 approving projects and activities. It also does not mean that a particular use will or will not occur in
44 the area.

1 **Chapter 5 (to be developed) – Plan Monitoring Program** is continuous and provides feedback
2 for the planning cycle by testing relevant assumptions, tracking relevant conditions over time, and
3 measuring management effectiveness. The monitoring program includes both plan-level and
4 broader-scale monitoring. The plan-level monitoring program is informed by the assessment
5 phase; developed during plan development; and implemented after plan decision. The Regional
6 Forester develops broader-scale monitoring strategies. Biennial monitoring evaluation reports
7 document whether a change to the plan or change to the monitoring program is warranted based on
8 new information, whether a new assessment may be needed, or whether there is no need for
9 change at that time. The monitoring strategy provides a framework for subsequent monitoring and
10 evaluation designed to inform adaptive management.

11 **Plan Consistency**

12 As required by the National Forest Management Act (NFMA) and the National Forest System Land
13 Management Planning Rule, all projects and activities authorized by the Forest Service must be
14 consistent with the plan by being consistent with applicable plan components. In addition to
15 consistency with plan direction, Forest projects and activities are developed to be consistent with
16 applicable laws, regulations, and policies. “Projects and activities” cover all actions under 16
17 U.S.C. 1604(i).

18 When a proposed project or activity is not consistent with a plan component, the responsible official
19 has the following options:

- 20 • Modify the proposal so that the project or activity will be consistent;
- 21 • Reject the proposal; or
- 22 • Amend the plan contemporaneously with the approval of the project or activity so that the
23 project or activity is consistent with the plan as amended. The amendment may be limited
24 to apply only to the project or activity.

25 **Plan Implementation**

26 Project-level planning is the mechanism for plan implementation. Project planning translates the
27 desired conditions and objectives in the plan into proposals that identify specific actions, design
28 features, and project-level monitoring. Proposal development for projects addresses site-specific
29 needs developed locally with input from experts and stakeholders and consideration of the most
30 current and relevant information. Project decisions are made following public involvement and
31 analysis. Important considerations in project development include consistency with the plan,
32 consistency with higher-level direction, projects’ potential effects on achieving desired conditions
33 at multiple scales, and feedback from project- and plan-level monitoring regarding the effectiveness
34 of management strategies.

35 Forest projects and activities are to be consistent with the direction in this plan as well as with that
36 from current law, regulation, and policy. This plan does not reiterate higher-level direction;
37 instead, it includes a partial list of applicable laws, regulations, executive orders, and policy.

38 In order to ensure a project is consistent with the plan, its design and implementation should
39 consider its setting, any Management Areas it overlaps, and the guidance for any resources or
40 conditions that may be present in the area (e.g. cultural resources, nonnative species, geologic
41 formations, wildlife, etc.). Additionally, it should consider any potential conflicts with other
42 authorized projects and activities. Project design should be consistent with Forest-wide plan

1 direction except where superseded by Management Area direction, which takes precedence.

2 When using this plan to develop project specifications, it is important to keep in mind that desired
3 conditions for all scales are applicable regardless of the size of the project. Smaller projects need to
4 consider the larger scales in terms of how they contribute to the desired conditions within the
5 context of the larger-scale unit, and larger projects need to consider the design features required to
6 ensure that the fine scale desired conditions are achieved and maintained across the project area.

7 Consideration of scale is also important when evaluating progress toward desired conditions
8 because the range of variability and distribution of conditions is affected by the scale at which
9 they are viewed. For example, when desired conditions are articulated at larger scales, they
10 represent an average of fine-scale conditions across broader areas. This may make conditions
11 appear less variable when they are evaluated at large scales, even though variability exists at the
12 smaller scales.

13 Plan- and project-level monitoring and evaluation are the tools for gathering information on
14 progress toward desired conditions, the effectiveness of plan implementation, and the
15 appropriateness of plan direction. This information is subsequently used to determine management
16 needs and adjust management strategies, which, in part, determine the form of future projects and
17 activities. As such, monitoring and evaluation are key elements of plan implementation, as they
18 guide future management occurring under the plan. The monitoring plan contained in Chapter 5 of
19 this document, in conjunction with project-level monitoring, will provide the framework for
20 enabling adaptive management on the Cibola.

21

1 **Chapter 2. Forest-wide Plan Components and** 2 **Management Approaches**

3 **Vegetation**

4 **Background and Description**

5 **Ecological Classification**

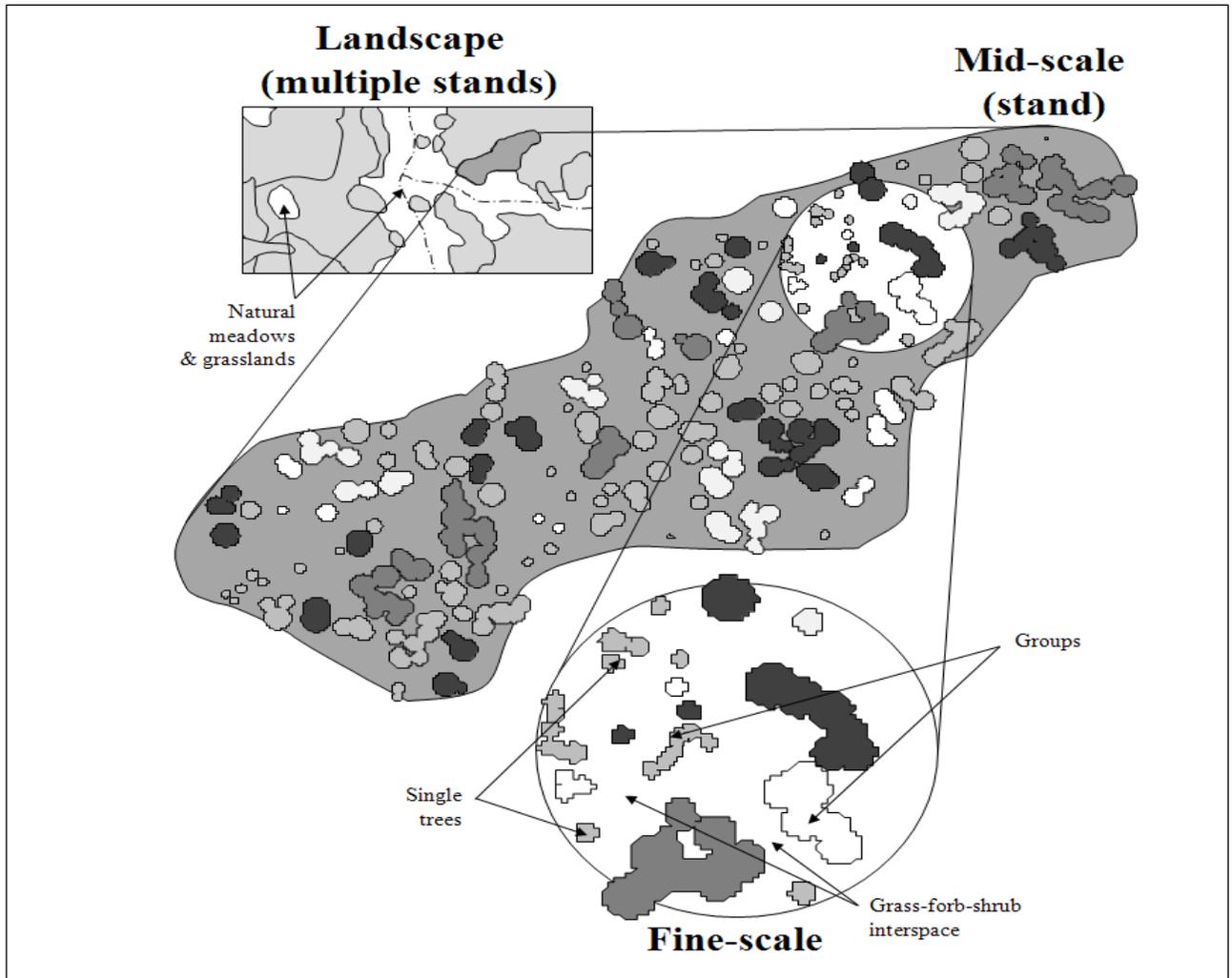
6 The vegetation types for which desired conditions were developed were based on ecological
7 response units (ERUs). ERUs represent an ecosystem stratification based on vegetation
8 characteristics that would occur when natural disturbance regime and biological processes prevail
9 and combine potential vegetation and historic fire regimes to form ecosystem classes useful for
10 landscape assessment. Spatial representation of ERUs is derived from map unit delineation in the
11 Terrestrial Ecosystem Unit Inventory (TEUI) database (USDA Forest Service 1986); one ERU
12 polygon may encompass multiple map unit polygons. A TEUI map unit (usually less than 1,000
13 acres; typically about 200 acres) comprises one or more soil components, with each component
14 having its own potential natural vegetation type (PNVT).

15 **Scale**

16 Desired conditions for forest and woodland vegetation types are presented at three spatial scales:
17 landscape scale (1,000 to 10,000 plus acres), mid-scale (10 to 1,000 acres), and fine-scale (less than
18 10 acres). (Not enough science is available to provide descriptions at multiple scales for pinyon-
19 juniper woodland, grassland, shrubland, and riparian vegetation types.) The landscape scale
20 describes the “big picture” of desired conditions (Figure 2). Descriptions at the mid- and fine-scales
21 provide additional detail necessary for guiding future projects and activities. The landscape scale is
22 typically composed of variable elevations, slopes, aspects, soils, plant associations, and disturbance
23 processes. A landscape area is comprised of ten or more mid-scale units. The mid-scale is composed
24 of assemblages of fine-scale units which have similar biophysical conditions. The fine-scale is an
25 area in which the species composition, age, structure, and distribution of plants (single, grouped, or
26 aggregates of groups) are described.

27 **Range of Values**

28 Ranges (minimum, maximum) of values presented in desired conditions were informed by current
29 science for natural variation in the composition and structure within a vegetation type, and tempered
30 by socioeconomic desires and management experience as well as a consideration of socioeconomic
31 desires such as wood product outputs, recreation opportunities or wildlife habitat needs. Desired
32 conditions vary within a vegetation type due to spatial variability in soils, elevation, and aspect, and
33 to provide managerial flexibility to meet local project objectives. The ranges presented here often
34 represent the upper and lower extremes for a given variable (e.g., the lowest and highest tree
35 densities in a vegetation type). It is important to recognize that the goal is generally to manage
36 toward average desired conditions for a given variable; however, it may be appropriate to have
37 different desired conditions within a vegetation type, such as a lower density of vegetation inside the
38 wildland-urban interface than outside of it so as to reduce fire risk to human life and property.



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Figure 2. Desired conditions at three spatial scales

Note: The landscape scale illustrates multiple stands and natural meadows and grasslands. The mid- and fine-scales illustrate open grass-forb-shrub interspaces and uneven-aged stand conditions consisting of single and grouped trees of different vegetation structural stages, young to old, represented by different shades and sizes (Reynolds et al. 2013).

1 **Plan Elements Common to All Vegetation Types**

2 **Fire Regime**

3 Fire frequency and severity are referred to by their fire regime group (Table 1).

4 **Table 1. Fire regime groups and descriptions**

Group	Frequency (years)	Severity	Severity Description
I	0–35	Low/mixed	Generally low-severity fires replacing less than 25% of the dominant overstory vegetation; can include mixed-severity fires that replace up to 75% of the overstory
II	0–35	Replacement	High-severity fires replacing greater than 75% of the dominant overstory vegetation
III	35–200	Mixed/low	Generally mixed-severity; can also include low-severity fires
IV	35–200	Replacement	High-severity fires
V	>200	Replacement/any	Generally replacement severity; can include any severity type in this frequency range

5 *Note:* The above definitions use 25% and 75% as severity thresholds between the low, mixed, and replacement regimes.

6 *Source:* Adapted from Barrett et al. (2010)

7 **Wildland-urban Interface**

8 **Desired Conditions**

9 ■ Wildland fires in the wildland-urban interface sustain characteristic ecosystem function while
 10 preserving property and human health and safety. Wildland fires in the wildland-urban interface
 11 are low-intensity surface fires, because ladder fuels are nearly absent. Firefighters are able to
 12 safely and efficiently suppress wildfires in the wildland-urban interface.

13 ■ In forested vegetation communities, the area occupied by grass, forb, or shrub interspace is at or
 14 above the range given in the vegetation community desired conditions. Trees within groups may
 15 be more widely spaced with less interlocking of crown than what would be considered desirable
 16 otherwise. Interspaces between tree groups are of sufficient size to discourage isolated group
 17 torching from spreading as a crown fire to other groups. The tree basal area in the wildland-
 18 urban interface is on the lower end of the range given in the vegetation community desired
 19 conditions. Where the wildland-urban interface intersects vegetation types with a mixed- or high-
 20 severity fire regime, such as spruce-fir, characteristic ecosystem function is modified to promote
 21 low-intensity surface fires. In shrublands, fuel loading in the wildland-urban interface is on the
 22 lower end of the range given for the vegetation community desired conditions. There is adequate
 23 cover to meet the needs of a variety of wildlife species.

24 ■ Logs and snags, which often pose fire-control problems, are present in the wildland-urban
 25 interface, but at the lower end of the range given in the appropriate vegetation community
 26 desired conditions. The standing dead (snags) and downed wood (coarse woody material) load is
 27 1 to 10 tons per acre, depending on vegetation type, with lower amounts in fire-adapted
 28 vegetation types, and higher amounts in infrequent fire types. This light fuel load applies even in
 29 vegetation types with higher reference fuel loads, such as mixed conifer with aspen or spruce-fir.

1 Higher fuel loading or tree densities may occur in areas where it provides for important fine-
2 scale habitat structure, as long as it meets the overall intent of protecting values at risk.

3 **Climate Change**

4 **Desired Conditions**

5 ■ In areas of high vulnerability to climate change, based on 100-year climate projections (Triepeke
6 et al. 2014), tree basal area is restored or maintained at levels which mitigate water stress and
7 increase resiliency to climate change (Allen et al. 2015; Sun et al. 2015; Vose et al. 2016), often
8 this is the mid-range of potential basal area values.¹ In these areas, early- and mid-seral² species
9 dominate over late-seral species, given the adaptations of many early- and mid-seral species for
10 warmer and drier conditions. Early-seral species characteristic of lower-elevation life zones (e.g.,
11 Douglas-fir on a spruce-fir site) are maintained. Late-seral species (especially large specimens)
12 are maintained primarily in locally cooler (north-facing aspects) and wetter (draws, seeps) areas
13 to maintain diversity, wildlife habitat, and a local seed source. Natural plant associations (USDA
14 Forest Service 1997a, 1997b) (including grass, forb, and shrub species) are maintained in all
15 vegetation types.

16 **Insects and Disease**

17 ■ Insects and diseases are integral components of ecosystems. Often there are numerous positive
18 impacts of insects and disease on the ecosystem including creation of small openings, increasing
19 biodiversity, enhancing nutrient cycling, as food sources for animals, creation of wildlife habitat,
20 and many other ecologically significant benefits. However, under severe disease infection levels
21 or episodic outbreaks of insects, their effects are more evident, sometimes negative, and cause
22 greater change. With the exception of white pine blister rust, the insects and diseases on the
23 Cibola often considered pests are native organisms that have long been part of the ecosystem and
24 have evolved with their plant hosts.

25 **Desired Condition**

26 ■ All vegetation types experience endemic infestation levels, patterns, and cycles of native insects
27 and diseases.

28 **Guideline**

29 ■ Human controls should not be applied to native insect and disease life cycles in order to maintain
30 wilderness character, except to protect resources on adjacent lands, to protect threatened and
31 endangered species, or when human health and safety are a concern.

32 **Management Approach**

33 ■ Maintain and promote genetic diversity among white pines (Conklin et al. 2009) by retaining
34 white pines in harvest and thinning projects to help provide a broad genetic base and promote
35 natural selection. In stands already impacted by blister rust, rust-free white pines will be retained

¹ Except in riparian vegetation types; large trees are retained in all vegetation types.

² “Seral” refers to the transitory stages that plant communities develop from bare ground to the climax stage.

1 when harvesting or thinning, since at least some of them are probably resistant. Planting rust-
2 resistant trees may be the only option to maintain or restore white pines in some locations.

3 **Plant Community Species Composition**

4 **Desired Condition**

5 ■ All sites support the potential natural vegetation type (PNVT) for their respective soil type as listed
6 in the Terrestrial Ecosystem Unit Inventory (TEUI) database.

7 **Guideline**

8 ■ Management activities promote the restoration and maintenance of the PNVT of the site as listed
9 in the TEUI database.

10 **Management Approach**

11 ■ Management activities promote the desired conditions of the site. For example, where a woodland
12 now occupies a historic grassland site (the TEUI map unit description indicates a soil
13 classification of mollisol—a signature of grassland ecosystems), grassland desired conditions
14 apply. In other words, the desired condition for vegetation type must be consistent with the site’s
15 soil type with an emphasis on native annual and perennial plant communities.

16 **Significant Plant Communities and Individual Plants**

17 **Desired Conditions**

18 ■ Plant communities that are regionally unique (such as the blue spruce community of Little Water
19 Canyon located on the Zuni’s a part of Mount Taylor District) and individual plants that have
20 particular social or botanical importance (such as “Big Trees” registered with American Forests)
21 persist.

22 **Management Approaches**

23 ■ Areas surrounding individual plants that have particular social or botanical importance are
24 periodically cleared of potentially damaging fuel sources.

25 ■ Plant communities that are regionally unique are managed to maintain their unique characteristics,
26 such as Fourth of July Canyon in the Manzano Mountains.

27 ■ Plant communities that are regionally unique and individual plants that have particular social or
28 botanical importance are accompanied by interpretive signs educating the public about the
29 plant’s significance.

30 **General Management of All Vegetation Types**

31 **Standards**

32 ■ Regulated timber harvest activities shall occur only on those lands classified as “suitable” for
33 timber production. Restoration activities may occur on lands classified as either “suitable” or
34 “unsuitable” for timber production.

35 ■ If individual harvest openings created by even-aged silvicultural practices are proposed that
36 would exceed 40 acres, National Forest Management Act (NFMA) requirements regarding
37 public notification and regional forester approval shall be followed and impacts on other

- 1 resources will be analyzed and mitigated where necessary. These requirements do not apply to
2 the size of areas harvested in response to natural catastrophic conditions such as, but not limited
3 to, fire, insect and disease attacks, or windstorms.
- 4 ■ On lands suitable for timber production, timber harvest and wildland fire intended to create
5 openings for tree regeneration shall only be used when there is reasonable assurance of
6 restocking within 5 years after final regeneration harvest (16 USC 1604). Restocking level is
7 prescribed in a site-specific silviculture prescription for a project treatment unit and is
8 determined to be adequate depending on the objectives and desired conditions for the Plan area.
9 In some instances, such as when lands are harvested or prescribed burned to create or maintain
10 openings for firebreaks and vistas, it is appropriate not to restock.
 - 11 ■ Timber shall not be cut, sold, or removed in inventoried roadless areas, unless the responsible
12 official determines that activities meet the circumstances provided in the Roadless Rule, section
13 294.13. Review authorities shall be followed.
 - 14 ■ Cutting of trees and other vegetation shall not be permitted in in eligible wild and scenic rivers
15 with wild classifications, except when needed in association with a primitive recreation
16 experience, to protect users (including hazard tree removal or trail maintenance), or to protect
17 identified outstandingly remarkable values.
 - 18 ■ Temporary road construction shall mitigate any impacts to recreation resource values and
19 facilitate rehabilitation of recreation resources impacted by projects.
 - 20 ■ On lands suitable for timber production, even-aged stands shall generally have reached
21 culmination of mean annual increment prior to regeneration harvest, unless the following
22 conditions have been identified during project development: (1) when such harvesting would
23 assist in reducing fire hazard within the wildland-urban interface, or (2) when harvesting of
24 stands will trend landscapes toward vegetation desired conditions (for example, uneven-aged
25 structure).
 - 26 ■ Harvesting systems shall be selected based on their ability to meet desired conditions and not
27 strictly on their ability to provide the greatest dollar return.
 - 28 ■ Clearcutting shall be used only where it helps to achieve desired conditions (for example,
29 spruce-fir vegetation type, heavily diseased stands, aspen regeneration) shall take into account
30 desired conditions for other resources.
 - 31 ■ In designated wilderness areas, human-caused disturbed areas that do not complement
32 wilderness characteristics will be rehabilitated to a natural appearance, using species or other
33 materials native to the area.

34 Guidelines

- 35 ■ Project design should manage for continuous representation of all age classes over time and
36 create opportunities to develop underrepresented age classes.
- 37 ■ Where current forests are lacking proportional representation of late-seral states and species
38 composition on a landscape scale, old-growth characteristics should be retained or developed
39 within the scope of meeting other desired conditions (for example, reduce impacts from insects
40 and disease, reduce the threat of uncharacteristic wildfire).
- 41 ■ To protect old-growth forest components, existing old-growth forest attributes should be
42 protected from uncharacteristic natural disturbances. Methods of protecting existing old-growth
43 forest components on the landscape may include thinning and prescribed fire.

- 1 ■ Healthy southwestern white pine should be retained to maintain a wide range of genetic
2 variability to promote resistance against the nonnative white pine blister rust disease.
- 3 ■ On single species-dominated sites, uneven-aged management may be used where less than 20
4 percent of the host tree species—or less than 25 percent of the area—is infected by dwarf
5 mistletoe. Thinning and prescribed fire may be used to keep dwarf mistletoe levels from
6 increasing. Even-aged management or deferral should be considered when greater than 20
7 percent of the host species, or 25 percent of the area, is infected with dwarf mistletoe.
- 8 ■ On mixed species-dominated sites, even-aged management or deferral should be used instead of
9 uneven-aged management where more than 50 percent of conifer trees (excluding white fir) are
10 infected by dwarf mistletoe.
- 11 ■ Where a seed-tree or shelterwood treatment is applied for dwarf mistletoe control, it should be
12 followed within 10 years of seedling establishment by a final removal treatment or other
13 effective means to prevent further infection.
- 14 ■ Nonnative, invasive species should be treated within recommended wilderness areas in order to
15 allow natural processes to dominate and to maintain wilderness characteristics.
- 16 ■ Nonnative, invasive species should be treated in order to allow natural processes to predominate
17 in designated wilderness areas.
- 18 ■ Nonnative species should not be introduced into any wilderness area.
- 19 ■ Gathering of forest products for sale should not be permitted in recommended wilderness areas.
- 20 ■ Timber harvest should not be permitted in areas recommended for wilderness designation.
- 21 ■ In research natural areas, allow vegetation manipulation only when necessary to achieve or
22 maintain the conditions for which the area is being studied.
- 23 ■ In eligible wild and scenic rivers classified as “recreational” or “scenic,” timber harvest should
24 be allowed to maintain or restore the values for which the eligible river was identified.
- 25 ■ If forest health projects result in impacts to the scenic integrity objectives within the Continental
26 Divide National Scenic Trail (CDNST) corridor, mitigation measures should be included, such as
27 screening, feathering, and other scenery management techniques to meet the scenic integrity
28 objectives within and adjacent to the trail corridor (at minimum, up to ½ mile on either side of
29 the trail).
- 30 ■ Hauling or skidding, or locating landings or temporary roads within the CDNST corridor should
31 not be permitted in order to preserve the nature, purposes, and integrity of the CDNST.
- 32 ■ Heavy equipment line construction within the CDNST corridor should not be allowed unless
33 necessary for emergency protection of property and safety.
- 34 ■ Visual impacts from vegetation treatments, recreation uses, range developments, and other
35 structures should blend with the overall scenic character along scenic byways.
- 36 ■ Where not in conflict with existing law, regulation, or policy, natural regeneration of disturbed
37 areas should be allowed where feasible unless: (1) endangered species habitat needs to be
38 restored, (2) the time period of recovery is deemed excessive due to the large size of deforested
39 area and/or lack of nearby seed sources, or (3) there is concern for loss of site capacity from soils
40 loss or extreme competition with early-seral species.

- 1 ■ Planning and design development for vegetation management projects should incorporate input
2 from all resource areas in early planning stages to include opportunities and consideration for
3 multi-resource management.
- 4 ■ Species of cultural significance should be considered when planning vegetation management
5 projects.
- 6 ■ For vegetation management and forest health improvement projects:
- 7 • Scenic integrity objectives may be temporarily lowered in the short term (3 to 5 years) if
8 necessary to meet project objectives, but should meet scenic integrity objectives over the
9 long term.
- 10 • Vegetation management projects should avoid even spacing of retained trees, leave a
11 diversity of tree species and sizes, avoid damage to vegetation that will remain, and
12 naturalize disturbed areas.
- 13 • Prescribed slash treatment in the immediate foreground (up to 300 feet) of concern level 1
14 and 2 travelways (area with the most public concern for scenery) should be completed as
15 soon as conditions permit.
- 16 • Healthy large trees should comprise the majority of the immediate foreground along concern
17 level 1 and 2 travelways, unless doing so would not achieve project goals; some younger and
18 mid-aged trees are retained to serve as replacement trees and as additional screening.
- 19 • In the immediate foreground along concern level 1 and 2 travelways, stumps should be
20 treated to reduce their visibility by methods such as cutting as low as possible (no more than
21 6 inches above ground on uphill side) and angling large stump faces away from viewing
22 locations unless doing so would pose a safety hazard.
- 23 ■ Effects from prescribed fire should be considered during project planning and implementation.
24 Blackened and scorched vegetation may be visible in project areas in the short term following
25 treatments, but scenic integrity objectives should be met in the long term. Efforts should be made
26 to minimize high-intensity fire in riparian areas with high scenic integrity such as along system
27 trails and scenic vistas.
- 28 ■ Log decks should be removed and rehabilitated, and actions should be taken to naturalize skid
29 trails as soon as conditions permit.
- 30 ■ Healthy, large trees should comprise the majority of trees in developed and dispersed recreation
31 sites to provide shade and screening around hardened sites in order to preserve the recreation
32 setting; some younger and mid-aged trees are retained to serve as replacement trees and as
33 additional screening.
- 34 ■ Upon completion of management activities that occur in areas with high potential for cross-
35 country motorized vehicle use, methods (for example, barriers and signing) that are consistent
36 with the scenic integrity objectives should be used to control unauthorized motorized use.
- 37 ■ National Forest System trails should not be used for vegetation project activities such as skid
38 trails, and impacts to system trails should be avoided; where impacts are unavoidable,
39 rehabilitation should occur immediately upon completion of project.
- 40 ■ Management of cultural resources and historic properties will proactively be integrated into the
41 planning, design, and implementation of vegetation projects.

1 Management Approaches

- 2 ■ Project design for vegetation management activities should prioritize treatment riparian areas
3 that are important for wildlife, in the wildland-urban interface, along concern level 1 and 2
4 travelways and recreation sites (areas with the most public importance to scenery), and in
5 historic openings.
- 6 ■ When salvaging timber where high-severity fire occurred, an adequate number of trees for snag
7 recruitment and coarse woody material would be left to maintain long-term soil productivity and
8 to meet wildlife needs.
- 9 ■ The predominant vegetation management strategies are for uneven-aged management systems.
10 This is because the majority of the Cibola consists of frequent-fire vegetation types which have
11 uneven-aged desired conditions (See Table 1. Fire Regime Groups and Descriptions). Even-aged
12 prescriptions are appropriate where they would help achieve desired conditions such as to
13 regenerate aspen or when insect or disease infestations are moderate to severe.
- 14 ■ Treatments for controlling dwarf mistletoe are typically aimed at maintaining infection levels
15 that allow for development of a diversity of age classes across the landscape—not to eliminate
16 this naturally occurring disturbance agent.
- 17 ■ Management activities that result in accumulations of green slash should be timed to minimize
18 potential impacts from bark beetles; accumulating green slash (greater than 3 inches in diameter)
19 before overwintering beetles emerge should be avoided (generally April to June).
- 20 ■ Coordinate with the New Mexico Department of Game and Fish on management of native
21 species within designated wilderness areas to maintain wilderness character during project
22 implementation.
- 23 ■ Develop appropriate measures to enhance and protect historic properties from damage by natural
24 and man-made forces (fuel accumulation, wildfire, increased visitation, etc.). Such measures
25 may include prescribed burning of adjacent areas, thinning within and adjacent to sites, creating
26 visibility screens using vegetation, soil stabilization, encouraging culturally important plant
27 species, etc. When appropriate and with particular mitigation measures in place, vegetation
28 within archaeological site boundaries should be treated to similar specifications to the
29 surrounding environment.

30 Forest Vegetation Types

31 Spruce-Fir Forest

32 General Description

33 The Spruce-fir Forest vegetation type is often dominated by Engelmann spruce; codominant and
34 subdominant species vary by elevation. The understory commonly includes currants, maples,
35 honeysuckle, common juniper, huckleberry, alpine clover, and sedges. This vegetation type can be
36 subdivided into lower- and upper-elevation types, with differing fire regimes and subdominant and
37 codominant species composition. The lower spruce-fir type typically occurs between 9,500 and
38 10,500 feet in elevation; the upper spruce-fir type typically occurs above 10,500 feet.

39 Lower-elevation spruce-fir resembles mixed conifer with aspen with a different composition of tree
40 species, due to relatively warmer, drier conditions; and occupies the ecotone between mixed conifer
41 with aspen and upper-elevation spruce-fir. In the lower-elevation type, common low- and mid-seral
42 tree species are aspen, Douglas-fir, white fir (absent on Mount Taylor), southwestern white pine, and

1 limber pine. Climax forest is dominated by Engelmann spruce, white fir, and occasionally blue
 2 spruce. Subdominant species may include subalpine fir³, white fir, and bristlecone pine. In the upper-
 3 elevation type, dominant tree species are Engelmann spruce and subalpine fir; patches of aspen may
 4 be present. Disturbances in these types typically occur at two temporal and spatial scales: large-scale
 5 infrequent disturbances (mostly fire) and small-scale frequent disturbances (fire, insect, disease,
 6 wind).

7 **Landscape-Scale Desired Conditions (1,000 to 10,000 plus acres)**

- 8 ■ The Spruce-fir Forest is a mosaic of structural and seral stages ranging from young to old trees.
 9 Patch sizes vary, but are mostly in the hundreds of acres, with rare disturbances in the thousands
 10 of acres. Tree canopies are generally more closed than in mixed conifer. Native grass, forbs, and
 11 shrubs comprise the understory. Seral-stage proportions are applied at the landscape scale (Table
 12 2).
- 13 ■ Old growth generally occurs over large areas and includes old trees, standing dead trees (snags),
 14 downed wood (coarse woody material) and structural diversity. The location of old growth shifts
 15 on the landscape over time as a result of succession and disturbance (tree growth and mortality).
- 16 ■ The spruce-fir community is composed predominantly of vigorous trees; older, declining trees
 17 provide snags and coarse woody material. The abundance of snags, downed logs, and coarse
 18 woody material varies by seral stage.

19 **Table 2. Desired seral-stage proportions for Spruce-fir Forest**

Seral Stage	Proportion	Description
Early	21%	Grass-forb-seedling-sapling Douglas-fir, spruce fir; tree canopy is open. ¹
Mid	33%	Young forest with regeneration; tree canopy is closed.
Late	46%	Mature-old forest with regeneration; tree canopy is closed.

20 ¹ Seedlings and saplings are trees <5 inches DBH (diameter at breast height), small trees are 5–9.9 inches DBH, medium
 21 trees are 10–19.9 inches DBH, and large trees are >20 inches DBH. The terms “open” and “closed” describe canopy cover—
 22 under 30% and over 30%, respectively. The terms “tolerant” and “intolerant” refer to species that are tolerant (for example,
 23 spruce and fir) or intolerant (for example, ponderosa pine) of shade, respectively; “mixed-tolerant” refers to species
 24 intermediate in shade tolerance (for example, Douglas-fir).
 25 *Note:* Aspen may be present in all seral stages.

- 26 ■ Vegetative conditions (composition, structure, function) are broadly resilient to disturbances of
 27 varying frequency, extent, and severity. The forest landscape is a functioning ecosystem that
 28 contains all of its components, processes, and conditions that result from endemic levels of
 29 disturbances (insects, diseases, fire, windfall) including snags, downed logs, and old trees.
 30 Organic ground cover and herbaceous vegetation protect the soil, facilitate water infiltration, and
 31 promote plant and animal diversity and ecosystem function. In the lower-elevation type, mixed-
 32 severity fire (fire regime group III) occurs infrequently (150 to 400 years); in the upper-elevation
 33 type, high-severity fire (fire regime groups IV and V) occurs very infrequently (greater than 400

³ “Subalpine fir” refers to subalpine fir (*Abies lasiocarpa* var. *lasiocarpa*) or corkbark fir (*Abies lasiocarpa* var. *arizonica*), or both.

1 years). Natural and anthropogenic disturbances are sufficient to maintain desired overall tree
2 density, age, structure, species composition, coarse woody material, and nutrient cycling.

- 3 ■ Dwarf mistletoe infestation size, degree of severity, and amount of mortality vary among
4 infested stands. Witches' brooms may be scattered throughout the infestations providing
5 structural diversity in the stand and improved foraging and nesting habitat for wildlife species
6 such as small mammals (for example, tree squirrels) and raptors (for example, goshawks and
7 spotted owls).

8 Mid-Scale Desired Conditions (10 to 1,000 acres)

9 ■ The size and number of tree groups and patches vary depending on disturbance, elevation, soil
10 type, aspect, and site productivity. There may also be small disturbances resulting in groups and
11 patches of tens of acres or less. Grass, forb, and shrub interspaces created by disturbance may
12 involve single trees or comprise up to 100 percent of the mid-scale area following major
13 disturbance. Aspen is occasionally present in large patches.

14 ■ Basal area varies from 20 to 250 plus square feet per acre depending on site productivity,
15 disturbance history, and seral stage. Large snags (greater than or equal to 18 inches DBH⁴), range
16 from 5 to 30 plus per acre, with the lower end of the range associated with early seral stages and
17 the upper end associated with late-seral stages. Overall snag (greater than 8 inches DBH) density
18 ranges from 13 to 30 per acre, averaging 20 per acre. Coarse woody material (dead and downed
19 wood) ranges from 5 to 30 tons per acre for early seral stages, 30 to 40 tons per acre for mid-
20 seral stages, and greater than 40 tons per acre for late-seral stages. An abundance of fungi
21 (including mushrooms) is available for use by small mammals.

22 ■ Mixed-severity (fire regime group III) and high-severity (fire regime groups IV and V) fires and
23 other disturbances maintain desired overall tree density, structure, species composition, coarse
24 woody material, and nutrient cycling. Ground cover consists of shrubs, perennial grasses, and
25 forbs with plant basal cover ranging from about 5 to 20 percent depending on site conditions.

26 ■ Forest conditions in some areas contain at least 10 percent higher basal area than the general
27 forest (for example, goshawk post-fledging family areas and north-facing slopes). Nest areas
28 have forest conditions that are multi-aged, but are dominated by large trees with relatively denser
29 canopies than other areas in the spruce-fir type.

30 Fine-Scale Desired Conditions (less than 10 acres)

31 ■ Mid- to old-age trees grow tightly together with interlocking crown. Trees are generally of the
32 same height and age in early stages of patch development, but may be multilayered later.

33 ■ Dwarf mistletoe infection severity and amount of mortality vary among infected trees. Witches'
34 brooms may be present with these infestations, providing habitat for wildlife.

⁴ DBH = diameter at breast height (4.5 feet).

1 **Mixed Conifer with Aspen (“Wet Mixed Conifer”) Forest**

2 **General Description**

3 The Mixed Conifer with Aspen Forest generally occurs at elevations ranging from approximately
4 6,500 to 10,000 feet. Tree species composition varies depending on seral stage, elevation, and
5 moisture availability. This type can be composed of early and mid-seral species such as aspen,
6 Douglas-fir, New Mexico locust, southwestern white pine, and limber pine; and late-seral species
7 such as maple, white fir, and blue spruce. Ponderosa pine may be present in minor proportions. The
8 absence of Engelmann spruce and subalpine fir plant associations (USDA Forest Service 1997)
9 distinguishes mixed conifer with aspen from the spruce-fir forest. Disturbances typically occur at
10 two temporal and spatial scales: large-scale infrequent disturbances (mostly fire), and small-scale
11 frequent disturbances (fire, insect, disease, wind). The understory includes a wide variety of shrubs,
12 grasses, and forbs; species composition varies with site conditions (soil type, aspect, elevation, and
13 disturbance). Aspen communities have multi-height stems (except in early stages following fire) and
14 adequate recruitment to perpetuate aspen communities, including site-appropriate, native, biodiverse
15 understories.

16 **Landscape-Scale Desired Conditions (1,000 to 10,000 plus acres)**

- 17 ■ The mixed conifer with aspen forest is a mosaic of structural and seral stages ranging from
18 young trees through old with species composition varying by seral stage. Patch sizes vary, but
19 are frequently in the hundreds of acres, with rare disturbances in the thousands of acres. Seral-
20 stage proportions are applied at the landscape scale (Table 3). Native grass, forbs, and shrubs
21 comprise the understory.
- 22 ■ Old growth generally occurs over large areas and includes old trees, standing dead trees (snags),
23 downed wood (coarse woody material) and structural diversity. The location of old growth shifts
24 on the landscape over time as a result of succession and disturbance (tree growth and mortality).
- 25 ■ The spruce-fir community is composed predominantly of vigorous trees; older, declining trees
26 provide snags and coarse woody material. The abundance of snags, downed logs, and coarse
27 woody material varies by seral stage.
- 28 ■ Vegetative conditions (composition, structure, function) are broadly resilient to disturbances of
29 varying frequency, extent, and severity. The forest landscape is a functioning ecosystem that
30 contains all of its components, processes, and conditions that result from endemic levels of
31 disturbances (insects, diseases, fire, and windfall) including snags, downed logs, and old trees.
32 Organic ground cover and herbaceous vegetation protect the soil, facilitate water infiltration, and
33 promote plant and animal diversity and ecosystem function. Mixed-severity fire (fire regime
34 group III) is characteristic, especially at lower elevations of this type. High-severity fire (fire
35 regime groups IV and V) is rare and typically limited to higher elevations of this type. Natural
36 and anthropogenic disturbances are sufficient to maintain desired overall tree density, structure,
37 species composition, coarse woody material, and nutrient cycling.

1 **Table 3. Desired seral-stage proportions for Mixed Conifer with Aspen Forest**

Seral Stage	Proportion	Description
Early	7%	Grass/forb understory with aspen or oak ramets and suckers ranging in cover from 10–40% canopy cover.
Mid (deciduous)	21%	Dominated by aspen or oak species with more than 40% canopy cover. Conifers are often present in the understory.
Mid (small conifer)	18%	Dominated by a mix of conifer species. Tree canopy cover is 20–>60%; primarily seedlings, saplings, and small trees.
Mid (medium conifer)	14%	Dominated by a mix of conifer species. Tree canopy cover is 20–>60%; primarily medium-sized trees.
Late	40%	Dominated by mature, shade-tolerant conifer species. Tree canopy cover is 20–60% or more; primarily very large trees.

- 2 ■ Dwarf mistletoe infestation size, degree of severity, and amount of mortality vary among
 3 infested stands. Witches’ brooms may be scattered throughout the infestations providing
 4 structural diversity in the stand and improved foraging and nesting habitat for wildlife species
 5 such as small mammals (for example, tree squirrels) and raptors (for example, goshawks and
 6 spotted owls).

7 **Mid-scale Desired Conditions (10 to 1,000 acres)**

- 8 ■ The size and number of groups and patches vary depending on disturbance, elevation, soil type,
 9 aspect, and site productivity. Groups and patches of tens of acres or less are relatively common.
 10 A mosaic of groups and patches of trees are present, primarily even-aged groups⁵, and patches⁶
 11 that are variable in size, age, and species composition. Openness and prevalence of some species,
 12 such as aspen, is dependent on seral stage. Grass, forb, and shrub openings created by
 13 disturbance may compose 10 to 100 percent of the mid-scale area, depending on disturbance
 14 history. Aspen is occasionally present in large patches.
- 15 ■ Basal area varies from 20 to 180 plus square foot per acre, depending on site productivity,
 16 disturbance history, and seral stage. Large snags (greater than or equal to 18 inches DBH), range
 17 from 1 to 5 per acre, with the lower end of the range associated with early seral stages and the
 18 upper end associated with late-seral stages. Overall snag (greater than 8 inches DBH) density
 19 averages 20 per acre. Coarse woody material (dead and downed wood) ranges from 5 to 20 tons
 20 per acre for early seral stages, 20 to 40 tons per acre for mid-seral stages, and greater than or
 21 equal to 35 tons per acre for late-seral stages.

⁵ Groups are clusters of two or more trees with interlocking or nearly interlocking crowns at maturity surrounded by grass-forb-shrub interspaces. Size of tree groups is typically variable depending on forest type and site conditions and can range from fractions of an acre (a two-tree group), such as in ponderosa pine or dry mixed-conifer forests, to many acres, as is common in wet mixed-conifer and spruce-fir forests. Trees within groups are typically non-uniformly spaced, some of which may be tightly clumped (adapted from Reynolds et al. (2014)).

⁶ Patches are areas larger than tree groups in which the vegetation composition and structure are relatively homogeneous. Patches can be composed of randomly arranged trees or multiple tree groups, and they can be even-aged or uneven-aged. Patches comprise the mid-scale, ranging in size from 10 to 1,000 acres. Patches and stands are roughly synonymous (adapted from Reynolds et al. (2014)).

- 1 ■ Mixed-severity (fire regime group III) and high-severity (fire regime groups IV and V) fires and
2 other disturbances maintain desired overall tree density, structure, species composition, coarse
3 woody material, and nutrient cycling. Under moist conditions, smoldering low-intensity surface
4 fires torch single trees and isolated groups; under drier conditions, passive to active crown fires
5 kill up to 100 percent of the conifers in patches (usually less than 1,000 acres). Other smaller
6 disturbances occur more frequently. Ground cover consists of shrubs, perennial grasses, and
7 forbs with plant basal cover ranging from about 5 to 20 percent depending on site conditions.
- 8 ■ Forest conditions in some areas contain 10 to 20 percent higher basal area in mid-aged to old tree
9 groups than in the general forest (for example, goshawk post-fledging family areas, Mexican
10 spotted owl nesting and roosting habitats, and north-facing slopes). Interspaces with native grass,
11 forb, and shrub vegetation typically range from 10 to 50 percent of the area. Goshawk nest areas
12 have forest conditions that are multi-aged, but are dominated by large trees with relatively denser
13 canopies than other areas in the mixed conifer with aspen type.
- 14 ■ Aspen occurs as a shifting mosaic across its range with new aspen clones establishing over time.
15 Understory vegetation consists of shrubby or herbaceous species, providing forage and cover for
16 wildlife and habitat for invertebrates such as pollinators. Coarse woody material is scattered
17 across the landscape and provides habitat for a variety of wildlife species (for example, small
18 mammals, reptiles, amphibians, and birds) while contributing to efficient nutrient cycling.

19 Fine-Scale Desired Conditions (less than 10 acres)

- 20 ■ In mid-aged and older forests, trees are typically variably spaced with crowns interlocking
21 (grouped and clumped trees) or nearly interlocking, occasionally with some single trees spaced
22 apart from clumps. Trees within groups can be of similar or variable species and ages.
23 Disturbances create small openings of varying size.
- 24 ■ Organic ground cover and herbaceous vegetation provide protection for soil and moisture
25 infiltration and contribute to plant diversity and ecosystem function. Due to presence of ladder
26 fuels, fires usually burn either with low-intensity, smoldering combustion, or transition rapidly in
27 the canopy as passive or active crown fire.
- 28 ■ Dwarf mistletoe witches' brooms may be present, providing habitat for wildlife.

29 Guidelines

- 30 ■ Aspen sprouting should be stimulated in areas that have or previously had aspen by clearcutting,
31 conifer removal, or fire, has reasonable assurance of successful regeneration, and should take
32 into account desired conditions for other resources.
- 33 ■ When managing for early seral states, conifers should be removed from aspen stands when
34 needed to increase aspen longevity and increase diversity of aspen age classes.
- 35 ■ To preclude concentrated herbivore impacts, new surface water development should not be
36 constructed near aspen stands (approximately a quarter of a mile) unless this is the only
37 developable area for water in the planning area.
- 38 ■ Restoration of aspen clones should occur where aspen is overmature or decadent and has
39 reasonable assurance of successful regeneration to maintain a sustainable presence of this species
40 at the landscape level.

1 **Management Approach**

- 2 ■ Mixed Conifer with Aspen Forests are managed as Mexican spotted owl habitat as discussed
3 under the most recent, approved recovery plan for the Mexican spotted owl. The Cibola National
4 Forest works closely with the U.S. Fish and Wildlife Service to address the habitat needs of the
5 Mexican spotted owl by minimizing disturbance and providing nest/roost habitat, which includes
6 managing for areas of closed canopy and desired levels of key structural elements such as large
7 old trees, snags, and downed woody material.

8 **Mixed Conifer–Frequent Fire (“Dry Mixed Conifer”) Forest**

9 **General Description**

10 The Mixed Conifer–Frequent Fire Forest is transitional with increasing elevation between Ponderosa
11 Pine Forest (below) and Mixed Conifer with Aspen Forest (above) and generally occurs at elevations
12 ranging from approximately 6,000 to 9,500 feet. Mixed Conifer–Frequent Fire Forests are dominated
13 by mainly shade-intolerant trees, such as ponderosa pine, southwestern white pine, limber pine,
14 quaking aspen, and Gambel oak, with a lesser presence of shade-tolerant species such as white fir
15 and blue spruce. Mixed-tolerance species, such as Douglas-fir are common. Aspen may occur as
16 individual trees or small groups. The understory includes a wide variety of shrubs, grasses, and
17 forbs; species composition varies with site conditions (soil type, aspect, elevation, and disturbance).

18 **Landscape Scale Desired Conditions (1,000 to 10,000 plus acres)**

- 19 ■ The Mixed Conifer–Frequent Fire Forest is a mosaic of forest conditions composed of structural
20 stages ranging from young to old trees. Forest appearance is variable, but generally uneven-aged
21 and open with occasional patches of even-aged structure. The forest arrangement is in small
22 clumps and groups of trees interspersed within variably sized openings of grass/forb/shrub
23 vegetation associations. Openness typically ranges from 10 percent on more productive sites to
24 50 percent on less productive sites. Size, shape, number of trees per group, and number of groups
25 per area, vary across the landscape. Groups of aspen and oak in all structural stages are present.
26 Higher tree densities exist in some locations such as north-facing slopes and canyon bottoms.
27 Seral-stage proportions (Table 4) are applied at the landscape scale.
- 28 ■ Old growth occurs throughout the landscape, typically in small areas as individual old growth
29 components or as clumps of old growth. Old growth components include old trees, dead trees
30 (snags), downed wood (coarse woody material), and structural diversity. The location of old
31 growth shifts on the landscape over time as a result of succession and disturbance (tree growth
32 and mortality).
- 33 ■ The Mixed Conifer–Frequent Fire Forest is composed predominantly of vigorous trees.
34 Declining trees provide for snags, top-killed, lightning- and fire-scarred trees, and coarse woody
35 material—all well distributed throughout the landscape. Overall snag (greater than 8 inches
36 DBH) density averages nine per acre, including four large snags (greater than or equal to 18
37 inches DBH) per acre. In forested areas (as opposed to openings), coarse woody material (dead
38 and downed wood) ranges from 8 to 16 tons per acre, including an average of three downed logs
39 (greater than 12 inches diameter at mid-point, greater than 8 feet long) per acre.

1 **Table 4. Desired seral-stage proportions for Mixed Conifer–Frequent Fire Forest**

Seral Stage	Proportion	Description
Early ¹	9%	Trees absent or seedlings and saplings only.
Mid ¹ (open)	3%	Dominated by small, shade-intolerant trees with open canopy structure.
Mid ¹ (closed)	3%	Closed canopy state supporting small shade-tolerant and mixed-tolerance tree species.
Late (open)	60%	Dominated by medium to very large shade-intolerant trees with an open canopy structure.
Late (closed)	25%	Dominated by medium to very large shade-tolerant and mixed-tolerance trees with a closed canopy structure.

2 ¹ Based on the necessary level of even-aged management (4% per decade) to sustain >25% mature closed forest condition
 3 (≥10" DBH) for Mexican spotted owl habitat.

- 4 ■ Vegetative conditions (composition, structure, function) are broadly resilient to disturbances of
 5 varying frequency, extent, and severity. The forest landscape is a functioning ecosystem that
 6 contains all of its components, processes, and conditions that result from endemic levels of
 7 disturbances (insects, diseases, fire, and windfall) including snags, downed logs, and old trees.
 8 Organic ground cover and herbaceous vegetation protect the soil, facilitate water infiltration, and
 9 promote plant and animal diversity and ecosystem function. Frequent low-severity fires (fire
 10 regime group I) are characteristic throughout this vegetation type (including goshawk home
 11 ranges). Natural and anthropogenic disturbances maintain desired overall tree density, structure,
 12 species composition, coarse woody material, and nutrient cycling.

13 **Mid-Scale Desired Conditions (10 to 1,000 acres)**

- 14 ■ The Mixed Conifer–Frequent Fire Forest is characterized by variation in the size and number of
 15 tree groups depending on elevation, soil type, aspect, and site productivity. The more
 16 biologically productive sites contain more trees per group and more groups per area. Openness
 17 typically ranges from 10 percent on more productive sites to 50 percent on the less productive
 18 sites. Basal area within forested areas ranges from 30 to 100 square foot per acre.
- 19 ■ The mosaic of tree groups generally comprises an uneven-aged forest with all age classes and
 20 structural stages. Small patches (usually less than 50 acres) of even-aged forest structure are
 21 occasionally present. Disturbances sustain the overall age and structural distribution. Where they
 22 naturally occur, groups or patches of aspen and all structural stages of oak are present.
- 23 ■ Ground cover consists primarily of perennial grasses and forbs capable of carrying surface fire,
 24 with basal vegetation cover ranging from about 5 to 20 percent depending on site conditions.
 25 Fires burn primarily on the forest floor and do not spread between tree groups as crown fire.
- 26 ■ Forest conditions in some areas contain 10 to 20 percent higher basal area in mid-aged to old tree
 27 groups than in the general forest (for example, goshawk post-fledging family areas, Mexican
 28 spotted owl nesting/roosting habitats, and north-facing slopes). Interspaces with native grass,
 29 forb, and shrub vegetation typically range from 10 to 50 percent of the area. Goshawk nest areas
 30 have forest conditions that are multi-aged, but are dominated by large trees with relatively denser
 31 canopies than other areas in the Mixed Conifer–Frequent Fire Forest type.
- 32 ■ Snags 18 inches DBH or greater average three per acre. Downed logs (greater than 12 inches
 33 diameter at midpoint and greater than 8 feet long) average three per acre within the forested area
 34 of mid-scale units. Coarse woody debris, including downed logs, ranges from 5 to 15 tons per
 35 acre.

1 Fine-Scale Desired Conditions (less than 10 acres)

- 2 ■ Trees typically occur in irregularly shaped groups and are variably spaced with some tight
3 clumps. Crowns of trees within the mid- to old-age groups are interlocking or nearly
4 interlocking. Interspaces surrounding tree groups are variably shaped and composed of a
5 grass/forb/shrub mix. Some natural openings contain individual trees or snags. Trees within
6 groups are of similar or variable ages and one or more species. Size of tree groups typically is
7 less than 1 acre. Groups at the mid- to old-age stages contain 2 to about 50 trees per group.
- 8 ■ Dwarf mistletoe infections may be present on ponderosa pine and Douglas-fir, and rarely on
9 other tree species, but the degree of infection severity and rate of mortality varies among infected
10 trees. Witches' brooms may be present with these infestations, providing habitat for wildlife.

11 Guidelines

- 12 ■ Where Gambel oak or other native hardwoods are desirable to retain for diversity, treatments
13 should improve vigor and growth and enhance tree-form structure of these species.
- 14 ■ Where consistent with project or activity objectives, canopy cover should be retained on the
15 south and southwest sides of small, existing forest openings to enhance cooler and moister
16 conditions. These small (generally 0.1 to 0.25 acre), shaded openings provide habitat conditions
17 needed by small mammals, plants, and insects, and these openings should be maintained where
18 they naturally occur.

19 Management Approaches

- 20 ■ Mixed Conifer–Frequent Fire Forests are managed as Mexican spotted owl habitat as discussed
21 under the most recent, approved recovery plan for the Mexican spotted owl. The Cibola National
22 Forest works closely with the U.S. Fish and Wildlife Service to address the habitat needs of the
23 Mexican spotted owl by minimizing disturbance and providing nest/roost habitat, which includes
24 managing for areas of closed canopy and desired levels of key structural elements such as large
25 old trees, snags, and downed woody material.
- 26 ■ In mixed conifer forests, many individual large Gambel oak trees and thickets have become
27 overtopped by conifers. Treatments to promote oak regeneration and establishment are fairly
28 effective, because oak sprouts prolifically after release treatments. Oaks may be cut or burned to
29 stimulate new growth, maintain growth in large-diameter trees, or to stimulate mast production.
- 30 ■ Illegal wood cutting reduces both the amount and quality of oak habitat. Enforcement, education,
31 and site-specific planning will be necessary to ensure quality oak habitat over the long term.
32 Firewood collection opportunities are managed so site-specific planning and permitting may
33 specify the amount and size of oak that can be collected in areas where live and dead woody oak
34 habitat components are limited.
- 35 ■ In proposed treatment areas where there is little understory, slash treatments (for example, lop
36 and scatter, mastication) should be used that improve herbaceous vegetation growth, soil and
37 watershed condition, and increase soil productivity, consistent with scenic integrity objectives.

38 Ponderosa Pine Forest

39 General Description

40 The Ponderosa Pine Forest vegetation type includes two sub-types: Ponderosa Pine–Bunchgrass and
41 Ponderosa Pine–Gambel Oak (desired conditions are the same for both). The Ponderosa Pine Forest
42 generally occurs at elevations ranging from approximately 5,000 to 9,000 feet. This type is

1 dominated by ponderosa pine and commonly includes other species such as oak, juniper, and pinyon.
 2 More infrequently species such as aspen, Douglas-fir, white fir, and blue spruce may also be present,
 3 and may occur as individual trees. The understory includes a wide variety of shrubs, grasses, and
 4 forbs; species composition varies with site conditions (soil type, aspect, elevation, and disturbance).

5 **Landscape Scale Desired Conditions (1,000 to 10,000 plus acres)**

- 6 ■ The Ponderosa Pine Forest is composed of trees from structural stages ranging from young to
 7 old. Forest appearance is variable, but generally uneven-aged and open; occasional areas of
 8 even-aged structure are present. The forest arrangement is in individual trees, small clumps, and
 9 groups of trees interspersed within variably sized openings of grass/forbs/shrubs vegetation
 10 associations similar to historic patterns. Openness typically ranges from 10 percent in more
 11 productive sites to 70 percent in the less productive sites. Size, shape, number of trees per group,
 12 and number of groups per area are variable across the landscape. Seral-stage proportions are
 13 applied at the landscape scale, where low overall departure from reference proportions is a
 14 positive indicator of ecosystem condition (Table 5). In the Gambel oak sub-type, all sizes and
 15 ages of oak trees are present. Denser tree conditions exist in some locations such as north facing
 16 slopes and canyon bottoms.
- 17 ■ Old growth occurs throughout the landscape, generally in small areas as individual old growth
 18 components, or as clumps of old growth. Old growth components include old trees, dead trees
 19 (snags), downed wood (coarse woody material), and structural diversity. The location of old
 20 growth shifts on the landscape over time as a result of succession and disturbance (tree growth
 21 and mortality).

22 The ponderosa pine forest is composed predominantly of vigorous trees, but declining trees are a
 23 component and provide for snags, top-killed, lightning- and fire-scarred trees, and coarse woody
 24 material (greater than 3 inch diameter), all well-distributed throughout the landscape. Ponderosa pine
 25 snags are typically 18 inches or greater at DBH and average one to two snags per acre. In the
 26 Gambel oak subtype, large oak snags (greater than 10 inches) are a well-distributed component.
 27 Downed logs (greater than 12 inch diameter at mid-point, greater than 8 feet long) average three logs
 28 per acre within the forested area of the landscape. Coarse woody material, including downed logs,
 29 ranges from 5 to 10 tons per acre.

30 **Table 5. Desired seral-stage proportions for Ponderosa Pine Forest**

Seral Stage	Proportion	Description
Early	1%	Post-disturbance state consisting primarily of grass with less than 10% tree cover.
Mid*	3%	Conditions ¹ indicative of occasional even-aged stand dynamics and the development of (1) northern goshawk nesting habitat where understory is dominated by grasses or (2) Mexican spotted owl habitat where understory is dominated by shrubs.
Late	96%	Predominance of uneven-aged dynamics and open forest. The plurality of stands on low-productivity sites likely to occur as early seral, post-disturbance state consisting primarily of grass with less than 10% tree cover; on high-productivity sites a mature- to old-growth forest consisting of open canopy stands from very large trees. Regeneration occurs within this state, with multi-aged stands from all size classes; however, the very large size class is the dominant cohort.

31 ¹ Reflects percentage of early-mid seral forest necessary to sustain at least 3% mature closed forest condition as northern
 32 goshawk nesting habitat or Mexican spotted owl habitat.

1 ■ The composition, structure, and function of vegetative conditions are resilient to the frequency,
2 extent, and severity of disturbances and climate variability. The landscape is a functioning
3 ecosystem that contains all its components, processes, and conditions that result from endemic
4 levels of disturbances (for example, insects, diseases, fire, and wind), including snags, downed
5 logs, and old trees. Grasses, forbs, shrubs, and needle cast (fine fuels), and small trees maintain
6 the natural fire regime. Organic ground cover and herbaceous vegetation provide protection of
7 soil, moisture infiltration, and contribute to plant and animal diversity and to ecosystem function.
8 At the Plan unit scale, overall plant composition similarity to site potential is greater than 66
9 percent, but can vary considerably at fine- and mid-scales owing to a diversity of seral
10 conditions. Frequent, low severity fires (fire regime I) are characteristic in this type, including
11 throughout goshawk home ranges. Natural and anthropogenic disturbances are sufficient to
12 maintain desired overall tree density, structure, species composition, coarse woody material, and
13 nutrient cycling.

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

- 15 ■ The Ponderosa Pine Forest vegetation type is characterized by variation in the size and number
16 of tree groups depending on elevation, soil type, aspect, and site productivity. The more
17 biologically productive sites contain more trees per group and more groups per area, resulting in
18 less space between groups. Openness typically ranges from 52 percent in more productive sites
19 to 90 percent in less productive sites. In areas with high fine-scale aggregation of trees into
20 groups, mid-scale openness ranges between 78 to 90 percent. Tree density within forested areas
21 generally ranges from 22 to 89 square foot basal area per acre. Ground cover consists primarily
22 of perennial grasses and forbs capable of carrying surface fire, with basal vegetation values
23 ranging between about 5 and 20 percent.
- 24 ■ The mosaic of tree groups generally comprises an uneven-aged forest with all age classes
25 present. Infrequently, patches of even-aged forest structure are present. Disturbances sustain the
26 overall age and structural distribution.
- 27 ■ Fires burn primarily on the forest floor and do not spread between tree groups as crown fire.
- 28 ■ Forest conditions in some areas contain 10 to 20 percent higher basal area in mid-aged to old tree
29 groups than in the general forest (for example, goshawk post-fledging family areas, Mexican
30 spotted owl nesting and roosting habitats, drainages, and steep north-facing slopes). Goshawk
31 nest areas have forest conditions that are multi-aged, but are dominated by large trees with
32 relatively denser canopies than other areas in the ponderosa pine type.

33 Fine-Scale Desired Conditions (less than 10 acres)

- 34 ■ Trees typically occur in irregularly shaped groups and are variably spaced with some tight
35 clumps. Crowns of trees within the mid- to old-age groups are interlocking or nearly
36 interlocking. Interspaces surrounding tree groups are variably shaped and comprised of a
37 grass/forb/shrub mix. Some natural openings contain individual trees. Trees within groups are of
38 similar or variable ages and may contain species other than ponderosa pine. Size of tree groups
39 typically is less than 1 acre, but averages 0.5 acres. Groups at the mid- to old-age stages consist
40 of 2 to approximately 40 trees per group.
- 41 ■ Where historically occurring, oak trees and thickets are present and provide forage, cover, and
42 habitat for species that depend on them such as small mammals, foliage nesting birds, deer, and
43 elk. Oak mast (acorns) provides food for wildlife species. Large tree-form oaks, snags, and
44 partial snags with hollow boles or limbs are present.

- 1 ■ Isolated infestations of dwarf mistletoe may occur, but the degree of severity and mortality varies
2 among the infected trees. Witches' brooms may form on infected trees, providing habitat and
3 food for wildlife and invertebrate species.

4 Guidelines

- 5 ■ Where Gambel oak or other native hardwoods are desirable to retain for diversity, treatments
6 should improve vigor and growth and enhance tree-form structure of these species.
- 7 ■ Where consistent with project or activity objectives, canopy cover should be retained on the
8 south and southwest sides of small, existing forest openings to enhance cooler and moister
9 conditions. These small (generally 0.1 to 0.25 acre), shaded openings provide habitat conditions
10 needed by small mammals, plants, and insects, and these openings should be maintained where
11 they naturally occur.

12 Management Approaches

- 13 ■ Ponderosa pine forests are managed as Mexican spotted owl habitat as discussed under the most
14 recent, approved recovery plan for the Mexican spotted owl. The Cibola National Forest works
15 closely with the U.S. Fish and Wildlife Service to address the habitat needs of the Mexican
16 spotted owl by minimizing disturbance and providing nest/roost habitat, which includes
17 managing for areas of closed canopy and desired levels of key structural elements such as large
18 old trees, snags, and downed woody material.
- 19 ■ In pine-oak forests, many individual large Gambel oak trees and thickets have become
20 overtopped with pine trees. Treatments to promote oak regeneration and establishment are fairly
21 effective, because oak sprouts prolifically after release treatments. Oaks may be cut or burned to
22 stimulate new growth, maintain growth in large-diameter trees, or to stimulate mast production.
- 23 ■ Enforcement, education, and site-specific planning to address illegal wood cutting will be
24 necessary to ensure quality oak habitat over the long term. Illegal wood cutting reduces both the
25 amount and quality of oak habitat. Firewood collection opportunities are managed so site-
26 specific planning and permitting may specify the amount and size of oak that can be collected in
27 areas where live and dead woody oak habitat components are limited.
- 28 ■ In proposed treatment areas where there is little understory, slash treatments (for example, lop
29 and scatter, and mastication) should be used that improve herbaceous vegetation growth, soil and
30 watershed condition, and soil productivity, consistent with scenic integrity objectives.

31 Woodland Vegetation Types

32 Pinyon-Juniper Woodland

33 General Description

- 34 ■ Pinyon-Juniper Woodland is collectively composed of the Juniper Grass, Pinyon-Juniper Grass,
35 Pinyon-Juniper Sagebrush, Pinyon-Juniper Evergreen Shrub, and Pinyon-Juniper Woodland
36 (persistent) vegetation types. These generally occur at elevations between approximately 4,500
37 and 7,500 feet. They are dominated by one or more species of pinyon pine and/or juniper and can
38 occur with a grass/forb dominated understory (Pinyon-Juniper Grassland), a shrub-dominated
39 understory (Pinyon-Juniper Sagebrush/Evergreen Shrub), or a discontinuous understory of some
40 grasses and/or shrubs (Pinyon-Juniper Woodland). Two-needle pinyon and one-seed, Rocky
41 Mountain, and alligator junipers are common, with a lesser abundance of oaks. Species

- 1 composition and stand structure vary by location primarily due to precipitation, elevation,
 2 temperature, and soil type.
- 3 ■ Pinyon-juniper communities provide important winter and spring range for wildlife. Mature
 4 pinyon-juniper stands are particularly important for several species of conservation concern, (for
 5 example, gray vireo and juniper titmouse) many of which rely on the habitat features provided
 6 only by mature stands. Such features include large-diameter trunks for nest cavities and greater
 7 cone (juniper “berry”) and seed production. Mast (acorn) production is important forage for
 8 wildlife, as are young leaves important as browse.
 - 9 ■ Plant litter (leaves, needles, etc.) and understory plant cover contribute to soil stabilization,
 10 prevent erosion, promote nutrient cycling, improve water retention, and provide cover and forage
 11 for small mammals and conditions necessary for pinyon seed germination. Tree density impacts
 12 the understory of grasses, forbs, and shrubs’.

13 **Landscape Scale Desired Conditions (1,000 to 10,000 plus acres)**

- 14 ■ Pinyon-Juniper Grass and Juniper Grass are generally uneven aged and open in appearance.
 15 Trees occur as individuals, but occasionally in smaller groups, and range from young to old.
 16 Scattered shrubs and a dense herbaceous understory including native grasses, forbs, and annuals
 17 are present to support frequent surface fires. Snags are scattered across the landscape. Old
 18 growth occurs throughout the landscape, generally in small areas as individual old-growth
 19 components, or as clumps of old growth. Old-growth components include old trees, dead trees
 20 (snags), downed wood (coarse woody material), and structural diversity. The location of old
 21 growth shifts on the landscape over time as a result of succession and disturbance (tree growth
 22 and mortality). The composition, structure, and function of vegetative conditions are resilient to
 23 the frequency, extent and severity of disturbances (for example, insects, diseases, and fire) and
 24 climate variability. Fires are typically frequent and low-severity (fire regime I).
- 25 ■ Seral-stage proportions are applied at the landscape scale (Table 6). Snags with diameters 8
 26 inches and above at the base average five snags per acre, while snags 18 inches and above
 27 average one snag per acre. Coarse woody material increases with succession and averages 1 to 3
 28 tons per acre.

29 **Table 6. Desired seral-stage proportions for Pinyon-Juniper Grass Woodland and Juniper Grass**
 30 **Woodland**

Seral Stage	Proportion	Description
Early	5%	Post-disturbance state supporting primarily herbaceous species with tree and shrub cover each below 10% canopy cover.
Mid (open)	25%	Comprised of seedlings, saplings, and small trees with a predominantly open canopy.
Mid (closed)	10%	Closed tree canopy from small trees.
Late (open)	50%	Open tree canopy dominated by medium to very large trees.
Late (closed)	10%	Closed tree canopy consisting of medium to very large trees.

- 31 ■ Ground cover consists primarily of perennial grasses and forbs capable of carrying surface fire,
 32 with basal vegetation values averaging between about 10 and 30 percent. Shrubs average less
 33 than 30 percent canopy cover. Overall plant composition similarity to site potential is greater

1 than 66 percent, but can vary considerably at the fine- and mid-scales owing to a diversity of
 2 seral conditions. Patch sizes of woodlands range from individual trees and clumps that are less
 3 than 0.1 acre, to tree groups of approximately an acre.

4 **Pinyon-Juniper Sagebrush Woodland**

5 **Landscape-Scale Desired Conditions (1,000 to 10,000 plus acres)**

- 6 ■ Pinyon-Juniper Sagebrush Woodland is a mix of trees and shrubs that occurs as a series of
 7 vegetation states that move from herbaceous-dominated to shrub-dominated to tree-dominated
 8 over time. Trees occur as individuals or in smaller groups ranging from young to old. Pinyon
 9 trees are occasionally absent, but one or more juniper species is always present. Typically groups
 10 are even-aged in structure. The understory is dominated by moderate to high density shrubs
 11 depending on successional stage. The shrub component consists of one or a mix of big
 12 sagebrush, evergreen shrub, oak, and other shrub species, which are well-distributed. Shrubs
 13 typically are in a closed canopy state during later successional stages. Native perennial grasses
 14 and annual and perennial forbs are present as understory components. Snags and old trees with
 15 dead limbs/tops are scattered across the landscape. Coarse woody material is present. The
 16 composition, structure, and function of vegetative conditions are resilient to the frequency, extent
 17 and severity of disturbances (such as insects, diseases, and fire) and climate variability. Fires are
 18 typically infrequent mixed-severity, with rare stand-replacement fires.
- 19 ■ Seral-stage proportions are applied at the landscape scale (Table 7). Snags with diameters 8
 20 inches and above at the base average 6 snags per acre, while snags 18 inches and above average
 21 1 snag per acre. Coarse woody material averages about 4 tons per acre.

22 **Table 7. Desired seral-stage proportions for Pinyon-Juniper Sagebrush Woodland**

Seral Stage	Proportion	Description
Early	10%	Post-disturbance state.
Mid (open)	25%	Comprised of seedlings, saplings, and small trees with a predominantly open canopy.
Mid (closed)	20%	Closed tree canopy from small trees.
Late (open)	35%	Open tree canopy dominated by medium to very large trees.
Late (closed)	10%	Closed tree canopy consisting of medium to very large trees.

- 23 ■ Ground cover consists primarily of shrubs, perennial grasses, and forbs capable of carrying
 24 surface fire only infrequently, with basal vegetation values averaging between about 10 and 35
 25 percent depending on site conditions. Shrubs average greater than 30 percent canopy cover.
 26 Overall plant composition similarity to site potential is greater than 66 percent, but can vary
 27 considerably at the fine- and mid-scales owing to a diversity of seral conditions. The patch size
 28 of woodlands ranges from 1 to 10s of acres.

1 **Pinyon-Juniper Evergreen Shrub Woodland**

2 **Landscape Scale Desired Conditions (1,000 to 10,000 plus acres)**

- 3 ■ Pinyon-Juniper Evergreen Shrub Woodland is a mix of trees and shrubs that occurs as a series of
4 vegetation states that move from herbaceous-dominated to shrub-dominated to tree-dominated
5 over time. Trees occur as individuals or in smaller groups ranging from young to old. Pinyon
6 trees are occasionally absent, but one or more juniper species is always present. Typically groups
7 are even-aged in structure with all ages represented across the landscape for an overall uneven-
8 aged grouped appearance. The understory is dominated by low to moderate density shrubs
9 depending on successional stage. The shrub component consists of one or a mix of evergreen
10 oak, mountain mahogany, sumac and other shrub species, which are well-distributed. Native
11 perennial grasses and annual and perennial forbs are present in the interspaces. Snags and old
12 trees with dead limbs/tops are scattered across the landscape. Large dead wood is present. Old
13 growth occurs throughout the landscape, generally in small areas as individual old growth
14 components, or as clumps of old growth. Old growth components include old trees, dead trees
15 (snags), downed wood (coarse woody material) and structural diversity. The location of old
16 growth shifts on the landscape over time as a result of succession and disturbance (tree growth
17 and mortality). The composition, structure, and function of vegetative conditions are resilient to
18 the frequency, extent, and severity of disturbances (such as insects, diseases, and fire), and
19 climate variability. Fires are typically mixed-severity with a moderate frequency (fire regime
20 III). Some evergreen shrub types exhibit occasional high severity fires (fire regime IV).
- 21 ■ Seral-stage proportions are applied at the landscape scale (Table 8). Snags with diameters 8
22 inches and above at the base average three snags per acre, while snags 18 inches and above
23 average one snag per acre. Coarse woody material averages 2 to 4 tons per acre.
- 24 ■ Shrubs average greater than 30 percent canopy cover. Overall plant composition similarity to site
25 potential is greater than 66 percent, but can vary considerably at fine- and mid-scales owing to a
26 diversity of seral conditions. Ground cover consists of shrubs, perennial grasses, and forbs with
27 basal vegetation values ranging between about 5 and 15 percent. The patch size of woodlands
28 ranges from 1 to 10s of acres.

29 **Table 8. Desired seral-stage proportions for the Pinyon-Juniper Evergreen Shrub Woodland**

Seral Stage	Proportion	Description
Early	5%	Post-disturbance state supporting primarily herbaceous species with tree and shrub cover each below 10% canopy cover.
Mid	55%	Comprised of seedlings, saplings, and small trees with a predominantly open canopy.
Late	40%	Open tree canopy dominated by medium to very large trees. Total cover between trees and shrubs often exceeds 30%.

30

31 **Pinyon-Juniper Woodland (Persistent)**

32 **Landscape Scale Desired Conditions (1,000 to 10,000 plus acres)**

- 33 ■ Pinyon-Juniper Woodland (persistent) is characterized by even-aged patches of pinyons and
34 junipers that at the landscape level form multi-aged woodlands. Very old trees (greater than 300
35 years old) are present. Tree density and canopy cover are high, shrubs are sparse to moderate,

1 and herbaceous cover is low and discontinuous. Snags and older trees with dead limbs and/or
 2 tops are scattered across the landscape. Old growth features are often concentrated in mid- and
 3 fine-scale units as patches of old growth. Old growth includes old trees, dead trees (snags),
 4 downed wood (coarse woody material) and structural diversity. The location of old growth shifts
 5 on the landscape over time as a result of succession and disturbance (tree growth and mortality).
 6 The composition, structure, and function of vegetative conditions are resilient to the frequency,
 7 extent and severity of disturbances (such as insects, diseases, and fire), and climate variability.
 8 Insects and disease occur at endemic levels. Fire as a disturbance is less frequent and variable
 9 due to differences in ground cover. The fires that do occur are mixed to high severity (fire regime
 10 III, IV, and V). Seral-stage proportions are applied at the landscape scale.

- 11 ■ Where pinyon-juniper obligate species occur (such as the gray vireo and juniper titmouse)
 12 project design should retain an average of six snags (diameters greater than 8 inches at base) per
 13 acre and one snag (greater than 18 inches diameter at base) per acre and an average of 4 tons per
 14 acre of coarse woody material (as well as partially dead or dying trees) even when this is in
 15 conflict with other activities such as fuelwood gathering.
- 16 ■ Snags with diameters 8 inches and above at the base average five snags per acre, while snags 18
 17 inches and above average one snag per acre. Coarse woody material increases with succession
 18 and averages 2 to 5 tons per acre. Overall plant composition similarity to site potential is greater
 19 than 66 percent, but can vary considerably at fine- and mid-scales owing to a diversity of seral
 20 conditions. Ground cover consists of shrubs, perennial grasses, and forbs with basal vegetation
 21 values ranging between about 5 and 15 percent. Some sites are capable of carrying surface fire.
 22 The patch size of woodlands ranges from 10s to 100s of acres.

23 **Guideline**

- 24 ■ Where pinyon-juniper obligate species occur (such as the gray vireo and juniper titmouse)
 25 project design should retain an average of six snags (diameters greater than 8 inches at base) per
 26 acre and one snag (greater than 18 inches diameter at base) per acre and an average of 4 tons per
 27 acre of coarse woody material (as well as partially dead or dying trees) even when this is in
 28 conflict with other activities such as fuelwood gathering.

29 **Table 9. Desired seral-stage proportions for Pinyon-Juniper Woodland (persistent)**

Seral Stage	Proportion	Description
Early	10%	Post-disturbance state supporting primarily herbaceous species with tree and shrub cover each below 10% canopy cover.
Mid (open)	5%	Comprised of seedlings, saplings, and small trees with a predominantly open canopy.
Mid (closed)	15%	Closed tree canopy from small trees.
Late (open)	10%	Open tree canopy dominated by medium to very large trees.
Late (closed)	60%	Closed tree canopy consisting of medium to very large trees.

30 **Management Approaches**

- 31 ■ Strategies for re-establishing the desired conditions include leaving juniper snags, downed logs,
 32 and other woody components that collect drifting seeds, provide shade, cooler temperatures,
 33 moisture retention, and protection from ungulate herbivory. These microclimates serve as

- 1 nurseries for grasses, forbs, and trees, contribute to resilience in times of drought, and provide
2 habitat for small mammals and other wildlife.
- 3 ■ Move all vegetation types towards desired conditions by monitoring, recovering and mitigating
4 severe or uncharacteristic disease outbreaks and insect infestations to ensure watershed health
 - 5 ■ In proposed treatment areas where there is little understory, slash treatments (such as lop and
6 scatter and mastication) should be used that improve herbaceous vegetation growth, soil and
7 watershed condition, and soil productivity.
 - 8 ■ Fuelwood collection opportunities are managed so site-specific planning and permits may
9 specify the location and the amount and size of wood that can be collected in areas where live
10 and dead woody habitat components are limited. Post-fuelwood collection rehabilitation restores
11 soil stability and watershed function.

12 **Madrean Woodland**

13 **General Description**

14 Madrean Woodland comprises Madrean Pinyon–Oak Woodland and Madrean Encinal Woodland.
15 Madrean Encinal Woodland (not found on the Cibola) often occurs below Madrean Pinyon–Oak at
16 the interface with Semi-Desert Grassland.

17 The Madrean Woodlands generally occur at elevations between 4,900 and 7,500 feet and can occur
18 with a grass/forb-dominated understory or a shrub-dominated understory. Madrean Encinal
19 Woodland is characterized by the dominance of oak trees, while Madrean Pinyon–Oak is dominated
20 by both oaks and pinyon. Juniper can be co-dominant in either type. The two Madrean types can
21 intergrade with one another and with pinyon-juniper woodlands. Common oak species include
22 Emory oak and gray oak depending on the location. Juniper species include alligator juniper and
23 one-seed juniper. The understory includes a wide variety of shrubs, grasses, and forbs; species
24 composition varies with site conditions (soil type, aspect, elevation, and disturbance).

25 The composition, structure, and function of vegetative conditions are resilient to the frequency,
26 extent, and severity of disturbances and climate variability. The landscape is a functioning ecosystem
27 that contains all its components, processes, and conditions that result from natural disturbances (such
28 as insects, diseases, fire, and wind), including old growth. Grasses, forbs, shrubs, and needle cast
29 (fine fuels), and small trees help to maintain the natural fire regime. Litter cover and herbaceous
30 vegetation provide protection of soil, moisture infiltration, and contribute to plant and animal
31 diversity and to ecosystem function. Frequent, primarily low-severity fires (fire regime I/III) burn on
32 the forest floor and do not typically spread between trees as crown fire. Mixed-severity fires occur
33 less frequently and over smaller spatial extents than low severity fires. Natural and anthropogenic
34 disturbances are sufficient to maintain desired overall tree density, structure, species composition,
35 coarse woody material, and nutrient cycling.

36 **Landscape Scale Desired Conditions (10,000 plus acres)**

- 37 ■ Seral-stage proportions are applied at the landscape scale (Table 10). The Madrean types are
38 relatively homogenous in structure, generally uneven-aged and open, with occasional patches of
39 even-aged structure. Declining trees are a component and provide for snags, top-killed,
40 lightning- and fire-scarred trees, and coarse woody material, all well-distributed throughout the
41 landscape. Snags 8 inches or greater at DBH average four snags per acre; snags 18 inches or
42 greater average one snag per acre. Large oak snags (greater than 10 inches) are a well-distributed
43 component. Coarse woody material increases with forest succession and averages 2 to 3 tons per

1 acre. The amount of shrub cover depends on the Terrestrial Ecosystem Unit Inventory (TEUI)
 2 unit (USDA Forest Service 1986). Overall plant composition similarity to site potential is greater
 3 than 66 percent, but can vary considerably at fine- and mid-scales owing to a diversity of seral
 4 conditions.

5 **Table 10. Desired seral-stage proportions for Madrean Pinyon–Oak Woodland**

Seral Stage	Proportion	Description
Early	4%	Post-disturbance state dominated by grasses.
Mid (seedlings)	5%	Dominated by resprouting seedlings with both open and closed stands.
Mid (open)	13%	Open tree canopy cover from small trees. Grasses dominate the understory. Conditions indicative of even-aged stand dynamics and the development of Mexican spotted owl habitat.
Mid (closed)	3%	Closed tree canopy cover from small trees. Grasses dominate the understory.
Late (open)	60%	Open tree canopy cover from medium to very large trees. Grasses dominate the understory.
Late (closed)	15%	Mature forest state with closed tree canopy cover from medium to very large trees. Grasses dominate the understory. Conditions indicative of Mexican spotted owl habitat and mature closed-forest conditions.

6 **Mid-Scale Desired Conditions (100 to 1000 acres)**

7 ■ The majority of woodland is in open condition with tree cover averaging between 10 and 40
 8 percent depending on site productivity and past disturbance, with tree cover in canyons and
 9 drainage bottoms nearer the upper end of this range. A lesser amount is in closed canopy
 10 condition characteristic of the reference condition. Patch sizes range from less than 1 acre to 10s
 11 of acres. Tree groups vary in size and number depending on climate, soil type, and past
 12 disturbance. The more biologically productive sites contain more trees per group and more
 13 groups per acre. Shrubs occur in low to moderate densities which do not inhibit tree
 14 regeneration. The size, shape, and number of trees per group, and number of groups per mid-
 15 scale unit, are variable. All structural stages of oak are present with old trees occurring as
 16 dominant individuals, and small groups occurring typically within openings. Denser overall tree
 17 conditions exist in some locations such as north facing slopes and canyon bottoms. Ground cover
 18 consists of perennial grasses and forbs capable of carrying surface fire, with basal vegetation
 19 values between about 2 and 20 percent depending on site conditions.

20 **Fine-Scale Desired Conditions (less than 10 acres)**

21 ■ At the fine scale, forest arrangement is in individual trees, small clumps, and groups of trees
 22 interspersed within variably sized openings of grass/forbs/shrub vegetation associations similar
 23 to historic patterns. Trees typically occur in small groups in which they are variably spaced with
 24 some tight clumps. Crowns of trees within the mid- to old-age groups are interlocking or nearly
 25 interlocking. Interspaces between tree groups are variably shaped and comprised of a
 26 grass/forb/shrub mix. Some natural openings contain individual trees, including large open-
 27 grown oaks. Trees within groups are of similar or variable ages and may contain species other
 28 than oak, juniper, and pinyon pine. The size of tree groups is typically 1 acre or less. Groups at
 29 the mid- to old-age stages consist of 2 to approximately 40 trees.

1 **Guideline**

- 2 ■ Clusters of trees, and shrubs, and snags should be maintained in treatment areas to benefit
 3 species that require these structures for breeding, feeding, shelter, and other needs.

4 **Management Approaches**

- 5 ■ Madrean Pinyon-Oak woodlands are managed as Mexican spotted owl habitat as discussed under
 6 the most recent, approved recovery plan for the Mexican spotted owl. The Cibola National
 7 Forest works closely with the U.S. Fish and Wildlife Service to address the habitat needs of the
 8 Mexican spotted owl by minimizing disturbance and providing nest/roost habitat, which includes
 9 managing for areas of closed canopy and desired levels of key structural elements such as large
 10 old trees, snags, and downed woody material.
- 11 ■ Strategies for re-establishing the desired conditions include leaving snags, downed logs, and
 12 other woody components that collect drifting seeds, provide shade, cooler temperatures, moisture
 13 retention, and protection from ungulate herbivory. These microclimates serve as nurseries for
 14 grasses, forbs, and trees, contribute to resilience in times of drought, and provide habitat for
 15 small mammals and other wildlife.
- 16 ■ In proposed treatment areas where there is little understory, slash treatments (such as lop and
 17 scatter and mastication) should be used that improve herbaceous vegetation growth, soil and
 18 watershed condition, and soil productivity.
- 19 ■ Fuelwood collection opportunities are managed so site-specific planning and permits may
 20 specify the location and the amount and size of wood that can be collected in areas where live
 21 and dead woody habitat components are limited. Post-fuelwood collection rehabilitation restores
 22 soil stability and watershed function.

23 **Shrubland Vegetation Types**

24 **Mountain Mahogany Mixed Shrubland**

25 Mountain Mahogany Mixed Shrubland vegetation type occurs in the foothills, canyon slopes, and
 26 lower mountain slopes of the Rocky Mountains and on outcrops and canyon slopes in the western
 27 Great Plains. It is often associated with exposed sites, rocky substrates, dry conditions, and recurrent
 28 fire that limits tree growth. Scattered trees or inclusions of grassland patches or steppe may be
 29 present, but a variety of shrubs including mountain mahogany and skunkbush sumac typically
 30 dominate. Historically, tree canopy cover was less than 10 percent. Seral-stage proportions are
 31 applied at the landscape scale (Table 11).

32 **Table 11. Desired seral-stage proportions for Mountain Mahogany Mixed Shrubland**

Seral Stage	Proportion	Description
Early	5%	Recently disturbed state with shrub cover <10%.
Mid	65%	Dominated by shrubs with tree cover <10%.
Late	30%	Dominated by trees with >10% cover.

33

34 The Mountain Mahogany Mixed Shrubland vegetation type is characterized by fire regime group IV,
 35 with an average fire-return interval of 35 to 200 years from stand-replacing fire.

1 **Gambel Oak Shrubland**

2 Gambel Oak Shrubland⁷ vegetation type is dominated by long-lived Gambel oak clones that form
 3 largely monotypic overstories. It occurs between 6,500 and 9,500 feet on all aspects, and at higher
 4 elevations it occurs more predominantly on southern exposures. Gambel oak occurs as the dominant
 5 species ranging from dense thickets to clumps associated with other shrub species such as
 6 serviceberry or big sagebrush. Older, more developed Gambel oak can have a well-developed
 7 understory comprised of snowberry, elk sedge, Letterman’s needlegrass, Sandberg bluegrass, yarrow,
 8 lupine, and goldenrod. Ponderosa pine, juniper, and pinyon may encroach older plant communities.
 9 The primary disturbance mechanism is mixed-severity to stand-replacement fire resulting in top-kill
 10 and rare mortality. Gambel oak responds to fire with vigorous sprouting from the base. Larger forms
 11 may survive low-intensity surface fire. Not enough science is available to provide descriptions at
 12 multiple scales for this vegetation type. Seral-stage proportions are applied at the landscape scale
 13 (Table 12).

14 The Gambel Oak Shrubland vegetation type is characterized by fire regime group IV, with an
 15 average fire-return interval of 35 to 200 years from stand-replacing fire (See Table 1. Fire Regime
 16 Groups and Descriptions).

17 **Table 12. Desired seral-stage proportions for Gambel Oak Shrubland**

Seral Stage	Proportion	Description
Early	80%	Herbaceous species dominate with shrub cover <10%.
Late	20%	Shrub cover >10%.

18 Where historically occurring, Gambel oak thickets with various diameter stems and low growing,
 19 shrubby oak are present. These thickets provide forage, cover, and habitat for species such as small
 20 mammals, foliage nesting birds, deer, and elk. Gambel oak mast (acorns) provides food for wildlife
 21 species.

22 **Sagebrush Shrubland**

23 This vegetation type is dominated by big sagebrush. Sagebrush shrubland primarily occurs adjacent
 24 to Great Basin grassland and Pinyon-Juniper Woodland vegetation types. While big sagebrush is the
 25 dominant species, other shrubs such as broom snakeweed and shadscale are common, as are
 26 grassland species such as blue grama, junegrass, and western wheatgrass. Historically, this
 27 vegetation type had less than 10 percent tree canopy cover. Sagebrush shrubland sites are usually
 28 found on deep, well-drained valley bottom soils between 4,800 and 5,800 feet elevation with
 29 precipitation ranging between 10 to 18 inches per year. Not enough science is available to provide
 30 descriptions at multiple scales for this vegetation type. Seral-stage proportions are applied at the
 31 landscape scale (Table 13).

32 Sagebrush provides variable habitat that can include a mix of shrublands and grasslands. This
 33 diversity supports an abundance of birds, animals, and native plants, some of which are specially
 34 adapted to the system. Overall, wildlife species diversity may be lower in sagebrush systems than in
 35 habitat types with greater vertical complexity, but the species that occur in sagebrush systems often

⁷ Adapted from the description of Rocky Mountain Gambel Oak-Mixed Montane Shrubland (LANDFIRE 2010).

1 occur nowhere else. Sagebrush shrublands provide important habitat for several migratory bird
 2 species. Populations of many bird species that depend on these ecosystems are in decline, and many
 3 have special conservation status. Enough shrub cover exists to meet the needs of a variety of
 4 sagebrush obligate wildlife species.

5 **Table 13. Desired seral-stage proportions for Sagebrush Shrubland**

Seral Stage	Proportion	Description
Early	80%	Herbaceous species dominate with shrub cover <10%.
Late	20%	Shrub cover >10%.

6

7 The Sagebrush Shrubland vegetation type is characterized by fire regime group III, with an average
 8 fire-return interval of 35 to 200 years from mixed severity fire.

9 **Intermountain Salt Scrub**

10 The Intermountain Salt Scrub vegetation type is found in cold climate gradients and the Great Plains,
 11 and is not often found on Forest Service lands of the Southwest. Soils associated with this vegetation
 12 type are typically sodic, saline, or saline-sodic. The vegetation is characterized by a typically open to
 13 moderately dense shrubland composed of four-wing saltbush, yellow rabbitbrush, jointfir (Mormon
 14 tea), greasewood, and winterfat. Associated grasses include Indian ricegrass, bottlebrush squirreltail,
 15 Sandberg bluegrass, galleta, alkali sacaton, and sand dropseed. Not enough science is available to
 16 provide descriptions at multiple scales for this vegetation type. Seral-stage proportions are applied at
 17 the landscape scale (Table 14).

18 **Table 14. Desired seral stage proportions for Intermountain Salt Scrub**

Seral Stage	Proportion	Description
Early	25%	Herbaceous species dominate with only widely scattered shrubs.
Mid	45%	Open canopy shrub cover and discontinuous grasses.
Late	30%	Dominated by shrubs and lacking an herbaceous component.

19

20 The Intermountain Salt Scrub vegetation type is characterized by fire regime group III, with an
 21 average fire-return interval of 35 to 200 plus years from mixed severity fire.

22 **Chihuahuan Salt Desert Scrub**

23 This vegetation type occurs in the high sun/mild climate gradient and includes extensive open-
 24 canopied shrublands of typically saline basins (saline, sodic, or saline-sodic soils) in the Chihuahuan
 25 Desert. Stands often occur on alluvial flats and around playas. Substrates are generally fine-textured,
 26 saline soils. Vegetation is typically composed of saltbush, honey mesquite, ocotillo, prickly pear,
 27 dropseed, tobosagrass, saltgrass, and other halophytic plants. Not enough science is available to
 28 provide descriptions at multiple scales for this vegetation type. Seral-stage proportions are applied at
 29 the landscape scale (Table 15).

1 **Table 15. Desired seral-stage proportions for Chihuahuan Salt Desert Scrub**

Seral Stage	Proportion	Description
Early	25%	Sparsely vegetated and dominated by herbaceous species.
Mid	35%	Open canopy shrub cover and discontinuous grasses.
Late	40%	Closed canopy and dominated by shrubs.

2

3 The Chihuahuan Salt Desert Scrub vegetation type is characterized by fire regime group III, with an
 4 average fire-return interval of 100 to 200 years from mixed severity fire.

5 **Chihuahuan Desert Scrub**

6 The Chihuahuan Desert Scrub vegetation type ranges from the edges of basin floors, up alluvial fan
 7 piedmonts, to foothills of desert mountains and mesas. The major dominant is creosotebush often
 8 mixed with honey mesquite, catclaw acacia, whitethorn acacia, and ocotillo. Sub-shrubs are also
 9 abundant and often codominants. These include agave, prickly pear, and Wright’s beebrush.
 10 Herbaceous cover can be sparse or grassy with fluffgrass and bush muhly as key indicators. Black
 11 grama, tobosagrass, and burrograss may also occur.⁸ Not enough science is available to provide
 12 descriptions at multiple scales for this vegetation type. Seral-stage proportions are applied at the
 13 landscape scale (Table 16).

14 **Table 16. Desired seral-stage proportions for Chihuahuan Desert Scrub**

Seral Stage	Proportion	Description
Early	5%	Sparsely vegetated and dominated by herbaceous species.
Mid	20%	Open canopy shrub cover and discontinuous grasses.
Late	75%	Closed canopy and dominated by trees and shrubs.

15

16 The Chihuahuan Desert Scrub vegetation type is characterized by fire regime group III, with an
 17 average fire-return interval of 200 plus years from mixed severity fire. The sparse nature of this
 18 vegetation type indicates that fires likely would have been limited in size to small areas of
 19 continuous fuels.

20 **Sandsage**

21 The Sandsage Shrubland occurs mainly on sand dunes and areas that were overblown with a thicker,
 22 sandier soil surface during disturbances. Characteristic plant species for the Sandsage vegetation type
 23 are sand sagebrush, blue grama, sideoats grama, big bluestem, little bluestem, needle and thread, and
 24 Indiagrass. Not enough science is available to provide descriptions at multiple scales for this
 25 vegetation type. Seral-stage proportions are applied at the landscape scale (Table 17).

⁸ Excerpted from Integrated Landscape Assessment Project (2012).

1 **Table 17. Desired seral-stage proportions for Sandsage Shrubland**

Seral Stage	Proportion	Description
Early	30%	Herbaceous species dominate with open shrub canopy.
Late	70%	Closed shrub cover.

2

3 The Sandsage vegetation type is characterized by fire regime group III, with an average fire return
4 interval of 35 to 200 plus years from mixed-severity fire.

5 **Grassland Vegetation Types**

6 **Montane/Subalpine Grassland**

7 Also referred to as montane grasslands, this system occurs at elevations ranging from 8,000 to
8 11,000 feet, and often harbors several plant associations with varying dominant grasses and
9 herbaceous species. Such dominant species may include Parry’s oatgrass, Arizona fescue, Thurber’s
10 fescue, pine dropseed, sedges, rushes, shooting star, Rocky Mountain iris, Parry’s bellflower,
11 cinquefoil, and Woods’ rose. Trees may occur along the periphery of the meadows, which may
12 include Engelmann spruce, blue spruce, Douglas-fir, white fir (except on Mount Taylor), limber pine,
13 and subalpine fir. Some shrubs may also be present. These meadows are seasonally wet, which is
14 closely tied to snowmelt, though they typically do not experience flooding events. Tree and shrub
15 canopy cover is less than 10 percent each. The fire return interval is 0 to 35 years from stand-
16 replacing fire (fire regime group II). The Montane/Subalpine Grassland if often interspersed with the
17 Herbaceous Riparian vegetation type. Not enough science is available to provide descriptions at
18 multiple scales for this vegetation type. Seral-stage proportions are applied at the landscape scale
19 (Table 18).

20 **Table 18. Desired seral-stage proportions for Montane/Subalpine Grassland**

Seral Stage	Proportion	Description
Early	20%	Recently disturbed. Grass, shrub, tree canopy cover <10% each.
Late	80%	Mature grassland, grass is dominant lifeform. Shrub and tree canopy cover <10% each.

21 **Colorado Plateau/Great Basin Grassland**

22 The Colorado Plateau/Great Basin Grassland vegetation type is typically found along elevational and
23 temperature gradients above Semi-Desert Grasslands and below Montane-Subalpine Grasslands. It
24 occupies cooler and wetter sites than Semi-Desert Grasslands and is common above the Mogollon
25 Rim. The Colorado Plateau/Great Basin Grassland vegetation type is typically associated with the
26 Pinyon-Juniper Grass vegetation type along the grassland-woodland ecotone in cool climates.
27 Vegetation coverage consists of mostly grasses and interspersed shrubs. Grass species may include
28 Indian ricegrass, blue grama, Arizona fescue, needle and thread, mountain muhly, and junegrass.
29 Shrub species may include big sagebrush, Apache plume, Stansbury cliffrose, saltbush, jointfir
30 (Mormon tea), winterfat, and wax currant. Shrub cover may occasionally exceed 10 percent; tree
31 cover is less than 10 percent. Not enough science is available to provide descriptions at multiple
32 scales for this vegetation type. Seral-stage proportions are applied at the landscape scale (Table 19).

1 **Table 19. Desired seral-stage proportions for Colorado Plateau/Great Basin Grassland**

Seral Stage	Proportion	Description
Early	25%	Perennial-mixed grasses; combined shrub and tree cover $\geq 10\%$, grass cover $\geq 10\%$.
Mid	5%	Perennial-mixed grasses; combined shrub and tree cover $< 10\%$, grass cover $\geq 10\%$. Includes post-fire plant communities previously late-seral.
Late	70%	Perennial grasses; combined shrub and tree cover $< 10\%$, grass cover $\geq 30\%$.

2

3 The Colorado Plateau/Great Basin Grassland vegetation type is characterized by fire regime group II,
 4 with an average fire-return interval of 0 to 35 years from stand-replacing fire. Mixed-severity fire has
 5 been reported in this vegetation type to have occurred with a mean return interval of 37 years
 6 primarily top-killing herbaceous species. Stand-replacing fire occurs less frequently (about every 75
 7 years) and consumes both shrub and herbaceous life forms.

8 **Semi-Desert Grassland**

9 The Semi-Desert Grassland vegetation type occurs throughout southern New Mexico at elevations
 10 ranging from 3,000 to 4,500 feet. It is bounded by Sonoran or Chihuahuan desert at the lowest
 11 elevations and woodlands at the higher elevations. The boundary between Semi-Desert Grasslands
 12 and desert communities is sometimes hard to distinguish because desert shrub species can be
 13 common in this vegetation type.

14 Species composition and dominance varies across the broad range of soils and topography where it
 15 occurs. Dominant grassland associations/types are black grama grassland, blue grama grassland,
 16 curly mesquite grassland, tobosa grassland, giant sacaton grassland, and mixed native perennial
 17 grassland. Shrubs also occupy these grasslands and their abundance and species composition also
 18 vary. Shrub cover may occasionally exceed 10 percent; tree cover is less than 10 percent. Not enough
 19 science is available to provide descriptions at multiple scales for this vegetation type. Seral-stage
 20 proportions are applied at the landscape scale (Table 20).

21 Two subclasses of the Semi-Desert Grassland vegetation type occur on the Cibola; they are as
 22 follows.

23 **Piedmont Grassland.**⁹ This grassland vegetation is typical of coalesced alluvial fan piedmonts
 24 along mountain fronts and characterized the dominance of black grama and bush muhly. Other
 25 grasses that are prevalent and may dominate or co-dominate are tobosagrass, New Mexico
 26 feathergrass, sideoats grama, hairy grama, and blue grama. While shrubs and sub-shrubs are clearly
 27 subordinate in these grasslands, they are always common and sometimes abundant, forming a shrub-
 28 steppe. The most diagnostic tall shrubs are jointfir (Mormon tea) and soaptree yucca along with the
 29 agave and broom snakeweed.

⁹ Adapted from Integrated Landscape Assessment Project (2012).

1 **Sandy Plains Grassland.**¹⁰ This grassland vegetation is typical of sandy plains (sandsheets) and
 2 dominated by black grama, sand dropseed, mesa dropseed, spike dropseed, and sand muhly. In
 3 addition to the dominant grasses, blue grama, bush muhly, sandhill muhly, and giant dropseed can be
 4 common associates. On gypsum substrates, gyp dropseed, and New Mexico bluestem dominate.
 5 While shrubs and sub-shrubs are clearly subordinate in these grasslands, they are always common
 6 and sometimes abundant, forming a shrub-steppe. Typical indicators include jointfir (Mormon tea)
 7 and soaptree yucca.

8 **Table 20. Desired seral-stage proportions for Semi-Desert Grassland**

Seral Stage	Proportion	Description
Early	5%	Perennial-mixed grasses; combined shrub and tree cover ≥10%, grass cover ≥10%.
Mid	25%	Perennial mixed grasses; combined shrub and tree cover <10%, grass cover ≥10%. Includes post-fire plant communities previously late-seral.
Late	70%	Perennial grasses; combined shrub and tree cover <10%, grass cover ≥30%.

9

10 The Semi-Desert Grassland vegetation type is characterized by fire regime group II, with an average
 11 fire-return interval of 0 to 35 years from stand-replacing fire. Recurring fire is important in this type
 12 to maintain open conditions, prevent shrub and tree invasion, and retain species diversity. Large-
 13 scale fire events occur every 2.5 to 10 years and typically occur in the early summer (The Nature
 14 Conservancy 2006). This coincides with pre-monsoon lightning activity in the region and
 15 contemporary fire behavior suggests that historic ignitions would likely have burned until they ran
 16 out of contiguous fuel or were rained out.

17 **Riparian Vegetation Types**

18 **General Description**

19 Riparian areas occur throughout all vegetation types. Vegetation supported within riparian areas
 20 varies with watershed size, geology, slope, elevation, and aspect. Natural disturbances (including
 21 flooding, scouring, and desiccation) result in changes that promote a diverse community structure
 22 necessary for recruitment of riparian species. In turn, a healthy plant community helps maintain a
 23 stable and functioning riparian physical environment (for more, see the “Watershed Resources”
 24 section). Riparian areas are especially important to wildlife, including many federally listed species
 25 and species of conservation concern on the Cibola, such as Mexican spotted owl, southwestern
 26 willow flycatcher, Lewis’ woodpecker, Chiricahua leopard frog, and Arizona myotis (see the
 27 “Aquatic Species and Habitats” section).

28 Based on future climate projections, vegetation in riparian areas will experience higher temperatures,
 29 an increase in extreme precipitation events, and changes to the hydrologic cycle. Further, it is likely

¹⁰ Adapted from Integrated Landscape Assessment Project (2012).

1 that riparian areas dependent on spring flows will experience a decrease in available water. These
2 changes can create corresponding shifts in plant composition, diversity, and abundance.

3 For riparian vegetation Plan components and management approaches, see the “Watershed
4 Resources” section.

5 Watershed Resources

6 Watersheds

7 Background and Description

8 A watershed is a region or land area drained by a single stream, river, or drainage network.
9 Watersheds encompass all of the ecosystem elements—water, geology, soils, vegetation, and
10 animals. Watersheds also span the landscape at many different scales. Watershed boundaries cross
11 ownership boundaries since they are based on topography. There is an established method for
12 delineating watershed boundaries which is defined by a number code called the hydrologic unit code
13 (HUC). Each two digits in the number system represent a drainage basin, with successive numbers
14 referring to smaller watersheds nested within the larger one. On the Cibola, the Plan area is located
15 within portions of 60 5th (10 digit) HUC watersheds. Nested within these larger watersheds, there are
16 205 individual 6th (12 digit) code HUCs sub-watersheds that intersect the Plan area.

17 The “USFS watershed condition framework” was developed to assess the condition of watersheds
18 that intersect National Forest System lands. Watershed condition is the state of the physical and
19 biological characteristics and processes within a watershed that affect the soil and hydrologic
20 functions supporting aquatic ecosystems. Watersheds that are functioning properly have the
21 terrestrial, riparian, and aquatic ecosystem that capture, store, and release water, sediment, wood, and
22 nutrients within their range of natural variability for these processes. When watersheds function
23 properly they are considered in satisfactory condition and healthy. There are 119 sub-watersheds
24 within the Plan area that rated as functioning properly, 46 watersheds rated as functioning at risk, and
25 1 watershed rated as impaired. Forty-two watersheds were not rated because they had less than 10
26 percent of their area within the Plan area. The condition rating only applies to the National Forest
27 System lands within each watershed.

28 Desired Conditions

- 29 ■ Watersheds are functioning properly, in satisfactory condition.
- 30 ■ Watersheds are not at risk due to the fuels composition and uncharacteristic disturbance.
- 31 ■ Watersheds mostly contain free-flowing streams and functioning wetlands and riparian areas.
- 32 ■ The hydrologic regime within a watershed is not impacted by the density and distribution of
33 roads, trails, and impervious surfaces.
- 34 ■ Watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their potential
35 condition.
- 36 ■ More than 50 percent of each 12 digit sub-watershed is in a satisfactory fire condition class as
37 described in the watershed condition framework.
- 38 ■ No more than 20 percent of the forested land in each 12 digit sub-watershed should be at
39 imminent risk of high levels of mortality due to insects and disease.

1 **Standard**

- 2 ■ Cost-effective, reasonable, and effective best management practices will be prescribed for every
3 project that has a potential effect on watershed condition, including water quality.

4 **Guidelines**

- 5 ■ Maximum road density should be 1.9 miles per square mile or less, except in developed sites.
- 6 ■ Where possible, new and reconstructed roads, infrastructure, recreation sites, or similar
7 constructed facilities, should be located outside of the 100-year floodplain (Executive Order
8 11988: Floodplain Management) except where necessary for stream crossings or to provide for
9 resource protection to avoid the long-term adverse impacts associated with the occupancy and
10 modification of flood plains and water resource features.
- 11 ■ Where possible, new or reconstructed roads, infrastructure, and recreation sites, or similar
12 constructed facilities, should not be constructed within 300 feet of water resource features,
13 unless to provide for resource protection, in order to avoid the long-term adverse impacts
14 associated with the occupancy and modification of water resource features.
- 15 ■ New or reconstructed trails should be planned, designed, constructed, and maintained to avoid
16 cumulative effects and to protect riparian-dependent values and proper functioning condition.
- 17 ■ Structures in stream channels which are no longer necessary or functional should be rehabilitated
18 or removed and the stream stabilized.

19 **Management Approaches**

- 20 ■ Identify priority watersheds, develop prescriptions, and plans for improvement through the
21 watershed condition framework or other similar processes.
- 22 ■ Watershed restoration action plans or similar process are completed for priority watersheds.
- 23 ■ Watershed planning is used as a further means to improve watershed condition within the Cibola
24 National Forest.
- 25 ■ Best management practices are monitored using a current protocol, such as the National Best
26 Management Practices for Water Quality Management on National Forest Systems Lands.
- 27 ■ Update watershed condition classification after large-scale disturbance events such as wildfire.
- 28 ■ Soil and water resource information is included as part of land and resource management
29 planning.
- 30 ■ Work with local, State, and Tribal governments, Land Grants and other stakeholders to identify
31 watershed improvements and priorities for protection and management.
- 32 ■ Cooperate with other agencies, groups, and individuals whose plans or proposals affect
33 watershed condition on National Forest System lands.
- 34 ■ Integrate watershed condition improvement projects with other project activities. Favor projects
35 that require minimal maintenance.
- 36 ■ Vegetation, recreation, and range management projects are planned to support the natural
37 variability of ecological characteristics to support satisfactory watershed condition while
38 considering the effects of climate change.
- 39 ■ Management actions are planned to reduce the risk of uncharacteristic wildfire and mortality due
40 to insects and disease.

1 **Soil**

2 **Background and Description**

3 Soil is the unconsolidated mineral and organic material on the immediate surface of the Earth that
4 serves as a natural medium for the growth of land plants. As such, soil is the basis of the terrestrial
5 ecosystem. In addition, soils provide habitat for many organisms, carbon storage, and act as filtration
6 and storage system for water. Without soil, there are no plants. Soils have unique physical, chemical,
7 and biological properties important to their use. The location and kind of soil is determined by soil-
8 forming factors such as parent material, climate (past and present), living organisms, topography, and
9 time.

10 The physical and chemical characteristics of soils are vulnerable to forest management activities.
11 Physical characteristics include surface structure, bulk density, infiltration, erosion, and surface
12 horizon. Impacts to these characteristics include compaction, erosion, rutting, and loss of the surface
13 horizon. Chemical characteristics include nutrient cycling and soil composition. Impacts to the
14 chemical aspect of soil include changes in vegetative community position, litter loss, lack of coarse
15 woody material, and atmospheric deposition. Forest management activities have the potential to
16 impact both the physical and chemical attributes of soils.

17 **Desired Conditions**

- 18 ■ Soil condition is satisfactory, soil functions are sustained and soil is functioning properly. The
19 ability of soil to maintain resource values and sustain outputs is high.
- 20 ■ Vegetation contributes to soil condition, nutrient cycling, and hydrologic regimes at natural
21 levels.
- 22 ■ Downed woody material occurs at levels (size, decay, and amount) sufficient to support soil
23 productivity.
- 24 ■ Biological soil crusts are present at sustainable levels where expected (desert grasslands, desert,
25 pinon-juniper, and sagebrush).
- 26 ■ Soils are free from pollutants that could alter ecosystem integrity or affect public health.
- 27 ■ Soils do not exhibit excessive rill, sheet, or gully erosion.
- 28 ■ Soils have minimal evidence of pedestaling and are within the range of natural amounts of litter
29 with little exposure of roots.

30 **Standards**

- 31 ■ High-risk soils will be identified prior to ground-disturbing activities and the appropriate best
32 management practices will be used to protect them. This may include avoidance and timing
33 restrictions.
- 34 ■ Appropriate best management practices will be applied to all ground-disturbing activities.
- 35 ■ Sites disturbed during management activities or actions will be stabilized and restored to
36 satisfactory conditions.
- 37 ■ Spill prevention and containment plans will be in place when hazardous substances are used in
38 or associated with forest management activities. This includes petroleum products, fuels,
39 herbicides, and cleaning fluids.

1 Guidelines

- 2 ■ Ground-disturbing activities that cause compaction, bare soils, loss of litter, or erosion resulting
3 in loss of soil function should be limited to 15 percent or less of a project area.
- 4 ■ Poorly drained or saturated soils should not have mechanized equipment operating on them.
- 5 ■ When soil condition is less than satisfactory as the result of management activities, restoration of
6 soil condition should occur to restore soil condition to satisfactory.
- 7 ■ Mechanized management activities such as mastication and skidding should occur along the
8 contour except where necessary to change direction.
- 9 ■ Burn piles should not be larger than 10 feet by 10 feet with no more than 10 piles per acre to
10 protect soil condition. Where soil under burned piles does not return to pre-burn condition within
11 5 years, burn scars should be restored with methods such as scarification and revegetation to
12 restore condition. Piles should contained a mix of fuel sizes and no more than 50 percent large
13 wood to reduce soil heating.
- 14 ■ Prescribed fire should occur when soils are moist when possible to limit heat penetration and
15 protect soil condition.
- 16 ■ Depth of masticated material should not exceed an average of 4 inches.
- 17 ■ Vegetation should be maintained or improved to conditions as indicated by Terrestrial Ecosystem
18 Unit Inventory as verified on the ground to support soil functions.
- 19 ■ Repeated use of fire (less than 10-year interval) should be avoided on sites with infertile soils
20 with low site potential. Other methods to reduce fuels on these sites should be considered.
- 21 ■ Woody material should be retained at levels sufficient to maintain nutrients during forest
22 management activities such as thinning and prescribed fire. Large decaying woody material
23 should be retained to support nutrient cycling.
- 24 ■ Whole-tree harvesting should only occur on productive sites unless slash is redistributed across
25 treatment area to support nutrient cycling and satisfactory soil condition.
- 26 ■ Whole-tree harvesting should not occur on aspen sites to protect soil condition unless necessary
27 for aspen regeneration.
- 28 ■ Soils with severe erosion hazard should be protected from ground-disturbing activities.
- 29 ■ Mechanized, ground-based vegetation management activities such as skidding and mastication
30 should be limited to slopes less than 40 percent.
- 31 ■ Ground-disturbing activities should only occur when soils are sufficiently dry, frozen, or
32 protected by an adequate snowpack to maintain productive soils.
- 33 ■ Vegetative ground cover should be improved or maintained to levels indicated by Terrestrial
34 Ecosystem Unit Inventory as verified on the ground to support soil functions.
- 35 ■ Selected areas with existing biological crusts should be identified and protected from ground
36 disturbance in project areas where ground disturbance is a potential effect. These areas will allow
37 for crusts to repopulate after project activities are completed.
- 38 ■ Areas of concentrated mechanized activities such as landings, areas where cattle are
39 concentrated (such as watering points, mineral blocks, and collection areas), and other sites
40 where ground disturbance is continual, should not be located on areas where soils have a severe
41 erosion hazard rating or are poorly drained or saturated. Drainage and erosion control measures

1 will be implemented and maintained for these features. Slope should be no more than 5 percent
2 where these areas are located to prevent erosion.

3 Management Approaches

- 4 ■ Assess, evaluate, and monitor the soil resource to detect changes in soil properties resulting from
5 implementation of management plans.
- 6 ■ Consider soil condition and appropriate prevention or mitigation practices when Forestwide and
7 project-level activities are planned. .
- 8 ■ Assess the extent to which soil condition is being maintained or restored to satisfactory.
- 9 ■ Evaluate the effectiveness of soil condition practices to maintain satisfactory soil condition.
- 10 ■ Project-level plans contain land management prescriptions consistent with maintaining
11 satisfactory soil conditions.
- 12 ■ Terrestrial Ecosystem Unit Inventory is the basis for planning project activities where soil
13 condition may be affected, including vegetation management, grazing, and transportation
14 projects.
- 15 ■ Manage forest and rangelands in a manner that will improve soil productivity.
- 16 ■ Soil information is integrated into land and resource management across the Forest.
- 17 ■ Policies and actions of the local, State, and Federal government in matters of soil resource
18 protection are fully ensured to the benefits of the resource.
- 19 ■ Restoration treatments are focused on areas with currently low herbaceous production for
20 sustained nitrogen availability.
- 21 ■ Plan and prioritize vegetation and landscape projects that will maintain proper soil health.
- 22 ■ Improve soils where conditions are less than satisfactory using appropriate management actions.

23 Groundwater

24 Background and Description

25 Groundwater is an important component of water resources on the Cibola National Forest. Much of
26 the water on the Forest comes from groundwater resources. In addition, the mountains on the Cibola
27 provide water for recharging many aquifers in the region. Recharge depends mostly on precipitation
28 which is greatest at the higher elevations within the Plan area. Snow has a significant input to
29 recharge in the mountains. Groundwater flows out from the mountains from all sides; generally there
30 is no other source of water for the aquifers in the region. Mountain front recharge and recharge
31 through ephemeral arroyos occurs along all of the mountain units within the Plan area. Therefore,
32 recharge in the mountains of the Cibola National Forest is very important to the groundwater
33 resources of the region. Groundwater uses will become more important as surface water resources
34 become scarce due to drought and long-term changes.

35 Groundwater pumping has the potential to impact surface water sources by removing water which
36 recharges these features. Proper location can prevent this effect by locating wells away from surface
37 water features. Groundwater wells are vulnerable to polluting sources located on the surface. Source
38 water protection areas and restrictions on uses within these areas prevent this risk. Watershed
39 condition is important for groundwater recharge in terms of quantity and spatial patterns of recharge.

1 When watersheds are healthy, snow packs and infiltration processes are effective in recharging
2 aquifers.

3 **Desired Conditions**

4 ■ Groundwater quality is not impacted by Forest Service activities or Forest Service-permitted
5 activities.

6 ■ Groundwater-dependent resources are not impacted by Forest Service groundwater withdrawal
7 activity or Forest Service-permitted withdrawal on National Forest System lands.

8 ■ Watershed condition supports recharge of aquifers.

9 **Standard**

10 ■ New groundwater wells on Forest Service lands will be located so that springs, wetlands
11 (including riparian areas), surface flows, and groundwater-dependent ecosystems are not
12 impacted.

13 **Guidelines**

14 ■ Groundwater sources should be used preferentially over surface water sources for Forest Service
15 uses, such as livestock, recreation, and other Forest uses. This protects surface water sources
16 which are at risk due to drought while providing for management uses.

17 ■ When existing groundwater wells that have the potential to impact surface water features require
18 improvement, these wells should be relocated far enough away from surface water features to
19 prevent impacts. Surface water features include wetlands, riparian areas, floodplains, streams,
20 playas, maars, and springs.

21 ■ Forest Service activities which could impact groundwater quality should be located to prevent
22 potential impacts to source water protection areas. In these protection areas, gravel pits, mining,
23 septic systems, injection wells, equipment fueling or maintenance, underground storage tanks,
24 landings, garbage storage, confined animal operations, chemical storage, pesticide use, and other
25 potentially polluting activities should not be allowed.

26 **Management Approaches**

27 ■ Manage groundwater quantity and quality on National Forest System lands in cooperation with
28 appropriate State agencies.

29 ■ Aquifers are identified within the Plan area, including important recharge areas. Management
30 actions will consider these areas during project planning and implementation to protect them.

31 ■ Manage watershed condition to support groundwater recharge processes such as snow pack
32 management and improved soil condition.

33 ■ Collaborate with external groups, such the U.S. Geological Survey, State, Tribal and local
34 governments, Land Grants, State geological surveys, universities, and industry and other
35 appropriate organizations when locating, investigating, or assessing the hydrogeology and
36 groundwater resources of National Forest System lands

37 ■ Identify and inventory groundwater-dependent resources.

38 ■ Manage groundwater resources sustainably. Implement water conservation strategies in Forest
39 Service administrative and recreational uses. Work with local, State, and other Federal agencies

1 and Tribes to sustain the availability and usability of groundwater over the long term through the
2 use of conventional and innovative approaches.

3 ■ Manage surface water and groundwater resources as hydraulically interconnected, and consider
4 them interconnected in all planning and evaluation activities, unless it can be demonstrated
5 otherwise using site-specific information.

6 ■ Evaluate all applications to States for water rights on National Forest System lands and
7 applications for water rights on adjacent lands that could adversely affect National Forest System
8 groundwater resources, and identify any potential injury to those resources or Forest Service
9 water rights under applicable State procedures.

10 ■ Encourage the use of water sources located off National Forest System lands when the water use
11 is largely or entirely off National Forest System lands.

12 ■ Monitor and evaluate the effects from authorized activities involving groundwater withdrawals.

13 **Water Resources Features and Wetland/Riparian**

14 **Background and Description**

15 Water resource features include riparian areas, wetlands, perennial, intermittent, and ephemeral
16 streams, springs, and floodplains.

17 Riparian habitats are among the most critical elements of biodiversity within the landscape and they
18 provide key ecosystem services available from no other resource. This includes ecosystem-
19 supporting services such as nutrient cycling; provisioning services such as fresh water, forage and
20 habitat for wildlife; regulating services such as carbon storage, water and flood regulation, water
21 quality, erosion control; and cultural services such as recreation, scientific discovery and education,
22 cultural, intellectual and spiritual inspiration. Where riparian areas are intact and functioning, these
23 ecosystem services can be assumed to be stable; but where riparian areas have degraded or been lost,
24 these services are missing or at risk.

25 **Desired Conditions**

26 ■ Riparian areas are in proper functioning condition and support higher ecological values.

27 ■ Sufficient reproduction of native species appropriate to the site is occurring to ensure
28 sustainability.

29 ■ Native riparian plants such as willow (such as Bebb, peachleaf) are reproducing with all age
30 classes present where the potential exists.

31 ■ Bank characteristics including vegetation are stable within the natural range of variability.

32 ■ In aquatic and riparian systems that evolved with wood near the streams, large woody material is
33 present and continues to be recruited into the system at near natural rates.

34 ■ Riparian areas around all lakes, perennial and intermittent streams, springs, and open water
35 wetlands contribute to healthy watersheds while providing for multiple uses (including but not
36 limited to grazing, recreation, vegetation management).

37 ■ Riparian and wetland areas withstand high flow events with resiliency.

38 ■ Springs, riparian areas, and wetlands have the necessary soil, water, and vegetation attributes to
39 be healthy and properly functioning (USDI 2015).

- 1 ■ Wetland/riparian conditions function within their potential or capability (as appropriate) by
2 infiltrating water, recycling nutrients, and resisting erosion.
- 3 ■ Riparian, wetland, and spring-dependent resources are supported preferentially.
- 4 ■ The ecological integrity of riparian areas is maintained or restored, including structure, function,
5 composition, connectivity, water quality, sediment, aquatic and terrestrial habitats, and floodplain
6 values.
- 7 ■ The unique character of water resource features such as springs are maintained and/or restored.
- 8 ■ Water is available to riparian and wetland plant communities maximizing the area where they
9 might potentially grow.
- 10 ■ Instream flows provide for channel and floodplain maintenance, recharge of riparian aquifers,
11 water quality and minimal temperature fluctuations.
- 12 ■ Surface water resources in the Plan area are not impacted by Forest Service surface or
13 groundwater withdrawals.
- 14 ■ Channel width-to-depth ratios are appropriate to the stream type within the capability of the
15 system.
- 16 ■ Channels are vertically stable, with isolated locations of aggradation or degradation which would
17 be expected in near natural conditions.
- 18 ■ Stream channels are connected to their floodplains.
- 19 ■ Floodplains are functioning and lessen the impacts of floods on human safety, health, and
20 welfare.
- 21 ■ Higher ecological values such as habitat associated with water resources features (springs,
22 streams, riparian, and wetlands) are supported by the healthy condition of these features.
- 23 ■ Water resources, including water quality, are maintained or improved by ensuring best
24 management practices are implemented and monitored.
- 25 ■ State of New Mexico water quality standards are met and designated uses are supported.
- 26 ■ Ephemeral channels provide support to downstream subsurface flows, riparian vegetation,
27 groundwater recharge, and do not contribute to downstream water quality degradation outside of
28 the natural range of variability.

29 Standards

- 30 ■ Project activities with potential effects to water resource features will have best management
31 practices prescribed, implemented, and monitored, specific to each activity.
- 32 ■ Activities in and around surface waters will use decontamination procedures to prevent the
33 spread of non-desirable fungus, disease, nonnative and/or invasive biota.
- 34 ■ Streams will not be straightened or altered from desired conditions by management actions.
- 35 ■ New groundwater wells on Forest Service lands will be located so that springs, wetlands
36 (including riparian areas), surface flows, and groundwater-dependent ecosystems are not
37 impacted.
- 38 ■ Tribal governments will be consulted during the planning of projects that involve water
39 resources, wetland, and riparian resources.

- 1 ■ New construction of facilities will not occur in the floodplain as defined by the Executive Order
2 on Floodplain Management except where crossings are needed or to provide resource protection.
3 This includes buildings, recreation sites, and roads.

4 Guidelines

- 5 ■ Motorized equipment should not be used in water resource features unless the use benefits the
6 riparian area, is at a designated stream crossing, or to maintain infrastructure.
- 7 ■ Activities within at least 300 feet of riparian areas (except at stream crossings), unless to provide
8 resource protection, should not degrade the riparian-dependent values and stream functioning.
- 9 ■ Native riparian plants and associated wildlife habitat should be retained.
- 10 ■ Management activities should maintain or improve the age class distribution and species
11 diversity of riparian plants and wildlife in wetland/riparian areas.
- 12 ■ Restoration activities should address causes in addition to resource impacts caused as a result of
13 management activities.
- 14 ■ Herbivory of riparian plants should not impact the long-term health of riparian plants. Livestock
15 and wildlife management practices should allow wetland/riparian vegetation to recover.
- 16 ■ Livestock use should avoid grazing the same wetland/riparian areas at the same time, year after
17 year. Exceptions to this may include, but not limited to, trailing systems that may be adjacent to
18 wetland/riparian areas due to topography constraints.
- 19 ■ Plant development or recovery sufficient to sustain healthy wetland/riparian areas should occur
20 following each livestock use period.
- 21 ■ Where recruitment of riparian vegetation is low or not present and the potential exists,
22 wetland/riparian native plants should be planted to restore function of these areas.
- 23 ■ Designated points of use to natural waters should be provided to prevent erosion, trampling, and
24 inadvertent introduction of nonnative and undesirable biota and disease to protect associated
25 values such as riparian habitat and clean water.
- 26 ■ Management activities should retain large diameter trees, snags, and downed logs in and near
27 stream channels and riparian areas to provide for wildlife habitat and recruitment of large woody
28 material.
- 29 ■ Downed woody material in stream channels should be kept in place except where safety is a
30 concern.
- 31 ■ When existing groundwater wells that have the potential to impact surface water features require
32 improvement, these wells should be relocated far enough away from surface water features to
33 prevent impacts.
- 34 ■ Use of surface water for Forest Service activities should not impact wetland/riparian vegetation
35 and dependent wildlife.
- 36 ■ New points of surface water diversions should be located to minimize impacts to water-
37 dependent ecosystems, including instream flows, consistent with special use processes, existing
38 water rights, approved permits, and approved declarations.
- 39 ■ Consistent with existing water rights, water diversions or obstructions should allow sufficient
40 water to pass downstream to preserve minimum levels of water flow that maintain aquatic life
41 and other purposes for National Forest establishment.

- 1 ■ Consistent with existing water rights developed surface waters should only be allowed where
2 there is enough water to support the associated ecosystem and the proposed use.
- 3 ■ New or redesigned stream crossings, such as bridges and culverts, should be wide enough to pass
4 the bankfull width unimpeded.
- 5 ■ New road construction or reconstruction should avoid meadows, wetlands, seeps, springs,
6 riparian areas, stream bottoms, and areas of heritage concern, where feasible. The number of
7 stream crossings should be minimized or mitigated to reduce impacts to aquatic species
8 watershed condition.
- 9 ■ As projects occur in riparian or wet meadow areas or floodplains, unneeded roads should be
10 closed or relocated, drainage restored, and native vegetation reestablished to move these areas
11 toward their desired condition.
- 12 ■ When temporary roads are necessary, designated stream crossings should be constructed to
13 mitigate sedimentation and gradient changes and maintain bank stability. These crossings should
14 be designated by the appropriate resource specialists and removed after use.
- 15 ■ Low water crossings on roads or trails should be improved to protect water quality and stream
16 stability. Fords on perennial streams should be a priority.
- 17 ■ Headcuts should be treated to prevent continued erosion. The cause of headcuts should be
18 addressed and treated at the same time.
- 19 ■ Mineral materials such as gravel will not be removed within water resource features to ensure
20 satisfactory conditions.
- 21 ■ Streambed material disturbed by placer mineral operations should be replaced into its source
22 location to ensure stream stability.
- 23 ■ Roads, culvert, and other water crossing infrastructure should be designed and located to allow
24 for aquatic species organism passage.
- 25 ■ Trees and other vegetation adjacent to the active channel including ephemeral streams should be
26 retained to protect bank stability.
- 27 ■ Vegetation treatments in the riparian area should not occur except to maintain or restore the
28 riparian ecosystem.
- 29 ■ Openings created as part of forest management activities should be of the size to encourage
30 snowpack accumulation, generally about a tree-and-a-half distance to allow for shade.
- 31 ■ There should be no burn piles of slash placed within 300 feet of perennial or intermittent
32 streams, springs, or riparian/wetland areas in order to protect the values of these features. In
33 addition, there will be no burn piles of slash placed within 100 feet of ephemeral channels.
- 34 ■ The planning and implementation of project activities related to water resource features should
35 consider the protection and management of cultural resources and historic properties and other
36 resources, and should be consistent with scenic integrity objectives.

37 Management Approaches

- 38 ■ Best management practices are monitored using a current protocol, such as the National Best
39 Management Practices for Water Quality Management on National Forest Systems Lands.
- 40 ■ Work with local, State, Federal, Tribal governments, land grants, and other interests to identify
41 water resource improvements and priorities for protection and management.

- 1 ■ Cooperate with other agencies, groups, and individuals whose plans or proposals affect water
2 resources on National Forest System lands.
- 3 ■ Integrate water resource improvements into the watershed condition framework to improve
4 overall watershed conditions with a focus on priority watersheds.
- 5 ■ Favor projects that improve resiliency to climate change.
- 6 ■ Utilize groundwater wells to replace surface water sources to prepare for drought and climate
7 change conditions.
- 8 ■ Work to complete and update water resource inventories, including riparian and springs to
9 improve management of these features.
- 10 ■ Provide education opportunities to improve understanding of water resources features.
- 11 ■ Riparian restoration emphasize natural channel design principles over construction involving
12 artificial materials.
- 13 ■ Grazing management plans emphasize upland watering sources where possible and appropriate
14 to restore and maintain riparian areas to desired conditions.
- 15 ■ Utilize the Terrestrial Ecosystem Inventory to improve project design and implementation.
- 16 ■ When studies are conducted regarding water resources such as floodplains, share information
17 with applicable state agencies and local communities.

18 **Water Uses**

19 **Background and Description**

20 There are many water uses in the Plan area. Water use in the planning area includes use of surface
21 and groundwater, and can be consumptive or non-consumptive. Consumptive uses include uses such
22 as drinking water, permitted livestock watering, recreation sites, developed wildlife waters, and
23 administrative uses. Non-consumptive uses include the water that supports the forests, recharges
24 aquifers, and provides for instream flows, aquatic habitat, and ecosystems.

25 The amount of water used by the Forest is related to forest management activities such as water to
26 support permits to graze livestock, recreation sites, and wildlife watering. Many of these uses require
27 water rights obtained from the State. The Cibola National Forest maintains a database of water rights
28 approved by the State of New Mexico for consumptive uses within the Plan area. Some types of
29 water uses are managed through Forest Service permits such as drinking water, livestock watering,
30 and ski areas. It is important these permits include guidelines to protect forest resources while
31 providing water for multiple uses. Water use also includes the sustainable use of water. Water used
32 for National Forest purposes should be used efficiently, without waste.

33 **Desired Conditions**

- 34 ■ Consumptive and non-consumptive water resource needs are provided for through streams,
35 springs, and groundwater resources within the Forest.
- 36 ■ Instream flows provide for favorable conditions of flow including channel and floodplain
37 maintenance, recharge of riparian aquifers, water quality, and minimal temperature fluctuations.
- 38 ■ Groundwater wells on Forest Service lands are located so that springs, wetlands (including
39 riparian areas), surface flows, and groundwater-dependent ecosystems are not impacted.

1 ■ Springs, riparian areas, wetlands, and groundwater-dependent ecosystems have the necessary
2 soil, water, and vegetative attributes to be healthy and functioning.

3 ■ The water rights database is kept up to date to reflect current uses. Currently, the database is
4 called Water Rights and Uses.

5 Standards

6 ■ Water rights will be secured through the appropriate State agency and procedures to support
7 Forest Service activities.

8 ■ Consistent with existing water rights, development of surface waters for consumptive uses will
9 include provisions that support the associated ecosystem such as managing the point of
10 diversion, return flows, or other methods to ensure that water resource features are protected.

11 ■ Proposals to pump, transport, or utilize water from National Forest System lands must not impair
12 resources on National Forest System lands.

13 Guidelines

14 ■ When developing water for National Forest purposes, preference should be given to those types
15 of developments with the most efficient use of water and that provide for the associated
16 ecosystem.

17 ■ Consistent with existing water rights, Forest Service and permitted water uses, diversions, or
18 obstructions should at all times allow sufficient water to support the associated ecosystem and, in
19 streams, to preserve minimum levels of water flow that maintain aquatic life, aquatic habitat, and
20 other purposes of national forest establishment.

21 ■ Constraints (the maximum limit to which water level can be drawn down or minimum distance
22 from a connected river, stream, wetland, or groundwater-dependent ecosystem) should be
23 established for groundwater pumping sites permitted on National Forest System lands in order to
24 protect the character and function of water resources.

25 ■ When water collection and storage facilities are constructed or developed within National Forest
26 System lands, such as wildlife drinkers, they should be located outside of fragile sites such as
27 wetlands, stream channels, riparian areas, aspen, sensitive soils, and meadows.

28 Management Approaches

29 ■ Claim water rights for water used directly by the Forest Service and by the general public on the
30 National Forest System lands.

31 ■ Claim water rights for water used by permittees, contractors, and other authorized users of the
32 National Forest System to carry out activities related to multiple-use objectives.

33 ■ Participate in water rights processes, including administrative hearings, negotiations, and
34 adjudications.

35 ■ Develop and implement collaborative strategies and partnerships for water resource inventory,
36 assessment, restoration, monitoring and research where appropriate.

37 ■ Protect surface waters through land acquisition where the economic and social benefits are in the
38 interest of the public.

39 ■ Utilize special-use permit conditions as a means of maintaining surface flows.

- 1 ■ Work with adjacent landowners to mitigate the effects of water uses from outside groundwater or
2 surface water sources which could impact forest resources.
- 3 ■ Diversions of any water sources that support wetlands, riparian areas, aquifer recharge, or other
4 important functions will be assessed and mitigated to minimize effects.

5 Species

6 Aquatic Species and Habitats

7 Background and Description

8 Streams, springs, groundwater, and constructed waters are centers of high biological diversity in
9 semi-arid environment, and the ecological health of these resources is important for Forest
10 ecosystem sustainability. Wildlife is more concentrated around open water sources than in the
11 general landscape, and obligate aquatic and semiaquatic species on the Cibola National Forest are
12 sometimes entirely dependent on these limited and scattered water sources. Collectively, these
13 resources contribute to connecting habitat for wildlife across the landscape. Aquatic species and
14 habitats are managed in conjunction with other resources according to the Multiple Use Sustained
15 Yield Act of 1960 (Public Law 86-517). For federally endangered and threatened species on the
16 Cibola, habitat management and compatible multiple uses are determined in accordance with section
17 7 of the Endangered Species Act as amended (Public Law 93-205). For species of conservation
18 concern, habitat management and compatible multiple uses will be accomplished in such a way that
19 ensures those species' persistence on the Forest, per the 2012 Planning Rule.

20 Springs are highly productive habitats in otherwise low productivity semi-arid environment. Springs
21 are frequently more stable hydrologically than surrounding upland ecosystems in arid regions, and
22 may offer biological refugia for some species, particularly those that are narrowly endemic. They
23 also often have important traditional, cultural significance to humans inhabiting arid landscapes and
24 often provide many cultural and recreational opportunities. Contemporary uses include contributions
25 to potable local and urban water supplies and agricultural uses such as livestock watering. These uses
26 are vital to domestic and commercial interests in and around the Cibola National Forest.

27 Natural and constructed waters provide water and food resources that are especially vital to wildlife;
28 particularly amphibians, birds, bats, and invertebrates. Various water impoundments have been
29 constructed on the Cibola for a variety of purposes including reservoirs, constructed lakes, stock
30 tanks, and wildlife drinkers. Some constructed waters provide unique riparian habitats and
31 recreational opportunities.

32 Climate change is an important consideration when managing habitat for aquatic species. While
33 climate change has the potential to affect all wildlife species, some are inherently more vulnerable
34 than others, particularly species with specialized niches, limited mobility, and limited physiological
35 adaptability. Certain habitats are more vulnerable to a changing climate. For example, springs and
36 seeps are a valuable natural water source for a variety of birds and mammals, particularly in semi-
37 arid environments. These areas may offer critical refugia for rare and narrow endemic species.
38 However, springs are especially sensitive to variable precipitation and likely to dry up during
39 prolonged drought. As such, the unreliability of natural water resources would make it harder for
40 wildlife species to persist, pushing the limits of their natural range.

1 **Desired Conditions**

- 2 ■ Streams and aquatic habitats support self-sustaining populations of native fish and/or other
3 aquatic species and provide the quantity and quality of aquatic habitat within reference
4 conditions.
- 5 ■ Streams, springs, and wetlands with the potential to support native fish and/or other aquatic
6 species provide habitats that are resilient or adaptive to natural or anthropogenic disturbances
7 and projected warmer and drier climatic conditions.
- 8 ■ Habitat conditions and compatible multiple uses contribute to the recovery of federally listed
9 species and the persistence of species of conservation concern.
- 10 ■ Stream flows, habitat, and water quality support native aquatic and riparian-dependent species
11 and habitat both on the Forest and downstream.
- 12 ■ Aquatic habitat conditions provide connectivity for species both on the Forest and downstream.
- 13 ■ All aquatic species populations are free from or minimally impacted by nonnative plants,
14 animals, disease, and pathogens.
- 15 ■ Desirable nonnative fish species provide recreational fishing in waters where those opportunities
16 are not in conflict with the recovery of native species.
- 17 ■ Aquatic species habitat conditions provide the resiliency and redundancy necessary to maintain
18 species biodiversity and metapopulations.
- 19 ■ All natural aquatic habitats are hydrologically functioning and have sufficient emergent
20 vegetation and macroinvertebrate populations to support resident and migratory species.

21 **Standard**

- 22 ■ Constructed water features (such as water tanks and cattle guards) have escape ramps that
23 provide safe access and egress for wildlife.

24 **Guidelines**

- 25 ■ Activities in and around waters should use decontamination procedures to prevent the spread of
26 chytrid fungus and other pathogens that are harmful to aquatic wildlife.
- 27 ■ If new waters are constructed, they should be located in areas that would reduce ungulate impact
28 to sensitive vegetation or soils such as riparian, aspen, and wet meadow areas.
- 29 ■ Streams, stream banks, shorelines, lakes, wetlands, seeps, springs and other bodies of water
30 should be protected from detrimental changes (as described in species-specific literature
31 including recovery plans, listing and critical habitat designations, and conservation strategies) to
32 protect water quality, aquatic species, and riparian habitat.
- 33 ■ To protect water quality and aquatic species, heavy equipment and vehicles driven into a water
34 body to accomplish work should be completely clean of petroleum residue. Water levels should
35 be below the gear boxes of the equipment in use. Lubricants and fuels should be sealed such that
36 inundation by water should not result in leaks.
- 37 ■ Project design should incorporate measures to protect and provide for rare and narrow endemic
38 aquatic species where they are likely to occur.

1 Management Approaches

- 2 ■ Where adequate groundwater or surface hydrology exists, and if natural recruitment is not
3 sufficient, managers may supplement natural recruitment with planting to reestablish native
4 riparian vegetation to provide shading, bank cover, and streambank stability.
- 5 ■ The Cibola will work collaboratively with New Mexico Department of Game and Fish to resolve
6 conflicts that may exist between the management of nonnative sport fish and the persistence of
7 native fish.
- 8 ■ Explore reintroduction of native fish assemblages to appropriate perennial stream reaches
9 including Las Huertas Creek.
- 10 ■ Pursue partnership potential for collaborative management of aquatic resources with state,
11 county and local government entities.

12 Terrestrial Species and Habitats

13 Background and Description

14 The Cibola National Forest provides habitat for a wide variety of terrestrial wildlife and plant
15 species. Topographical and geological conditions of the wide-ranging “sky islands” provide for
16 variation in wildlife distribution and habitat use. The spatially disjunct nature of the four districts
17 influences movement patterns of wide-ranging mammal herds such as elk, mule deer, Black bear,
18 wild turkey, cougar and pronghorn. The Cibola is primarily responsible for providing habitat to
19 maintain species diversity on National Forest lands. The Forest Service has ultimate responsibility
20 over National Forest System lands, but the New Mexico Department of Game and Fish (NMDGF)
21 and the U.S. Fish and Wildlife Service (USFWS) are the lead agencies responsible for managing
22 wildlife populations in New Mexico. The USFWS is responsible for managing federally endangered
23 and federally threatened species and migratory birds while the NMDGF is responsible for managing
24 all other wildlife species. Terrestrial species and habitats are managed in conjunction with other
25 resources according to the Multiple Use Sustained Yield Act of 1960 (Public Law 86-517). For
26 federally endangered and threatened species on the Cibola, habitat management and compatible
27 multiple uses are determined in accordance with section 7 of the Endangered Species Act as
28 amended (Public Law 93-205). For species of conservation concern, habitat management and
29 compatible multiple uses will be accomplished in such a way that ensures those species’ persistence
30 on the Forest, per the 2012 Planning Rule (see “Threatened and Endangered Species and Species of
31 Conservation Concern” section for more information.)

32 The needs of individual or groups of wildlife species include food, water, and shelter. Adequate
33 habitat connectivity is also crucial to daily and seasonal movements, finding mates, and being able to
34 utilize available habitat across the landscape. Healthy, diverse vegetation and functioning ecosystem
35 processes help ensure diversity of habitats and wildlife, while reducing risks to the sustainability of
36 those habitats and species. In addition, unique habitats (for example, wildlife quiet areas and
37 unroaded areas) are necessary to sustain other species.

38 Desired Conditions

- 39 ■ Native ecosystems are within reference conditions, are distributed throughout their potential
40 range, and are sustainable across the Forest and able to support a full complement of native
41 species.
- 42 ■ There is a natural and nearly complete assemblage of native plants and animals, including
43 important game species, distributed across the Forest.

- 1 ■ Habitat conditions and compatible multiple uses contribute to the recovery of federally listed
2 species and the persistence of species of conservation concern.
- 3 ■ Habitats and refugia are present for narrow endemics, rare plants, species with restricted
4 distributions, and/or declining populations. These habitats are intact and functioning.
- 5 ■ Hunting, fishing, plant-gathering and other species-based recreation and cultural opportunities
6 exist, but do not compromise species, populations, or habitat.
- 7 ■ Habitats on the Forest allow for the maintenance and promotion of interspecific relationships
8 (for example, predator-prey relationships and keystone species relationships).
- 9 ■ Desirable nonnative species provide recreational opportunities where those opportunities are not
10 in conflict with the recovery of native species.
- 11 ■ Habitat configuration and availability allow wildlife populations to adjust their movements in
12 response to major disturbances (such as climate change and uncharacteristic fire) and promote
13 genetic flow between wildlife populations across the Forest and beyond.
- 14 ■ Natural processes occur within the vegetative communities that enhance species richness and
15 diversity. Terrestrial ecosystems are resilient to disturbance and tolerate the effects of, and
16 therefore benefit from, wildland fire in a near natural fire regime as well as other naturally
17 occurring disturbances.
- 18 ■ Interconnected habitats within National Forest System lands allow for seasonal migrations,
19 breeding, dispersal, foraging, and other movement patterns in order to promote genetic flow
20 across the Forest.
- 21 ■ Habitat is available at the appropriate spatial, temporal, compositional, and structural levels such
22 that it provides adequate opportunity for breeding, feeding, nesting, and carrying out other
23 critical life cycle needs for a variety of vertebrate and invertebrate species.
- 24 ■ Non-vegetative habitat features required for some species (such as cliffs, caves, cavities) are
25 maintained with limited disturbance. Vegetative habitat features (such as snags, grasses, forbs,
26 and shrubs) provide forage, cover, fawning, and nesting sites for species requiring them.
- 27 ■ Species are free from harassment and anthropogenic disturbance at a scale that impacts vital
28 functions (such as breeding, feeding, and rearing young) that could affect persistence of the
29 species.
- 30 ■ Habitat loss and fragmentation is reduced and permeability is enhanced by conserving and
31 restoring habitat linkages within and, where possible, between the national forests and other
32 public and privately conserved lands.

33 Guidelines

- 34 ■ Modifications, mitigations, or other measures should be incorporated to reduce negative impacts
35 to plants, animals, and their habitats and to help provide for species needs, consistent with
36 project or activity objectives.
- 37 ■ Known raptor nests, including those on cliff faces, should be protected from treatments and
38 disturbance during the nesting season to provide for successful reproduction.
- 39 ■ Rare and unique features (for example, talus slopes, cliffs, canyon slopes, caves, fens, bogs,
40 sinkholes, maars, and playas) should be protected from damage or loss in order to retain their
41 distinctive ecological functions and maintain viability of associated species.

- 1 ■ Constructed features (such as wildlife drinkers) should be maintained to support the purpose(s)
2 for which they were built or be removed when no longer needed.
- 3 ■ Constructed features should be designed to blend with the natural surroundings, consistent with
4 the scenic integrity objectives.
- 5 ■ Barriers to wildlife habitat connectivity that are unneeded or nonfunctional infrastructure (such
6 as unneeded fences and stock tanks) should be removed.
- 7 ■ Project activities and special uses should be designed and implemented to maintain refugia and
8 critical life cycle needs of wildlife, particularly for species of conservation concern.
- 9 ■ Project design should incorporate measures to protect and provide for rare and narrow endemic
10 terrestrial species where they are likely to occur.
- 11 ■ Conserve a diversity of pollinators and sustain the natural ecosystems upon which they depend.
12 Encourage seed mixes and reclamation work that includes native forbs and wildflowers that will
13 benefit pollinator species.

14 Management Approaches

- 15 ■ The Cibola National Forest strives to create and maintain natural communities and habitats in the
16 amounts, arrangements, and conditions capable of supporting viable populations of existing
17 native and desired nonnative plant, aquatic, and wildlife species within the planning area while
18 contributing to broader landscape-scale initiatives where appropriate. This is accomplished in an
19 integrative fashion by working closely with range, fire, timber, and other resource areas to
20 coordinate and maximize activities for wildlife benefit. Where appropriate, coordinate
21 maintenance and construction of features (such as water sources) with range permittees and
22 others. Cooperation with State and federal wildlife management agencies also helps to minimize
23 conflicting wildlife resource issues related to hunted, fished, and trapped species. Leverage
24 resources by recognizing partnership potential with county and local government entities. The
25 Cibola coordinates with Rocky Mountain Research Station and other entities to identify future
26 areas of research that would support management decisions and enable the adaptive management
27 process.
- 28 ■ The Cibola works collaboratively with the New Mexico Department of Game and Fish to plan
29 and implement projects that make progress towards the Cibola's desired conditions and help
30 achieve conservation actions specified in the New Mexico State Wildlife Action Plan or
31 equivalent. Corridors are not static, as vegetation changes and off-forest land use and
32 management changes, the areas that species use to move through, forage, and complete various
33 life history events will move on the landscape. It is important to recognize at the project level the
34 importance of connectivity, and the best available science and tools (including but not limited to
35 the New Mexico Crucial Habitat Assessment Tool, New Mexico Department of Game and Fish
36 State Wildlife Action Plan, U.S. Fish and Wildlife Service) should be consulted during project
37 development. Where possible, the Cibola will collaborate with other adjacent land ownership
38 entities, such as the New Mexico Department of Transportation, for wildlife-friendly fence
39 designs. Large-scale wildlife habitat restoration treatments benefit multiple species while small
40 projects address the needs of localized species. In addition, the Cibola will also continue to work
41 with the Natural Heritage New Mexico to develop the "crucial habitat assessment tool" and
42 implement it where appropriate in project planning. Where the need is demonstrated, seasonal
43 road restrictions and area closures may be used to provide refuge in small and large blocks of
44 land habitat for a wide range of species.

- 1 ■ Potential climate change, drought, El Niño Southern Oscillation, and the resulting potential
2 effects of management activities are considered during project planning. Particular species that
3 are sensitive to changes in weather may need special consideration. Changes in typical weather
4 patterns can affect migration habitat use, breeding seasons, and fecundity (in hotter, drier years,
5 mitigations may be needed to reduce physiological stress on breeding wildlife). Climate change
6 is an important consideration when managing habitat for wildlife species.
- 7 ■ The Cibola references current literature and the best available science when making site-specific
8 decisions relevant to project planning. This is done in an interdisciplinary context with input
9 from other resource specialists. For example; the wildlife guideline specifying disturbance
10 buffers around raptor nests is intended as a minimum buffer. Some raptor species (such as
11 osprey) are more adapted to disturbance and are likely to tolerate a buffer of just 300 yards
12 during the breeding season while other, less tolerant species (such as the peregrine falcon) may
13 require buffers of up to a 0.5 mile. Wildlife biologists work with other interdisciplinary resource
14 specialists to identify and define the appropriate site-specific buffers (within the context of Plan
15 guidance) for other raptors on a case-by-case basis.
- 16 ■ The Forests coordinate with the Wildlife Service Program of USDA Animal and Plant Health and
17 Inspection Service (APHIS) and the State of New Mexico to promote healthy populations of
18 predators, while reducing livestock conflicts with wildlife. Proactive livestock management
19 practices (such as separating livestock from predators in time and place, range riders, herding)
20 are incorporated to help keep conflicts from arising. In accordance with the national
21 memorandum of understanding between the Forest Service and APHIS, the effectiveness of
22 wildlife damage management practices is periodically reviewed.
- 23 ■ Forest managers recognize the need to acquire a greater understanding of many nongame species
24 (such as amphibians, invertebrates, and fish), including their habitat requirements and the effects
25 of management activities. The Forests encourage and support wildlife research and inventory.
26 The Forests develop partnerships with interested individuals and groups to help implement the
27 wildlife program, including wildlife survey and habitat assessment. The Forests also promote
28 public education and valuing of the wildlife resource on the Forests. The latter is increasingly
29 important with growing urbanization and Forest use.

30 **Nonnative, Invasive Species**

31 **Background and Description**

32 A native species is defined in the 2012 Planning Rule as “an organism that was historically or is
33 present in a particular ecosystem as a result of natural migratory or evolutionary processes; and not
34 as a result of an accidental or deliberate introduction into that ecosystem.” Species not meeting this
35 definition are considered nonnative. Some nonnative species have invasive tendencies and threaten
36 native species, ecosystem function, biodiversity, and the quantity and quality of forest goods and
37 services (for example, noxious weeds). Some nonnative species are desirable and/or not likely to
38 cause ecosystem disruption, and are not addressed in this section. Invasive weeds have been
39 documented to alter soil temperature, soil salinity, water availability, nutrient cycles and availability,
40 native seed germination, infiltration and runoff of precipitation, and fire severity and frequency. The
41 alteration of physical conditions and disturbance regimes allow the invasive species to spread farther.
42 Nonnative, invasive species currently known to be on the Cibola include but are not limited to:
43 American bullfrog, saltcedar, musk thistle, cheatgrass, and hoary cress.

44 Management activities for aquatic and terrestrial invasive species (including vertebrates,
45 invertebrates, plants, and pathogens) will be based upon an integrated pest management approach on

1 all areas within the National Forest System, and on areas managed outside of the National Forest
2 System under the authority of the Wyden Amendment (Public Law 109-54, section 434), prioritizing
3 prevention and early detection and rapid response actions as necessary (Forest Service Manual
4 2900). The four elements under the invasive species systems approach include: prevention, detection,
5 control and management, and restoration and rehabilitation (Forest Service National Strategic
6 Framework for Invasive Species Management 2013).

7 Requirements and specifications in the Regional guidelines for weed-free seed, forage, mulch and fill
8 materials should be used in Burned Area Emergency Response contracts, rule or regulation setting,
9 road construction and maintenance, office landscaping, seeding for range and watershed
10 rehabilitation, and other Forest Service operations or processes.

11 Similar to invasive plants, invasive animals have the potential to adversely affect native species and
12 ecosystem function. They can outcompete and prey upon native animal species, alter food web
13 interactions, and impact native vegetation. Feral animals, including unauthorized livestock, are a
14 problem in some areas on the Cibola. These animals are managed by other agencies such as the New
15 Mexico Livestock Board and the USDA Animal and Plant Health Inspection Service (APHIS).

16 Invasive disease and pathogens pose an increasing threat to both aquatic and terrestrial native
17 species. Chytrid fungus has been linked to infectious disease and dramatic die-offs in amphibians
18 world-wide, while White-Nose Syndrome has been decimating bat populations and slowly moving
19 westward in North America. Best management practices, including decontaminating equipment, are
20 currently the best tools for preventing the further spread of these and other pathogens.

21 **Desired Conditions**

- 22 ■ Invasive species, and management projects and tools used to extirpate or minimize them, do not
23 disrupt the structure or function of ecosystems, species life cycles, or populations, and minimize
24 impacts to native wildlife or plant species.
- 25 ■ Desirable nonnative species are managed so that they do not conflict with the recovery of native
26 species or existing multiple uses.

27 **Standard**

- 28 ■ All ground-disturbing projects (including vegetation, roads, and fire, etc.) shall assess the risk of
29 noxious weed invasion and incorporate measures to minimize the potential for the spread of
30 noxious and invasive species. New populations should be detected early, monitored, and treated
31 as soon as possible.

32 **Guidelines**

- 33 ■ Treatment approaches should use integrated pest management practices to treat noxious and
34 nonnative, invasive species. These practices include mechanical/physical, cultural, biological,
35 and chemical control.
- 36 ■ Activities in and around waters should use decontamination procedures to prevent the spread of
37 chytrid fungus and other pathogens harmful to aquatic wildlife.
- 38 ■ Use of pesticides, herbicides, and biocontrol agents should minimize impacts on non-target flora
39 and fauna, including native pollinators.
- 40 ■ Public information, user education, and appropriate management tools should be used to limit
41 the spread of nonnative exotics in aquatic systems.

- 1 ■ Reclamation type projects which include a revegetation and/or reseeding component should
2 consider including the use of native plants for pollinators.
- 3 ■ Preventive measures, such as requiring pre- and post-work cleaning of equipment and using
4 certified weed-free seed, should be implemented through contracting, permitting, and other
5 administrative processes.
- 6 ■ For anything (boats, trailers, gear, clothing, dogs, etc.) that comes in contact with known infested
7 waters or potentially infested waters during watercraft operation or other recreational activities,
8 the Boat Inspection and Cleaning Procedures for All Water Craft Owners
9 (http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev3_014876.pdf) should be followed
10 between trips.
- 11 ■ Use a public education program to inform waterbody users of infestation risk and measures to
12 prevent infestations.
- 13 ■ Monitor susceptible waters to allow early detection of aquatic invasive species. Promptly post
14 sites if aquatic invasive species are found and, if feasible, close facility until infestation is
15 contained.
- 16 ■ Maintain a 100-foot buffer free of aquatic weeds around boat launches and docks.
- 17 ■ Never release plants, fish, or animals into a body of water unless they originally came from that
18 particular body of water. This also includes performing these precautionary procedures after a
19 fishing trip: dispose of all bait into trash bins, empty and dry any buckets used for bait, and
20 clean and dry all live-wells used for bait and caught fish on boats.
- 21 ■ Any requirements for cleaning fire-fighting equipment at a vehicle wash station should be
22 implemented before transferring equipment to new fire staging areas.
- 23 ■ Avoid staging equipment and resources in areas infested with invasive weeds and ensure that
24 fire-fighting equipment and personal gear and clothing are free of invasive weeds before being
25 brought into a staging area.
- 26 ■ Clean hides, legs, and hooves of pack animals by brushing prior to moving them into a fire-
27 disturbed area. Ensure that the pack animals have previously cleared their digestive system of
28 invasive weed seed over a period of 3 to 5 days while being fed weed-free forage.
- 29 ■ Use certified weed-free seed in burned areas and also require use of locally chipped/shredded
30 woody materials for mulch or, if necessary, use certified weed-free mulch.
- 31 ■ Prior to seeding, a certified seed laboratory should test each seed mix lot for purity, viability, and
32 noxious weed seed according to Association of Official Seed Analysts standards.
- 33 ■ Incorporate weed prevention into all new mining operation permits, plans, and reclamation
34 projects.
- 35 ■ Encourage public land users to inspect and clean motorized and mechanized trail vehicles of
36 weeds and their seeds before recreating on public lands. If practical, provide facilities for
37 cleaning contaminated vehicles and equipment.
- 38 ■ Ensure that vehicles and equipment used in rights-of-ways of roads and utility corridors on
39 National Forest System lands are power-washed of all mud, dirt, and plant parts before moving
40 into the project area.
- 41 ■ Ensure that gravel, dirt, asphalt, and other materials are stockpiled away from areas infested by
42 invasive weeds. Maintain stockpiled materials in a weed-free condition.

- 1 ■ Use only clean fill material from a weed-free source rather than borrowing fill from a weed-
2 infested stockpile, road shoulder, or ditch line. Inspect material sources on site, and ensure that
3 they are weed-free before use or transport.
- 4 ■ Avoid and remove sources of weed seed and propagules in riparian areas and waterbodies when
5 feasible.

6 Management Approaches

- 7 ■ To effectively manage invasive species populations, it is important to coordinate with other
8 agencies, counties, local governments, grazing permittees, and adjacent landowners in efforts for
9 prevention and control. Coordinate with other agencies to capitalize on outside funding
10 opportunities, and pursue partnership opportunities to treat invasive species on National Forest
11 System lands, such as soil and water conservation districts which often have personnel certified
12 for public pesticide application.
- 13 ■ Strategies to prevent the spread of nonnative, invasive species include education, inventory, and
14 control guidelines. Educational programs that increase awareness are critical to effectively
15 manage nonnative, invasive species. Treatments focus on those species that have the potential to
16 permanently alter historical fire regimes or pose the greatest threat to biological diversity and
17 watershed condition.
- 18 ■ While management that provides for interconnected habitats is desirable for many native wildlife
19 species, in some circumstances, such as springs, connectivity can also provide vectors for
20 nonnative species to spread (for example, water and vehicles used in fire suppression). The use
21 of best management practices can minimize and prevent the spread of nonnative invasive
22 species.
- 23 ■ The Noxious Weeds Management Act (76-7D-1-6) directs the New Mexico Department of
24 Agriculture to develop a noxious weed list for the state, identify methods of control for
25 designated species, and educate the public about noxious weeds. NMDA coordinates weed
26 management among local, state, and federal land managers as well as private land owners. The
27 "Noxious Weed Memo and List" and other noxious weed resources are available at
28 <http://www.nmda.nmsu.edu/apr/noxious-weed-information/>. The Cibola NF should work with
29 NMDA to ensure that special management consideration be given to all the species on the
30 noxious weed list in order to limit, and hopefully eradicate, any noxious weeds on the Cibola
31 NF.
- 32 ■ Coordinate with university research and programs such as the Cooperative Extension Service
33 through New Mexico State University.

34 Threatened and Endangered Species and Species of Conservation 35 Concern

36 Background and Description

37 Threatened and endangered species are those listed under the Endangered Species Act of 1973. There
38 are four federally endangered, three threatened, and two proposed species relevant to the Cibola
39 Mountain Districts at the time of Plan implementation. Not all of these species are known to exist on
40 the Cibola. For example, the Chiricahua leopard frog and the Alamosa springsnail have been
41 recorded immediately off the Forest boundary, but are within the same watershed as the Forest and
42 are affected by management actions on the Forest. Likewise, the southwestern willow flycatcher is
43 not currently occupying any territories on the Cibola, but it has been documented here in the past.

1 The western yellow-billed cuckoo potentially uses the Cibola only as migrant and has not been
2 documented here. Other species, including the Mexican wolf and the northern Aplomado falcon are
3 not presently documented to den or breed on the Cibola, but they routinely use the Forest for
4 foraging. Mexican spotted owl, Zuni fleabane, and Zuni bluehead sucker are known residents on the
5 Cibola, and there are long-standing records documenting their presence here. The primary needs for
6 threatened and endangered species are addressed through law, regulation, and policy (such as
7 recovery plans and conservation agreements).

8 Species of conservation concern are those species, other than federally recognized threatened,
9 endangered, proposed, or candidate species, known to occur in the Plan area and for which the
10 regional forester has determined that the best available scientific information indicates substantial
11 concern about the species' capability to persist over the long term in the Plan area.

12 For many species of conservation concern, essential ecological conditions may be provided for
13 through "coarse filter" Plan components such as desired conditions, standards, and guidelines for
14 specific vegetation types. These may be adequate to ensure persistence of those species and maintain
15 viable populations within the Plan area. For other species, fine-filter Plan components that are
16 species-specific (timing restrictions, etc.) may be required to ensure persistence.

17 The Bald and Golden Eagle Protection Act, as amended, provides specific direction for those two
18 species. As a result, this Plan provides the framework for implementing the recommendations from
19 these higher-level laws, regulations, policies, plans, and agreements for these species, with limited
20 needed additional (below) direction.

21 **Desired Conditions**

- 22 ■ Threatened and endangered species have the necessary ecological conditions to contribute to
23 their recovery and maintain or restore critical habitats.
- 24 ■ Proposed and candidate species are provided ecological conditions to conserve populations and
25 maintain or restore habitats in the Plan area to contribute to preventing them from becoming
26 federally listed.
- 27 ■ Provide ecological conditions necessary to maintain a viable population of each species of
28 conservation concern in the Plan area.

29 **Standards**

- 30 ■ Project activities and special uses occurring within federally recognized species habitat shall
31 integrate habitat management objectives and species protection measures from the most recent
32 approved recovery plans.
- 33 ■ Activities occurring near areas used by bald and golden eagles shall follow recommendations
34 identified in the National Bald Eagle Management Guidelines and will be in accordance with
35 provisions of the Bald and Golden Eagle Protection Act.
- 36 ■ Habitat management objectives and aquatic/riparian species protection measures from approved
37 recovery plans will be applied to activities and special uses occurring within federally listed
38 species habitat.
- 39 ■ *Additional species-specific standards are under development for Threatened and Endangered*
40 *species as well as for species of conservation concern.*

1 Guidelines

- 2 ■ Active raptor nests for at-risk species should be protected from treatments and disturbance
3 during the nesting season to provide for successful reproduction.
- 4 ■ Human presence should be minimized during the nesting season for northern goshawk nest areas
5 from March 1 through September 30.
- 6 ■ Human presence should be minimized during nesting season for peregrine falcon from March 1
7 through August 15.
- 8 ■ When designing or maintaining bridges, project coordinators should consider incorporating
9 design elements that allow for the use of structures by bats or improve the potential for roost
10 habitat. Bat surveys should be conducted prior to any maintenance work.
- 11 ■ *Additional species-specific guidelines are under development for Threatened and Endangered*
12 *species as well as for species of conservation concern.*

13 Management Approaches

- 14 ■ The Cibola National Forest maintains strong partnerships between the State, other Federal
15 agencies, academia, and nongovernment organizations to provide for federally-recognized
16 species and species of conservation concern. Emphasis is placed on the protection and
17 replacement of key habitats that contain threatened, endangered, and/or species of conservation
18 concern plants and animals. The Cibola works with the U.S. Fish and Wildlife Service and other
19 partners to develop conservation measures (for example, public education to reduce human
20 impacts) to prevent listing and to aid in the recovery and delisting of federally listed species. For
21 10(j) species, such as the Mexican wolf, this applies inside and outside the designated
22 experimental range.
- 23 ■ To effectively manage at-risk species populations, it is important to coordinate with other
24 stakeholders, including county and local governments, permitted entities, and adjacent
25 landowners, in efforts for management and recovery. As new information and/or changing
26 conditions regarding federally-recognized species or critical habitat become available, it should
27 be communicated efficiently, effectively, and consistently to affected parties.

28 Air

29 Background and Description

30 Air quality and its effects on the Cibola National Forest Mountain Districts can be described in three
31 ways:

32 Does ambient air quality on and near the Forest meet State and Federal regulations?

33 Is visibility at scenic vistas impaired by anthropogenic pollution sources?

34 Does atmospheric deposition of pollutants, such as nitrogen, sulfur, and mercury compounds,
35 contribute to impaired ecosystem structure or function?

36 While there are no air quality monitoring stations on the Forest, nearby monitors indicate that
37 ambient measurements of criteria pollutants are in attainment. However, there is some concern in the
38 future regarding particle pollution (particulate matter PM₁₀ and PM_{2.5}) which is expected to increase
39 from windblown dust and fires. Fugitive dust emanating from off the Forest, as a result of land use
40 practices and travel on county roads, occasionally occurs and may worsen during droughts or

1 changes in climate conditions. However, fugitive dust generally does not emanate from the Forest,
2 except for dust that occasionally emanates from vehicular use of unpaved National Forest System
3 roads during dry conditions. Also, ozone may become an issue as regulatory standards are tightened,
4 particularly on the Sandia District outside of Albuquerque. In addition, nearby visibility monitoring,
5 while not measured on the Forest, indicates that while there is some impairment overall, the trend is
6 improving and remains on track to meet regulatory guidelines set by the EPA and the State of New
7 Mexico. Lastly, in regards to atmospheric deposition, modeled data suggests that nitrogen deposition
8 exceeds the critical loads for lichens on much of the mountain districts. However, the trend in
9 nitrogen pollution is improving. Generally, where data is available, air quality on the Forest is
10 generally good and the overall trend is improving for most pollutants. The greatest concern in the
11 future is particulate pollution from fire and fugitive dust Forestwide and possibly ozone on the
12 Sandia District.

13 **Desired Conditions**

- 14 ■ Air quality meets or surpasses State and Federal ambient air quality standards.
- 15 ■ Visibility at sensitive class II areas is maintained or improved within the planning areas.
- 16 ■ There are no measurable disturbances to water chemistry or biotic components due to
17 atmospheric deposition of pollutants.

18 **Guidelines**

- 19 ■ Monitoring should occur to determine if critical loads are being exceeded on the Forest.
- 20 ■ Dust abatement should occur during construction and road projects where dust is a potential
21 effect.

22 **Management Approaches**

- 23 ■ Visitors to public land in the Southwest generally expect clear, clean air and the ability to view
24 unobstructed vistas as part of their overall experience. Air quality is also an integral part of the
25 natural environment and affects water quality, aquatic ecosystems, soil chemistry, snow
26 chemistry, snowmelt processes, and vegetation.
- 27 ■ Atmospheric deposition of nitrogen from anthropogenic sources is a concern and has the
28 potential to affect aquatic and terrestrial ecosystems. Other air pollutants are also a concern on
29 the Cibola, including mercury, sulfur, ozone, and ozone precursors. Many of these pollutants
30 originate from outside the planning area. Cibola managers will work with agencies,
31 organizations, Tribes, and other entities to actively pursue actions designed to reduce the impacts
32 of pollutants from sources both within and outside the Cibola. These measures will include
33 active membership in local and regional air quality protection stakeholder groups, “prevention of
34 significant deterioration” permit review, air quality monitoring, and the implementation of air
35 pollution mitigation where appropriate. Monitoring of critical loads should occur on the Forest
36 so that deposition levels can be communicated to regulators if they are being exceeded on the
37 Forest.
- 38 ■ Fire has the potential to produce smoke that may affect the public and temporarily degrade
39 visibility. Receptors that are sensitive to temporary air pollution (including nursing homes,
40 hospitals, and schools) will continue to be an important consideration for smoke management. In
41 addition, the impact of smoke on the highly valued scenic vistas within the planning area will
42 continue to be a concern. Smoke will be managed in conjunction with the State of New Mexico
43 and Bernalillo County through compliance with their respective Smoke Management Programs.

1 Tradeoffs between short-term air quality impacts and long-term forest health are recognized and
2 will continue to be a management challenge.

- 3 ■ Document evidence of initial and continued compliance with local, State, and federal air quality
4 permits for projects. Maintain the files for the duration of the activity. Provide resources for
5 meaningful enforcement of permit compliance documentation.

6 Fire and Fuels

7 Background and Description

8 The Cibola National Forest's current species composition and fuel densities greatly differ from
9 historical conditions. Changes in species composition and fuel densities are a result of wildfire
10 suppression, livestock grazing, regeneration, and encroachment of early and/or late successional
11 species. These conditions, especially when combined with drought and climate change, create a more
12 continuous canopy cover, ladder fuels, and accumulations of live and dead woody material. As a
13 result, the probability of large, uncharacteristic, stand-replacing fires continues to increase. These
14 fires burn with more intensity and severity; cause higher tree mortality; degrade watersheds; sterilize
15 soils; and threaten adjacent communities, forest infrastructure, and wildlife habitat. Examples of
16 uncharacteristic wildfires on the forest include Ojo Peak, Trigo, and Big Springs, all of which
17 occurred within 6 months of each other on the Mountainair Ranger District in 2007 and 2008. These
18 fires burned a total of 26,156 acres.

19 The National Interagency Fire Center (NIFC) Guidance for the Implementation of Federal Wildland
20 Fire Management Policy provides much of the current direction for managing wildland fire on
21 Federal lands, including wilderness areas. This document provides definition of wildland fire used in
22 this Plan. Wildland fire describes any non-structure fire that occurs in the wildland. Wildland fires
23 are categorized into two distinct types:

24 **Wildfires:** Unplanned ignitions including human and naturally caused fires. These include
25 prescribed fires that have been declared escaped wildfires.

26 **Prescribed Fire:** Planned ignitions.

27 Most of the Cibola's vegetation is adapted to recurring wildfires started by lightning from spring and
28 summer thunderstorms. Frequent, low-intensity fire plays a vital role in maintaining ecosystem
29 health of much of the Pinyon-Juniper, Ponderosa Pine, and Frequent-Fire Mixed-Conifer vegetation
30 types. These three vegetation types cover a large portion of the Cibola. Grasslands are also adapted
31 to frequent fire. Other vegetation types, such as Mixed Conifer with Aspen and Spruce-Fir, are also
32 fire dependent, but have a historic fire regime of less frequent, mixed-severity fires.

33 Today, the Cibola contains uncharacteristically dense forests with many more young trees than were
34 present historically. Tree seedlings have invaded forest openings, grasslands, and savannahs. The
35 forest and woodlands are deficient in grasses, forbs, and shrubs due to tree competition, and are at
36 high risk for insect and disease outbreaks. Combined with drought, hotter and dryer weather
37 conditions, continuous canopy cover, and accumulations of live and dead woody material, the
38 ecosystem becomes primed for large, high-severity wildfires. These fires burn with more intensity,
39 have higher tree and seed mortality, degrade watersheds, change soil chemistry and structure, and
40 threaten homes and community infrastructure.

41 Wildfire (managed for multiple resource objectives) and prescribed fire are the most cost-effective
42 way to reduce the likelihood of a high-severity fire. To achieve a forest that is resilient to fire

1 disturbances even during dry and windy conditions, forest structure and composition need to
2 resemble desired conditions. In addition to fire, thinning and tree harvesting can reduce tree density
3 and canopy cover and promote the natural fire regime. The goal is to improve ecosystem health by
4 restoring fire to the landscape in the form of planned and unplanned ignitions.

5 Desired Conditions

- 6 ■ Human life, property, and natural and cultural resources are protected within and adjacent to
7 National Forest System lands.
- 8 ■ Wildland fire maintains and enhances resources and functions in its natural ecological role.
- 9 ■ Fuel reduction activities (thinning, fire) protect social, economic, and ecological values at risk
10 from high-severity disturbance effects.
- 11 ■ Wildfire intensity and frequency are within the natural range of variability. Uncharacteristic
12 high-severity fires rarely occur and do not burn at the landscape scale.
- 13 ■ Wildland fire is understood, both internally and by the public, as a necessary disturbance process
14 integral to the sustainability of the Cibola National Forest's fire-adapted vegetation types.
- 15 ■ Fires function in their natural ecological role in designated wilderness areas.

16 Standards

- 17 ■ Initial action on human-caused wildfire will be to suppress the fire at the lowest cost with the
18 fewest negative consequences with respect to firefighter and public safety.
- 19 ■ Managers will use a decision support process to guide and document wildfire management
20 decisions. The process will provide situational assessment, analyze hazards and risk, define
21 implementation actions, and document decisions and rationale for those decisions.

22 Guidelines

- 23 ■ Response to unplanned ignitions that cross jurisdictional boundaries should be coordinated and
24 managed to meet the responsible agency's objectives.
- 25 ■ Planned ignitions should create conditions that enable future unplanned ignitions to mimic their
26 historical role or to serve as a tool to achieve resource objectives.
- 27 ■ Fires suppression activities should be conducted in a manner that avoids disturbance to critical
28 species and impacts to cultural resources.
- 29 ■ Minimum impact suppression tactics should be utilized in wilderness areas to help preserve its
30 natural character.
- 31 ■ Aerial retardant drops should avoid threatened, endangered, proposed, or candidate, identified
32 sensitive species, waterways, riparian areas, and wetlands.¹¹
- 33 ■ Natural ignitions may be managed for multiple objectives.

¹¹ For species-specific information including which individual sensitive species are identified, see the Nationwide Aerial Application of Fire Retardant on National Forest System Land, Final Environmental Impact Statement. USDA Forest Service.

- 1 ■ Fire operations within wilderness areas should not compromise wilderness character.
- 2 ■ Firelines and spike camps (i.e., a remote camp usually near a fireline) should not be constructed
3 adjacent to trails or camp areas in designated wilderness areas to protect wilderness values.
- 4 ■ In recommended wilderness areas, prescribed fire should be considered to reduce the risks and
5 consequences of uncharacteristic wildfire if necessary to meet fire management objectives.
6 Naturally occurring fires should be allowed to perform, as much as possible, their natural
7 ecological role.
- 8 ■ Fire camps, helispots, and other temporary facilities should be located outside the recommended
9 wilderness to protect wilderness character within the recommended wilderness area.
- 10 ■ Unplanned fires should be extinguished as soon as possible if a danger to the Research Natural
11 Area, using means that would cause minimal damage to the area (FSM 4063.41). Natural fires
12 should be allowed to burn only within a prescription designed to accomplish objectives of the
13 specific natural area. (FSM 4063.2)
- 14 ■ Unplanned fires in the foreground (up to ½ mile) of the Continental Divide National Scenic Trail
15 should be managed using minimum impact suppression tactics, or other tactics appropriate for
16 the protection of values and resources for which the trail was designated.
- 17 ■ Effects from prescribed fire on scenic resources should be considered during project planning
18 and implementation. Blackened and scorched vegetation may be visible in project areas in the
19 short term following treatments, but scenic integrity objectives should be met in the long term.
20 Efforts should be made to minimize high intensity fire in areas with high scenic integrity such as
21 along system trails and scenic vistas.

22 Management Approaches

- 23 ■ Wildland fire objectives are based on factors such as desired conditions, fuel conditions, current
24 and expected weather and fire behavior, topography, resource availability, and values to be
25 protected. Social and economic considerations (for example, smoke and evacuations) may also
26 affect objectives, as well as adjoining jurisdictions having similar or differing missions and
27 directives.
- 28 ■ Management response to a wildland fire on Federal land is based on objectives established in the
29 applicable land/ resource management Plan and/or the fire management plan.
- 30 ■ Wildfires may be concurrently managed for one or more objectives (for example, protection and
31 resource enhancement) that can change as the fire spreads across the landscape. Strategies
32 chosen for wildfires include interdisciplinary input to assess site-specific values to be protected.
33 These strategies are used to develop incident objectives and courses of action to enhance or
34 protect those values. Managers use a decision support process to guide and document wildfire
35 management decisions that provide for firefighter and public safety, minimize costs, and
36 resource damage, and are consistent with values to be protected and management objectives.
- 37 ■ The signed NEPA decision will serve as a prescribed fire's decision document. To meet the
38 Plan's treatment objectives using prescribed fires, site-specific burn plans are developed which
39 guide implementation. All prescribed fires are conducted in accordance with the New Mexico
40 Air Quality Bureau Smoke Management Program and Bernalillo County smoke management
41 regulations. Both of which ensure compliance to the Clean Air Act. Thorough review of other
42 sections in this Plan will help with prescribed fire project design and implementation.
- 43 ■ Wildland fire is one tool in the process of restoring the Forest's fire-adapted ecosystems; in areas
44 departed from desired conditions, the use of fire is often most effective when combined with

- 1 mechanical treatments that further restore forest structure. Mechanical treatments are costly, so
2 the capacity to implement such treatments across the landscape is limited. Strategic placement
3 and design of mechanical treatments increases their effectiveness in protecting values to be
4 protected.
- 5 ■ Wildland fire may be the only viable tool in areas such as steep rugged terrain or remote areas
6 where mechanical treatments are not feasible. Objectives in these areas may include higher fire
7 intensities and higher levels of mortality to achieve vegetation structural changes that would not
8 occur through other means to move toward desired conditions. Fire and fuels specialists, forestry,
9 silviculturists, and other resource specialists will work to ensure land management objectives are
10 met. Joint silviculture prescriptions and burn plans may be produced.
 - 11 ■ Management of wildland fire is coordinated across jurisdictional boundaries whenever there is
12 potential for managing a wildfire or a prescribed fire on more than one jurisdiction (for example,
13 Federal, State, county, local, Tribal governments, and land grants, etc.). This includes water
14 sources, access, and land use agreements; and is done with the understanding that fire-adapted
15 ecosystems transcend jurisdictional boundaries.
 - 16 ■ Community wildfire protection plans, or similar assessment and management plans, should be
17 regularly integrated with Federal, State, county, local, Tribal governments, Land Grants, and
18 private lands within the Cibola's boundary in order to mitigate negative impacts of wildfire.
19 These plans identify and prioritize areas for treatment based on input from communities and
20 multiple stakeholders. These plans help determine treatment priorities and encourages
21 communication between agency and partners.
 - 22 ■ Information, education, and transformational processes should be utilized to inform the public
23 about fire danger and prevention. Children and adults should be encouraged to report new
24 ignitions immediately. They should also understand their responsibility for reducing the number
25 of human-caused wildfires. Providing public information in the form of signage, public contacts,
26 and fire-use restrictions should also be emphasized in the prevention program.

27 Range and Grazing

28 Background

29 There is congressional mandate to allow grazing on suitable lands (Multiple Use and Sustained Yield
30 Act of 1960, Forest and Rangeland Renewable Resource Planning Act of 1974, Federal Land Policy
31 and Management Act of 1976, National Forest Management Act of 1976).

32 Forage-producing National Forest System lands will be managed for livestock grazing and the
33 allotment management plans will be prepared consistent with land management plans (36 CFR
34 222.2). Unless otherwise specified by the Chief of the Forest Service, all grazing and livestock use
35 on National Forest System lands and on other lands under Forest Service control must be authorized
36 by a grazing or livestock use permit (36 CFR 222.3).

37 The Cibola administers a total of 86 active grazing allotments on the Mount Taylor, Magdalena, and
38 Mountainair Ranger Districts. (There are no allotments on the Sandia district.) Livestock grazing
39 contributes to the livelihood of the permittees and to the economy of local communities and counties.
40 Livestock management on National Forest lands has shifted to an adaptive management philosophy
41 that allows timely changes in livestock numbers or time to be made in response to changing
42 conditions involving changes in forage production, water availability, and precipitation patterns. As a
43 result, livestock numbers have declined over the last 20 years, because the Forest has balanced

1 permitted numbers with the capacity of the land while responding to environmental changes such as
2 but not limited to drought and shrub encroachment. Over the last decade, the Cibola have worked
3 with partners and permittees to reduce grazing pressure on sensitive areas (for example, critical
4 areas, riparian areas).

5 **Desired Conditions**

- 6 ■ Sustainable livestock grazing contributes to the long-term socioeconomic and diversity and
7 stability of rural communities and the cultural identity tied in with traditional uses.
- 8 ■ Proper livestock stocking rates and associated management activities contribute to healthy,
9 diverse plant communities, satisfactory soils, water quality, and wildlife habitat.
- 10 ■ Livestock management also includes structural and nonstructural range improvements.
- 11 ■ Range improvements minimize impacts to soil, watershed, and wildlife resources.
- 12 ■ Livestock grazing and other multiple-use activities do not negatively impact cultural resources.
- 13 ■ Livestock grazing and associated management activities are in balance with the needs of wildlife
14 forage, watershed ground cover, natural fire regime, and resilience to climate variability.
- 15 ■ Herbaceous native plant communities occur within the natural range of variability.
- 16 ■ Recognize other multiple uses including traditional, recreational uses that are integral part of the
17 landscape.

18 **Standards**

- 19 ■ New or reconstructed fencing shall allow for wildlife passage, except where specifically
20 intended to exclude wildlife (such as elk fencing) and/or protect human health and safety.
- 21 ■ New and reconstructed range improvements will be designed to prevent wildlife entrapment and
22 provide safe egress for wildlife (for example, escape ramps in water troughs, and cattle guards).
- 23 ■ For permitted livestock grazing activities in recommended wilderness areas, annual operation
24 instructions shall be updated to reflect any motorized or mechanized use which may be required
25 to administer terms and conditions under the term grazing permit (such as repair or
26 reconstruction of fences, water developments) that may have been approved under exceptions
27 outlined in Forest Service Manual 2320–Wilderness Management, section 2323.22.
- 28 ■ When motorized transport and mechanized use associated with grazing allotments is authorized
29 in recommended wilderness areas, it shall be limited to that needed to carry out management
30 activities of practical necessity and reasonableness, following the rationale of Forest Service
31 Manual 2320–Wilderness Management, section 2323.2, and shall not degrade the wilderness
32 character of the area.

33 **Guidelines**

- 34 ■ Grazing management practices should be designed to maintain or promote ground cover that will
35 provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the
36 ecological zone. Additionally, grazing management should retain ground cover sufficient for the
37 forage and cover needs of native wildlife species.
- 38 ■ Forage utilization should be based on site-specific resource conditions and management
39 objectives, but in general should be managed at a level corresponding to light to conservative
40 intensity (31 to 40 percent of current year's growth). Exceptions may be allowed to meet
41 objectives related to scientific studies, fuels reduction, invasive plant control, or other targeted

- 1 grazing or site-specific objectives. If forage utilization is exceeded in a growing season, the
2 grazing regime may need to be adjusted the following year to meet long-term vegetation
3 objectives.
- 4 ■ Annual operating instructions for livestock grazing permittees should ensure livestock numbers
5 are balanced with capacity and address any relevant resource concerns (such as forage
6 production, weeds, fawning habitat, soils, riparian health, water quality, etc.).
 - 7 ■ Livestock management should favor the development of native cool season grasses and forbs.
 - 8 ■ Permitted grazing should allow for residual ground cover levels to provide for plant
9 physiological needs, soil protection, scenic quality, water quality, and wildlife habitat such as
10 riparian wildlife habitat connectivity and vegetation desired conditions.
 - 11 ■ Grazing intensity, frequency, occurrence, and period should provide for growth and reproduction
12 of desired plant species while maintaining or enhancing habitat for wildlife.
 - 13 ■ To minimize potential resource impacts from livestock, salt or nutritional supplements should
14 not be placed within a 0.25 mile of any riparian area or water source. Salt or nutritional
15 supplements should also be located to minimize impacts to soils and soil erosion.
 - 16 ■ Salting or mineral supplementation should not occur on or adjacent to known populations of rare
17 plant species, habitat associated with species of conservation concern and/or core threatened or
18 endangered species habitat, unsatisfactory soils, stream channels, riparian areas, or wetlands, and
19 known archeological sites and other sensitive historic properties or known archeological sites.
 - 20 ■ Consideration should be given for re-stocking and management of grazing allotments after
21 wildfire and other disturbances that can produce critical changes in resource conditions, to adapt
22 range management to allow for ecosystem recovery following a disturbance.
 - 23 ■ Structures used to manage livestock should be located or relocated and used in a way that does
24 not conflict with riparian functions and processes.
 - 25 ■ Treatments for restoring rangelands should emphasize large-scale landscape approaches and the
26 use and perpetuation of a diversity of native plant species with an emphasis on grass, forb, and
27 shrub communities.
 - 28 ■ Management practices to achieve desired plant communities should consider protection and
29 conservation of known cultural resources, including historical sites, prehistoric sites, and
30 culturally significant plants.
 - 31 ■ New and existing water developments should be designed for both wildlife and livestock use and
32 if practical designed and/or retrofitted to provide a year-round watering source for wildlife.
 - 33 ■ Overflow from troughs should be diverted to allow for soil moisture recharge and creation or
34 maintenance of wetland habitat features.
 - 35 ■ New livestock troughs, tanks, and holding facilities should be located out of riparian areas,
36 archeological sites, and areas that may impact habitats associated with species of conservation
37 concern and/or core threatened or endangered species habitat to reduce concentration of
38 livestock in these areas. Existing facilities in water resource features should be modified,
39 relocated, or removed where their presence is determined to inhibit movement toward desired
40 riparian or aquatic conditions and consistent with existing water rights, water quality and
41 quantity.
 - 42 ■ Grazing of domestic sheep and goats should not be authorized in areas of current and potential
43 bighorn sheep habitat to prevent the spread of disease between domestic and wild populations.

- 1 ■ Consider the use of closed or vacant allotments by livestock to provide pasture during times or
2 events when existing allotments are unavailable and require ecosystem recovery as a result of
3 wildfire or other disturbances.
- 4 ■ Constructed features, facilities, and management activities for range activities closely follow the
5 form, line, color, texture, and pattern common to the desired scenic character being viewed to
6 remain visually subordinate to the surrounding landscape, except where the size or design of a
7 structure would dominate the landscape. For those exceptions, the structures complement the
8 desired scenic character.
- 9 ■ Range facilities are allowed in all scenic integrity objectives, and should be designed and
10 constructed to blend with the natural surroundings, consistent with the scenic integrity
11 objectives.
- 12 ■ When trails intersect with fences, accessible pass-through areas should be provided to allow for
13 easier passage for recreation users, unless it interferes with range management and resource
14 protection needed for the pasture.
- 15 ■ Existing structures in recommended wilderness areas should be maintained, but not expanded, to
16 protect the area's wilderness character. Maintenance of existing structures should not expand the
17 evidence of motor vehicle and mechanized equipment use beyond current conditions within the
18 recommended wilderness area.

19 Management Approaches

- 20 ■ The Cibola National Forest uses an adaptive management strategy to manage the rangeland
21 resources. The adaptive management approach is to improve or maintain the health of rangelands
22 by completing site-specific NEPA environmental analyses, assessments, and decisions, and
23 updating allotment management plans for individual grazing allotments.
- 24 ■ Forest managers work continually with permittees to adjust timing, intensity, and frequency of
25 livestock grazing to respond to changing resource conditions and needs of the livestock
26 permittees. In addition, collaboration among stakeholders is important. This includes the local
27 interdisciplinary team; permittees; Federal, State, county and local government entities; and non-
28 governmental organizations.
- 29 ■ Emphasize the achievement of desired conditions in coordination with livestock permittees and
30 other stakeholders. Monitoring and evaluation of stocking levels, mitigation measures, and
31 grazing systems facilitate moving towards desired conditions.
- 32 ■ Livestock and associated developments are managed to minimize impacts to Forest resources,
33 including water quality, cultural resources, scenery, wilderness, recreation resources, native plant
34 and animal species, wetlands, springs, seeps, karst and riparian areas.
- 35 ■ Vacant allotments or pastures are evaluated for consistency with, and trend toward, Plan desired
36 conditions prior to renewing use. The Congressional Grazing Guidelines (FSM 2320–Wilderness
37 Management, section 2323.33–exhibit 01) are used to manage livestock grazing in wilderness
38 and primitive areas.
- 39 ■ The Cibola National Forest work with permittees, Federal, State, county and local government
40 entities and non-governmental organizations, Tribes, and other organizations to maintain or
41 improve rangeland conditions. Range developments are maintained on an annual basis in a
42 satisfactory condition.
- 43 ■ Because drought is inevitable in the Southwest, livestock grazing management on the Cibola
44 National Forest incorporates, as necessary, (1) evaluation of drought conditions, (2) drought

- 1 management relative to vegetation impacts, (3) stocking during and after drought, and (4) early
2 and effective communications with the grazing permittee, livestock industry, other Federal and
3 State agencies, Tribes, and local governments.
- 4 ■ Recognize that livestock could be used as an immediate pre- and/or post-fire management tool
5 (coordinated with burned area emergency rehabilitation) to facilitate seed dispersal and seed
6 penetration into soils that have experienced high burn severity.
 - 7 ■ Livestock can be used as a management tool for the control and / or management of invasive
8 weed species.
 - 9 ■ Ensure unauthorized uses such a non-permitted livestock grazing and the presence of feral
10 animals is minimized and or eliminated.
 - 11 ■ Coordinate planning and development of newly constructed and reconstructed projects (such as
12 recreational trails) to benefit the needs of recreation and livestock desired conditions.
 - 13 ■ Consider unique collaborative approaches with range specialists to address conflicting uses
14 between livestock permittees and recreation users of range improvements such as corrals and
15 drinkers, etc.

16 Forest Products

17 Background and Description

18 There is congressional intent to allow forest products to be removed from National Forest System
19 lands (Multiple use and Sustained Yield Act of 1960, Federal Land Policy and Management Act of
20 1976, National Forest Management Act of 1976). Forest Service Manual (FSM) 2460 provides
21 direction on removal and disposal of forest products. FSM 2404.2 describes the delegation of
22 authority and limitation to sell and dispose timber and forest products.

23 On the Cibola, forest products include, but are not limited to, posts, poles, latillas, vigas, fuelwood,
24 pellets, and rough-cut dimensional lumber (typically used for pallet production). This material
25 primarily provides local subsistence and livelihood to rural communities, with small quantities sold
26 across State lines and a portion of the dimensional lumber sold to Mexico for pallet production.

27 Desired Conditions

- 28 ■ Forest products, such as wood pellets for home and industrial heating, oriented strand board,
29 animal bedding, wood molding, pallets, structural lumber, firewood, posts, poles, biomass for
30 electricity, and other forest products, such as medicinal herbs, Christmas trees, boughs,
31 wildflowers, mushrooms, grasses, seeds, nuts, and cones, are available to businesses and
32 individuals in a manner that is consistent with other desired conditions on a sustainable basis
33 within the capacity of the land.
- 34 ■ A sustainable supply of wood is available to support a wood harvesting and utilization industry
35 of a size and diversity that can effectively and efficiently restore and maintain the desired
36 conditions for forest and woodland communities.
- 37 ■ Where appropriate, forest products are available: (1) to the public, including Tribal and land
38 grant communities, for traditional and culturally important activities, (2) through either personal-
39 use permits or commercial sales, and (3) as plant communities successfully adapt to a changing
40 and variable climate.

- 1 ■ Management practices mimic their ecological processes within the ecosystem to allow
2 socioeconomic benefit and existing infrastructure to continue. Natural processes that affect forest
3 conditions and structure are natural wildfire regimes, drought, wind, insects and diseases.

4 **Standard**

- 5 ■ Removal of special forest products for commercial purposes and personal use (including
6 firewood) shall not be allowed in a research natural area unless it helps meet its desired
7 conditions.

8 **Guideline**

- 9 ■ Gathering of forest products for sale should not be permitted in areas recommended for
10 wilderness designation.

11 **Management Approaches**

- 12 ■ Fuelwood collection within dry soil to protect slopes and roads is managed so that site-specific
13 (soil type, soil condition, erosion hazard) planning and permits may specify the location and the
14 amount and size of wood that can be collected in areas where live and dead woody habitat
15 components are limited. Post-fuelwood collection rehabilitation restores soil stability and
16 watershed function.
- 17 ■ Enforcement, education, and site-specific planning of illegal wood cutting will be necessary to
18 ensure quality habitat over the long term; illegal woodcutting reduces the quantity and quality of
19 woodland habitat, especially oak and alligator juniper.

20 **Cultural Identity and Cultural Landscapes**

21 Three of the following subsections focus on contemporary use of land-based rural communities that
22 have a long-standing history in and around the lands managed by the Cibola National Forest. These
23 include: Tribal communities, Spanish/Mexican land grant communities, and rural historic
24 communities. Another subsection briefly addresses the broad category of contemporary users whose
25 interests in the Forest are focused primarily on recreation, collection of forest products, and other
26 pursuits that developed and flourished after the establishment of the Cibola National Forest in the
27 early part of the 20th century. This community of users is made up of individuals who share a passion
28 and common interest in recreating on National Forest System lands. People may identify with any
29 one or all of these groups. These distinctions are used as a frame of reference to recognize the
30 cultural diversity of the people who care about the Cibola. Lastly, historic properties are addressed in
31 a separate subsection because they are physical, location-based resources. The historic properties
32 subsection does not emphasize use, but rather the material record of historic occupation and land use.
33 These resources are an important component of the historic and contemporary uses and integral to
34 the protection and maintenance of the cultural identities of people that care about these cultural
35 landscapes.

36 The land is a common thread that binds all people. Our mountain landscapes are a life-sustaining
37 resource and they help us form individual and community relationships, provide for continuity of
38 cultural identity, and strengthen ancestral connections. The communities situated near or adjacent to
39 the mountains, or “sky islands”, now managed as the Cibola National Forest, are reflective of a
40 diverse and rich history of people and uses connected to the mountains.

41 Through time, the mountains of the desert Southwest have provided humans with the essential
42 elements of life. Mountains possess a biodiversity of plant and animal species not seen in the lower

1 elevations that flank them. Mountainous landscapes create weather patterns that result in snowpack
2 and moisture, providing the life-giving water to support all forms of life.

3 Long standing, land-based, rural communities (communities with time depth), regardless of their
4 origin, established themselves and persisted in large part due to their proximity to needed resources.
5 Plants were used for food, medicine, and ceremonial purposes. Wood was used for construction,
6 fencing, heat, and ceremonial fires. Perennial streams were utilized for domestic needs and
7 sometimes controlled to provide water for agriculture or mechanical power. Pasture land was utilized
8 and springs developed to support sheep and cattle; and arable land was utilized for crops and
9 orchards. Historically, these resources provided communities with what they needed to sustain
10 themselves and provide economic growth. These resources, and the opportunities they provided to
11 support a livelihood, played an important role in the establishment of communities. Often the
12 communities were established along the flanks of the mountains, perhaps in proximity to travel
13 routes, but undoubtedly it was the mountains and their bounty of resources that provided the
14 incentive for individuals and families to establish themselves there to begin with. The mountains and
15 their natural assets provide the basis for traditional customs and practices that contribute to cultural
16 life and to social institutions, including family and community. These communities are inextricably
17 linked to those natural resources that were critical to their survival and formed the basis for their way
18 of life. The relationship that these traditional communities have with the land continues today. In
19 addition to providing the necessary resources to sustain life, these landscapes also form an anchor for
20 those communities, providing people a sense of identity and their place in the world. Generations of
21 families formed communities, adapted to their environment, and developed a way of life dependent
22 upon and complimentary of the mountain resources at hand.

23 The historic use of the land by all three types of communities described above has left an imprint on
24 the land, leaving behind material remains. These material remains—the tangible evidence of past
25 human occupation and use—are identified as historic properties. These resources linked to the long-
26 standing, rural, land-based communities are the focus of the “Historic Properties” subsection (of this
27 section).

28 In addition to use by the long standing, land-based, rural communities, contemporary use of the
29 Forest also includes a range of activities by many people, some of whom come from outside of New
30 Mexico and from other countries, who value and enjoy the solitude as well as the recreational
31 opportunities available on the Cibola National Forest. The uses of the mountains by these people also
32 contribute to their fundamental cultural identity and ways of life.

33 Through the 20th century, across the United States, families once based in rural communities began to
34 migrate to larger towns and cities. Today, the majority of Americans live in suburban or urban
35 settings. In conjunction with that shift, there has been an increasing aesthetic appreciation of
36 mountains in the 20th century. Public lands are no longer seen by these contemporary users as places
37 needed and used for their subsistence, but as areas that are still relatively undeveloped and provide
38 opportunity for experiences that cannot be attained in urban environments.

39 **Tribal Resources and Contemporary Traditional Use**

40 **Background and Description**

41 The Cibola National Forest maintains a governmental relationship with 17 federally recognized
42 American Indian Tribes and Pueblos that have aboriginal territories and traditional ties to the land
43 now administered by the four “mountain” districts of the Cibola National Forest. These include: the
44 Hopi Tribe, the Pueblos of Acoma, Laguna, Zuni, Isleta, Sandia, Santa Ana, Santo Domingo, San

1 Felipe, Cochiti, Zia, Jemez, and San Ildefonso, the Navajo Nation, the Jicarilla Apache Nation, the
2 Mescalero Apache Tribe, and the Fort Sill Apache Tribe. The Forest routinely consults with these
3 Tribes and Pueblos on policy development, and proposed plans, projects, programs, and Forest
4 activities that have a potential to affect Tribal interests, including natural or cultural resources of
5 importance. The Cibola National Forest developed a robust consultation program in the late 1990s
6 and continues to build and enhance its working relationships and partnerships with these Tribes and
7 Pueblos.

8 The Cibola National Forest shares approximately 102 miles of common boundary with the Navajo
9 Nation, the Pueblo of Zuni, the Pueblo of Isleta, the Pueblo of Sandia, the Pueblo of Laguna, and the
10 Pueblo of Acoma, and is in close proximity to numerous Tribal communities. Tribal members visit
11 the Cibola National Forest to gather forest products and for other traditional and cultural purposes.
12 The Cibola National Forest recognizes the importance of maintaining these traditions to area Tribes
13 and Pueblos, and accommodates traditional use on lands managed by the Forest.

14 The Forest carries out its government-to-government trust responsibilities under a variety of Federal
15 authorities. Tribal rights and interests are honored and protected in Cibola National Forest operations
16 on the basis of treaty obligations, trust relationships, mandates in laws and Executive orders, and the
17 United Nations Declaration on the Rights of Indigenous Peoples.

18 **Desired Conditions**

- 19 ■ Forest Service and Tribal landscape restoration activities complement one another to meet
20 common objectives across shared boundaries.
- 21 ■ Requests for reburial of American Indian human remains and cultural items by Tribes are
22 honored and accommodated.
- 23 ■ Requests for temporary closure orders for cultural and traditional purposes are accommodated
24 and facilitated.
- 25 ■ Tribal members have access to their sacred sites, traditional cultural properties, and other
26 locations of traditional use, for individual and group ceremonies and traditional activities,
27 including the collection of forest products. There are opportunities for solitude and privacy for
28 ceremonial activities.
- 29 ■ Locations identified by Tribes as important, based upon their recognized value as traditional
30 cultural properties, sacred sites, and other locations of contemporary traditional use, are
31 acknowledged and are managed with an emphasis on the resilience and protection of natural and
32 cultural resources.

33 **Guidelines**

- 34 ■ Consultation with Tribes should occur at the early stages of planning and project design, and
35 Tribal perspectives, needs, and concerns, as well as traditional knowledge, should be
36 incorporated into project design and decisions, as appropriate.
- 37 ■ Sacred sites and traditional cultural properties should be managed to preserve the character and
38 use of these places.
- 39 ■ Project decisions or special use authorizations regarding the approval, location, and maintenance
40 of telecommunication sites, and the facilities within, should retain the physical and scenic
41 integrity of high places that the Tribes regard as sacred sites, traditional cultural properties, or as
42 part of an important cultural landscape.

1 Management Approaches

- 2 ■ Work with Tribes to understand their needs and build respectful, collaborative relationships; to
3 develop ways of accomplishing mutually desired conditions and objectives; and to collaborate in
4 ecosystem restoration efforts.
- 5 ■ Provide Forest Service employees opportunities to receive training to gain a broader
6 understanding of the unique legal relationship between the Federal Government and Indian
7 Tribes; American Indian laws, customs, traditions, and values; and the tools available for
8 protecting and managing sacred sites and traditional cultural properties.
- 9 ■ Coordinate with Tribes to develop collaborative proposals and implement projects of mutual
10 benefit, utilizing available federally-authorized or advocated programs.
- 11 ■ Provide opportunities for Tribal members to engage in activities such as the collection of forest
12 products for traditional uses. Traditionally-used resources are not depleted and are available for
13 future generations.
- 14 ■ Authorize and accommodate the collection of forest products in a manner consistent with the
15 Forest's written policy on the Collection of Forest Products for Traditional Cultural and
16 Ceremonial Purposes. Tribal requests to collect threatened and endangered species are referred to
17 the U.S. Fish and Wildlife Service, the responsible agency for issuing permits for listed
18 threatened and endangered species.
- 19 ■ Consider sacred sites during the project planning process, and protect them during the
20 implementation of management and permitted activities.
- 21 ■ Cooperatively develop interpretive and educational exhibits or other media that focus on the
22 history of the lands managed by the Cibola National Forest in collaboration with the Tribes to
23 provide the public with a greater understanding and appreciation of our shared history, culture,
24 and traditions.
- 25 ■ Identify opportunities where locations on the Forest can provide a setting for the education of
26 Tribal youth in culture, history, land stewardship, and the health benefits of outdoor activities.
- 27 ■ Consult with Tribes to identify sacred sites or traditional cultural properties and to develop a
28 strategy for appropriate recognition and management, including honoring the Tribes' request for
29 maintaining confidentiality.
- 30 ■ Administer Forest activities and uses in a manner that is sensitive to traditional American Indian
31 beliefs and cultural practices.
- 32 ■ Accommodate and facilitate the traditional use of traditional cultural properties, sacred sites, and
33 other traditional use areas (such as trails and springs) that are essential in maintaining the
34 cultural identity and cultural practices of associated Tribal communities.
- 35 ■ Conduct inventories to identify and protect traditional cultural properties and sacred sites, and
36 work with associated Tribal communities to manage these through shared stewardship by
37 developing programmatic agreements, management plans, memoranda of understanding, or other
38 management tools.

39 Land Grant Communities and Acequias

40 Background and Description

41 The Cibola National Forest maintains a relationship with 12 Spanish- and Mexican-era land grant
42 communities. Most are organized as subdivisions of New Mexico State government; those that are

1 not participate in the New Mexico Land Grant Council. The community land grants that border the
2 Cibola National Forest were established between 1692 and 1844. These include: in the Mount Taylor
3 Ranger District, the Cubero and Cebolleta land grants; in the Mountainair Ranger District, the
4 Chililí, Tajiique, Torreón, Manzano and Tomé land grants; and in the Sandia Ranger District, the San
5 Antonio de Las Huertas, Cañon de Carnué, and San Pedro land grants. Additional community land
6 grants in the Cibola National Forest's area of influence include Sevilleta de la Hoya and Atrisco.
7 These land grants share approximately 72 miles of common boundary with the Forest. Some have
8 former common lands now managed by the Forest Service. All land grants have expressed an interest
9 in adjacent Forest Service lands.

10 Acequias are community operated and organized water irrigation systems. Acequia and community
11 ditch associations are political subdivisions of the State of New Mexico (NMSA 1978 §73-2-28).
12 Acequias that existed prior to the withdrawal of public lands to create the national forests are
13 afforded special rights and status under National Forest System management. Many of the State's
14 acequia associations have been in existence since the Spanish Colonial period in the 17th and 18th
15 centuries. Acequia associations that rely on water from the Cibola National Forest include the Rio
16 San Jose Acequia Association, and associations for the Las Huertas and the Carnuel/Tijeras/San
17 Antonio acequias. These historic water systems continue to serve as important water infrastructure
18 for communities, and their associations are important community organizations throughout New
19 Mexico today.

20 Desired Conditions

- 21 ■ Forest Service and community land grant restoration activities complement one another to meet
22 common objectives across shared boundaries.
- 23 ■ Locations identified by community land grant governing bodies and constituent communities as
24 significant traditional use areas are acknowledged and are managed with an emphasis on the
25 resilience and protection of natural and cultural resources.
- 26 ■ Traditional uses, traditional cultural properties, and other affiliated historic properties are
27 considered during project planning and are protected to the extent possible during the
28 implementation of management activities.
- 29 ■ Members of land grant communities have appropriate access for traditional uses and to
30 traditional cultural properties and other affiliated historic properties needed throughout the year.
- 31 ■ The management of acequia systems, traditional use areas, traditional cultural properties, and
32 other affiliated historic properties on the Forest are carried out in partnership with community
33 land grant governing bodies and acequia associations. Forest restoration projects will take into
34 consideration the health of these systems and sites.
- 35 ■ Acequia associations have adequate access to repair, maintain, and improve acequia
36 infrastructure located on National Forest lands.

37 Guidelines

- 38 ■ Community land grant governing bodies and acequia associations should be consulted at the
39 early stage of planning for restoration projects and other projects that may impact uses and
40 resources of importance to these entities and their constituent communities.
- 41 ■ Traditional perspectives and knowledge should be incorporated into project design and decisions
42 where appropriate.

1 Management Approaches

- 2 ■ Develop appropriate protection measures for traditional cultural properties, other affiliated
3 historic properties, and areas of traditional use that are significant to community land grants and
4 acequia associations and their constituent communities. Consult with community land grant
5 governing bodies and acequia associations when developing protection measures.
- 6 ■ Make available fuel wood collection opportunities to adjacent land grant communities except in
7 areas with resource concerns or in designated areas where such uses are prohibited.
- 8 ■ Through coordination with the land grant and acequia association governing bodies, provide and
9 facilitate access for their constituent communities to engage in activities such as the collection of
10 forest products for traditional uses, and other traditional uses.
- 11 ■ Manage resources of importance to land grant and acequia governing bodies to ensure that such
12 resource use is sustainable, that such resources are not depleted, so that these resources are
13 available for future generations.
- 14 ■ Coordinate with the governing bodies of the community land grants and acequia associations to
15 develop collaborative proposals and implement projects of mutual benefit.
- 16 ■ Facilitate reasonable access by acequia associations to adequately repair, maintain, and improve
17 acequia infrastructure on National Forest lands.
- 18 ■ For projects adjacent to land grant communities where the Cibola National Forest is landlocked
19 and only accessible via the land grant or alternative access through the National Forest is
20 difficult, work directly with the governing bodies of the adjacent land grant to implement
21 mutually beneficial projects and to provide the authority to remove forest products.
- 22 ■ Cooperatively develop interpretive and educational exhibits or other media that focus on the
23 history of the lands managed by the Cibola National Forest in collaboration with the land grant
24 and acequia association governing bodies to provide the public with a greater understanding and
25 appreciation of our shared history, culture, and traditions.
- 26 ■ Identify opportunities where locations on the Forest can provide a setting for the education of the
27 land grant community youth in culture, history, and land stewardship.

28 Rural Historic Communities

29 Background and Description

30 For the purpose of this document, a rural historic community is defined as a community that is both
31 geographically and historically rooted to a particular landscape. The founding of the community
32 generally predates the establishment of the forest reserves in 1906 that would later be consolidated
33 into the Cibola National Forest. The community has a significant concentration of human activity,
34 linkage, and continuity of land use on and/or immediately adjacent to the Forest. Rural historic
35 communities are those whose day-to-day occupational activities are rooted in the pragmatic need to
36 make a living and that evolved in-place on a specific landscape on or adjacent to the lands now
37 managed as the Cibola National Forest. Corporations and special interest groups are not included in
38 this category. Examples include: the Village of Magdalena, founded as a center for mining and
39 ranching in 1884, and located in the area of influence for the Magdalena Ranger District; and the
40 community of Ramah, founded as a farming settlement in 1882, and located in the area of influence
41 for the Mount Taylor Ranger District. Communities such as these are located throughout the area of
42 influence for the Cibola National Forest. Occupational and subsistence-based activities associated
43 with rural historic communities may include agriculture, grazing, mining, and logging. Over time,

1 some of these communities have evolved to accommodate tourism and the increasing demand for
2 outdoor recreation as an element of their identity. While there may be some cultural or spatial
3 overlap between rural historic communities and other traditional communities defined in this Plan
4 (for example, Tribes and land grant communities), this group is identified to address the different
5 concerns and needs of the people that may identify with these uses and connections to the land.

6 **Desired Condition**

- 7 ■ Awareness and understanding of the needs and desires of rural historic communities affiliated
8 with the Forest is increased in order to better facilitate collaboration between the Forest Service
9 and associated communities.

10 **Management Approaches**

- 11 ■ Work with rural historic communities to build respectful, collaborative relationships; develop
12 ways of accomplishing mutually desired conditions and objectives; and collaborate in ecosystem
13 restoration efforts.
- 14 ■ Develop sustainable approaches (sensitive to environmental and other cultural concerns) for
15 members of rural historic communities to continue to practice occupational and subsistence
16 based activities on the Forest.
- 17 ■ Develop formal strategies to actively engage and better facilitate communication with rural
18 historic communities.
- 19 ■ On an annual basis, review, identify and compile a comprehensive list of rural historic
20 communities and associated leaders that are affiliated with the Cibola National Forest that should
21 be consulted during project planning.
- 22 ■ Cooperatively develop interpretive and educational exhibits or other media that focus on the
23 history of the lands managed by the Cibola National Forest in collaboration with members of
24 rural historic communities to provide the public with a greater understanding and appreciation of
25 our shared history, culture, and traditions.
- 26 ■ Identify opportunities where locations on the Forest can provide a setting for the education of
27 youth within rural historic communities in cultural awareness, history, and land stewardship.

28 **Contemporary Users**

29 **Background and Description**

30 Use of the mountains is increasing. Recreation in the mountains is increasing, and is increasingly
31 diverse. Many contemporary users that have a passion for outdoor recreation also have a deep
32 appreciation for the mountains, and understand that these landscapes play a vital role in their lives as
33 sources of spiritual and physical well-being. Other contemporary users turn to the mountains for
34 material sustenance, including hunted meat, gathered plants, and wood for heat. Even in
35 contemporary communities such as the Albuquerque metro area, there are many households that
36 supplement their basic needs with forest products. Regardless of whether their uses are for recreation
37 or for subsistence, the use of the Forest provides contemporary users with experiences that provide
38 them with meaning. Today, people are drawn to public lands, particularly mountainous areas, to seek
39 inspiration and spiritual nourishment from a natural environment that possesses beauty, integrity, and
40 challenge that may be lacking in their everyday lives. The mountains are a place where members of
41 modern society can temporarily leave behind them the complexity and concerns of modern living,

1 and immerse themselves in a different environment pursuing recreational and economic activities
2 that renew them spiritually and physically.

3 Please refer to the “Recreation” section for a more extensive description of recreation use, and to the
4 “Forest Products” section for a more extensive description of forest product collection by the public.
5 The desired conditions, guidelines, standards, and management approaches developed for
6 contemporary use on the Forest can be found in these sections.

7 **Historic Properties**

8 **Background and Description**

9 Historic properties are the tangible evidence of past human occupation and behavior that are greater
10 than 50 years in age, and are eligible for inclusion in or are listed on the National Register of Historic
11 Places. They may consist of archeological sites, designated traditional cultural properties, historic
12 buildings and structures, and districts composed of multiple historic properties. Historic properties
13 within the Plan area are a record of past processes and events that are important in maintaining the
14 identities of all four of the local communities that were identified in the “Cultural Identity and
15 Cultural Landscapes” section. These resources are non-renewable and, depending on the nature of
16 the resource, can be particularly sensitive to management practices and natural and human-induced
17 environmental degradation.

18 **Desired Conditions**

- 19 ■ Historic properties (including archeological sites, historic buildings and structures, traditional
20 cultural properties, and historic districts) are protected from natural processes and human
21 activity. The significant qualities of historic properties are protected, except when such
22 protection is not possible or not feasible.
- 23 ■ Historic properties are interpreted for the public’s understanding of the culture and history of the
24 Plan area.
- 25 ■ Inventory of historic properties is conducted at the management area scale, in addition to being
26 inventoried at the scale of the individual project.
- 27 ■ The historic and cultural qualities of recreation areas or infrastructure that incorporate historic
28 properties, or have historic and/or cultural values, are preserved to enhance the recreation
29 opportunity.
- 30 ■ The management objectives for other resources align with the management objectives of historic
31 properties (including protection).

32 **Guidelines**

- 33 ■ Manage historic properties (including archeological sites, historic buildings and structures,
34 traditional cultural properties, and historic districts) to a standard that maintains or exceeds the
35 current collective conditions of properties on the Forest.
- 36 ■ Develop and adhere to a heritage program of work that ensures continued resource protection
37 and increases public understanding of historic properties on the Forest. The program of work
38 will set priorities for inventory, interpretation, stabilization, historic preservation, research,
39 public outreach, site monitoring, and other protection, preservation, and education activities.
- 40 ■ Integration of natural and cultural resources, which considers the beneficial management of
41 historic properties and input from traditional communities (tribes, land grants, acequia

1 associations, and rural historic communities), will be part of the planning phase of forest
2 projects.

- 3 ■ For recreation residences that are historic properties, the operation and maintenance plan for the
4 special use authorization should stipulate that the maintenance and upkeep must maintain the
5 historic characteristics of the residence.
- 6 ■ Include appropriate clauses in contracts, permits, or leases that have the potential to affect
7 historic properties specifying property protection responsibilities and liabilities for damage.
- 8 ■ Manage the Heritage Program holistically to ensure an adequate balance of compliance-based
9 work with heritage resource management and program objectives.

10 Management Approaches

- 11 ■ Develop appropriate measures to protect historic properties from deterioration due to natural
12 forces, visitor use, vandalism, and other impacts. Protective measures may include vegetation
13 treatment in and adjacent to site boundaries (provided appropriate protection measures are in
14 place), signing, fencing, administrative closure, patrols, interpretive signs, stabilization, or data
15 recovery.
- 16 ■ Allow and resolve adverse effects to historic properties, regardless of the nature of the
17 properties' significance, when it is not possible to avoid such adverse effects during an
18 undertaking (when there is a conflict with existing law, regulation, or policy), or when the
19 benefits of an undertaking are deemed (by administrative decision) to be greater than the adverse
20 effects to historic properties.
- 21 ■ When warranted by proposed undertakings or by resource concerns, conduct inventories of
22 historic properties of concern at the scale of the management area.
- 23 ■ Develop management and preservation plans for historic properties that have special significance
24 (National Historic Landmarks, National Register listed properties, and priority heritage assets) or
25 receive heavy visitor use.
- 26 ■ Manage buildings and structures that are listed on or are eligible for the National Register of
27 Historic Places in accordance with the Secretary of the Interior's Standards and Guidelines for
28 Treatment of Historic Properties when considering maintenance, rehabilitation, and reuse.
- 29 ■ Develop preservation maintenance plans (historic property plans) for administrative facilities and
30 infrastructure that are historic properties, and administer and maintain those facilities in
31 accordance with those plans.
- 32 ■ Develop a database of fire sensitive historic properties, and other cultural resources and make it
33 available for fire management purposes and for facilitating resource protection.
- 34 ■ Meaningfully enhance and develop the protection, preservation, and management of historic
35 properties through public participation, and through partnerships with traditional communities
36 (Tribes, land grants, acequia associations, rural historic communities), professional
37 organizations, volunteers, other partners. Where appropriate, partnerships will utilize emerging
38 information and communication technologies.
- 39 ■ Non-project related survey will be prioritized as follows: (1) areas where historic properties are
40 threatened or ongoing impacts are unknown and need to be assessed; (2) areas indicated to have
41 a high density of historic properties, or high value properties; (3) areas of importance to
42 traditional communities; (4) areas where additional survey will contribute to a greater
43 understanding of a specific management area.

- 1 ■ Nominate historic properties to the National Register of Historic Places on a regular interval.
- 2 ■ Integrate natural and cultural resources as part of project planning, employing current available
- 3 knowledge of the types and existing conditions of historic properties, other cultural resources,
- 4 and traditional uses within the project area in the development of a proposed action.

5 Land Ownership Adjustment and Boundary Management

6 Background and Description

7 The two primary functions of the Land Ownership Adjustment and Boundary Management Program
8 is to provide legally defensible boundary line, and title for lands managed by the Forest Service. The
9 Boundary Management Program is the identification and maintenance of boundary line locations
10 between National Forest System lands which include (but are not limited to) public domain lands, or
11 those lands that were acquired by the United States from another sovereign and have never left
12 Federal ownership and land of other ownership, and land adjustment. Boundary management needs a
13 great deal of maintenance to ensure that no management activity near or adjacent to a property line
14 creates a false or misleading boundary line.

15 Land adjustments consolidate and improve management efficiency through real estate transactions
16 including sales, purchases, donations, exchanges, conveyances, and rights-of-ways within the
17 proclaimed Cibola National Forest boundaries.

18 Desired Conditions

- 19 ■ Right-of-way and easements provide for broader access to lands within the Cibola National
20 Forest without impacting private inholding rights-of-way and easements.
- 21 ■ Acquisition of lands facilitates efficient management strategies for the Cibola National Forest.
- 22 ■ Encroachment issues are resolved equitably for both adjacent landowners and the Cibola
23 National Forest.
- 24 ■ National Forest System lands exists in a pattern that promotes more well-organized management
25 of various lands in and around the Forest as well as provide efficient and effective resource
26 management within and across National Forest System lands.

27 Guidelines for Land Exchanges

- 28 ■ Land exchanges should result in an improved land ownership pattern, more effective
29 management of National Forest System lands, and foster sound community development.
- 30 ■ Land exchanges should not result in the creation of isolated National Forest System parcels
31 surrounded by non-Federal lands or isolated non-Federal parcels surrounded by National Forest
32 System lands, unless it is found to be a public benefit.
- 33 ■ The non-Federal lands considered for exchange into Federal ownership should meet one or more
34 of the following criteria:
 - 35 • Lands that provide needed public and administrative access, protect public lands from fire or
36 trespass, or prevent damage to Cibola resources.
 - 37 • Lands that contain vital threatened and endangered species habitat or vital wildlife habitat.
 - 38 • Lands providing services to the public (such as developed and dispersed recreation and open
39 space).

- 1 • Wetlands, riparian areas, and other lands with water features.
- 2 • Lands that contain unique, scenic, natural, or cultural values.
- 3 • Lands within designated wilderness.
- 4 • Lands that will improve public land management, meet specific administrative needs, or
- 5 benefit other national forest programs.
- 6 • Lands that meet programs prescribed or endorsed by acts or reports of Congress or the
- 7 Department of Agriculture.
- 8 • Lands that possess high value cultural resources for the Cibola National Forest (see the
- 9 “Identity and Cultural Landscapes” section).
- 10 ■ Federal lands offered by the United States in a proposed land exchange should meet one or more
- 11 of the following criteria:
 - 12 • Lands needed to meet the needs of communities and the public.
 - 13 • Lands that provide improved public land management.
 - 14 • Lands that will improve management, benefit specific resources, or increase management
 - 15 efficiency.
 - 16 • Lands that have lost their wildland characteristics.
 - 17 • Lands with long-term land occupancy commitments and high management and operating
 - 18 costs, do not contribute significantly to achieving management objectives, have minimal
 - 19 benefit to the public, and would not create an isolated non-Federal parcel surrounded by
 - 20 National Forest System lands such as, but not limited to, recreation residence areas and
 - 21 administrative sites.

22 Guidelines for the Boundary Management Program

- 23 ■ Boundary management surveys should be prioritized by the following criteria:
 - 24 • Where known litigation is pending, a title claim has been asserted, encroachments are
 - 25 suspected, or the probability of encroachment can be reduced.
 - 26 • Where significant resource values exist and use or manipulation of resources is planned (this
 - 27 includes the location, by survey, of right-of-way easements necessary for resource
 - 28 management).
 - 29 • To ensure that any land, resource, or restoration project that occurs near or adjacent to any
 - 30 Forest Service boundary line does not proceed until the legal National Forest System
 - 31 boundary lines are properly located and physically marked in the field prior to any
 - 32 management action.
 - 33 • To provide an accurate delineation and location of National Forest System boundary lines
 - 34 will help prevent boundary disputes and/or loss of valued National Forest System land and
 - 35 its resources.
 - 36 • All remaining property lines.
- 37 ■ A Bureau of Land Management (BLM) resurvey should be requested where there has been an
- 38 extensive loss or obliteration of original corner monuments and/or where the potential for future
- 39 litigation regarding the property boundaries between the national forest and private lands are
- 40 high.

- 1 ■ Property boundaries should be clearly identified to avoid creating false or misleading
2 boundaries.

3 Management Approaches for Boundary Management

- 4 ■ Identifying encroachment cases and resolving present encroachments is a priority.
- 5 ■ Consider opportunities to resolve boundary issues permanently with adjacent landowners at a
6 cost savings by consolidating non-Federal (State trust, county, private, and other ownerships)
7 and National Forest System lands through the land adjustment program.
- 8 ■ When trespasses are identified they are to be documented in the Title Claims and Encroachment
9 Management System.
- 10 ■ Act on cooperative and joint land surveying opportunities with adjoining non-Federal land
11 owners (State trust, county, and other ownerships).

12 Management Approaches for Land Ownership Adjustments

- 13 ■ Consolidate the National Forest System land ownership pattern through exchange, purchase, or
14 donation, and other land ownership adjustment authorities.
- 15 ■ Consider conveying administrative sites that are no longer required for Forest Service use.
- 16 ■ Acquiring non-Federal lands or interest in lands from willing non-Federal landowners (State,
17 county, private, and others ownerships) that resolve public access issues or contain scenic,
18 cultural and historic resources, traditional cultural properties, Tribal cultural resources, sacred
19 sites, vital threatened and endangered species habitat and/or wildlife.

20 Management Approaches for Land Exchanges

- 21 ■ Considering opportunities to consolidate and exchange lands that are mutually beneficial to
22 improve landownership patterns or other resource objectives.

23 Management Approaches for Rights-of-way

- 24 ■ Ensuring administrative and public access to National Forest System lands by acquiring road and
25 trail rights-of-way needed to meet public access objectives using various acquisition methods.
26 Priority for road and trail rights-of-way acquisitions is as follows:
- 27 • Public access to National Forest System lands.
- 28 • Administrative access to National Forest System lands.

29 Other Sources of Information, Regulations, Memorandums of Understanding, 30 Guidance

31 Land Adjustments and Boundary Management Authorities include:

- 32 36 CFR 254 Landownership Adjustments
33 FSM 5400 Landownership
34 FSH 5409.12 Appraisal Handbook
35 FSH 5409.13 Land Acquisition Handbook
36 FSH 5409.17 Rights-of-Way Acquisition Handbook
37 FSH 5509.11 Title Claims, Sales, and Grants Handbook
38 FSM 5460 Right-of-Way Acquisition
39 FSM 7150 Surveying.

1 Minerals and Geology¹²

2 The Cibola Mountain Districts host occurrences of important mineral resources. Minerals are
3 important as a raw materials source: useful in a native or refined state. As economic and political
4 conditions fluctuate, certain mineral commodities can become more valuable, prompting new or
5 renewed interest in prospecting, exploration, and mining of these minerals. Management of mineral
6 activities on the Cibola National Forest are carried out to facilitate the development of mineral
7 resources and contribute to local, national, and global markets for valuable commodities.

8 The purpose of the Cibola National Forest minerals and geology program is to provide appropriate
9 access to mineral resources in accordance with the law; while facilitating mineral development in a
10 manner that minimizes adverse impacts to surface resources. Valuable mineral resources on the
11 Cibola National Forest range from soil for making adobes and limestone for cement, to rare-earth
12 minerals used in hi-tech applications such as battery-operated cars and aerospace components, to
13 uranium as an energy fuel in itself. It is Forest Service policy to support responsible, environmentally
14 sound energy and mineral development and reclamation on the Cibola National Forest.

15 How minerals may be searched for or acquired on the National Forest is prescribed by Federal law
16 and mineral type. There are three categories of minerals, known as locatable, leasable, and salable
17 minerals; each is subject to different laws and implementing regulations. This affects whether the
18 Forest Service has the discretion to refuse a mineral operation proposal. Minerals subject to the 1872
19 Mining Law, as amended, can be obtained by locating a mining claim. These “locatable” minerals
20 include metals such as gold, silver, copper, or uranium. The Forest Service does not have the
21 authority to outright deny locatable mineral activities providing they follow applicable laws and
22 regulations. The agency role in managing such resources is to provide reasonable protection of
23 surface resources. The potential for locatable minerals within the boundaries of the Cibola National
24 Forest is high because the geology of the area is conducive to their creation, and the mountain ranges
25 expose mineralized zones in a number of places. Pursuant to Federal mining laws, the Forest Service
26 is required to respond to proposals for conducting exploration and mining operations for locatable
27 minerals. The Forest Service must determine whether to approve the preliminary plan of operations
28 submitted, or to require changes or additions deemed necessary to meet the requirement of the
29 regulations for environmental protection. All proposals must comply with Federal laws and
30 regulations, and should be managed to reduce adverse environmental impacts to the extent
31 practicable on National Forest System lands. The Mount Taylor Ranger District includes an area of
32 world-class uranium deposits which were widely explored and mined during a period of previous
33 mining from the 1950s through the late 1970s. In an area of known deposits, interest for exploration
34 and mining of the mineral resource is expected to continue. There are also uranium deposits on the
35 Magdalena Ranger District. There are areas of historic gold and silver mining on all of the ranger
36 districts. Interest in these mineral areas continues as gold panning has been increasingly popular. It is
37 expected that the “small miner” will continue to operate in these areas. Whether it is considered
38 “recreational” by some or “subsistence mining” by others, it is important to note that all of these gold
39 operations are regulated by the same minerals regulations at 36 CFR 228.4.

40 Some types of minerals are managed by lease, such as all hydrocarbon-based resources including oil,
41 gas, and coal, and certain other solid minerals such as phosphate, potassium, and sodium. Also,

¹² Minerals refers to extractive mineral operations, while geology refers to geologic features and the enjoyment and scientific study of these features.

1 minerals usually locatable may be leased on acquired lands. The Cibola does not have the geologic
2 environment in the mountain districts to host conventional oil and gas resources or solid leasable
3 minerals. Geologically, oil shale or tar sand deposits could potentially occur in the southern San Juan
4 Basin on the Mount Taylor Ranger District. If deposits were to exist, favorable economic and
5 geologic conditions and future technological advances would all be required to economically extract
6 a petroleum resource. Small coal deposits do occur and are exposed in many locations in the
7 mountain districts. These “deposits” are really no more than coal exposures and occur in such small
8 volume that that they are not of economic interest. There are presently no leases or proposals on
9 acquired or other lands and there are no indications that resources are present. For these reasons, the
10 potential for leasable minerals is low, and no management of leasable minerals is anticipated for the
11 Plan area. However, should mineral leasing be proposed, the Forest Service role in managing
12 leasable resources is to recommend or consent to the Department of the Interior, BLM, whether
13 leases for these commodities should be issued, and specify any surface resource protections that may
14 be needed. Stipulations to protect surface resources would be made for exploration or mining.

15 The last category, salable minerals, applies to lower-value, common variety materials such as rock,
16 gravel, and soil (salable minerals is synonymous with mineral materials), for which the Forest
17 Service has total discretion to manage and is sold at the discretion of the local Forest Service unit.

18 **Salable Minerals/Mineral Materials**

19 Mineral materials, obtained by personal-use permit or contract, provide a number of products that are
20 valuable and often used or sold locally. Soil is used for traditional adobe construction, as well as rock
21 rubble for foundations and wall construction. Moss rock used for landscaping rock is very popular on
22 the Cibola Mountain Districts. Personal-use permits may be obtained to gather rock, borrow, or soil
23 in designated areas which have been cleared so as not to disturb other resources. Mineral material
24 permits and contracts are available at the discretion of the local district ranger, in designated and
25 cleared areas.

26 **Desired Conditions**

- 27 ■ Mineral materials provide important raw materials for personal, commercial, and traditional
28 uses, and the Forest makes these materials available as appropriate with other resources and
29 subject to applicable laws and regulations.
- 30 ■ Mineral material mining activities are conducted in a manner that avoids negative impacts to
31 surface resources, including groundwater, while allowing reasonable access to minerals.

32 **Standards**

- 33 ■ Personal and commercial mineral material sites are administered according to 36 CFR 228 part
34 C; Mineral Materials.
- 35 ■ Talus slopes will not be used as a common variety mineral materials source where disturbance
36 would destabilize the talus slopes and alter any endemic or rare species habitat or presence.
- 37 ■ Mining activities for mineral materials will incorporate mitigation and reclamation measures that
38 reduce contrasts with the surrounding landscapes.
- 39 ■ Mineral materials such as gravel will not be removed within water resource features to ensure
40 satisfactory conditions.

1 Guidelines

- 2 ■ Where appropriate, mineral materials (such as moss rock, boulders, and borrow material) should
3 be made available for personal use through rock permits.
- 4 ■ Requests for commercial mineral material sales should be considered where appropriate with
5 other resource desired conditions.
- 6 ■ Mineral materials (such as gravel and borrow) from designated areas should be made available
7 for Forest Service transportation system and road maintenance, and should be issued as free use
8 on a mineral material permit to other Federal, State, county and local agencies for use in public
9 projects 36 CFR 228 part C, 228.57d and 228.62.
- 10 ■ Mineral materials should be made available to support internal resource management needs, such
11 as erosion control features, rock dams, and recreation site materials (barriers and landscaping).
- 12 ■ Personal-use mineral material sites should be monitored to prevent resource damage due to over-
13 use.
- 14 ■ Once a permit site is depleted of desirable materials, or if resource damage is occurring, a
15 different site should be used for further permits.

16 Management Approaches

- 17 ■ Areas for mineral materials sales should be planned, cleared, and made available if compatible
18 with other resource concerns. Permits for landscape rock, soil, and other mineral materials in
19 these areas are sold to the public for personal use.
- 20 ■ Although the mineral materials program is a discretionary use of the Forest, responding to
21 requests for mineral materials desired by local landowners and the public are the drivers of this
22 program, and the use of these resources should be encouraged.

23 Laws and Regulations Affecting Mineral Activities for Locatable 24 Minerals

25 Background and Description

26 Where minerals are located on a mining claim, the 1872 Mining Law requires that the claimant must
27 be allowed reasonable access to those minerals. Pursuant to Federal mining laws, the Forest Service
28 is required to respond to proposals for conducting exploration and mining operations for locatable
29 minerals. The Forest Service must determine whether to approve a preliminary plan of operations
30 submitted, or to require changes or additions deemed necessary to meet the requirement of the
31 regulations for environmental protection. The Forest Service does not have the authority to outright
32 deny locatable mineral activities providing they follow applicable Federal laws and regulations. The
33 agency role in managing such resources is to provide reasonable protection of surface resources.

34 Desired Conditions

- 35 ■ Reasonable plans of operation are approved and administered to reduce adverse environmental
36 impacts to the extent practicable on National Forest System lands.
- 37 ■ Mineral and mining administration on the Cibola National Forest meets legal mandates to allow
38 reasonable access to locatable minerals. Locatable mineral mining activities are conducted in a
39 manner that minimizes negative impacts to surface resources, including groundwater.

- 1 ■ Information on Forest Service operating requirements for gold prospecting, gold panning, and
2 related activities is made available to the public.

3 Guidelines

- 4 ■ Locatable mining operations should be planned in advance to minimize disturbance area and
5 more effectively and efficiently operate and reclaim the site.
- 6 ■ Locatable mineral operations should accommodate desired conditions of other resources as far as
7 possible.
- 8 ■ To the extent possible, locatable operations should avoid or minimize the alteration or removal
9 of natural features providing wildlife habitat. Avoid disturbance to and maintain cliffs, rock
10 features, and vegetation around rock features to provide screening and cover for wildlife (big
11 game and smaller wildlife such as reptiles, amphibians, small mammals, ground- and cliff-
12 nesting birds and bats).
- 13 ■ To the extent practicable given the requirements of the mineral activity, mineral developments
14 should be located so as to blend with the natural environment, not detract from the scenic
15 character, and remain visually subordinate to the surrounding landscape.
- 16 ■ Streambed material disturbed by placer mineral operations should be replaced into its source
17 location to ensure stream stability.
- 18 ■ Locatable mineral operations should accommodate desired conditions of other resources as far as
19 possible.

20 Standards

- 21 ■ Minerals administration will be carried out according to the U.S. mining laws and Forest Service
22 regulations pertaining to locatable minerals at 36 CFR 228, subpart A.
- 23 ■ Approved plans of operation will authorize operations that avoid or minimize adverse impacts to
24 surface and groundwater resources to the extent possible.
- 25 ■ Structures and/or occupancy for mining purposes will be limited to only those that are necessary
26 and incidental to approved mining operations.
- 27 ■ Use of access to mineral operation sites will be included in the plan of operation. Potential
28 impacts due to the use of road, trail, track or cross-country travel, or by other means of access,
29 will be analyzed in NEPA.
- 30 ■ Plans of operation will include contingencies to address stabilization and interim reclamation of
31 mineral sites during periods of unforeseen shutdown according to 36 CFR 228.10. This applies
32 to any time of mine cessation during development and production and before planned closure.

33 Management Approaches

- 34 ■ Gold prospecting information (panning, sluicing, etc.) could be made available to the public such
35 as on the Forest website and information should be available at each district.
- 36 ■ Coordination of the Cibola mineral program with mineral divisions of State and other Federal
37 agencies is desirable. Sharing information regarding mining operations on the Cibola National
38 Forest can create opportunities to eliminate redundancy and coordinate inspection and
39 enforcement.

1 **Geology Resource Management**

2 **Background and Description**

3 Geology addresses the science and physical features of the earth apart from an extractive uses as
4 minerals resources. This covers aspects such as landforms, rock formations, and fossils. Geologic
5 features occur on every ranger district and illustrate the origin of mountain ranges, provide
6 opportunities for scientific study and offer stunning scenic values. Geologic educational
7 opportunities and scientific research can contribute to the greater understanding of our planet and its
8 history.

9 **Desired Conditions**

- 10 ■ The outstanding geologic features on the Cibola National Forest provide high-quality
11 educational opportunities for students, scientists, and the casual visitor.
- 12 ■ Significant geologic features are protected from being defaced or destroyed.
- 13 ■ The Cibola National Forest will encourage geology-based educational opportunities.

14 **Standards**

- 15 ■ Professional geologic field investigations involving sampling, such as for fossils, rock and
16 mineral types, and formal investigations into geologic features, will be accommodated by permit
17 according to regulatory requirement.
- 18 ■ The scientific collection of paleontological and geological specimens will be accommodated and
19 permitted as required.

20 **Management Approaches**

- 21 ■ Opportunities for public geologic interpretation should be developed; these could include
22 interpretive signs, printed material, and interpretive information on the Forest Service websites.
- 23 ■ Geologic field investigations and instruction occurs on the Cibola National Forest. Study of
24 fossils and volcanic rock specimens, as well as other geologic phenomenon will occur according
25 to regulatory requirements.

26 **Reclamation**

27 **Background and Description**

28 Reclamation on the Cibola National Forest goes hand-in-hand with all mineral activities and
29 operations. Each operation has a reclamation component which is site-specific and tied to that single
30 operation. For example, appropriate reclamation is discussed with operators for small sluicing
31 operations as well as required in plans of operation for mining. It is the responsibility of the operator
32 to reclaim mineral activity sites as authorized in their plan of operation. In addition to plans of
33 operation, bonds collected by the Forest Service insure that money is available for site reclamation.
34 The bond can be returned once satisfactory reclamation is completed by the operator.

35 **Desired Conditions**

- 36 ■ Reclamation of mining and mineral activity sites provides for public safety and the protection of
37 forest resources, and is conducted to return sites to a natural condition as nearly as possible.

1 **Guidelines**

- 2 ■ Mine reclamation should use a geomorphic approach that results in landforms similar to adjacent
3 natural terrain and hydrologic functions similar to natural systems to minimize long-term
4 monitoring and maintenance requirements.
- 5 ■ Mining activities should incorporate reclamation measures that reduce visual contrasts with the
6 surrounding landscapes. Mitigation measures, including recontouring topography and
7 revegetation of bare sites where necessary, should be utilized to move areas impacted by mining
8 activities to the long-term scenic integrity objectives of that area.
- 9 ■ Lands where past mineral development or exploration has occurred should be stable and
10 vegetated; native species should be used where possible.
- 11 ■ Post-mining restoration areas should be designed to allow the sustainability of other forest
12 resources.
- 13 ■ Plans of operation should address avoiding or minimizing the alteration of natural features
14 providing wildlife habitat.
- 15 ■ Streambed and floodplain alteration or removal of material should not prevent attainment of
16 riparian, channel morphology, or streambank desired conditions.
- 17 ■ Only native or non-persistent seed and plant materials should be used when revegetating
18 disturbed sites.
- 19 ■ Mining and mineral activities of all sizes should be planned to minimize the disturbance
20 footprint of the operations site.
- 21 ■ Mining and mineral operations should be logically planned, opened, and operated in order to
22 meet final reclamation objectives.
- 23 ■ Where water sampling is indicated, baseline, interim and post-mining operation surface water
24 and ground water monitoring should occur where needed to detect possible adverse changes at
25 the earliest possible time.
- 26 ■ Talus slopes should not be altered and materials should not be removed from them (with some
27 exceptions). In areas that harbor talus snails, reclamation and revegetation treatments should be
28 designed to retain microhabitat characteristics for endemic snails and other talus-dependent
29 species unless as needed to meet statutory requirements (mining law or as needed to protect
30 public health and safety).
- 31 ■ On sites that may contain radionuclides, remediation of soil radiation levels should follow the
32 Joint Guidance for the Cleanup and Reclamation of Existing Uranium Mining Operations in
33 New Mexico, developed by the New Mexico Energy, Minerals & Natural Resources Department,
34 Mining and Minerals Division; and the New Mexico Environment Department, Mining
35 Environmental Compliance Section, or current Federal standards as dictated by the appropriate
36 Forest Service hazardous materials on-scene coordinator.

37 **Standards**

- 38 ■ Bonds will be collected for each plan of operation or mineral materials operating plan to insure
39 appropriate closure for operations of all sizes.
- 40 ■ Reclamation will be carried out concurrently with mining; restoration of the environment takes
41 place at the earliest opportunity for each area on a mine site.

- 1 ■ Soil disturbance will be kept to a minimum. Where removal of soil is necessary, soil will be
2 stockpiled and stabilized for use in later reclamation.
- 3 ■ Plans of operation will address interim reclamation requirements for unforeseen shut-down and
4 temporary cessation.
- 5 ■ Suitable interim and post-project surface water and groundwater monitoring will be implemented
6 where needed to detect adverse changes at the earliest practicable time.
- 7 ■ On site disturbances where radionuclides may exist, reclamation will eliminate any potential for
8 radionuclide exposure to humans and the environment.
- 9 ■ Reclamation plans will be site specific and appropriate for the setting; for example, soils,
10 vegetation, climate, and slope.

11 Management Approaches

- 12 ■ Locatable mineral operations should accommodate desired conditions of other resources as far as
13 possible.
- 14 ■ Applying seed immediately when replacing soils or roughening surface growth media increases
15 vegetative success.

16 Abandoned Mine Lands

17 Background and Description

18 Abandoned mines are the remains of former mining operations. The Abandoned Mine Lands
19 Program in the Forest Service identifies mine features posing a danger to the public; these are
20 prioritized and identified for closure and or remediation. The classification as abandoned applies
21 when there are no entities or individuals left operating the mining activity or who have financial ties
22 to the mining. The significance of this classification is that for most abandoned sites there is no
23 money from the original operators available to clean up the sites. Although occasionally a potentially
24 responsible party can be found and contribute toward cleanup, the major burden falls on the Forest
25 Service to fund cleanup/remediation.

26 Closures are conducted to remediate hazardous materials as well as to safeguard physical openings
27 such as shafts, adits, collapsed headframes, and remaining mine equipment.

28 Desired Condition

- 29 ■ Abandoned mines are appropriately remediated and do not endanger people or the environment.

30 Standards

- 31 ■ When closing underground mine features to public entry, pre-closure inspections shall be
32 conducted to determine if cave-dependent species are present. Closures will be designed and
33 implemented to address the needs of resident or historically occurring wildlife within the
34 constraints of meeting public safety concerns.
- 35 ■ Environments in abandoned mines should not be altered except where necessary to protect
36 associated natural resources or human health and safety.
- 37 ■ Where mining-related features remain, a cultural resource survey shall be conducted to inform
38 the closure design. Altering cultural resources will be avoided unless public safety is in jeopardy.

1 ■ Appropriately remediated abandoned mines are available for roosting bats, reducing the potential
2 for displacement, abandonment of young, and possible mortality.

3 ■ No Forest Service employee will enter abandoned mine underground workings unless certified
4 as a Qualified Certified Mineral Examiner (QCME) or accompanied by a QCME or person
5 similarly qualified.

6 Management Approach

7 ■ The Cibola should coordinate management of bat roosts with New Mexico Department of Game
8 and Fish and the U.S. Fish and Wildlife Service.

9 Caves

10 Background and Description

11 Caves are natural biophysical features that include any naturally occurring void, cavity, recess, or
12 system of interconnected passages beneath the surface of the Earth or within a cliff or ledge and
13 which is large enough to permit a person to enter, whether the entrance is excavated or naturally
14 formed. This definition includes any fissure (large crack), lava tube, natural pit, sinkhole, karst
15 feature, or other opening which is an extension of a cave entrance or which is an integral part of the
16 cave. Cliffs are any high, steep, or overhanging rock or earth face. Most caves on the Cibola can be
17 described above as lava tubes and/or overhanging cliff features, although there are some karst
18 features. These features provide specialized seasonal and year-round habitats for a variety of wildlife
19 species including bats, cliff-nesting birds, snails, reptiles and amphibians. Animal species found in
20 caves include many species of bats and small and large mammals as opportunistic users.

21 The Cibola National Forest contains two significant caves. The National Caves Resources
22 Management and Protection Act (Public Law 110-691) defines a significant cave as a cave located
23 on National Forest System lands that has been evaluated and shown to possess features,
24 characteristics, values, or opportunities in one or more of the following resource areas: biota;
25 cultural; geologic, mineralogic or paleontologic significance; hydrologic; recreational; or
26 educational-scientific for scientific, educational or recreational purposes; and which has been
27 designated “significant” by the Forest supervisor. The Cibola’s two significant caves are distinctive
28 due to archaeological and cultural values. The Sandia Man Cave in Las Huertas Canyon is a
29 significant archaeological feature and the location of the other significant cave may not be disclosed
30 due to on-going traditional cultural uses and archaeological resources.

31 Desired Conditions

32 ■ Caves are managed to retain their cultural, historic, geologic, and biologic integrity.

33 ■ Bat diseases, such as White-nose Syndrome, are not introduced in caves.

34 ■ Caves known to be important for species of conservation concern are intact or provide habitat for
35 these species.

36 ■ Significant cave resources’ aesthetic, cultural, and scientific values remain intact, and are
37 protected from damage to provide for uses either by people (traditional cultural uses) or wildlife.

38 ■ Caves provide habitat for species that require specialized conditions for roosting and
39 overwintering, such as bats. Caves maintain moisture and temperature levels consistent with
40 historic conditions.

- 1 ■ Archaeological, geological, paleontological, and biological features of caves are not adversely
2 affected by visitors.

3 Guidelines

- 4 ■ In caves where traditional or cultural uses exist, management should include the accommodation
5 of those uses.
- 6 ■ Where deemed appropriate by specialists, decontamination procedures should be followed for
7 preventing White-nose Syndrome when entering caves.
- 8 ■ If bat roost sites are present, closure structures such as wildlife friendly bat gates that meet the
9 most current recommendations should allow bats to continue to use the cave.
- 10 ■ Environments in caves should not be altered except where necessary to protect associated natural
11 resources or to protect health and safety. Where mine closure is necessary to protect human
12 health and safety, closures should preserve habitats for roosting bats and avoid direct impacts to
13 bats.

14 Standards

- 15 ■ When closing caves to public entry, pre-closure inspections shall be conducted to determine if
16 cave-dependent or other species are present. Closures will be designed and implemented to
17 address the needs of resident or historically occurring wildlife within the constraints of meeting
18 public safety needs.
- 19 ■ Caves that have been designated or nominated as “significant,” will be managed to perpetuate
20 those features, characteristics, values, or opportunities for which they were designated.

21 Management Approaches

- 22 ■ Caves can provide a setting for educational opportunities.
- 23 ■ Closure to the public may be used as a method to protect resources.
- 24 ■ Identified bat roosts should be managed to provide for the enhancement and protection of bat
25 populations. Protective measures may include seasonal closures, public education, and wildlife-
26 friendly gates.
- 27 ■ Monitoring significant caves or other biophysical features to determine visitor impacts and the
28 conditions of key resources could be useful to protect the ecology of the feature or resource.
- 29 ■ Management activities should be designed to avoid or minimize the alteration of naturally
30 occurring rocky outcroppings or cliff faces associated with caves.

31 Renewable Energy

32 Background and Description

33 The Cibola National Forest Mountain Districts have the potential to host or facilitate the
34 development of alternate or renewable energy sources which may include solar, wind, and biomass.
35 Renewable energy has the potential to provide ecosystem services which are important to people in a
36 local, regional, and national scale. Construction and maintenance of facilities and/or transmission
37 lines could provide employment while energy produced or transmitted provides direct benefits in
38 power generation. Wind and solar energy are clean fuels which do not release hydrocarbons to the
39 atmosphere and as such do not contribute to global warming. Use of small solar panels can provide
40 energy for wildlife, and livestock range improvements.

1 **Desired Conditions**

- 2 ■ Energy transmission and development on the Cibola National Forest meets mandates to facilitate
3 the transmission and development of energy resources in a manner that minimizes adverse
4 impacts and does not detract from meeting other desired conditions applicable to the area.

5 **Guidelines**

- 6 ■ Construction and maintenance of energy facilities/transmission corridors/transmission lines
7 should avoid the introduction and spread of nonnative invasive species.
- 8 ■ Energy corridors should be planned to avoid or limit disturbance in or near riparian zones to
9 protect surface water, shallow groundwater, unstable areas, hydric soils or wetlands, and surface
10 water.
- 11 ■ Colocation and joint use of rights-of-way should be utilized for transmission lines or facilities to
12 the extent possible in order to minimize surface disturbance.
- 13 ■ Forest management within energy rights-of-way should allow for the operation and maintenance
14 of the facilities and infrastructure as well as desired vegetative conditions and land uses.
- 15 ■ Energy facilities/transmission corridors should avoid locations in areas identified as having a
16 demonstrated high risk to wildlife, cultural resources, and agricultural land uses.
- 17 ■ Environmental analysis of proposed energy facilities/transmission corridors should address the
18 overall wildlife habitat of the project area. To safeguard migration of smaller mammals,
19 amphibians, ground-nesting birds, and reptiles, any facilities should be designed and constructed
20 to avoid habitat fragmentation. Projects should avoid disturbance to rock features which are
21 often dens or burrows. Vegetation around rock features should be maintained for wildlife cover.
22 Project development should minimize activities during breeding seasons. Projects should
23 minimize mortality for wildlife, including small species.
- 24 ■ When considering proposed wind energy developments, current industry technology to protect
25 against wildlife mortality should be investigated and the best available technology should be
26 used in any wind project implementation.
- 27 ■ Proposals to develop solar energy should investigate the impacts to wildlife such as heated
28 micro-climates adjacent to solar energy arrays. Any solar energy developments should use best
29 available technology to mitigate heat-induced impacts to wildlife.
- 30 ■ Solar energy projects should give priority consideration to previously disturbed sites to minimize
31 wildlife and vegetation impacts.
- 32 ■ Proposals for renewable biomass energy should be considered. Portable biomass pellet plants
33 could reduce the need to burn slash, while providing a heating fuel.
- 34 ■ Potential solar and/or wind energy development should not be located in areas with high scenic
35 integrity objectives or in the foreground along concern level 1 trails, recreations sites, and roads
36 (concern level 1 are the routes identified with the most public concern for scenery).

37 **Standards**

- 38 ■ Energy corridors will allow a reliable supply of energy essential to meet local, regional, and
39 national economic demands.
- 40 ■ The operation of renewable energy projects will provide for beneficial uses without endangering
41 forest or agricultural resources.

- 1 ■ Reclamation plans for disturbed sites will be site-specific and appropriate for the soils,
2 vegetation, and climate.

3 Management Approaches

- 4 ■ Energy transmission lines should not be visible (usually underground) across the landscape.
- 5 ■ The Cibola National Forest should coordinate with relevant local, State, and Federal agencies
6 during all phases of proposed energy projects.
- 7 ■ Where possible, renewable energy projects should be planned to provide economic benefits for
8 the citizens of surrounding counties.

9 Recreation

10 General Recreation

11 Background and Description

12 The Cibola National Forest provides a diversity of outdoor recreation opportunities, connecting
13 people with nature in a variety of diverse settings and activities. Participation in recreational
14 activities is what draws most people to the Forest, making it an important portal for understanding
15 the meaning, history, and relevance of public lands as a whole. Recreation contributes greatly to the
16 physical, mental, and spiritual health of individuals, bonds family and friends, instills pride in
17 heritage, and provides economic benefits to communities, regions, and the Nation.

18 The natural, cultural, and scenic environments of the Forest offer settings for a wide range of high-
19 quality recreation and tourism opportunities. Quiet mountain, forested, and high-desert places
20 provide an escape and climatic relief from urban environments. Cultural features provide historical
21 context to the natural scenery, and add to the richness of the experience and sense of place.

22 Recreation opportunities on the Cibola National Forest include non-motorized, motorized,
23 developed, and dispersed recreation on land, water, and in the air. The social, managerial, and
24 physical attributes of a place, when combined, provide a distinct set of recreation opportunities. The
25 Cibola National Forest uses the recreation opportunity spectrum to define the types of outdoor
26 recreation opportunities, settings, and experiences the public might desire, and identifies that portion
27 of the spectrum the Forest might be able to provide. The opportunities, settings, and activities for
28 obtaining experiences are arranged across a continuum or spectrum of six classes: primitive, semi-
29 primitive non-motorized, semi-primitive motorized, roaded natural, rural, and urban. The current set
30 of recreation opportunity spectrum classes are presented in Appendix F of this document.

31 Forest landscapes, resources, and programs offer opportunities for education and engagement of
32 children and adults alike. This facilitates an understanding of and participation in resource
33 conservation and promotes knowledge and appreciation of the natural world and its relationship to
34 human communities.

35 Desired Conditions

- 36 ■ The Cibola National Forest welcomes a diverse group of visitors by providing a variety of
37 developed and dispersed recreation and tourism opportunities (for example, camping, picnicking,
38 hiking, mountain biking, hunting, fishing, wildlife viewing, driving for pleasure, and motorized
39 recreation) that are appropriate for the recreation setting and other resource values.

- 1 ■ The Cibola National Forest provides a sustainable recreation program consistent with public
2 demand, management needs, and other natural and cultural resource values.
- 3 ■ The Cibola National Forest provides a range of high quality recreation settings, uses, activities,
4 and year-round opportunities.
- 5 ■ User conflicts are minimized.
- 6 ■ There is no vandalism, theft, illegal activity, or resource damage on the Forest from recreation
7 activities.
- 8 ■ The recreation program is integrated into all forest resource management decisions and activities
9 and is adaptable to changes in recreation use and trends.
- 10 ■ The unique cultural, historical, and ecological resources of the Forest are featured through
11 recreation opportunities, education, and interpretation. Visitors are connected to the importance
12 of the past.
- 13 ■ The Cibola National Forest recreation program enhances the economic, cultural, and social
14 vitality and well-being of surrounding communities. Local communities are involved in
15 partnerships to facilitate and participate in the management of the Forest.
- 16 ■ Conservation education, visitor information, and interpretation inform and engage visitors and
17 local communities. These resources are readily available and encourage increased forest
18 stewardship, ecological awareness, visitor orientation, and knowledge of recreation
19 opportunities.
- 20 ■ Forest Service presence, services, and high quality recreation sites are provided as appropriate to
21 the setting, and contribute to a sense of safety, enjoyment, and satisfaction for Forest users.
- 22 ■ Special cultural and natural areas, including caves and heritage sites, are protected and managed
23 using Forest Service best management practices.

24 Guidelines

- 25 ■ All project-level decisions and implementation activities should be consistent with mapped
26 classes and setting descriptions in the recreation opportunity spectrum to sustain recreation
27 settings and opportunities on the Cibola National Forest.
- 28 ■ When possible, management activities that affect visitors should be scheduled outside of the
29 major recreation season to prevent negative socio-economic impacts to the recreation program.
- 30 ■ Rock climbing should be managed to balance demand for the activity and the need to protect
31 plants, animals (including species of conservation concern), and other natural and cultural
32 resources.
- 33 ■ Management of cave access for recreational purposes should be balanced with wildlife
34 protection and/or cultural resources. Interpretive and informational signs should be posted near
35 caves with known recreation access with information on prevention of the spread of White-nose
36 Syndrome and other pathogens.

- 1 ■ Identified bat roosts (including but not limited to caves) should be protected from recreational
2 disturbance during periods of bat occupancy including but not limited to maternal roosts or
3 hibernacula¹³.
- 4 ■ Healthy, large trees should comprise the majority of trees in developed and dispersed recreation
5 sites to provide shade and screening around hardened sites in order to preserve the recreation
6 setting; some younger and mid-aged trees are retained to serve as replacement trees and as
7 additional screening.
- 8 ■ Known populations or active nesting sites of species of conservation concern (including but not
9 limited to active peregrine falcon nests or populations of Sandia Mountain alumroot) on cliff
10 faces should be managed for protection from disturbance from recreation activities during the
11 breeding or growing season.

12 Management Approaches

- 13 ■ Implement a sustainable recreation approach consistent with the Cibola National Forest and
14 Grasslands Sustainable Recreation Strategy, including the completion of the actions and
15 objectives outlined in strategy.
- 16 ■ Develop relationships with local communities, partnerships, volunteers, other government
17 agencies, cooperators, and permit holders to help co-manage a sustainable recreation program,
18 including planning, design, implementation, and operations and maintenance. Recognize
19 partners for their roles in providing recreational opportunities when possible.
- 20 ■ Complete recreation management plans as needed. This includes design concept plans, scenic
21 byway corridor management plans, interpretive plans, wilderness plans, design narratives, and
22 others. Use recommendations from various recreation plans in project implementation.
- 23 ■ Develop a Cibola National Forest interpretive plan to address educational, interpretive, and
24 informational needs of each District, and identify key messages for the Forest.
- 25 ■ The Forest places an emphasis on providing interpretive programs within administrative
26 capabilities, especially through its visitor centers, ranger stations, popular recreation sites, and
27 development of education tools. A variety of techniques (for example, handouts, websites,
28 presentations, social media platforms) are considered to educate users on topics ranging from
29 land ethics to Forest history.
- 30 ■ Promote established programs (such as TreadLightly!®, Leave No Trace, Kids in the Woods,
31 Passport in Time, Bear Aware) and develop new conservation education programs that help
32 connect people to nature and encourage responsible use at schools, youth activities, fairs,
33 volunteer events, etc.
- 34 ■ The Cibola National Forest may provide for multilingual interpretation and look for
35 opportunities to partner with local schools. In recreation areas popular with Spanish-speaking
36 visitors, information may be provided in both English and Spanish.

¹³ A shelter occupied in the winter by a dormant animal.

- 1 ■ Follow the most current versions of the Forest Service Sign and Poster Guidelines and Built
2 Environment Image Guide and develop sign plans as needed for scenic byways and other
3 popular areas to provide improved visitor information and a consistent Forest Service image.
- 4 ■ Applicable accessibility guidelines are incorporated in the design and installation of new signs
5 and printed materials.
- 6 ■ Use the Cibola Recreation Site Analysis, Forest Service Outdoor Recreation Accessibility
7 Guidelines (USDA Forest Service 2013a), and Forest Service Trail Accessibility Guidelines
8 (USDA Forest Service 2013b) to improve accessibility for visitors.
- 9 ■ Consider unique collaborative approaches with range specialists to address conflicting uses
10 between livestock permittees and recreationists, such as use of corrals, drinkers, and related
11 range improvements, and in areas where fence lines and recreational trails intersect to minimize
12 cutting of fences.
- 13 ■ The Forest may adopt design standards and best management practices for emerging recreation
14 activities as they become available. Adopting management policies for new forms of recreation
15 may be considered as time allows and in accordance with the desired interest these new forms
16 attract in relation to other known recreation uses and resource concerns.

17 **Developed Recreation**

18 **Background and Description**

19 Developed recreation on the Cibola National Forest includes management of campgrounds, picnic
20 areas trailheads, ski areas, and other day-use sites. The Cibola's four mountain districts have
21 approximately 137 developed sites. Most are easily accessible by passenger car. With the exception
22 of some trailheads, the developed recreation areas are open primarily in the summer and fall. Some
23 developed recreation sites remain open year-round.

24 **Desired Conditions**

- 25 ■ There is a spectrum of developed recreation opportunities characterized by varying levels of
26 development and amenities appropriate to the setting. The quality, locations, and variety of
27 recreation sites and their associated amenities add to visitor satisfaction and resource protection.
- 28 ■ Recreation sites are designed and maintained to complement the Forests' scenery resources and
29 scenic character.¹⁴ Facilities range from primitive to highly developed, with an emphasis on
30 blending the facilities with the natural landscape.
- 31 ■ Healthy forest vegetation (species, size, and age) in developed sites complements recreational
32 activities, scenery, and safety.
- 33 ■ Resource and facility deterioration and damage is mitigated, and changes in recreational use are
34 managed as appropriate within the setting.

¹⁴ Scenic character is defined as the combination of physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place.

1 Standards

- 2 ■ The maximum allowable occupancy of National Forest System lands within the Cibola National
3 Forest shall be 14 days (consecutive or not) within a 90-day period, except as allowed by permit.
- 4 ■ Developed trailheads and day-use sites shall not be designated for overnight use.
- 5 ■ Developed sites shall be designed to provide for low-maintenance and accessible facilities while
6 meeting other resource needs.

7 Guidelines

- 8 ■ Design, construction, and maintenance of facilities should harmonize with the surrounding
9 landscape and be consistent with the development scale appropriate to the recreation opportunity
10 spectrum class and most recent version of The Built Environment Image Guide for the National
11 Forests and Grasslands.
- 12 ■ Recreation sites should be planned, designed, and managed to prevent resource damage, and for
13 activities and capacities that do not cause unacceptable resource damage or adversely impact the
14 scenic character.
- 15 ■ Sustainable design should be incorporated in the alteration of existing facilities and in new
16 construction of recreation sites and facilities.
- 17 ■ Recreation facilities and improvements should be designed to prevent human and wildlife
18 conflicts, for example, egress for wildlife in vault toilet vents, animal resistant trash cans, and
19 capped pipes on gates and interpretive sign bases.
- 20 ■ Constructed features should be maintained to support the function(s) for which they were built.
21 When no longer utilized as intended, they should be repurposed to accommodate the new use or
22 decommissioned in order to minimize maintenance backlog and infrastructure deterioration, and
23 to protect public safety and health.
- 24 ■ Public safety and stewardship information should be posted at developed recreation sites
25 (including a welcome to the site, as well as rules and regulations on recreational activities).
- 26 ■ Pack-it-in, pack-it-out practices should be promoted at dispersed sites.
- 27 ■ To promote a natural appearing landscape, invasive species should be removed or treated on
28 existing sites before they become widespread within recreational sites.
- 29 ■ Gathering of dead and down firewood for recreation use while camping or picnicking should be
30 authorized where appropriate, but should not be authorized in riparian areas.
- 31 ■ Also see the “Vegetation,” “Scenery,” and “Infrastructure” sections of the Plan for guidelines
32 related to developed recreation.

33 Management Approaches

- 34 ■ Within 5 years, assess the sustainability and relevance of the developed recreation program.
35 Once the assessment is complete, prioritize for decommissioning, closing, or repurposing
36 facilities identified as unsustainable.
- 37 ■ Provide design narratives for projects to determine the appropriate location, capacity, and type of
38 facilities required to meet user needs in the context of the forest setting.
- 39 ■ District design guidelines may be developed to manage specific design issues, identify
40 appropriate architectural themes and styles, and provide consistent design that represents each
41 mountain landscape’s unique scenic character.

- 1 ■ Adaptively manage recreation facilities and opportunities as needed to shift limited program
2 resources to prioritized sites and opportunities.
- 3 ■ Changes in use trends may be considered when reconstruction occurs or when designing new
4 sites. For example, if recreational vehicle use or type increases, larger parking spurs might be
5 considered. Recreation sites considered for reconstruction may be prioritized based on site
6 conditions and use levels and may be updated or reconstructed as funding levels allow.
- 7 ■ Recreation site overflow could be considered during periods of high use in areas where the short-
8 term nature of the use is not likely to result in long-term resource damage and the use is not in
9 conflict with active closure orders.
- 10 ■ The operation or closure of a site is informed by the season's volume of use, resource protection,
11 opportunities for public/private partnerships, and operating costs.
- 12 ■ Review and complete accessibility assessments for compliance with Forest Service Outdoor
13 Recreation Accessibility Guidelines and the Architectural Barriers Act on all developed
14 recreation sites; prioritize sites for upgrades as funding and opportunity allow.
- 15 ■ Patrol areas regularly for public contact, education, and safety, facility/resource protection, and
16 fee compliance.
- 17 ■ Sites are operated to the current standards, such as those outlined in the Forest Service
18 publication *Cleaning Recreation Sites* (USDA Forest Service 1995b) or more recent technical
19 report.
- 20 ■ Fee areas and concessionaires may be used to maintain and manage developed facilities,
21 particularly in high-use areas. When this occurs, ensure applicable Forest Service rules are
22 followed consistently.
- 23 ■ Sustainable operations are used where possible at developed recreation sites (for example,
24 recycling receptacles, electric maintenance vehicles, etc.).
- 25 ■ Consider installing or replacing trash and food boxes with wildlife-resistant models at developed
26 recreation sites.
- 27 ■ The Forest may coordinate in development of recreation facilities with other government
28 agencies and non-governmental agencies to become a regional destination to support local and
29 economic development.
- 30 ■ Consider repurposing historic employee residential facilities as recreation rentals. When this
31 occurs, the historic character of facilities is maintained through use, and visitors can enjoy a
32 historic recreation experience not previously available on the Forest.

33 **Dispersed Recreation**

34 **Background and Description**

35 Dispersed recreation is outdoor recreation occurring over broad expanses of the Cibola National
36 Forest and includes management of a variety of motorized and non-motorized recreation
37 opportunities. Examples of popular dispersed recreation include motorized and non-motorized trail
38 use, dispersed camping, wildlife viewing, hunting, fishing, plant gathering, and photography.

39 **Desired Conditions**

- 40 ■ Dispersed recreation occurs in mostly undeveloped, natural areas, and is managed appropriate to
41 the setting and to emphasize resource protection.

- 1 ■ Dispersed recreation occurs on designated National Forest System Trails and is consistent with
2 respective trail management objectives to prevent resource damage and user conflicts.
- 3 ■ Facilities for dispersed recreation activities are minimal, consist of simple construction designs
4 and materials that blend in with the surrounding area, and are provided primarily for resource
5 protection.
- 6 ■ A system of trails provides a variety of opportunities and settings for visitors to explore the
7 Forest. The system is sustainable and the design, construction, and maintenance of trails enhance
8 the recreation opportunity, and minimize user conflict and damage to Forest natural and cultural
9 resources.
- 10 ■ The trail system accommodates use levels compatible with other resource values and is
11 consistent with public demand.
- 12 ■ Trail and trailhead level of development is appropriate to the site conditions, use, and setting.
- 13 ■ Trails vary in length and challenge and provide linkages to local neighborhoods, communities,
14 and other public lands.

15 Standards

- 16 ■ No new motorized routes or areas shall be constructed or designated in desired primitive
17 recreation opportunity spectrum settings. In semi-primitive non-motorized recreation opportunity
18 spectrum settings, no new permanent motorized routes or areas shall be constructed or
19 designated; any temporary project-level motorized routes or road construction in semi-primitive
20 non-motorized settings must be rehabilitated within 2 years of project completion.
- 21 ■ Impacts to recreation resource values resulting from the construction of temporary roads needed
22 for project-level work shall be mitigated upon completion of the project.
- 23 ■ Motorized vehicle travel shall be managed to occur only on the designated system of roads,
24 trails, and areas, as defined on motor vehicle use maps, except for those uses authorized by law,
25 written authorizations and Forest orders.

26 Guidelines

- 27 ■ Trails should be designed, constructed, rerouted, or maintained utilizing current best practices to
28 promote sustainable design while providing desired recreation opportunities and other resource
29 needs.
- 30 ■ Trail markings, kiosks, and interpretive signage should communicate adequate information, be
31 consistent with agency and Forest sign guidelines, and be designed to complement the scenic and
32 cultural character of the surrounding landscape.
- 33 ■ When trails intersect with fences, accessible pass-through areas should be provided to allow for
34 easier passage for recreation users, unless it interferes with range management and resource
35 protection needed for the pasture.
- 36 ■ National Forest System trails should not be used for vegetation project activities, such as for
37 landings and as skid trails. Impacts to system trails should be avoided where feasible, and
38 mitigated upon project completion if unavoidable.
- 39 ■ Trails that are found to adversely impact natural and cultural resources should be evaluated for
40 closure and alternative travel routes or locations should be developed where feasible.

- 1 ■ Trail maintenance and designated use in federally threatened or endangered species habitat
2 should be consistent with guidance in that species' most recent approved recovery plan.
- 3 ■ Newly designated trails should avoid traveling through meadows, wetlands, seeps, springs,
4 riparian areas, floodplains, sacred sites, and areas with high concentrations of significant
5 archaeological sites, unless to provide for resource protection. The number of designated stream
6 crossings should be limited to avoid impacts to these features.
- 7 ■ Where designated trail access to springs occurs, trails should be designed to prevent erosion,
8 trampling, compaction, and inadvertent introduction of invasive and undesirable plants, animals,
9 and disease while still allowing access by wildlife.
- 10 ■ New motorized trails should be located to avoid Mexican spotted owl protected activity centers,
11 northern goshawk post-fledging family areas, and other wildlife areas as identified; seasonal
12 restrictions may be an option.
- 13 ■ Motorized routes removed from the transportation system should be rehabilitated in order to
14 avoid continued unauthorized use and future risk to hydrologic function, soil health, habitat, and
15 scenic resources.
- 16 ■ After management activities occur in areas with high potential for cross-country motorized
17 vehicle use, methods (such as barriers and signing) should be used to control unauthorized
18 motorized use, consistent with the scenic integrity objectives.
- 19 ■ Non-motorized cross-country travel, by uses other than hiker and pedestrian use, should be
20 discouraged and use should be directed to National Forest System trails. Use of National Forest
21 System trails should be consistent with the respective trail management objectives to prevent
22 resource damage and user conflicts.
- 23 ■ Dispersed camping should avoid cultural sites, trailheads (except those trailheads with
24 designated dispersed sites already in use), sensitive wildlife areas, interpretive sites, or water
25 resources.
- 26 ■ In dispersed areas, the priority for facilities or minor developments should be resource
27 protection.
- 28 ■ Dispersed sites should be closed, rehabilitated, or otherwise mitigated when:
- 29 • Campsite conditions have deteriorated;
- 30 • Site occupancy exceeds the area's scenic integrity objective;
- 31 • There are social use conflicts; and/or
- 32 • Unacceptable environmental damage is occurring.
- 33 ■ When closing or rehabilitating dispersed recreation sites due to resource conditions, native
34 vegetation and natural barriers should be used. In addition, information should be posted to
35 redirect use and encourage public compliance in rehabilitation efforts.
- 36 ■ Where forage is limited, interpretation should be provided encouraging overnight campers with
37 recreational livestock to carry cubed, pelleted, or rolled feed (free of viable noxious weeds) to
38 prevent overgrazing of dispersed camping areas.

1 Management Approaches

- 2 ■ Develop a Forestwide protocol for assessing the sustainability, objective, and use of National
3 Forest System trails and dispersed campsites and prioritizing work needed to address resource
4 issues, conflicts in use, etc.
- 5 ■ Trail management objectives are prepared for new trails added to the National Forest System
6 trails and are updated as needed for existing National Forest System trails.
- 7 ■ Trail management priorities are based on preventing erosion, providing appropriate and
8 meaningful recreation opportunities, and accommodating administrative needs.
- 9 ■ Consider destination and loop opportunities when new trails or modifications to the trail system
10 are planned.
- 11 ■ Consider analyzing and adding unauthorized trails when making revisions to the trail system.
- 12 ■ Management strategies, such as limiting use in certain areas and emphasizing use in others or
13 closing areas altogether, may be implemented when there is a need to respond to resource
14 concerns and reduce user conflicts. Use of sites traditionally used for dispersed camping or
15 related activities may minimize the need for disturbing additional areas.
- 16 ■ Signing, enforcement, public information, seasonal and special closures, maintenance,
17 construction, and restoration take place as appropriate. Emphasis is placed on addressing user
18 conflicts and resource damage. Educational techniques (such as brochures, signs, websites, and
19 social media) enhance visitor knowledge of proper non-motorized and motorized trail use
20 etiquette.
- 21 ■ Cooperate with local governments, partners, and communities to provide for snow removal to
22 allow for travel to and from winter outdoor activities.

23 Scenic Resources

24 Background and Description

25 The Cibola National Forest provides high quality scenery for present and future generations, and the
26 public values the scenic character of the Forest. Scenic character is the set of physical, biological,
27 and cultural features that give an area its scenic identity or sense of place. The Cibola National Forest
28 mountain districts contain diverse “sky island” landscapes, ranging from semi-desert grasslands to
29 mixed-coniferous forests and alpine meadows. The scenic character encompasses both social and
30 ecological elements, including landform, vegetative pattern, water features, recreation opportunities,
31 and cultural features. Buildings, structures, and other human alterations are considered a valuable
32 aspect of scenic integrity when these features add to the sense of place or reflect the cultural legacy
33 of an area.

34 The Cibola National Forest uses the Forest Service Scenery Management System to determine the
35 value and importance of scenery and identify scenic resources as they relate to people. Scenic
36 integrity indicates the degree of intactness and wholeness of the scenic character. Scenic integrity
37 objectives are defined by degrees or levels of alteration from the desired scenic character and the
38 intent is to achieve the highest scenic integrity possible.

39 The Forest is divided into levels of desired scenic integrity: “very high,” “high,” “moderate,” “low”
40 and “very low.” These levels set objectives for the amount of variation from the existing scenic
41 character that is permissible within the scenic integrity level. The current set of scenic integrity
42 objectives are presented in Appendix G of this document.

1 Desired Conditions

- 2 ■ Scenery management, scenic character, and scenery values are integrated into the design,
3 planning, and implementation of all resource management decisions.
- 4 ■ The Cibola National Forest scenic character is characterized by a predominately natural
5 appearing landscape and valued cultural landscape, which reflect the Forest’s sense of place. The
6 scenic quality of landscapes is restored, maintained or enhanced across the Forest.
- 7 ■ High quality scenery and scenic values are protected in areas of high public use, such as scenic
8 byways, major roads and trails, and developed recreation sites.
- 9 ■ Scenic resources and scenic character reflect ecosystem diversity, enhance the recreation
10 settings, and contribute to the quality of life of local residents and communities.

11 Guidelines

- 12 ■ Constructed features, facilities, and management activities closely follow the form, line, color,
13 texture, and pattern common to the desired scenic character being viewed to remain visually
14 subordinate to the surrounding landscape, except where the size or design of a structure is such
15 that it would dominate the landscape. For those exceptions, the structures complement the
16 desired scenic character.
- 17 ■ Management activities should be consistent with scenic integrity objectives for the area.
- 18 ■ Management activities may result in short-term impacts (3 to 5 years) that are inconsistent with
19 the scenic integrity objective if those impacts are necessary in achieving the scenic integrity
20 objective over the long term. Projects should include mitigation measures to address impacts to
21 scenic resources.
- 22 ■ In areas with “very high” scenic integrity objectives, no alterations from desired scenic character
23 should be allowed.
- 24 ■ In areas with “high” scenic integrity objectives, only minimal alterations from desired scenic
25 character should be allowed.
- 26 ■ In areas with “moderate” scenic integrity objectives, only slight alterations from desired scenic
27 character should be allowed, which ensure that deviations remain visually subordinate to the
28 desired scenic character.
- 29 ■ In areas with “low” scenic integrity objectives, only moderate alterations from the desired scenic
30 character should be allowed.
- 31 ■ Activities that affect scenic quality should be scheduled outside of the major recreation season,
32 unless doing so would not achieve project goals or would conflict with wildlife restrictions.
- 33 ■ New utility lines should be buried in areas with sensitive scenic resources, such as areas along
34 scenic byways, nationally designated trails, and within recreation areas, unless needed to meet
35 statutory requirements, such as United States mining law or laws to protect public health and
36 safety. Existing utility lines that do not meet scenic integrity objectives should be buried or
37 relocated to reduce scenic impacts whenever opportunities become available (such as when poles
38 are replaced).
- 39 ■ Mining activities should incorporate reclamation measures that reduce visual contrasts with the
40 surrounding landscapes. Mitigation measures, including recontouring topography and
41 revegetation of bare sites where necessary, should be utilized to move areas impacted by mining
42 activities to the long-term scenic integrity objectives of that area.

- 1 ■ Potential solar and/or wind energy development should not be located in areas with “high”
2 scenic integrity objectives or in the foreground along concern level 1 trails, recreations sites, and
3 roads (concern level 1 are the routes identified with the most public concern for scenery).
- 4 ■ For vegetation management and forest health improvement projects:
 - 5 • Scenic integrity objectives may be temporarily lowered in the short term if necessary to meet
6 project objectives, but should meet scenic integrity objectives over the long term.
 - 7 • Vegetation management projects should avoid even spacing of retained trees, leave a
8 diversity of tree species and sizes, avoid damage to remaining vegetation, and naturalize
9 disturbed areas.
 - 10 • Prescribed slash treatment in the immediate foreground (up to 300 feet) of concern level 1
11 and 2 travelways (area with the most public concern for scenery) should be completed as
12 soon as conditions permit.
 - 13 • Healthy, large trees should comprise the majority of the immediate foreground along concern
14 level 1 and 2 travelways, unless doing so would not achieve project goals; some younger and
15 mid-aged trees are retained to serve as replacement trees and as additional screening.
 - 16 • In the immediate foreground along concern level 1 and 2 travelways, stumps should be
17 treated to reduce their visibility by methods such as cutting as low as possible (no more than
18 6 inches above ground on uphill side) and angling large stump faces away from viewing
19 locations unless doing so would pose a safety hazard.
- 20 ■ Log decks should be removed, and actions should be taken to naturalize skid trails as soon as
21 conditions permit.
- 22 ■ Effects from prescribed fire should be considered during project planning and implementation.
23 Blackened and scorched vegetation may be visible in project areas in the short term following
24 treatments, but scenic integrity objectives should be met in the long term. Efforts should be made
25 to minimize high intensity fire in areas with high scenic integrity such as along system trails and
26 scenic vistas.
- 27 ■ Range facilities are allowed in all scenic integrity objectives, but should use mitigation measures
28 to minimize impacts to scenic quality.
- 29 ■ New facilities added to communication sites, astrophysical complexes, and administrative sites
30 should be clustered within existing areas. Facility colors and materials should blend with the
31 landscape, structures should generally be below the height of vegetation, and vegetation that
32 screens views to facilities should be protected and encouraged unless doing so would not achieve
33 project goals.
- 34 ■ Also see the “Vegetation,” “Special Uses,” “Minerals,” “Fuels,” “Range,” “Infrastructure,”
35 “Recreation,” and “Designated Areas” sections of the Plan for guidelines related to scenery.

36 Management Approaches

- 37 ■ The Scenery Management System is a tool for inventorying and managing scenic resources. This
38 system is used to incorporate scenery management principles into the planning, design, and
39 implementation of projects and activities.
- 40 ■ Use the best environmental design practices in order to harmonize changes in the landscape and
41 to advance environmentally sustainable design solutions.

- 1 ■ Utilize the Built Environment Image Guide in construction or reconstruction of Forest Service
2 facilities to ensure consistency with the scenic character of the Southwestern Region.
- 3 ■ Where non-Federal projects occur under Federal lands, managers may work with
4 owners/developers to achieve scenic integrity objectives for the area.
- 5 ■ Improve areas with poor existing scenic conditions (that is, areas with existing scenic integrity of
6 “low,” “very low,” or “unacceptably low”) by removing unwanted facilities and revegetating
7 bare ground.
- 8 ■ Remove or repurpose facilities (buildings, utility poles/lines, communication towers, and other
9 structures) that are no longer needed or function as intended; retain if they are historic or desired
10 features and prioritize for maintenance and/or restoration.
- 11 ■ Restore scenic integrity in areas where it has been negatively impacted as other project work is
12 accomplished and/or funds are available.
- 13 ■ Consider displaying interpretive or informational signs at sites with impacts to scenery to inform
14 the public about the nature and consequences of such projects or events.
- 15 ■ Cooperate with other entities, such as the New Mexico Department of Transportation, Tribal and
16 local governments, and commercial and private entities to protect scenic integrity on and
17 adjacent to the national forest, including along scenic byways.
- 18 ■ Provide scenery management inventory information to local adjacent and neighboring land
19 management agencies for integration into projects and plans.

20 Special Uses

21 Background and Description

22 Several acts of Congress authorize occupancy and use of National Forest System lands and interests
23 in lands administered by the Forest Service. The applicable statutory authority determines the
24 appropriate special-use authorization. Authorizations are issued when the proposed activities support
25 the Forest Service mission, are in the public interest, and are consistent with Forest land and resource
26 management plans. Authorizations are legal documents capturing the agreement to terms and
27 conditions between the Forest Service and the individual or entity requesting occupancy and use of
28 National Forest System lands.

29 Special-use authorizations are divided into two categories: recreation and non-recreation. Recreation
30 special uses include activities related to resorts, ski areas, outfitting and guiding services, recreation
31 events, commercial filming and still photography, and recreation residences. Recreation special uses
32 are commercial in nature and generate revenue for the Forest Service as well as the local community.

33 Non-recreation special uses include activities related to communication sites, rights-of-way/road
34 access, research and utilities including powerlines, oil and gas pipelines, telephone lines and water
35 transmission pipelines, and military training. Special uses authorizations are administered in a
36 manner to protect the environment, promote health and safety, and serve the public.

37 Communication sites have been developed on the Cibola National Forest, and play a critically
38 important role in ensuring electronic connections across the Nation. Requests for use of Federal
39 lands for communications sites are predicted to increase in the future as the population grows and
40 new technologies emerge. Requests to use Federal lands for utilities transmission and energy
41 development are also predicted to increase due to higher demand.

1 **Desired Conditions**

- 2 ■ Activities authorized as special uses provide goods and services that support the public’s
3 enjoyment and understanding of the Forest and nearby communities, and have a minimal impact
4 on the opportunities for other uses and Forest users.
- 5 ■ Special uses are authorized in accordance with maintaining sustainability of Forest resources and
6 multiple uses.
- 7 ■ Environmental, visual, and sound impacts of emerging technology, communication sites, utility
8 corridors, and other permitted infrastructure are minimized through coordination and co-location,
9 and are in harmony with the surrounding landscape.
- 10 ■ Constructed features, facilities, and management activities do not dominate the views in high
11 scenic integrity areas and developed recreation sites.
- 12 ■ Public safety around authorized communications sites is paramount.
- 13 ■ Research authorized on the Forest is focused on improving the general scientific understanding
14 of natural and social systems. Research on the Forest does not negatively impact long-term
15 vegetation structure and composition and does not introduce new invasive plants or animals.
- 16 ■ Respectful, collaborative relationships and communications are developed and nurtured with
17 internal and external special uses customers.
- 18 ■ Outfitter/guide activities have a minimal impact on the experiences of other Forest users.

19 **Standards**

- 20 ■ Special uses authorizations are administered to agency standards.
- 21 ■ Designated communication sites shall be secured to restrict access to the authorized use only.
- 22 ■ Special uses requests shall be authorized and administered to minimize conflict with other Forest
23 uses.
- 24 ■ Forest Service personnel shall be responsible to educate and ensure clear communication with
25 the public and Forest users concerning activities on the Forest.
- 26 ■ Designated communications sites shall have an approved site management plan in place.
- 27 ■ Special uses authorizations that have a potential to affect any Forest resources shall include
28 appropriate clauses specifying protection responsibilities and liabilities for damage.
- 29 ■ Operating plans covering recreation special uses authorizations shall contain appropriate
30 minimum impact practices.
- 31 ■ Recreation special uses authorized within recommended or designated areas shall contain
32 measures to protect the values or purposes for which those area have been designated or
33 recommended (for example, special uses in wilderness areas contain elements to maintain
34 wilderness character).
- 35 ■ Disturbances caused by special-use authorizations shall be mitigated and rehabilitated when
36 activities conclude in consultation with all resource areas.
- 37 ■ Special use authorizations for the collection of live species with limited distribution (for
38 example, some invertebrates and plants) shall include permit provisions to ensure the species
39 persist on site.

- 1 ■ Subject to valid existing water rights, proposals to pump, transport, or utilize water from NFS
2 lands should not impair resources on NFS lands.
- 3 ■ Water rights will be secured through the appropriate State agency and procedures to support
4 Forest Service activities.

5 Guidelines

- 6 ■ The number of designated communication sites should be the minimal amount consistent with
7 appropriate public services that require the use of Forest lands. Environmental disturbance
8 should be minimized by co-locating communication facilities.
- 9 ■ Environmental disturbance should be minimized by co-locating pipelines, powerlines, fiber optic
10 lines, and associated infrastructure. Existing energy corridors should be used to their capacity
11 with compatible upgraded powerlines, before evaluating new routes.
- 12 ■ When compatible with protection of heritage resources, the use of below-ground utilities should
13 be accomplished in order to avoid potential conflicts with wildlife, scenery, wildfire, and long-
14 term vegetative management.
- 15 ■ Special-use authorizations that authorize improvements should be analyzed in the context of
16 Forest management activities.
- 17 ■ Recreation special-use permits for events and outfitting and guiding services should be analyzed
18 relevant to any current and future capacity studies and administrative capabilities.
- 19 ■ New utility lines should be buried in areas with high concern for scenery, such as areas along
20 scenic byways, nationally designated trails, and within recreation areas unless as needed to meet
21 statutory requirements (such as mining law or laws to protect public health and safety). Existing
22 utility lines that do not meet scenic integrity objectives should be buried or relocated to reduce
23 scenic impacts whenever opportunities become available (such as when poles are replaced).
- 24 ■ New facilities added to existing designated communication sites, astrophysical complexes, utility
25 corridors, and administrative sites should be clustered within existing areas. New or renovated
26 facility colors and materials should blend with the landscape, structures should generally be
27 below the height of vegetation, and vegetation that screens views to facilities should be protected
28 and encouraged unless doing so would not achieve project goals. Consultation with the Built
29 Environment Image Guide to ensure compliance.
- 30 ■ Newly constructed features, facilities, and management activities for special uses should closely
31 follow the form, line, color, texture, and pattern common to the desired scenic character being
32 viewed to remain visually subordinate to the surrounding landscape, except where the size or
33 design of a structure is such that it would dominate the landscape. For those exceptions, the
34 structures should complement the desired scenic character.
- 35 ■ Power pole installation or replacement under special-use authorization should include raptor
36 protection devices. Raptor protection devices should be installed on existing poles where raptors
37 have been killed.
- 38 ■ Dispersed activities (non-motorized and motorized) authorized under special-use permits should
39 be limited to existing National Forest System trails and roads unless authorized, to protect Forest
40 resources.
- 41 ■ Minimize or do not allow large groups of individuals near nesting or breeding sites.
- 42 ■ Follow State wildlife laws to ensure ethical hunting.

- 1 ■ Project activities and special uses should be designed and implemented to maintain refugia and
2 critical life cycle needs of wildfire, particularly of species of conservation concern.
- 3 ■ Habitat management objectives and aquatic/riparian species protection measures from approved
4 recovery plans should be applied to activities and special uses occurring within Federal listed
5 species habitat.
- 6 ■ Project activities and special uses occurring within federally recognized species habitat
7 management objectives and species protection measures from the most recent approved recovery
8 plan.
- 9 ■ Consistent with existing water rights, Forest Service and permitted water uses, diversions or
10 obstructions should at all times allow sufficient water to support the associated ecosystem and, in
11 streams, to preserve minimum levels of water flow that maintain aquatic life, aquatic habitat, and
12 other purposes of national forest establishment.
- 13 ■ Constraints (such as to maximum limit to which water level can be drawn down or minimum
14 distance from a connected river, stream, wetland, or groundwater-dependent ecosystem) should
15 be established for groundwater pumping sites permitted on National Forest System lands in order
16 to protect the character and function of water resources.
- 17 ■ Recreation special uses authorized in areas recommended for special designation (such as
18 recommended wilderness and eligible wild and scenic rivers) should protect the values for which
19 those areas have been recommended.
- 20 ■ New utility corridors should be located outside of riparian management zones.
- 21 ■ Development of surface waters for consumptive uses will include provisions that support the
22 associated ecosystem, such as managing the point of diversion, return flows, or other methods.
- 23 ■ Activities within 300 feet of riparian areas (except at stream crossings) should not degrade the
24 riparian-dependent values and stream functioning.
- 25 ■ New points of surface water diversions should be located to minimize impacts to water-
26 dependent ecosystems, including instream flows, consistent with special use processes, existing
27 water rights, approved permits, and approved declarations.
- 28 ■ Consistent with existing water rights, developed surface waters should only be allowed where
29 there is enough water to support the associated ecosystem and the proposed use.
- 30 ■ Forest Service activities which could impact groundwater quality should be located to prevent
31 potential impacts to source water protection areas. In these protection areas, gravel pits, mining,
32 septic systems, injection wells, equipment fueling or maintenance, underground storage tanks,
33 landings, garbage storage, confined animal operations, chemical storage, pesticide use, and other
34 potentially polluting activities should not be allowed.

35 Management Approaches

- 36 ■ Designated communication sites have user associations for medium to large sites to assist in site
37 administration.
- 38 ■ Authorized users work cooperatively with the Forest and each other in site administration.
- 39 ■ Include in the operations and maintenance plan of recreation residence special-use authorizations
40 to use the most recent edition of A Guide to Maintaining the Historic Character of Your Forest
41 Service Recreation Residence for guidance on any improvements or maintenance to eligible
42 historic or unevaluated recreation residences.

- 1 ■ Where there are conflicts with law, regulation or policy, implement the highest and most
2 restrictive authority.
- 3 ■ Operating and management plans for special-use-authorized sites includes criteria for
4 maintaining healthy forest vegetation, including treating hazard trees.
- 5 ■ Utilize special-use permit conditions as a means of maintaining surface flows.

6 Infrastructure

7 Roads

8 Background and Description

9 The transportation system road network within the Plan area consists of approximately 3,100 miles
10 of roads. These roads are under Forest Service jurisdiction and are referred to as National Forest
11 System roads. In addition to the National Forest System roads in the Plan area, there are other
12 Federal, State, county and private roads, as well as many unauthorized roads. The road system
13 provides access for a wide variety of recreational opportunities, cattle grazing, mining, forest and
14 resource management, and research sites.

15 The portion of the road system available for motor vehicle use by the public is displayed on motor
16 vehicle use maps. These maps also include motorized trails and areas designated for motor vehicle
17 use. Motor vehicle use maps are reviewed and updated as needed. The motorized transportation
18 system also includes National Forest System roads that are only available for limited administrative
19 and permitted use. These roads are not displayed on the motor vehicle use map.

20 The Forest Service uses the term “maintenance level” to describe the level of comfort provided by
21 and maintenance effort required for a National Forest System road. There are five maintenance
22 levels, ML 1–5, but there are no ML 5 roads on the Cibola National Forest transportation system.
23 Refer to the glossary for complete maintenance level definitions. The following is a breakdown of
24 the transportation system road miles in the Plan area by maintenance level.

25 **Table 21. Transportation system road miles in the Plan area by maintenance level**

Maintenance Level	Miles	Portion of Total National Forest System Miles (%)	Partial Description
ML 1	285	9.1	Closed to all motorized (little to no maintenance required)
ML 2	2,564	81.8	Maintained for high-clearance vehicles
ML 3	275	8.8	Maintained for standard passenger cars
ML 4	10	0.3	Maintained for standard passenger cars (higher level of user comfort than ML 3)

26 As indicated in the table, the vast majority of the road miles in the Plan area fall into the ML 2
27 category, which means they are maintained for high-clearance vehicles. Some of the entrances to ML
28 2 roads are not clearly distinguishable from a typical ML 3 road. As a result, it is possible for a road
29 user in a standard passenger car to mistakenly turn onto a road that is not maintained for this type of
30 vehicle.

1 There are many roads that provide access to National Forest System lands and cross private property.
2 The Forest Service does not have legal right-of-way across several of these private parcels.

3 The road system is larger than can be adequately maintained. Road maintenance budgets have
4 declined substantially over the last several years, resulting in a large backlog of deferred
5 maintenance needs. It was determined through the travel analysis process (36 CFR Part 212, subpart
6 A) that the road system contains more roads than are needed for administration and utilization of
7 National Forest System lands in the Plan area.

8 **Desired Conditions**

- 9 ■ The Forest's transportation system and infrastructure are sufficient to support appropriate
10 multiple uses of the Forest and contribute to social and economic sustainability.
- 11 ■ Infrastructure is functional, appropriate to the setting, and is designed and maintained to blend
12 with the natural environment.
- 13 ■ Methods used to decommission, close, or relocate routes are appropriate to the setting, designed
14 and maintained to blend with the natural environment.
- 15 ■ Regulatory requirements and resource protection measures are followed in the management of
16 the transportation system.
- 17 ■ The Cibola National Forest road system provides access through a safe and well-maintained
18 transportation system.
- 19 ■ National Forest System roads and bridges provide safe and efficient access for all permitted
20 activities and authorized road use on the Cibola National Forest, and are maintained in good
21 condition to prevent resource damage. Roads maintained for standard passenger cars meet public
22 road safety standards, while roads maintained for high-clearance vehicles may have hazards and
23 require operator judgement and skill to negotiate.
- 24 ■ The maintenance and management programs for the Cibola National Forest road system are
25 financially sustainable.
- 26 ■ Undesirable impacts to natural, cultural, and scenic resources from Cibola National Forest
27 System roads are adequately mitigated.
- 28 ■ National Forest System roads are well marked through the proper use of signage, making them
29 easy to locate for all users.
- 30 ■ National Forest System roads intended for use by high clearance vehicles are clearly
31 distinguished from those intended for standard passenger cars, through proper use of road
32 entrance treatments and/or signage.
- 33 ■ National Forest System roads determined, through the appropriate process, to be not needed are
34 either converted to another use, such as a trail, or decommissioned (see Glossary) in a timely
35 manner.
- 36 ■ Open National Forest System roads not presently needed are closed (all motor vehicle traffic
37 prohibited) until they are analyzed again for potential future needs. Road closure methods are
38 effective in eliminating motor vehicle traffic and are consistent with scenic integrity objectives.
- 39 ■ Unauthorized routes that are causing environmental impacts are closed to use and rehabilitated in
40 a timely manner.

- 1 ■ Easements, rights-of-way, and/or special-use permits are obtained or granted to facilitate legal
2 access throughout National Forest System lands.

3 Guidelines

- 4 ■ Construction of new and relocated roads should avoid areas with high mass wasting potential,
5 such as high landslide prone areas, and areas where the limitation for unsurfaced roads is severe,
6 as interpreted by the terrestrial ecological unit or identified in the field.
- 7 ■ New road construction or reconstruction should comply with Endangered Species Act
8 requirements, protect species of conservation concern, and avoid other wildlife areas as
9 identified. Seasonal restrictions may be an option.
- 10 ■ Where possible, new roads should be constructed outside the 100-year floodplain or provide a
11 distance of 300 feet or greater from water resource features, except where necessary for stream
12 crossings. Where possible, reconstructed roads should be relocated outside of the 100-year
13 floodplain or beyond 300 feet of water resource features.
- 14 ■ New road construction or reconstruction should avoid meadows, wetlands, seeps, springs,
15 riparian areas, floodplains, and areas of heritage concern, where feasible. The number of stream
16 crossings should be minimized or mitigated to reduce impacts to watershed condition.
- 17 ■ During project planning, design and implementation in riparian or wet meadow areas or
18 floodplains, unneeded roads should be closed or relocated, drainage restored, and native
19 vegetation reestablished to move these areas toward their desired condition.
- 20 ■ When temporary roads are necessary, designated stream crossings should be constructed to
21 mitigate sedimentation and gradient changes and maintain bank stability. These crossings should
22 be designated by the appropriate resource specialists and removed after use.
- 23 ■ Low water crossings should be improved to protect water quality and stream stability. Fords on
24 perennial streams should be a priority.
- 25 ■ New or redesigned stream crossings, such as bridges and culverts, should be wide enough to pass
26 the bankfull width unimpeded.
- 27 ■ During project planning, design, and implementation, roads that impact cultural resources should
28 be closed or relocated.
- 29 ■ During project planning, design, and implementation, unneeded roads should be
30 decommissioned or rehabilitated to reduce impacts on natural resources.
- 31 ■ Where needed, roads removed from the transportation network should be treated to restore the
32 watershed hydrologic function and all habitats.
- 33 ■ Roads should allow for aquatic organism and wildlife passage where identified through project
34 analysis process.
- 35 ■ Contracts that have the potential to affect resources should include appropriate clauses
36 specifying site protection responsibilities and liabilities for damage.
- 37 ■ During project planning, design, and implementation, existing meadow and stream crossings
38 should be relocated, redesigned or removed, as needed, to maintain or restore hydrologic
39 function, using appropriate tools, such as French drains and elevated culverts.
- 40 ■ After management activities occur in areas with high potential for unauthorized motorized
41 vehicle use, methods should be used to control unauthorized motor vehicle use.

- 1 ■ Dust abatement should occur during construction and road projects where dust is a potential
2 effect.

3 Standard

- 4 ■ Motorized vehicle travel shall be managed to occur only on the designated system of National
5 Forest System roads and motorized trails and areas designated for motor vehicle use, except as
6 otherwise authorized.

7 Management Approaches

- 8 ■ Transportation planning is integrated into all management activities. This Plan provides the
9 framework to guide future changes to the transportation system. Once the final decision for this
10 Plan has been made, potential changes to the Forest's transportation system are evaluated under
11 this framework and through implementation of the Travel Management Rule (36 CFR § 212)
12 (Rule), as required by Executive Order 11644. The Rule requires that a motor vehicle use map
13 (MVUM) be printed, displaying the system of routes and areas designated for motorized vehicle
14 use. Travel management planning is not a static process. The MVUM can be revised on the basis
15 of public input, monitoring, and site-specific analysis. The annual reissuing of the MVUM would
16 reflect any changes made through the NEPA process. Upon reissue, archive old information and
17 update affected information resources.
- 18 ■ Approval of any road construction, reconstruction, or decommissioning is contingent on
19 completion of an appropriate environmental analysis. Factors for prioritization of closed roads to
20 be decommissioned will include desired conditions within management areas such as inventoried
21 roadless areas.
- 22 ■ Good relationships and communications exist with internal and external customers as well as
23 partners. Notify county and other potentially affected users (including permit holders) of changes
24 in road status and/or significant deviations in traffic pattern of a month or greater duration.
- 25 ■ Follow best management practices and other design features as appropriate for all applicable
26 resources such as reducing the potential for wildlife entrapment.
- 27 ■ When routes are removed from the transportation system and not converted to another use,
28 follow-up treatments may include:
- 29 • out-slope roadbeds
 - 30 • remove stream crossing structures
 - 31 • breach drainage ditches
 - 32 • remove unstable fills
 - 33 • decompact the road surface to restore water infiltration and facilitate revegetation
 - 34 • recontour the road surface to restore near-natural surface drainage patterns
 - 35 • removal invasive weeds
 - 36 • seed and/or plant to revegetate disturbed soil, using native seeds or plants if available and
37 approved by resource specialist.
- 38 ■ Road system maintenance priorities are to provide for safe travel on roads maintained for
39 standard passenger cars and to prevent or mitigate resource damage. Roads maintained for
40 standard passenger cars are subject to the safety standards associated with the Highway Safety
41 Act of 1966. To help defray the cost of road maintenance, the Forest continues with current

1 maintenance agreements and seeks to enter into new agreements with other entities including
2 Federal agencies, local government agencies, and private organizations/individuals.

3 **Buildings and Non-transportation Infrastructure (Dams, Water** 4 **Systems, Wastewater Systems, and Communication Towers)**

5 **Background and Description**

6 The Forest manages a variety of buildings and infrastructure including administrative facilities
7 (offices, warehouses, employee housing, and fire facilities) and public recreational facilities (visitor
8 centers, campground or picnic ground restrooms, storage buildings, etc.), associated water and
9 wastewater treatment systems, dams, and communication towers, for a variety of purposes, to enable
10 the Forest Service to fulfill its mission.

11 This infrastructure should be managed/maintained in a manner that meets the needs of the intended
12 purpose and user and provides long-term sustainability of the resources and structure. Administrative
13 infrastructure should function to provide employees a safe, and mission-oriented working
14 environment. Recreational infrastructure should align with the recreational uses designated for that
15 area. In all cases the infrastructure should be maintained to a standard that protects the inhabitant and
16 integrity of the asset.

17 Currently, the Forest has facilities that are being used for purposes not originally intended (for
18 instance warehouses are now needing to have office workspaces instead of just fabrication and
19 storage areas) and some recreational facilities/areas have been converted from one use type to
20 another or multiple use types to try and meet the needs of the Agency and the community within the
21 budget and workforce established. The maintenance requirements across the portfolio of assets is
22 increasing, with much of the preventative maintenance (annual and/or cyclic activities) becoming
23 deferred. The accumulation of deferred maintenance leads to deterioration of performance, increased
24 costs to repair, and a decrease in asset value.

25 As the workforce and mission services continue to evolve, the existing infrastructure may become
26 obsolete from the originally designed purpose and will require the Forest to look at adaptive reuses,
27 multi-uses, and other ways to address accumulating deferred maintenance. The facilities master plan,
28 sustainable recreation plan, recreation site analysis, and other long-term planning documentation will
29 dictate how infrastructure will be maintained, modified, or removed from service.

30 **Desired Conditions**

- 31 ■ All facilities function as intended or are adapted to accommodate the current and/or anticipated
32 demands; the facilities provide an environment free from recognized hazards for people, while
33 avoiding or minimizing negative impacts to natural, cultural, and social resources.
- 34 ■ Potable water systems, where provided, are effectively managed to serve the public or
35 administrative needs while complying with current standards. Previously developed systems that
36 no longer serve the current needs are appropriately decommissioned and the site is returned to its
37 natural state.
- 38 ■ Routine maintenance is accomplished to standard regularly
- 39 ■ Facilities are in compliance with applicable accessibility guidelines and current building or
40 occupancy standards.

1 **Standard**

- 2 ■ As infrastructure is renovated or modified and new construction is complete, applicable
3 standards and regulations shall be met.

4 **Guidelines**

- 5 ■ Emerging technologies and sustainable concepts consistent with the Built Environment Image
6 Guide should be incorporated in facility design, maintenance, and renovation in order to improve
7 energy efficiency, improve economy, conserve natural resources, improve functionality and
8 ensure consistency with the scenic character of the Cibola National Forest.
- 9 ■ Where infrastructure modifications or additions occur, sustainable operations and resource
10 protection should avoid meadows, wetlands, seeps, springs, riparian areas, stream bottoms, and
11 areas of cultural significance, where feasible.
- 12 ■ Forest facilities that are eligible for the National Register of Historic Places should be available
13 for Forest administration, public recreation, and interpretation, Tribal events, and other uses
14 where possible and appropriate.

15 **Management Approaches**

- 16 ■ Develop and implement comprehensive preventive maintenance program for buildings and
17 infrastructure to minimize major unplanned repairs or replacements.
- 18 ■ Prioritize potable water systems and other infrastructure needs and investments for current need
19 and long-term planning goals as described in facilities master plan, sustainable recreation plan,
20 recreation facility analysis, and other resource planning documents, and health and safety
21 requirements for employees and visiting public. All infrastructure with employee occupancy is
22 subject to the Occupational Safety and Health Administration standards and will be evaluated
23 regularly to protect the health and safety of the Forest's employees, volunteers, and the visiting
24 public.
- 25 ■ Work with the Heritage Program to administer and maintain facilities according to the facility
26 master plan and any developed preservation maintenance plans (historic property plans) for
27 administrative facilities and infrastructure that are historic resources.
- 28 ■ Manage architectural properties that are listed on or are eligible for the National Register of
29 Historic Places in accordance with the Secretary of the Interior's standards and guidelines for
30 maintenance, rehabilitation, and reuse.
- 31 ■ Users or inhabitants of facilities in proximity to special uses authorizations will have an
32 awareness of activities approved under the special uses authorization and coordinate any
33 concerns with the appropriate Special Uses staff.

34

Chapter 3. Management Areas & Designated Areas

This chapter of the plan contains direction for management areas that have specific management direction that differs from the general forest. In some cases, there may appear to be a conflict between direction presented at larger and finer scales. If there is an apparent conflict, the direction at the finer scale takes precedence. There are two types of management areas:

Management Areas (MAs) are delineated to provide plan direction for areas to meet specific management needs. They have a corresponding common set of plan components that differ from the general forest. Some management areas apply to more than one area on the Cibola NF such as [TBD by final Forest Plan decision]. Other areas, such as [TBD by final Forest Plan decision] are geographically specific. Management areas will be determined in the final Forest Plan decision, and the proposed, preliminary management areas by alternatives are available in Appendix D.

Designated Areas is an area or feature identified and managed to maintain its unique special character or purpose. These areas may be designated administratively or by Congress. Examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, recommended wilderness areas, and significant caves. Examples of congressionally designated areas are national heritage areas, national recreational areas, national scenic trails, wild and scenic rivers, and designated wilderness areas. Areas designated by Congress (or by the Secretary of Interior) are withdrawn from the operation of the U.S. Mining Laws, subject to valid existing rights.

This chapter contains plan direction for existing designated areas, and plan direction for proposed management areas [TBD by final Forest Plan decision] are currently available in Appendix D.

Management Areas

This represents a placeholder for content that has not yet been developed. This section will contain descriptions of management areas and the specific management direction that applies to those areas.

Designated Areas

Background and Description: General

Current types of designated areas on the four mountain districts include wilderness, research natural areas, inventoried roadless areas, national historic landmarks, critical habitat for federally threatened and endangered species, State or nationally designated scenic byways, eligible wild and scenic rivers, recommended wilderness areas, and national scenic trails.

Desired Conditions for all Designated Areas

Designated areas on the Cibola National Forest are managed to maintain the unique special character or purpose for which they were designated, including wilderness areas; research natural areas; eligible wild and scenic rivers; national historic, scenic, and recreation trails; inventoried roadless areas, critical habitats, and scenic byways.

1 **Designated Wilderness**

2 **Background and Description**

3 The Cibola National Forest manages four designated wilderness areas; the Sandia Mountain
4 Wilderness (37,877 National Forest acres), Apache Kid Wilderness (44,626 National Forest acres),
5 Withington Wilderness (19,000 National Forest acres), and Manzano Mountain Wilderness (36,875
6 National Forest acres). Designated wilderness provides places where natural processes dominate and
7 the impacts of humans are minimized. Congress preserved these places to pass on to future
8 generations. Wilderness provides large areas for the study of nature and unique scientific and
9 educational opportunities.

10 **Sandia Mountain Wilderness, Sandia Ranger District.** Congress designated Sandia Mountain
11 Wilderness under the Endangered American Wilderness Act of 1978 (16 USC §1132). The area lies
12 primarily on the western slope of the Sandia Mountains, but it crosses over the crest to the eastern
13 side of the mountain at the north and south ends. Spruce and fir dominate the high country, with
14 stands of mixed conifers just below.

15 Many raptors migrate through these mountains in spring and fall. Mule deer and black bear inhabit
16 the area. A major recreation feature, the Crest Trail, runs along the main ridge of the Sandia
17 Mountains for 26.54 miles, at an elevation averaging 10,000 feet. There are 117 miles of trails in
18 varied condition. The wilderness can be accessed from a number of trailheads on the west side from
19 Cibola National Forest lands and City of Albuquerque Open Space land, as well as the crest near the
20 tram, or the Sandia Crest Scenic and Historic Byway on the east side.

21 Management emphasis is to provide quality wilderness experience opportunities, including heavy
22 day use, through maintenance of wilderness character and values. Dispersed recreation managed
23 within established capacities and compatible with the needs of important wildlife species is the key
24 objective. Livestock grazing is not permitted.

25 **Apache Kid Wilderness, Magdalena Ranger District.** Congress, under the New Mexico
26 Wilderness Act, designated the Apache Kid Wilderness in 1980. The wilderness is named for the
27 Apache Kid, an Apache Indian scout employed by the U.S. Army who was a legendary outlaw of the
28 late 19th century in this area. His gravesite is located and marked in San Mateo Canyon.

29 This is a remote wilderness where visitors can experience a high degree of solitude. However, there
30 are number of trailheads that provide access to the wilderness from all sides. The trailheads are
31 accessible by forest roads outside the wilderness boundary. There is a developed campground,
32 Springtime, to the south in Nogal Canyon. Narrow, steep canyons bisect the peaks of the southern
33 San Mateo Mountains where elevations exceed 10,000 feet. The vegetation is typical of the region,
34 with pinyon-juniper woodland at lower elevations; spruce, fir and aspen at higher elevations; and
35 ponderosa pine in between.

36 Human visitors are few, but wildlife is abundant here including Coue's white-tailed deer, mule deer,
37 elk, black bear, bobcat, cougar, antelope, javelina, coyote, rabbit, squirrel, and quail. There are 68
38 miles of maintained and unmaintained trails. The Crest Trail, which leads to the Apache Kid's
39 gravesite, follows about 13 miles of mountain crest. Water is limited to less than a dozen semi-
40 dependable springs, most of which dry up in summer.

41 **Withington Wilderness, Magdalena Ranger District.** Congress designated Withington Wilderness
42 under the New Mexico Wilderness Act in 1980. This wilderness is located in the northern extreme of
43 the San Mateo Mountains and almost entirely on the eastern slopes. Elevations range from 6,800 feet

1 to 10,100 feet atop Mount Withington, which marks the center of the western boundary. Mixed
2 conifers grow in the shady bottoms of steep-walled canyons here, giving way to a woodland of
3 pinyon and juniper as the ground becomes more open and drier and the vistas stretch eastward
4 toward the Rio Grande. In the lowest land near the eastern boundary, there are small stands of
5 ocotillo.

6 Many of the Withington trails are seldom used, and promise solitude for the adventurous. Winters
7 bring snow, and summers are often hot and dry. During the desert monsoon season (July and
8 August), rainwater may flood the narrow canyons, but most of the year there is no water. The
9 wilderness is accessible from trailheads located along the west, south, and east sides. Beartrap and
10 Hughes Mill Campgrounds provide developed camping facilities on the west side in Bear Trap
11 Canyon.

12 **Manzano Mountain Wilderness, Mountainair Ranger District.** Congress designated the Manzano
13 Mountain Wilderness under the Endangered American Wilderness Act of 1978 (16 USC § 1132). In
14 the early 1700s, explorers visiting a small village on the eastern edge of these mountains discovered
15 very old manzanos (apple trees), hence the area's name. Spread out across the western slope of the
16 Manzano Mountain range, this wilderness varies in elevation from about 6,000 feet to 10,098 feet
17 atop Manzano Peak. Pinyon and juniper grow at lower elevations, gradually submitting to ponderosa
18 pine and then spruce, fir, and aspen higher up. This is mostly steep and rugged terrain, cut with
19 canyons and marked with outcroppings of rock.

20 Thousands of raptors migrate along the Manzano Mountains in spring and fall as they work their
21 way between Canada and Mexico. More than 64 miles of a well-developed trail system provide
22 access to the wilderness. The wilderness can be accessed from numerous trailheads along the
23 wilderness boundary, and there are six developed campgrounds on Mountainair District near the east
24 side of the wilderness.

25 **Desired Conditions**

- 26 ■ Wilderness provides opportunities in accordance with the Wilderness Act. Social encounters are
27 infrequent and occur only with individuals or small groups in order to provide opportunities for
28 solitude and primitive, unconfined recreation. Self-reliance is required.
- 29 ■ Wilderness represents an environment that is essentially an unmodified and natural landscape.
30 Constructed features are rare and provided primarily for resource protection. When present, they
31 reflect the historic and cultural landscape and utilize natural or complementary materials.
- 32 ■ Natural processes are maintained within wilderness. Fires function in their natural ecological
33 role. Wilderness areas have minimal to no nonnative invasive species.
- 34 ■ Wilderness character and values are enhanced and maintained.

35 **Standards**

- 36 ■ In wilderness, group size limit shall be 15 persons and livestock (combined) per group, except as
37 determined under special use permit, formal agreements (such as when participating or
38 volunteering), and management activities for maintaining wilderness character.
- 39 ■ Outfitter-guide operating plans in wilderness shall include appropriate wilderness practices, such
40 as Leave No Trace principles, and incorporate awareness for wilderness values in their
41 interaction with clients and others.

- 1 ■ Human-caused disturbed areas (for example, compacted sites) in wilderness that do not
2 complement wilderness characteristics shall be rehabilitated to a natural appearance using
3 species or other materials native to the area.
- 4 ■ Research conducted in wilderness shall not have adverse effects to wilderness character.

5 Guidelines

- 6 ■ Wilderness character should be maintained or improved in wilderness. This includes
7 untrammeled, natural, and undeveloped qualities, as well as opportunities for solitude or
8 primitive and unconfined recreation.
- 9 ■ Fire operations within wilderness areas should not compromise wilderness character.
- 10 ■ Management activities should be consistent with the scenic integrity objective of “very high” in
11 designated wilderness.
- 12 ■ The most current version of the minimum requirements decision guide should be utilized when
13 considering new activities and instances authorizing non-conforming uses in wilderness.
- 14 ■ Nonnative, invasive species should be treated in a manner consistent with wilderness character in
15 order to allow natural processes to predominate in wilderness.
- 16 ■ Nonnative species should not be introduced into any wilderness area.
- 17 ■ Human controls should not be applied to native insect and disease life cycles in order to maintain
18 wilderness character.
- 19 ■ Trail designation and/or construction should be considered if the purpose is enhancement of the
20 wilderness character (such as to control overuse or limit resource degradation) in wilderness.
- 21 ■ Trails should be designed and maintained in a sustainable manner to minimize impacts on
22 wilderness, including trails leading into wilderness.
- 23 ■ Firelines and spike camps (a remote camp usually near a fireline) should not be constructed
24 adjacent to trails or camp areas in wilderness to protect wilderness values.
- 25 ■ Signage in wilderness should be limited to those essential for resource protection and user safety,
26 to retain the wilderness character of self-reliance and challenging recreation.
- 27 ■ Commercial activity should not be permitted in wilderness areas, unless the activity is wilderness
28 dependent and the activity cannot be conducted or replicated outside of wilderness. This would
29 include activities by organizational groups and/or training classes.

30 Management Approaches

- 31 ■ Wilderness management is guided by the elements outlined in the Forest Service Wilderness
32 Stewardship Performance Guidebook, or most recent comparable document.
- 33 ■ Complete and implement wilderness management plans, wilderness use capacity studies, and
34 comprehensive vegetation inventories for each designated wilderness.
- 35 ■ Consider adaptive management and corrective measures if overuse causes unacceptable resource
36 damage. Overuse can be determined from limits of acceptable change studies, other resource
37 analyses, wilderness management plans, or professional judgment.
- 38 ■ Wilderness boundaries are clearly identified through signage at official entry points and needed
39 locations (such as informal access points), with trail maps, and boundary markers, and signage is
40 consistent.

- 1 ■ The Congressional Grazing Guidelines (Forest Service Manual 2320–Wilderness Management,
2 section 2323.22–exhibit 01) are used to manage livestock grazing in wilderness areas.
- 3 ■ Evaluate trails for their need and impact on wilderness character to support decisions to
4 decommission unused trails or realign/reconstruct needed trails.
- 5 ■ Priorities for trail reconstruction are based on potential for impacts to wilderness character and
6 recreation opportunities, and the trails which receive the greatest use.
- 7 ■ Consult a wilderness resource advisor or wilderness specialist during all fires that enter or start
8 within wilderness areas, and for any fires with the potential to enter wilderness areas or affect the
9 character of an adjacent wilderness area.
- 10 ■ Work with local partners to maintain wilderness, including trails maintenance and construction.
- 11 ■ Partner with other Federal agencies to ensure management is as consistent as possible for
12 contiguous wilderness areas.
- 13 ■ Utilize education and trail design to discourage bicycle use in wilderness.
- 14 ■ Regularly publish up-to-date trail maps for all wildernesses, in a variety of formats, including
15 digital.
- 16 ■ Consider providing regular wilderness ranger patrol in wilderness areas to the degree necessary
17 to meet the levels of acceptable change or other appropriate standards for each area. If funding is
18 limited, use volunteers or seasonal workers employees to accomplish as much of this work as
19 possible.
- 20 ■ Coordinate law enforcement activities with wilderness managers to ensure that any evidence of
21 illegal activities is removed.
- 22 ■ Coordinate with the New Mexico Department of Game and Fish on management of native
23 species within wilderness to maintain wilderness character during project implementation.

24 **Recommended Wilderness**

25 **Background and Description**

26 Recommended wilderness lands are lands that have the potential to become designated as official
27 wilderness through legislation. The Forest Service only recommends these lands to the United States
28 Congress for consideration. Congress, and ultimately the President, must establish legislation to
29 officially designate wilderness areas.

30 **Desired Conditions**

- 31 ■ Recommended wilderness areas are managed to protect and enhance the wilderness character
32 that exists at the time of recommendation.

33 **Standards**

- 34 ■ For permitted livestock grazing activities in recommended wilderness areas, annual operation
35 instructions shall be updated to reflect any motorized or mechanized use which may be required
36 to administer terms and conditions under the term grazing permit (such as repair or
37 reconstruction of fences, water developments) that may have been approved under exceptions
38 outlined in Forest Service Manual 2320–Wilderness Management, section 2323.22.
- 39 ■ When motorized use associated with grazing allotments is authorized, it shall be limited to that
40 needed to carry out management activities of practical necessity and reasonableness, following

1 the rationale of Forest Service Manual 2320–Wilderness Management, section 2323.2, and shall
2 not degrade the wilderness character of the area.

3 Guidelines

- 4 ■ Activities in recommended wilderness areas should maintain or improve the wilderness character
5 until such time as Congress acts on the recommended area, either making it designated
6 wilderness or releasing it for other management.
- 7 ■ Recommended wilderness areas should be managed to preserve or enhance a very high scenic
8 integrity objective.
- 9 ■ Recommended wilderness areas should be managed for primitive recreation opportunity
10 spectrum classes.
- 11 ■ Minimum tool requirements should be considered for all instances authorizing non-conforming
12 uses (including administrative actions) in recommended wilderness areas.
- 13 ■ Improvements or facilities should not be constructed or provided, except to provide resource
14 protection and to maintain existing wilderness characteristics in recommended wilderness areas.
- 15 ■ In recommended wilderness areas, existing structures should be maintained, but not expanded, to
16 protect the area’s wilderness character. Maintenance of existing structures should be carried out
17 in a manner that does not expand the evidence of motor vehicle and mechanized equipment use
18 beyond current conditions within the recommended wilderness area.
- 19 ■ In recommended wilderness areas, new trails should only be designed for activities that normally
20 would be allowed in wilderness. Existing trails designed for other uses (such as bicycling or
21 motor vehicle use) should be rehabilitated to meet more appropriate trail standards for
22 recommended wilderness areas.
- 23 ■ Nonnative, invasive species should be treated within recommended wilderness areas in order to
24 allow natural processes to dominate and to maintain wilderness characteristics.
- 25 ■ Competitive events should not be permitted in recommended wilderness areas to maintain
26 wilderness characteristics of solitude and primitive and unconfined recreation.
- 27 ■ Timber harvest should not be permitted in recommended wilderness areas.
- 28 ■ Gathering of forest products for sale should not be permitted in recommended wilderness areas.
- 29 ■ Mechanized or motorized trails should not be designated in recommended wilderness areas.
- 30 ■ New roads should not be constructed in recommended wilderness areas.
- 31 ■ Only non-motorized recreation should be authorized or permitted in recommended wilderness.
- 32 ■ Prescribed fire should be considered to reduce the risks and consequences of uncharacteristic
33 wildfire if necessary to meet fire management objectives in recommended wilderness areas.
34 Naturally occurring fires should be allowed to perform, as much as possible, their natural
35 ecological role.
- 36 ■ Fire camps, helispots, and other temporary facilities should be located outside the recommended
37 wilderness to protect wilderness character within the recommended wilderness area.

1 Management Approaches

- 2 ■ Use the minimum requirement analysis as a framework to evaluate the potential effects of
3 projects on wilderness character within the recommended wilderness area and to develop
4 alternatives for projects within recommended wilderness.
- 5 ■ Develop and implement management plans for any newly designated wilderness areas if
6 designation occurs.

7 Inventoried Roadless Areas

8 Background and Description

9 The Cibola National Forest manages five inventoried roadless areas on the Mount Taylor District and
10 eight inventoried roadless areas on the Magdalena Ranger District. Inventoried roadless areas
11 provide clean drinking water and function as biological strongholds for populations of threatened and
12 endangered species. They provide large, relatively undisturbed landscapes with high scenic quality
13 that are important to biological diversity important to wildlife habitat and the long-term survival of
14 many at-risk species. Inventoried roadless areas provide opportunities for dispersed outdoor
15 recreation, opportunities that diminish as open space and natural settings are developed elsewhere.
16 They also serve as buffers against the spread of nonnative invasive plant species and provide
17 reference areas for study and research.

18 The Chief of the Forest Service reviews all projects involving road construction or reconstruction
19 and the cutting, sale, or removal of timber in inventoried roadless areas, with the exception of the
20 following activities, which are reviewed by the regional forester:

21 Any necessary timber cutting or removal or any road construction or road reconstruction in
22 emergency situations involving wildfire suppression, search and rescue operations, or other
23 imminent threats to public health and safety in inventoried roadless areas.

24 Timber cutting, sale, or removal in inventoried roadless areas incidental to the implementation of
25 an existing special use authorization. Road construction or road reconstruction is not authorized
26 through this re-delegation without further project-specific review.

27 The cutting, sale, or removal of generally small-diameter timber when needed for one of the
28 following purposes:

29 To improve threatened, endangered, proposed, or sensitive species habitat;

30 To maintain or restore the characteristics of ecosystem composition and structure, such as to
31 reduce the risk of uncharacteristic wildfire effects within the range of variability that would
32 be expected to occur under natural disturbance regimes of the current climatic period; or

33 For the administrative and personal use, as provided for in 36 CFR 223, where personal use
34 includes activities such as Christmas tree and firewood cutting and where administrative use
35 includes providing materials for activities such as construction of trails, footbridges, and
36 fences.

37 Desired Conditions

- 38 ■ The roadless character of inventoried roadless areas is protected and conserved.

1 **Standards**

- 2 ■ A road shall not be constructed or reconstructed in inventoried roadless areas unless the
3 responsible official determines that a road is needed according to the circumstances allowed for
4 in the Roadless Rule, section 294.12. Review authorities shall be followed.
- 5 ■ Timber shall not be cut, sold, or removed in inventoried roadless areas, unless the responsible
6 official determines that activities meet the circumstances provided in the Roadless Rule, section
7 294.13. Review authorities shall be followed.
- 8 ■ Also see the “Vegetation” and “Roads” sections of this Plan for standards related to inventoried
9 roadless areas.

10 **Guidelines**

- 11 ■ Activities should maintain or improve the roadless character of the inventoried roadless area.
- 12 ■ Inventoried roadless areas should be managed for “semi-primitive non-motorized” and “semi-
13 primitive motorized” recreation settings.
- 14 ■ Management activities should be consistent with the scenic integrity objective of “high” in
15 inventoried roadless areas.

16 **Management Approach**

- 17 ■ Prioritize Forestwide decommissioned road targets within inventoried roadless areas to maintain
18 roadless character where possible.

19 **Research Natural Areas**

20 **Background and Description**

21 Research natural areas are administratively designated by the regional forester, and managed to
22 maintain the natural features for which they were established. Because of the emphasis on natural
23 conditions, they are excellent areas for studying ecosystems or their component parts and for
24 monitoring succession and other long-term ecological change. The Cibola National Forest manages
25 one research natural area on the Sandia Ranger District, the Bernalillo Watershed. The Bernalillo
26 Watershed Research Natural Area was ultimately designated for its grassland ecosystem natural
27 features and comprises 299 acres of juniper grassland and 731 acres of semi-desert grassland.

28 **Desired Conditions**

- 29 ■ Visitor access, use, and management activities maintain the natural features of the research
30 natural area.

31 **Standards**

- 32 ■ Salable minerals extraction shall not be allowed in research natural areas.
- 33 ■ Removal of special forest products for commercial purposes and personal use (including
34 firewood) shall not be permitted or authorized in the research natural area, unless it helps meet
35 the research natural area desired conditions.
- 36 ■ To minimize impacts to ecological values, recreational activities (other than use on designated
37 trails) including special-use permits shall not be authorized or permitted in research natural
38 areas.
- 39 ■ Campfires shall not be authorized or permitted in the research natural area.

1 **Guidelines**

- 2 ■ Management activities should be consistent with the scenic integrity objective of the research
3 natural area.
- 4 ■ Management measures and controls should be used (such as fencing and controls to prohibit
5 cross-country travel) to protect unique features of the research natural area.
- 6 ■ Research special-use authorizations should limit harm to sensitive resources, unique features,
7 and species within the research natural area.
- 8 ■ Vegetation manipulation should be allowed only when necessary to achieve or maintain the
9 ecological conditions for which the area is being studied in research natural areas.
- 10 ■ Unplanned fires should be extinguished as soon as possible if they pose a danger to the research
11 natural area, using means that would cause minimal damage to the area (FSM 4063.41). Natural
12 fires should be allowed to burn only within a prescription designed to accomplish objectives of
13 the specific natural area (FSM 4063.2).
- 14 ■ Mineral withdrawal on the Bernalillo Watershed should be maintained. Mineral leasing may be
15 permitted in the research natural area, but surface occupancy should be excluded.
- 16 ■ Withdrawal of research natural areas from mineral entry should be proposed, but not from
17 mineral leasing.

18 **Management Approaches**

- 19 ■ Encourage partnerships with site stewards to provide onsite interpretation and monitoring for the
20 research natural area.
- 21 ■ Include signage educating the public about the research natural area purpose, its boundary, and
22 permitted and prohibited activities.
- 23 ■ Advise appropriate agencies and universities of scientific opportunities of research natural areas
24 on the Cibola National Forest.

25 **Eligible Wild and Scenic Rivers**

26 **Background and Description**

27 There are no designated wild, scenic, or recreational rivers on the Cibola National Forest. In 2016,
28 all rivers on the Forest were evaluated to determine their eligibility as wild or scenic rivers. This
29 evaluation resulted in seven eligible wild and scenic rivers on the Forest. Each river found to be
30 eligible was assigned a preliminary classification, based on the condition and development level in
31 and around the river at the time it is deemed eligible. The outstandingly remarkable values and
32 preliminary classifications for the seven eligible wild and scenic rivers on the Cibola National Forest
33 are as follows:

34 **Agua Remora, Mount Taylor Ranger District:** Eligible for fish population outstandingly
35 remarkable values, “wild” and “scenic” classification.

36 **Little Water Canyon, Mount Taylor Ranger District:** Eligible for botanical outstandingly
37 remarkable values, “wild” and “scenic” classification.

38 **Water Canyon #1, Mount Taylor Ranger District:** Eligible for geology and scenery
39 outstandingly remarkable values, “wild” classification.

1 **Rinconada, Mount Taylor Ranger District:** Eligible for wildlife population and habitat
2 outstandingly remarkable values, “wild” and “scenic” classification.

3 **West Red Canyon, Magdalena Ranger District:** Eligible for historic and cultural outstandingly
4 remarkable values, “recreational” classification.

5 **Tajique Canyon, Mountainair Ranger District:** Eligible for botanical, scenery, and recreation
6 outstandingly remarkable values, “recreational” classification.

7 **Las Huertas Creek, Sandia Ranger District:** Eligible for historic and cultural and scenery
8 outstandingly remarkable values, “recreational” classification.

9 Desired Conditions

- 10 ■ Eligible wild and scenic rivers are managed to protect or enhance existing outstanding
11 remarkable values and classifications until designated or released from consideration.

12 Standards

- 13 ■ The classification and outstandingly remarkable values for eligible wild and scenic rivers shall
14 be maintained when implementing projects.
- 15 ■ Activities in eligible wild and scenic river corridors shall comply with interim protective
16 measures outlined in Forest Service Handbook 1909.12, 84.3, or most current version.
- 17 ■ In eligible rivers with “wild” classifications, cutting of trees and other vegetation shall not be
18 allowed except when needed in association with a primitive recreation experience, to protect
19 users (including hazard tree removal or trail maintenance), or to protect identified outstandingly
20 remarkable values.
- 21 ■ Existing or new mining activity in eligible wild and scenic rivers must be conducted in a manner
22 that minimizes surface disturbance, sedimentation, pollution, and visual impairment.
- 23 ■ When management activities are proposed that may compromise the outstandingly remarkable
24 values, potential classification, or free-flowing character of an eligible wild and scenic river
25 segment, a suitability study shall be completed for that eligible river segment prior to initiating
26 activities.
- 27 ■ Rivers found unsuitable for inclusion in the National Wild and Scenic River System shall be
28 released from further consideration and restrictions of this section.

29 Guidelines

- 30 ■ In eligible wild and scenic rivers classified as “recreational” or “scenic,” timber harvest should
31 be allowed to maintain or restore the values for which the eligible river was identified.
- 32 ■ Management activities should be consistent with the scenic integrity objective of “very high” in
33 eligible wild and scenic rivers classified as “wild,” “high” in eligible rivers classified as
34 “scenic,” and “moderate to high” in eligible rivers classified as “recreational.”
- 35 ■ Management activities should be consistent with the recreation opportunity spectrum class of
36 “semi-primitive non-motorized” in eligible wild and scenic rivers classified as “wild,” “semi-
37 primitive non-motorized” to “semi-primitive motorized” in eligible rivers classified as “scenic,”
38 and “semi-primitive” to “roaded natural” in eligible rivers classified as “recreational.”

1 Management Approaches

- 2 ■ Where eligible wild and scenic rivers corridors occur within other management areas, the most
3 restrictive management direction applies.
- 4 ■ Opportunities for enhancing outstandingly remarkable values may be considered in all project
5 management activities within an eligible wild and scenic river corridor.

6 National Scenic and Historic Trails

7 Background and Description

8 The Continental Divide National Scenic Trail (CDNST) is a quiet, continuous, mountain path that
9 traverses 3,100 miles along the spine of the Rocky Mountains from Mexico to Canada. The
10 Continental Divide National Scenic Trail is the highest and most rugged national scenic trail,
11 reaching the 14,270-foot summit of Grays Peak in Colorado, and connecting the Chihuahuan Desert
12 of New Mexico to majestic coniferous forests, remote valleys, and wild, snow-capped mountains and
13 glaciers. It is one of the most spectacular and rugged trails in the United States.

14 Motorized vehicle use by the general public is prohibited on the CDNST, unless such use is
15 consistent with the applicable policy set forth in the comprehensive plan. In general, established
16 motorized uses, both summer and winter, are allowed to continue, but new motorized uses will not
17 be designated on the Trail.

18 Desired Conditions

- 19 ■ The location, setting, and management of the CDNST comply with the Continental Divide
20 National Scenic Trail Comprehensive Plan and other Forest Service policies for national scenic
21 and recreation trails.
- 22 ■ Viewsheds from the CDNST are consistent with desired conditions for scenery, and have “high”
23 scenic values. The foreground of the trail (up to 0.5 mile on either side) of the trail is natural-
24 appearing, and generally appears unaltered by human activities.
- 25 ■ The CDNST is managed to provide high-quality scenic, primitive hiking, and pack and saddle
26 stock opportunities and to conserve natural, historic, and cultural resources along the Trail
27 corridor. Other activities and opportunities are allowed when compatible with the nature and
28 purposes of the CDNST.
- 29 ■ Visitors are aware of the CDNST corridor and the nature and purposes of the Trail designation.

30 Guidelines

- 31 ■ Management projects and activities within the CDNST corridor should be compatible with the
32 original intent for the Trail’s national designation.
- 33 ■ To retain the character for which the Trail was designated, management actions, including
34 special use authorizations, should be consistent with the recreation opportunity spectrum classes
35 of the CDNST.
- 36 ■ To maintain and protect scenic qualities of the CDNST, management activities planned and
37 implemented within the foreground of the trail (up to 0.5 mile on either side) should be
38 consistent with the scenic integrity objective of “high” to “very high.”
- 39 ■ If forest health projects result in impacts to the scenic integrity objectives of the CDNST,
40 mitigation measures should be included, such as screening, feathering, and other scenery

- 1 management techniques to meet the scenic integrity objectives within and adjacent to the trail
2 corridor (at minimum, up to 0.5 mile on either side of the Trail).
- 3 ■ Hauling, skidding along, or using the CDNST for landings or temporary roads should not be
4 permitted in order to preserve the nature and purposes of the Trail.
 - 5 ■ Heavy equipment line construction within the Continental Divide National Scenic Trail corridor
6 should not be allowed unless necessary for emergency protection of property and safety.
 - 7 ■ To maintain the outstanding features of the CDNST and be compatible with the surrounding
8 environment, all facilities should blend in with the surrounding environment.
 - 9 ■ Special-use authorizations for new communication sites, utility corridors, and renewable energy
10 sites should not be allowed in the CDNST corridor foreground (up to 0.5 mile) and
11 middleground viewshed (up to 4 miles) to protect the Trail's scenic values.
 - 12 ■ Linear utilities and rights-of-way in the CDNST corridor should be limited to a single crossing
13 unless additional crossings are documented as the only prudent and feasible alternative.
 - 14 ■ New road or motorized trail construction across or adjacent to the CDNST should be avoided
15 unless needed for resource protection or protect public health and safety.
 - 16 ■ Unplanned fires in the foreground (up to 0.5 mile) of the CDNST should be managed using
17 minimum impact suppression tactics, or other tactics appropriate for the protection of values and
18 resources for which the trail was designated.
 - 19 ■ Competitive events and other special uses should only be allowed if compatible with the nature
20 and purposes of the CDNST.
 - 21 ■ In the CDNST corridor, the minimum trail facilities necessary should be provided to protect
22 resource values and for health and safety, not for the purpose of promoting user comfort.

23 Management Approaches

- 24 ■ Provide consistent signage along the CDNST corridor at road crossings to adequately identify
25 the trail and include interpretation at trailheads.
- 26 ■ Use side and connecting trails to access points of interest or supply points away from the main
27 trail.
- 28 ■ The Cibola National Forest works with the volunteer groups, partners, local governments, and
29 adjacent landowners to maintain CDNST corridors, the condition and character of the
30 surrounding landscape, and to facilitate trail user support that promotes Leave No Trace
31 principles.

32 Scenic Byways

33 Background and Description

34 Seven national scenic byways are within the Cibola National Forest area of influence, three of which
35 were designated by the State of New Mexico. The byways are:

- 36 • Route 66 National Scenic Byway,
- 37 • El Camino Real National Scenic Byway,
- 38 • Sandia Crest Scenic and Historic Byway,
- 39 • Turquoise Trail National Scenic Byway,

- 1 • Salt Missions Trail Scenic Byway,
- 2 • Abo Pass Trail Scenic Byway, and
- 3 • Trail of the Ancients Scenic Byway.

4 **Desired Conditions**

- 5 ■ Viewsheds from scenic byways are consistent with desired conditions for scenery. The
- 6 immediate foreground (300 feet on either side) of these travelways is natural-appearing, and
- 7 generally appears unaltered by human activities.

8 **Guidelines**

- 9 ■ Visual impacts from vegetation treatments, recreation uses, range developments, and other
- 10 structures should blend with the overall scenic character along scenic byways.
- 11 ■ To maintain and protect the scenic quality of scenic byways, management activities planned and
- 12 implemented within the foreground (up to 0.5 mile on either side) should be consistent with the
- 13 scenic integrity objective of “high.”

14 **Management Approaches**

- 15 ■ The Forest promotes roadside interpretive services along scenic byways. Signs, kiosks, exhibits,
- 16 and other educational tools (such as brochures, websites, and social media) may provide
- 17 interpretive, education, and safety information along scenic byways, in adjacent recreation sites,
- 18 and at visitor contact points such as ranger stations.
- 19 ■ Work closely with the New Mexico Department of Transportation and local communities to
- 20 promote and improve services and interpretive opportunities on byways.
- 21 ■ Work closely with New Mexico Department of Transportation and county highway departments
- 22 to manage hazard trees within the immediate foreground (up to 0.5 mile on either side) of scenic
- 23 byways.

24 **National Historic Landmark**

25 **Background and Description**

26 Sandia Cave, National Historic Landmark was designated as a National Historic Landmark in 1961.

27 National historic landmarks are nationally significant historic places designated by the Secretary of

28 the Interior because they possess exceptional value or quality in illustrating or interpreting the

29 heritage of the United States (USDI NPS Sandia Cave 2013). The cave was discovered in 1936 by a

30 University of New Mexico (UNM) anthropology student. From 1937–1941, UNM excavated the

31 cave and found stone arrow and lance points, basket scraps, bits of woven yucca moccasins, and

32 skeletal remains of Ice Age animals such as the mastodon. No human remains were discovered

33 (USFS Cibola Sandia Man Cave 2013).

34

35 It is located in Sandoval County on the steep cliff walls of the Sandia Mountains’ Las Huertas

36 Canyon on the Sandia ranger district. The trailhead is off of SR 165. It is less than a half-mile hike

37 from the parking lot to the cave. The trail leads to a concrete staircase, then to a limestone ledge in

38 the cliff, and finally to a metal staircase that spirals up to the mouth of the cave.

1 Critical Habitat for Threatened and Endangered Species

2 Background and Description

3 The Cibola National Forest contains one designated critical habitat for federally threatened and
4 endangered species, Mexican Spotted Owl, as required by the 1995 Mexican Spotted Owl Recovery
5 Plan.

6 Department of Defense, Kirtland Air Force Base Withdrawal

7 Background and Description

8 Kirtland Air Force Base manages 15,891 acres under withdrawal for military purposes while Sandia
9 Laboratories through the Department of Energy and manages a 4,595 acre area withdrawn as a safety
10 buffer for testing in Lurance Canyon. The area will remain under joint control of the Forest Service,
11 U.S. Air Force, and Department of Energy. The feasibility of conducting a limited number of
12 activities (specified in the standards and guidelines) in this area will be studied. If these activities are
13 acceptable to the Air Force and the Department of Energy, they will be conducted in coordination
14 with these agencies.

15 Management emphasis will be to improve wildlife habitat diversity and decrease the threat of
16 escaped wildfire from either entity within intent of established Memorandums of Agreement. All
17 public use of the area will be restricted and enforced by personnel of Department of Defense and
18 Energy.

19 Langmuir Research Site and Magdalena Ridge Observatory

20 Background and Description

21 Langmuir Laboratory for Atmospheric Research (Langmuir Research Site)- Title II of the New
22 Mexico Wilderness Act established the Langmuir Research Site on Magdalena ranger district in
23 1980, to encourage scientific research into atmospheric processes and astronomical phenomena, and
24 to preserve conditions necessary for that research. Congress found that the high altitude, freedom
25 from air pollution and night luminosity caused by human activity, make the research site uniquely
26 suited to conduct research probes into thunder clouds and for other atmospheric and astronomical
27 research purposes.

28 This designation authorized the Secretary of Agriculture to enter into an appropriate land use
29 agreement with New Mexico Institute of Mining and Technology for the Langmuir Research Site to
30 establish conditions for use of the national forest land.

31 The research site consists of approximately 31,000 acres and includes a principle research facility of
32 approximately 1,000 acres which operates under a special use permit that authorizes the following:
33 use of rockets, weather balloons, buried monitoring stations, overhead wires, buried utilities,
34 waterlines, improvements, roads, towers, and storage area, and other uses (Langmuir Laboratory for
35 Atmospheric Research 2013). In April and May of 2012, a new special use permit was signed to
36 continue scientific operations at the Lab and associated Magdalena Ridge Observatory, and is valid
37 until December 31, 2031 (USFS Cibola Magdalena 2012).

38 About 72 percent of the Langmuir Site has slopes in excess of 40 percent and vegetation ranges from
39 grassland to spruce-fir. Recreation use is light and there are no developed sites. Hiking is the primary
40 recreation activity. Regulated even-age timber management is planned, but activities will be

1 managed to minimize disturbance to Langmuir Lab. Livestock grazing is permitted and wildlife
2 habitat and species diversity are maintained. There is Mexican Spotted Owl designated critical
3 habitat coincident with the Langmuir site. There are Northern Goshawk post-fledging family areas
4 (PFAs) on the Magdalena District, but the locations are not made public.

5 **T’uf Shur Bien Preservation Trust Area**

6 **Background and Description**

7 The T’uf Shur Bien Preservation Trust Area (hereinafter referred to as the Trust Area) is a
8 special management area, created as a result of a land claim dispute in which the Pueblo of
9 Sandia pursued legislative and legal avenues to recover lands immediately east of its
10 existing reservation boundaries. In December 1994, the Pueblo of Sandia filed a lawsuit
11 against the Secretary of the Interior and the Secretary of Agriculture, asserting that federal
12 surveys of the Pueblo grant boundaries erroneously excluded approximately 9,980 acres of
13 land from its reservation that are now part of the Cibola National Forest, including the
14 Sandia Mountain Wilderness. In December 1998, all parties involved in the litigation agreed
15 to enter into a negotiated settlement process.

16 In April 2000, the Forest Service, the Pueblo of Sandia, and the Sandia Peak Tram Company
17 reached a settlement agreement, permanently resolving the Pueblo’s land claim to 9,890
18 acres on the western face of the Sandia Mountains. The Agreement of Compromise and
19 Settlement outlines the details of what the parties agreed to. As with most Indian land claim
20 settlements, the agreement had to be ratified by federal legislation. On January 1, 2003,
21 federal legislation ratified the settlement agreement. The legislation is referred to as the **T’uf**
22 **Shur Bien Preservation Trust Area** (Public Law 108-07, the “Consolidated Appropriations
23 Resolution, 2003 Div F, Title IV, Section 401-415).

24 One of the primary purposes of the Act was to establish the Trust Area within the Cibola
25 National Forest and the Sandia Mountain Wilderness. The Trust Area was established to
26 recognize and protect in perpetuity the rights and interests of the Pueblo of Sandia in and to
27 the Area, to preserve in perpetuity the national forest and wilderness character of the Area,
28 and to recognize and protect in perpetuity the longstanding use and enjoyment of the Area
29 by the public. The Act lays out the provisions for management of the Trust Area.

30 The Act specifies that the Trust Area continue to be administered by the Secretary of
31 Agriculture Service as part of the National Forest System, subject to and consistent with the
32 provisions of the Act affecting the management of the Area. It also specified that there
33 should be no restrictions to the traditional or cultural uses by the Pueblo of Sandia and other
34 federally recognized Indian tribes authorized to use the Area by the Pueblo, except for the
35 Wilderness Act and its regulations in effect as of the date of enactment of the Act, and
36 applicable Federal wildlife protection laws. In addition, a federal law, enacted or amended
37 after the date of enactment, that is inconsistent with the Act, does not apply to the Area,
38 unless expressly made applicable by Congress.

39 The Act addresses prohibited uses in the Trust Area; uses prohibited by the Wilderness Act,
40 gaming or gambling, mineral production, timber production, and any new use to which the
41 Pueblo objects. The Act describes the Pueblo rights and interests in the Trust Area; the right
42 to free and unrestricted access to the Trust Area for traditional or cultural uses that are not

1 inconsistent with the Wilderness Act or its regulations, or applicable Federal wildlife
2 protection laws, perpetual preservation of the National forest and wilderness character of the
3 Trust Area, the right to consent or withhold consent to a new use, the right to consultation
4 regarding a modified use, the right to consultation regarding the management and
5 preservation of the Trust Area, the right to dispute resolution procedures, and exclusive
6 authority, in accordance with the customs and laws of the Pueblo, to administer access to the
7 Trust Area for traditional or cultural uses by members of the Pueblo and for other federally-
8 recognized Indian tribes.

9

1 **Chapter 4. Suitability of Lands**

2 *This represents a placeholder for content that has not yet been developed.*

3 Suitability is the appropriateness of applying certain resource management practices to a particular
4 area of land in consideration of the relevant social, economic, and ecological factors. Suitability is
5 determined based on compatibility with desired conditions and objectives in the plan area. The
6 suitability of lands need not be identified for every use or activity; however per the 2012 planning
7 rule, all plans must identify those lands that are not suitable for timber production. . Descriptions of
8 the criteria used in making the determinations are provided along with the results. The
9 identification of an area as suitable for a particular use or uses is guidance for project and activity
10 decision making and is not a commitment or a final decision approving projects and activities. It
11 also does not mean that a particular use will or will not occur in the area.

12

Chapter 5. Monitoring and Evaluation

This is an early draft that should convey the intent of the Cibola's plan monitoring program. Please note that this chapter is still largely incomplete.

Introduction

Under the 2012 Rule, monitoring is comprised of two elements: the plan monitoring program and broader-scale monitoring strategies. Together, these should enable the responsible official to determine if a change in plan components or other plan content that guide management of resources on the plan area may be needed. The Regional Forester develops broader-scale monitoring strategies; however at this time those strategies have not yet been completed.

The Plan monitoring program is to be developed collaboratively with other agencies, organizations, and individuals, in consultation with tribes, while coordinating with FS Research and State and Private Forestry. Monitoring is continuous and provides feedback for the planning cycle by testing relevant assumptions, tracking relevant conditions over time, and measuring management effectiveness. It should also use the best available scientific information and be within the financial and technical capabilities of the agency. The plan-level monitoring program is informed by the assessment phase; developed during plan development; and implemented after plan decision. Biennial monitoring evaluation reports document whether a change to the plan or change to the monitoring program is warranted based on new information, whether a new assessment may be needed, or whether there is no need for change at that time. The monitoring strategy provides a framework for subsequent monitoring and evaluation designed to inform adaptive management.

In addition to the above, a plan monitoring program must contain at least one monitoring question and associated indicator to address each of the eight following elements. These are the minimum monitoring requirements as specified in the 2012 rule.

- i. The status of select watershed conditions (219.12(a)(5)(i))
- ii. The status of select ecological conditions (including key characteristics of terrestrial/aquatic ecosystems) (219.12(a)(5)(ii))
- iii. The status of Focal Species to assess ecological conditions (219.12(a)(5)(iii))
- iv. The status of select ecological conditions that contribute to the recovery of T&E species, conserve proposed & candidate species, and maintain a viable population of species of conservation concern (SCC)(219.12(a)(5)(iv))
- v. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives (219.12(a)(5)(v))
- vi. Measureable changes on the plan area related to climate change and other stressors (219.12(a)(5)(vi))
- vii. Progress toward meeting desired conditions and objectives (including those for multiple uses) (219.12(a)(5)(vii))
- viii. The effects of management systems so that they do not substantially and permanently impair the productivity of the land (219.12(a)(5)(viii) and 16 U.S.C. 1604(g)(3)(C) – NFMA)

Monitoring questions should focus on providing the information necessary to evaluate whether plan components are effective and appropriate and whether management is being effective in maintaining or achieving progress toward the desired conditions and objectives for the plan area. Indicators are quantitative or qualitative variables that can be measured or described and when observed periodically, show trends in conditions that are relevant to the associated monitoring questions.

Using the Core Themes to Guide Development of the Plan Monitoring Program

Following the release of the Assessment Report of Ecological / Social / Economic Conditions, Trends, and Risks to Sustainability, Cibola National Forest Mountain Ranger Districts, a number of needs for change to the existing 1985 Land and Resource Management Plan were identified. Draft needs-for-change statements were developed by the Cibola planning and extended teams, reviewed by line officers, and presented to Cibola users and interested citizens through various media, including collaborative work sessions held in each ranger district. During the work sessions, relationships with and among stakeholders were established or strengthened; information was shared; and self-convened, self-directed groups were organized around key issues. At these work sessions, input was gathered to inform needs-for-change statements that was ultimately published in a Federal Register Notice of Intent announcement. This announcement conveyed the Cibola's intent to develop a revised forest plan based on identified needs for change and to develop plan alternatives and analyze their respective effects on the environment.

These needs for change varied in scale. Those that spanned multiple resource areas on the forest included redrawing existing management area configurations, updating plan component language to reflect changed conditions on the forest and a new planning rule, better recognize and enhance the role of the Cibola in supporting local economies, address climate change and invasive species, and provide direction for addressing accumulated fuel in the wildland-urban interface. Detailed needs to change existing plan direction were also identified specific to ecological integrity, cultural and historic resources, areas of tribal importance, multiple uses, recreation, designated areas, infrastructure, land status and ownership, use and access, energy and minerals, and special uses.

As described in Chapter 1, those needs for change to the existing Forest Plan informed the development of four core themes for the Cibola's revised Forest Plan. These themes guide and summarize work, provide additional strategic focus, and strengthen collaboration through shared stewardship. The four themes are:

- 5) Respecting Cultural and Traditional Landscapes and Uses: The Land is a life-sustaining resource that shapes who we are, helps form individual and community relationships, and strengthens ancestral connections. The Cibola has a rich history of people connected to this ancient landscape. We recognize that American Indians, land grant heirs, historic communities and residents of contemporary communities are here because of the land and the value they place on it.

Our forest management will serve the needs of present and future generations by acknowledging and honoring the different forest-based cultures, traditions, values, and economic benefits.

- 6) Valuing Unique Places and Features: Our sky islands contain a multitude of hidden gems waiting to be explored off the beaten path... spectacular geologic features, scenic vistas, landscape contrasts and stark transitions. These features give sense of place, promoting harmony between humans and nature. These features contribute to society through provision of nature-based education opportunities, spiritual renewal, artistic inspiration, employment and economic development, and outdoor play and exercise. These services are critical for the cultural and physical health of our society. It is where people come to "get away from it all" and experience solitude in four congressionally-designated wilderness areas, and is also a special gathering place for extended families and groups.

1 7) Managing Holistically for Watershed and Ecosystem Health: The Cibola National
2 Forest plan revision has a responsibility to reduce the potential for uncharacteristic
3 wildfire and the effects of climate change, as well as consider the regenerative capacity
4 of the land and restoration economies. The “restoration economy” refers to the
5 employment, capital, resources, and economic activity that emerge from investments in
6 ecological restoration. Restoration projects can include restoring functional physical
7 landscape processes, growing and planting native plants, supporting springs and
8 pollinators, enhancing habitat, and improving water quality. While investments in
9 restoration benefit the environment, restoration projects also require workers, materials,
10 and services to implement. The marketplace for these goods and services can create
11 employment, spur business and workforce development, and increase activity in local
12 economies. Through holistic management this plan will provide a framework for
13 supporting restoration economies, multiple uses and benefits for this generation and for
14 generations to come.

15 8) Managing For Sustainable Recreation: The Cibola National Plan has a responsibility to
16 provide a recreation program that is resilient and relevant for current and future
17 generations, fosters social and economic opportunities, and sustains the health, diversity,
18 and productivity of the land. This is achieved by collaborating with local communities
19 and partners, and recognizing their contributions and connections to the land, as well as
20 the role they share with us as stewards of the land. The recreation program should be
21 integrated into all resource management decisions and support the Forest’s management
22 priorities.
23

24 These four themes have been integral to developing desired conditions and other plan components in
25 the preliminary draft Plan and they will essential to implementing the final Plan. It follows then that
26 monitoring questions and indicators be structured such that Cibola National Forest users can know
27 how management activities are helping to achieve the vision set forward in the Forest Plan. In
28 addition to this, the eight minimum monitoring requirements in the 2012 planning rule also integrate
29 well with the core themes.

30 **Draft Monitoring Questions and Indicators**

31 The Cibola intends to use the Core Themes as described above to guide the development of
32 meaningful monitoring questions and indicators to determine whether or not management activities
33 are making progress towards achieving or maintaining desired conditions. Table 23 demonstrates
34 what this framework may look like.

35

1 **Table 22. Example Matrix for the Cibola Mountain Districts Plan Monitoring Program.**

Potential Monitoring Question	Potential Monitoring Indicator	Minimum monitoring requirement addressed
<i>Respecting Cultural and Traditional Landscapes and Uses</i>		
Are plant species of known medicinal and cultural value being depleted?	Presence/absence of osha and other culturally important plants in suitable habitat.	ii. select ecological conditions v. status of visitor use vi. changes related to climate change and other stressors
<i>Valuing Unique Places and Features</i>		
<i>Managing Holistically for Watershed and Ecosystem Health</i>		
<i>Managing for Sustainable Recreation</i>		

2

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Appendix A. Glossary of Terms

Administrative unit ~ A national forest, a national grassland, a purchase unit, a land utilization project, Columbia River Gorge National Scenic Area, Land between the Lakes, Lake Tahoe Basin Management Unit, Midwin National Tallgrass Prairie, or other comparable unit of the National Forest System (36 CFR 212.1, 36 CFR 261.2).

All-terrain vehicle (ATV) ~ A type of off-highway vehicle that travels on three or more low-pressure tires; has handle-bar steering; is less than or equal to 50 inches in width; and has a seat designed to be straddled by the operator (FSH 2309.18.05).

Anthropogenic ~ Human caused.

Annual maintenance ~ Work performed to maintain serviceability or repair failures during the year in which they occur. Includes preventive and/or cyclic maintenance performed in the year in which it is scheduled to occur. Unscheduled or catastrophic failures of components or assets may need to be repaired as a part of annual maintenance (Financial Health–Common Definitions for Maintenance and Construction Terms, July 22, 1998).

Assessment ~ For the purposes of forest plan revision, an assessment is the identification and evaluation of existing information to support land management planning. Assessments are not decision-making documents but provide current information on select topics relevant to the plan area in the context of the broader landscape.

Basal area ~ The total cross-sectional area of trees in a stand measured at 4.5 feet (see below). For example, 200 6-inch-diameter trees and 50 12-inch-diameter trees have a combined basal area of about 79 square feet.



Figure A-1. Diagram of basal area (left), basal area of 40 ft²/acre (center), basal area of 120 ft²/acre (right)

Note: Diagram courtesy of D.R. Larsen [<http://oak.snrmissouri.edu/nr3110/topics/basalarea.php>]. Photos courtesy of <http://www.wkolsen.com>.

1 **Table A-1. Relationship between tree diameter, tree density, tree spacing, and basal area¹**

Tree Diameter (DBH) ²	Tree Density (trees/acre)	Tree Spacing (feet) (average distance between trees)	Basal Area (ft ² /acre)
6	204	15	40
12	51	29	40
18	23	44	40
6	612	8	120
12	153	17	120
18	68	25	120

2 ¹ Density, spacing, and basal area numbers rounded to nearest integer.

3 ² Diameter measured at breast height (4.5 feet).

4 **Best management practices (BMPs)** ~ Practical and economically achievable methods used in land
 5 management for protecting the environment. BMPs exist in mining to protect water, in forestry to
 6 protect soil, in reclamation to prevent the introduction of noxious weeds, for example. In water
 7 quality, BMPs: (1) are defined as methods, measures, or practices selected by an agency to meet its
 8 nonpoint source control needs; (2) include, but are not limited to, structural and nonstructural
 9 controls and operation and maintenance procedures; and (3) can be applied before, during, and after
 10 pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving
 11 waters.

12 **Bole** ~ The main stem of a tree (compare crown).

13 **Candidate species** ~ (1) For U.S. Fish and Wildlife Service candidate species, a species for which
 14 the Service possesses sufficient information on vulnerability and threats to support a proposal to list
 15 as endangered or threatened, but for which no proposed rule has yet been published by the Service.
 16 (2) For National Marine Fisheries Service candidate species, a species that is: (i) The subject of a
 17 petition to list and for which the National Marine Fisheries Service has determined that listing maybe
 18 warranted, pursuant to section 4(b)(3)(A) of the Endangered Species Act (16 U.S.C. 1533(b)(3)(A)),
 19 or (ii) Not the subject of a petition but for which the National Marine Fisheries Service has
 20 announced in the Federal Register the initiation of a status review.

21 **Carbon sequestration** ~ The ability of a plant to remove carbon dioxide from the atmosphere and
 22 convert it to carbohydrates through photosynthesis and store it in the plant (leaves, stems, roots).
 23 Forests are by far the best land cover for storing carbon since a high percentage of wood fiber is
 24 made up of carbon.

25 **Carbon stock** ~ Carbon stored in the ecosystem—in living biomass, soil, dead wood, and litter (see
 26 carbon sequestration). For purposes of carbon assessment for National Forest System (NFS) land
 27 management planning, carbon in fossil fuel resources, lakes or rivers, emissions from agency
 28 operations, or public use of NFS lands (such as emissions from vehicles and facilities) is not
 29 included.

30 **Collaboration or collaborative process** ~ A structured manner in which a collection of people with
 31 diverse interests shares knowledge, ideas, and resources while working together in an inclusive and
 32 cooperative manner toward a common purpose. Collaboration, in the context of forest planning, falls
 33 within the full spectrum of public engagement described in the Council on Environmental Quality’s
 34 publication of October, 2007: Collaboration in NEPA—A Handbook for NEPA Practitioners.

- 1 **Connectivity** ~ ecological conditions that exist at several spatial and temporal scales that provide
2 landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal
3 movements of animals within home ranges; the dispersal and genetic interchange between
4 populations; and the long distance range shifts of species, such as in response to climate change.
- 5 **Conservation** ~ The protection, preservation, management, or restoration of natural environments,
6 ecological communities, and species.
- 7 **Conserve** ~ For purposes of Planning Rule § 219.9, to protect, preserve, manage, or restore natural
8 environments and ecological communities to potentially avoid federally listing of proposed species
9 and candidate species.
- 10 **Crown** ~ The upper portion of a shrub or tree (compare bole).
- 11 **Culmination of mean annual increment of growth** ~ See “mean annual increment of growth.”
- 12 **Cultural Resources:** An object or definite location of human activity, occupation, or use identifiable
13 through field survey, historical documentation, or oral evidence. Cultural resources are prehistoric,
14 historic, archaeological, or architectural sites, structures, places, or objects and traditional cultural
15 properties. Cultural resources include the entire spectrum of resources for which the Forest Service is
16 responsible from artifacts to cultural landscapes without regard to eligibility for listing on the
17 National Register of Historic Places (FSM 2360.5).
- 18 **Cyclic maintenance** ~ Preventive maintenance activities that recur on a periodic and scheduled
19 cycle (Financial Health–Common Definitions for Maintenance and Construction Terms, July 22,
20 1998).
- 21 **Decommission** ~ Demolition, dismantling, removal, obliteration and/or disposal of a deteriorated or
22 otherwise unneeded asset or component, including necessary restoration and cleanup work.
- 23 **Designated area** ~ An area or feature identified and managed to maintain its unique special
24 character or purpose. Some categories of designated areas may be designated only by statute and
25 some categories may be established administratively in the land management planning process or by
26 other administrative processes of the Federal executive branch. Examples of statutorily designated
27 areas are national heritage areas, national recreational areas, national scenic trails, wild and scenic
28 rivers, wilderness areas, and wilderness study areas. Examples of administratively designated areas
29 are experimental forests, research natural areas, scenic byways, botanical areas, and significant
30 caves.
- 31 **Decision memo** ~ A concise written record of the responsible official’s decision to implement an
32 action that is categorically excluded from further analysis and documentation in an environmental
33 impact statement or environmental assessment, where the action is one of a category of actions
34 which do not individually or cumulatively have a significant effect on the human environment, and
35 does not give rise to extraordinary circumstances in which a normally excluded action may have a
36 significant environmental effect.
- 37 **Deferred maintenance** ~ Maintenance that was not performed when it should have been or when it
38 was scheduled and which, therefore, was put off or delayed for a future period. When allowed to
39 accumulate without limits or consideration of useful life, deferred maintenance leads to deterioration
40 of performance, increased costs to repair, and decrease in asset value. Deferred maintenance needs
41 may be categorized as critical or non-critical at any point in time. Continued deferral of non-critical
42 maintenance will normally result in an increase in critical deferred maintenance. Code compliance

1 (e.g., life safety, ADA, OSHA, environmental, etc.), Forest plan direction, best management
2 practices, biological evaluations other regulatory or Executive order compliance requirements, or
3 applicable standards not met on schedule are considered deferred maintenance (Financial Health–
4 Common Definitions for Maintenance and Construction Terms, July 22, 1998).

5 **Designated road, trail, or area** ~ A National Forest System road, a National Forest System trail, or
6 an area on National Forest System lands that is designated for motor vehicle use pursuant to 36 CFR
7 212.51 on a motor vehicle use map (36 CFR 212.1).

8 **Disturbance** ~ Any relatively discrete event in time that disrupts ecosystem, watershed, community,
9 or species population structure or function and changes resources, substrate availability, or the
10 physical environment.

11 **Disturbance regime** ~ A description of the characteristic types of disturbance on a given landscape;
12 the frequency, severity, and size distribution of these characteristic disturbance types and their
13 interactions.

14 **Easement** ~ A type of special use authorization (usually granted for linear rights-of-way) that is
15 utilized in those situations where a conveyance of a limited and transferable interest in National
16 Forest System land is necessary or desirable to serve or facilitate authorized long-term uses, and that
17 may be compensable according to its terms (36 CFR 251.51).

18 **Ecological conditions** ~ The biological and physical environment that can affect the diversity of
19 plant and animal communities, the persistence of native species, and the productive capacity of
20 ecological system. Ecological conditions include habitat and other influences on species and the
21 environment. Examples of ecological conditions include the abundance and distribution of aquatic
22 and terrestrial habitats, connectivity, roads and other structural developments, human uses, and
23 invasive species.

24 **Ecological integrity** ~ The quality or condition of an ecosystem when its dominant ecological
25 characteristics (for example, composition, structure, function, connectivity, and species composition
26 and diversity) occur within the natural range of variation and can withstand and recover from most
27 perturbations imposed by natural environmental dynamics or human influence.

28 **Ecological response unit (ERU)** ~ A unit of land that is homogenous in character such that similar
29 units will respond in the same way to disturbance or manipulation (Society for Range Management
30 1998). ERUs represent an ecosystem stratification based on vegetation characteristics that would
31 occur when natural disturbance regime and biological processes prevail and combine potential
32 vegetation and historic fire regimes to form ecosystem classes useful for landscape assessment.

33 **Ecological sustainability** ~ See “sustainability.”

34 **Ecological system** ~ See “ecosystem.”

35 **Economic sustainability** ~ See “sustainability.”

36 **Ecosystem** ~ A spatially explicit, relatively homogeneous unit of the Earth that includes all
37 interacting organisms and elements of the abiotic environment within its boundaries. An ecosystem
38 is commonly described in terms of its: (1) Composition—the biological elements within the different
39 levels of biological organization, from genes and species to communities and ecosystems; (2)
40 Structure—the organization and physical arrangement of biological elements such as snags and down
41 woody debris, vertical and horizontal distribution of vegetation, stream habitat complexity, landscape

1 pattern, and connectivity; (3) Function—ecological processes that sustain composition and structure,
2 such as energy flow, nutrient cycling and retention, soil development and retention, predation and
3 herbivory, and natural disturbances such as wind, fire, and floods; and (4) Connectivity (see
4 “connectivity”).

5 **Ecosystem diversity** ~ The variety and relative extent of ecosystems.

6 **Ecosystem services** ~ Benefits people obtain from ecosystems, including: (1) provisioning services,
7 such as clean air and fresh water, energy, fuel, forage, fiber, and minerals; (2) regulating services,
8 such as long-term storage of carbon; climate regulation; water filtration, purification, and storage;
9 soil stabilization; flood control; and disease regulation; (3) supporting services, such as pollination,
10 seed dispersal, soil formation, and nutrient cycling; and (4) cultural services, such as educational,
11 aesthetic, spiritual and cultural heritage values, recreational experiences and tourism opportunities.

12 **Ecotone** ~ A transition area between two ecosystems.

13 **Environmental assessment (EA)** ~ A public document that provides sufficient evidence and
14 analysis for determining whether to prepare an environmental impact statement or a finding of no
15 significant impact, aids an agency’s compliance with the National Environmental Policy Act (NEPA)
16 when no environmental impact statement is necessary, and facilitates preparation of a statement
17 when one is necessary (40 CFR 1508.9; FSH 1909.15, chapter 40).

18 **Environmental document** ~ For the purposes of this part: an environmental assessment,
19 environmental impact statement, finding of no significant impact, categorical exclusion, and notice
20 of intent to prepare an environmental impact statement.

21 **Environmental impact statement (EIS)** ~ A detailed written statement as required by section
22 102(2)(C) of the National Environmental Policy Act (NEPA) of 1969 (40 CFR 1508.11; 36 CFR
23 220).

24 **Even-aged stand** ~ A stand of trees composed of a single age-class (compare uneven-aged stand).

25 **Federally recognized Indian Tribe** ~ An Indian or Alaska Native Tribe, band, nation, pueblo,
26 village, or community that the Secretary of the Interior acknowledges to exist as an Indian Tribe
27 under the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 479a).

28 **Federally recognized species** ~ Those species that have been determined by the U.S. Fish and
29 Wildlife Service and the National Oceanic and Atmospheric Administration to be endangered or
30 threatened per the Endangered Species Act, as amended (Public Law 93-205) or have been proposed
31 for listing or have been identified as candidates for listing.

32 **Focal species** ~ A small subset of species whose status permits inference to the integrity of the larger
33 ecological system to which it belongs and provides meaningful information regarding the
34 effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the
35 diversity of plant and animal communities in the plan area. Focal species would be commonly
36 selected on the basis of their functional role in ecosystem.

37 **Forb** ~ An herbaceous dicotyledonous (“broadleaf”) plant. Forbs may be annual or perennial.
38 (Grasses are herbaceous monocotyledonous plants.)

39 **Forest (vegetation type)** ~ A tree-dominated plant community in which the dominant trees are
40 typically tall and straight-boled, often with overlapping crown (compare woodland).

- 1 **Forestland** ~ Land at least 10 percent occupied by forest trees of any size or formerly having had
2 such tree cover and not currently developed for non-forest uses. Lands developed for nonforest use
3 include areas for crops, improved pasture, residential or administrative areas, improved roads of any
4 width and adjoining road clearing, and power line clearings of any width.
- 5 **Forest road or trail** ~ A road or trail wholly or partly within or adjacent to and serving the National
6 Forest System that the Forest Service determines is necessary for the protection, administration and
7 utilization or the National Forest System and the use and development of its resources (36 CFR
8 212.1, 36 CFR 251.5, 36 CFR 261.2).
- 9 **Forest transportation system** ~ The system of National Forest System roads, National Forest
10 System Trails, and airfields on National Forest System lands (36 CFR 212.1).
- 11 **Formal comments** ~ See “substantive formal comments.”
- 12 **Fuel (fire and forestry)** ~ Live or dead vegetation that can carry a fire.
- 13 **Geographic area** ~ A spatially contiguous land area identified within the planning area. A
14 geographic area may overlap with a management area.
- 15 **Grassland** ~ A vegetation type dominated by grasses. Forbs are commonly present. Trees and shrubs
16 may be present as minor components of the plant community.
- 17 **Group** ~ A cluster of two or more trees with interlocking or nearly interlocking crowns at maturity
18 surrounded by grass-forb-shrub interspaces. Size of tree groups is typically variable depending on
19 forest type and site conditions and can range from fractions of an acre (e.g., a two-tree group), such
20 as in ponderosa pine or dry mixed-conifer forests, to many acres, as is common in wet mixed-conifer
21 and spruce fir forests. Trees within groups are typically non-uniformly spaced, some of which may
22 be tightly clumped.
- 23 **INFRA** ~ The Agency’s infrastructure database used to store and manage information related to
24 constructed features, such as buildings, dams, bridges, water systems, roads, trails, developed
25 recreation sites, range improvements, administrative sites, heritage sites, as well as general forest
26 areas and wilderness areas.
- 27 **Inherent capability of the plan area** ~ The ecological capacity or ecological potential of an area
28 characterized by the interrelationship of its physical elements, its climatic regime, and natural
29 disturbances.
- 30 **Integrated resource management** ~ Multiple-use management that recognizes the interdependence
31 of ecological resources and is based on the need for integrated consideration of ecological, social,
32 and economic factors.
- 33 **Interspace** ~ Area of relatively low-growing vegetation (or no vegetation) between patches of taller
34 vegetation.
- 35 **Ladder fuels** ~ Live or dead vegetation (tall grasses, shrubs, small trees) that allows flames to climb
36 up into the forest canopy.
- 37 **Land management plan** ~ A document or set of documents that provide management direction for
38 an administrative unit of the National Forest System developed under the requirements of this part or
39 a prior planning rule.

- 1 **Landscape** ~ A defined area irrespective of ownership or other artificial boundaries, such as a spatial
2 mosaic of terrestrial and aquatic ecosystem, landforms, and plant communities, repeated in similar
3 form throughout such a defined area.
- 4 **Lead objector** ~ For an objection submitted with multiple individuals, multiple entities, or
5 combination of individuals and entities listed, the individual or entity identified to represent all other
6 objectors for the purposes of communication, written or otherwise, regarding the objection.
- 7 **Line officer** ~ A Forest Service official who serves in a direct line of command from the Chief.
- 8 **Lop and Scatter** ~ Silvicultural practice of felling and disposing of unwanted material by cutting
9 into lengths and disturbing relatively evenly.
- 10 **Maintain** ~ In reference to an ecological condition: To keep in existence or continuance of the
11 desired ecological condition in terms of its desired composition, structure, and processes. Depending
12 upon the circumstance, ecological conditions may be maintained by active or passive management or
13 both.
- 14 **Maintenance** ~ The upkeep of the entire forest transportation facility including surface and
15 shoulders, parking and side areas, structures, and such traffic-control devices as are necessary for its
16 safe and efficient utilization (36 CFR 212.1).
- 17 **Management area** ~ A land area identified within the planning area that has the same set of
18 applicable plan components. A management area does not have to be spatially contiguous.
- 19 **Management system** ~ For purposes of the 2012 Planning Rule, a timber management system
20 including even-aged management and uneven-aged management.
- 21 **Mastication** ~ Mechanical grinding of slash, often left in place to aid soil health.
- 22 **Mean annual increment of growth and culmination of mean annual increment of growth** ~
23 Mean annual increment of growth is the total increment of increase of volume of a stand (standing
24 crop plus thinnings) up to a given age divided by that age. Culmination of mean annual increment of
25 growth is the age in the growth cycle of an even-aged stand at which the average annual rate of
26 increase of volume is at a maximum. In land management plans, mean annual increment is expressed
27 in cubic measure and is based on the expected growth of stands, according to intensities and
28 utilization guidelines in the plan.
- 29 **Monitoring** ~ A systematic process of collecting information to evaluate effects of actions or
30 changes in conditions or relationships.
- 31 **Motor vehicle** ~ Any vehicle which is self-propelled, other than (1) a vehicle operated on rails and
32 (2) any wheelchair or mobility device, including one that is battery-powered, that is designed solely
33 for use by a mobility-impaired person for locomotion, and that is suitable for use in an indoor
34 pedestrian area (36 CFR 212.1, 36 CFR 261.2).
- 35 **Motor vehicle use map (MVUM)** ~ A map reflecting designated roads, trails, and areas on an
36 administrative unit or a ranger district of the National Forest System (36 CFR 212.1).
- 37 **Multiple use** ~ The management of all the various renewable surface resources of the National
38 Forest System so that they are utilized in the combination that will best meet the needs of the
39 American people; making the most judicious use of the land for some or all of these resources or

1 related services over areas large enough to provide sufficient latitude for periodic adjustments in use
2 to conform to changing needs and conditions; that some land will be used for less than all of the
3 resources; and harmonious and coordinated management of the various resources, each with the
4 other, without impairment of the productivity of the land, with consideration being given to the
5 relative values of the various resources, and not necessarily the combination of uses that will give the
6 greatest dollar return or the greatest unit output, consistent with the Multiple-Use Sustained-Yield
7 Act of 1960 (16 U.S.C. 528–531).

8 **National Forest System (NFS)** ~ The National Forest System includes national forests, national
9 grasslands, and the National Tallgrass Prairie.

10 **National Forest System land** ~ All lands, waters, or interests therein administered by the Forest
11 Service (36 CFR 251.51).

12 **National Forest System road** ~ A forest road other than a road which has been authorized by a
13 legally documented right-of-way held by a State, county or other local public road authority (36 CFR
14 212.1, 36 CFR 251.51, 36 CFR 261.2).

15 **National Forest System trail** ~ A forest trail other than a trail which has been authorized by a
16 legally documented right-of-way held by a State, county or other local public road authority (36 CFR
17 212.1).

18 **Native knowledge** ~ A way of knowing or understanding the world, including traditional ecological
19 and social knowledge of the environment derived from multiple generations of indigenous peoples'
20 interactions, observations, and experiences with their ecological system. Native knowledge is place-
21 based and culture-based knowledge in which people learn to live in and adapt to their own
22 environment through interactions, observations, and experiences with their ecological system. This
23 knowledge is generally not solely gained, developed by, or retained by individuals, but is rather
24 accumulated over successive generations and is expressed through oral traditions, ceremonies,
25 stories, dances, songs, art, and other means within a cultural context.

26 **Native species** ~ An organism that was historically or is present in a particular ecosystem as a result
27 of natural migratory or evolutionary processes; and not as a result of an accidental or deliberate
28 introduction into that ecosystem. An organism's presence and evolution (adaptation) in an area are
29 determined by climate, soil, and other biotic and abiotic factors.

30 **Natural range of variability and natural range of variation** ~ Spatial and temporal variation in
31 ecosystem characteristics under historic disturbance regime during a reference period. The reference
32 period considered should be sufficiently long to include the full range of variation produced by
33 dominant natural disturbance regimes, often several centuries, for such disturbances as fire and
34 flooding and should also include short-term variation and cycles in climate. "Natural range of
35 variation" (NRV) is a term used synonymously with historic range of variation or range of natural
36 variation. The NRV is a tool for assessing ecological integrity, and does not necessarily constitute a
37 management target or desired condition. The NRV can help identify key structural, functional,
38 compositional, and connectivity characteristics, for which plan components may be important for
39 either maintenance or restoration of such ecological conditions.

40 **NEPA** ~ The National Environmental Policy Act (NEPA) requires Federal agencies to integrate
41 environmental values into their decision making processes by considering the environmental impacts
42 of their proposed actions and reasonable alternatives to those actions.

- 1 **Newspaper(s) of record** ~ The newspaper(s) of record is (are) the principal newspaper(s) of general
2 circulation annually identified and published in the *Federal Register* by each regional forester to be
3 used for publishing notices as required by 36 CFR 215.5. The newspaper(s) of record for projects in
4 a plan area is (are) the newspaper(s) of record for notices related to planning.
- 5 **Objection** ~ The written document filed with a reviewing officer by an individual or entity seeking
6 pre-decisional administrative review of a plan, plan amendment, or plan revision.
- 7 **Objection period** ~ The allotted filing period following publication of a public notice in the
8 applicable newspaper of record (or the *Federal Register*, if the responsible official is the Chief) of
9 the availability of the appropriate environmental documents and draft decision document, including a
10 plan, plan amendment, or plan revision during which an objection may be filed with the reviewing
11 officer.
- 12 **Objection process** ~ Those procedures established for pre-decisional administrative review of a
13 plan, plan amendment, or plan revision.
- 14 **Objector** ~ An individual or entity who meets the requirements of § 219.53, and files an objection
15 that meets the requirements of §§ 219.54 and 219.56.
- 16 **Off-highway vehicle (OHV)** ~ Any motorized vehicle designed for or capable of cross county travel
17 on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain;
18 except that term excludes (A) any registered motorboat; (B) any fire, military, emergency or law
19 enforcement vehicle when used for emergency purposes, and any combat or combat support vehicle
20 when used for national defense purposes; and (C) any vehicle whose use is expressly authorized by
21 the respective agency head under a permit, lease, license, or contract (EO 116-44 as amended by EO
22 11989). See also FSM 2355. 01–Exhibit 01.
- 23 **Online** ~ Refers to the appropriate Forest Service website or future electronic equivalent.
- 24 **Open to public travel** ~ The road section is available, except during scheduled periods, extreme
25 weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the
26 general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions
27 based on size, weight, or class of registration. Toll plazas of public toll roads are not considered
28 restrictive gates (23 CFR 460.2).
- 29 **Overstory** ~ The uppermost layer of vegetation in a plant community (compare understory).
- 30 **Participation** ~ Activities that include a wide range of public involvement tools and processes, such
31 as collaboration, public meetings, open houses, workshops, and comment periods.
- 32 **Passenger cars** ~ These include passenger cars of all sizes, sport/utility vehicles, minivans, vans and
33 pickup trucks (AASHTO [2001], A Policy on Geometric Design of Highways and Streets).
- 34 **Patch** ~ Areas larger than tree groups in which the vegetation composition and structure are
35 relatively homogeneous. Patches can be composed of randomly arranged trees or multiple tree
36 groups, and they can be even-aged or uneven-aged. Patches comprise the mid-scale, ranging in size
37 from 10 to 1,000 acres. Patches and stands are roughly synonymous.
- 38 **Persistence** ~ Continued existence.
- 39 **Plan** ~ See “land management plan.”

- 1 **Plan area** ~ The National Forest System lands covered by a plan.
- 2 **Plant and animal community** ~ A naturally occurring assemblage of plant and animal species
3 living within a defined area or habitat.
- 4 **Private road** ~ A road under private ownership authorized by easement to a private party, or a road
5 which provides access pursuant to a reserved or private right (FS-643, Roads Analysis: Informing
6 Decisions About Managing the National Forest Transportation System, August 1999).
- 7 **Productivity** ~ The capacity of National Forest System lands and their ecological system to provide
8 the various renewable resources in certain amounts in perpetuity. For the purposes of this subpart,
9 productivity is an ecological term, not an economic term.
- 10 **Project** ~ An organized effort to achieve an outcome on National Forest System lands identified by
11 location, tasks, outputs, effects, times, and responsibilities for execution.
- 12 **Proposed species** ~ Any species of fish, wildlife, or plant that is proposed by the U.S. Fish and
13 Wildlife Service or the National Marine Fisheries Service in the *Federal Register* to be listed under
14 section 4 of the Endangered Species Act.
- 15 **Public agency** ~ Any organization with administrative or functional responsibilities which are
16 directly or indirectly affiliated with a governmental body of any nation, State, or local jurisdiction
17 (23 CFR 635.102).
- 18 **Public authority** ~ A Federal, State, county, town or township, Indian Tribe, municipal or other
19 local government or instrumentality thereof, with authority to finance, build, operate or maintain toll
20 or toll-free highway facilities (23 CFR 460.2).
- 21 **Public road** ~ Any road or street under the jurisdiction of and maintained by a public authority and
22 open to public travel (23 USC 101).
- 23 **Ramet** ~ An individual plant that is part of a clone.
- 24 **Recovery** ~ For the purposes of the 2012 Planning Rule, and with respect to threatened or
25 endangered species: The improvement in the status of a listed species to the point at which listing as
26 federally endangered or threatened is no longer appropriate.
- 27 **Recreation** ~ See “sustainable recreation.”
- 28 **Recreational vehicle (RV)** ~ These include motor homes, cars with camper trailers, cars with boat
29 trailers, motor homes with boat trailers and motor homes pulling cars. (AASHTO [2001], A Policy
30 on Geometric Design of Highways and Streets).
- 31 **Recreation opportunity** ~ An opportunity to participate in a specific recreation activity in a
32 particular recreation setting to enjoy desired recreation experiences and other benefits that accrue.
33 Recreation opportunities include non-motorized, motorized, developed, and dispersed recreation on
34 land, water, and in the air.
- 35 **Recreation setting** ~ The social, managerial, and physical attributes of a place that, when combined,
36 provide a distinct set of recreation opportunities. The Forest Service uses the recreation opportunity
37 spectrum to define recreation settings and categorize them into six distinct classes: “primitive,”
38 “semi-primitive non-motorized,” “semi-primitive motorized,” “roaded natural,” “rural,” and “urban.”

- 1 **Responsible official** ~ The official with the authority and responsibility to oversee the planning
2 process and to approve a plan, plan amendment, and plan revision.
- 3 **Restoration** ~ The process of assisting the recovery of an ecosystem that has been degraded,
4 damaged, or destroyed. Ecological restoration focuses on reestablishing the composition, structure,
5 pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems
6 sustainability, resilience, and health under current and future conditions.
- 7 **Restore** ~ To renew by the process of restoration (see “restoration”).
- 8 **Reviewing officer** ~ The USDA or Forest Service official having the delegated authority and
9 responsibility to review an objection filed on a plan or amendment.
- 10 **Right-of-way** ~ A privilege or right to cross over or use the land of another party for egress and
11 ingress such as roads, pipelines, irrigation canals, or ditches. The right-of-way may be conveyed by
12 an easement, permit, license, or other instrument (FSM 5460.5).
- 13 **Riparian (vegetation type)** ~ The plant community adjacent to a river, stream, or spring. Riparian
14 vegetation is typified by the presence of hydrophilic (water-loving) plants.
- 15 **Riparian areas** ~ Three-dimensional ecotones of interaction ~ that include terrestrial and aquatic
16 ecosystem that extend down into the groundwater, up above the canopy, outward across the
17 floodplain, up the near-slopes that drain to the water, laterally into the terrestrial ecosystem, and
18 along the water course at variable widths.
- 19 **Riparian management zone** ~ Portions of a watershed where riparian-dependent resources receive
20 primary emphasis, and for which plans include components to maintain or restore hydrologic and
21 ecological function.
- 22 **Risk** ~ A combination of the likelihood that a negative outcome will occur and the severity of the
23 subsequent negative consequences.
- 24 **Road** ~ A motor vehicle route over 50-inches wide, unless identified and managed as a trail (36 CFR
25 212.1).
- 26 **Road maintenance level (ML)** ~ The level of service provided by, and maintenance required for, a
27 specific road.
- 28 **ML 1** ~ Closed to vehicular traffic intermittently for periods that exceed 1 year. Can be operated
29 at any other maintenance level during periods of use.
- 30 **ML 2** ~ Open and maintained for use by high-clearance vehicles; surface smoothness is not a
31 consideration. Most have native material surface (not paved and no aggregate surface).
- 32 **ML 3** ~ Open and maintained for use by standard passenger cars. Most have gravel surface.
- 33 **ML 4** ~ Open and maintained for use by standard passenger cars and to provide a moderate
34 degree of user comfort and convenience at moderate travel speeds. Most are paved or have an
35 aggregate surface.
- 36 **ML 5** ~ Open and maintained for use by standard passenger cars and to provide a high degree of
37 user comfort and convenience. Most are paved.

- 1 **Routine maintenance** ~ Work that is planned to be accomplished on a continuing basis, generally
2 annually or more frequently (FSH 7709.58, 13.41).
- 3 **Scenic character** ~ A combination of the physical, biological, and cultural images that gives an area
4 its scenic identity and contributes to its sense of place. Scenic character provides a frame of reference
5 from which to determine scenic attractiveness and to measure scenic integrity.
- 6 **Seed tree** ~ A tree left standing for the sole or primary purpose of providing seed (SAF 2016).
- 7 **Seral stage** ~ See “succession.”
- 8 **Shelterwood** ~ The cutting of most trees, leaving enough large trees to produce seed and shade for a
9 new generation of trees (adapted from SAF [2016]). A shelterwood treatment leaves more large trees
10 after treatment than a seed-tree treatment.
- 11 **Shrubland** ~ A vegetation type dominated by shrubs. Grasses and forbs are commonly present.
12 Trees may be present as a minor component of the plant community.
- 13 **Slash** ~ Coarse and fine woody material generated during timber harvest, thinning, etc.
- 14 **Snag** ~ A standing, dead tree
- 15 **Social sustainability** ~ See “sustainability.”
- 16 **Sole source aquifer** ~ Underground water supply designated by the Environmental Protection
17 Agency (EPA) as the “sole or principle” source of drinking water for an area as established under
18 section 1424(e) of the Safe Drinking Water Act (42 U.S.C. 300h–3(e)).
- 19 **Source water protection areas** ~ The area delineated by a State or Tribe for a public water system
20 (PWS) or including numerous PWSs, whether the source is ground water or surface water or both, as
21 part of a State or Tribal source water assessment and protection program (SWAP) approved by
22 Environmental Protection Agency under section 1453 of the Safe Drinking Water Act (42 U.S.C.
23 300h–3(e)).
- 24 **Special use authorization** ~ A permit, term permit, lease, or easement which allows occupancy, use,
25 rights, or privileges of National Forest System land (36 CFR 251.51).
- 26 **Species of conservation concern** ~ A species, other than federally recognized threatened,
27 endangered, proposed species, or candidate species, that is known to occur in the plan area and for
28 which the regional forester has determined that the best available scientific information indicates
29 substantial concern about the species’ capability to persist over the long term in the plan area.
- 30 **Stressor** ~ For the purposes of the 2012 Planning Rule: A factor that may directly or indirectly
31 degrade or impair ecosystem composition, structure, or ecological process in a manner that may
32 impair its ecological integrity, such as an invasive species, loss of connectivity, or the disruption of a
33 natural disturbance regime.
- 34 **Substantive formal comments** ~ Written comments submitted to, or oral comments recorded by, the
35 responsible official or his designee during an opportunity for public participation provided during the
36 planning process (§§ 219.4 and 219.16), and attributed to the individual or entity providing them.
37 Comments are considered substantive when they are within the scope of the proposal, are specific to
38 the proposal, have a direct relationship to the proposal, and include supporting reasons for the
39 responsible official to consider.

1 **Succession** ~ Change in species composition and structure over time. Early successional stages
 2 (“seres” or “states”) are often dominated by small, short-lived, poorly competitive, non-woody
 3 species (annual forbs and grasses) that take advantage of the available “biological space” and
 4 plentiful soil nutrients and sunlight present after a disturbance. As succession proceeds, soil nutrients
 5 are converted into plant biomass, and plant community dominance generally shifts toward larger,
 6 longer-lived, woody species that are better competitors for limited soil nutrients and sunlight—
 7 shrubs, shade-intolerant tree species, and eventually, shade-tolerant tree species (Figure A-1).
 8 Disturbances like wildfire, drought, invasive species, and herbivory can interrupt or reverse
 9 succession.



10

11 **Figure A-2. Representation of the different seral stages in the succession of a forest**

12 **Sustainability** ~ The capability to meet the needs of the present generation without compromising
 13 the ability of future generations to meet their needs. For purposes of this part, “ecological
 14 sustainability” refers to the capability of ecosystem to maintain ecological integrity; “economic
 15 sustainability” refers to the capability of society to produce and consume or otherwise benefit from
 16 goods and services including contributions to jobs and market and nonmarket benefits; and “social
 17 sustainability” refers to the capability of society to support the network of relationships, traditions,
 18 culture, and activities that connect people to the land and to one another, and support vibrant
 19 communities.

20 **Sustainable recreation** ~ The set of recreation settings and opportunities on the National Forest
 21 System that is ecologically, economically, and socially sustainable for present and future generations.

22 **System driver** ~ A dominant ecological process, disturbance regime, or stressor, such as natural
 23 succession, wildland fire, invasive species, and climate change.

24 **Temporary road or trail** ~ A road or trail necessary for emergency operations or authorized by
 25 contract, permit, lease, or other written authorization that is not a forest road or trail and that is not
 26 included in a forest transportation atlas (36 CFR 212.1).

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

- 1 **Timber production** ~ The purposeful growing, tending, harvesting, and regeneration of regulated
2 crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use.
- 3 **Traditional Cultural Property (TCP):** A historic property that is eligible for inclusion in the
4 National Register of Historic Places because of its association with cultural practices or beliefs of a
5 living community that 1) are rooted in that community's history, and 2) are important in maintaining
6 the continuing cultural identity of the community (NPS National Register Bulletin 38).
- 7 **Traditional Use:** Uses that maintain relationships between people and the world around them. Uses
8 that are rooted in the community's history and are important in maintaining the continuing cultural
9 identity of the community.
- 10 **Trail** ~ A route 50 inches or less in width or a route over 50-inches wide that is identified and
11 managed as a trail (36 CFR 212.1).
- 12 **Trailhead** ~ The transfer point between a trail and a road, lake, or airfield. The area may have
13 developments that facilitate the transfer from one transportation mode to another (FSM 2353.05).
- 14 **Transportation facility jurisdiction** ~ The legal right or authority to control, operate, regulate use
15 of, maintain, or cause to be maintained, a transportation facility, through ownership or delegated
16 authority. The authority to construct or maintain such a facility may be derived from fee title,
17 easement, written authorization, or permit from a Federal agency, or some similar method (23 CFR
18 660.103).
- 19 **Travel route** ~ A road, river or trail, that is open for use by members of the general public (36 CFR
20 292.21).
- 21 **Unauthorized road or trail** ~ A road or trail that is not a forest road or trail or a temporary road or
22 trail and that is not included in a forest transportation atlas (36 CFR 212.1).
- 23 **Understory** ~ The layer(s) of vegetation in a plant community beneath the overstory (compare
24 overstory).
- 25 **Uneven-aged stand** ~ A stand of trees composed of a single age-class (compare even-aged stand).
- 26 **Vehicle** ~ Any device in, upon, or by which any person or property is or may be transported,
27 including any frame, chassis, or body of any motor vehicle, except devices used exclusively upon
28 stationary rails or tracks (36 CFR 261.2).
- 29 **Viable population** ~ A population of a species that continues to persist over the long term with
30 sufficient distribution to be resilient and adaptable to stressors and likely future environments.
- 31 **Watershed** ~ A region or land area drained by a single stream, river, or drainage network; a drainage
32 basin.
- 33 **Watershed condition** ~ The state of a watershed based on physical and biogeochemical
34 characteristics and processes.
- 35 **Wild and scenic river** ~ A river designated by Congress as part of the National Wild and Scenic
36 Rivers System that was established in the Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271
37 (note), 1271–1287).

- 1 **Wilderness** ~ Any area of land designated by Congress as part of the National Wilderness
2 Preservation System that was established in the Wilderness Act of 1964 (16 U.S.C. 1131–1136).
- 3 **Wildland** ~ Forests, shrublands, grasslands, and other vegetation communities that have not been
4 significantly modified by agriculture or human development.
- 5 **Wildland-urban interface (WUI)** ~ Place where development adjoins or intermingles with
6 undeveloped natural area (rural neighborhood, ski area, campground, etc.).
- 7 **Witch’s Broom** ~ Dense clump of deformed plant growth resulting from infection (such as by
8 mistletoe).
- 9 **Woodland** ~ A plant community in which the dominant trees are typically small and short-boled,
10 usually with little crown overlap (compare forest).

1 Appendix B: Plant Names: Common, Latin, and

2 Spanish

3 **Table B-1. Plant names: Common, Latin, and Spanish**

Common Name	Scientific Name	Spanish Name(s)
agave, century plant	<i>Agave</i> spp.	lechuguilla, maguey
alpine clover	<i>Trifolium dasyphyllum</i>	trébol
Arizona alder	<i>Alnus oblongifolia</i>	alamillo, aliso, júcaro
Arizona cottontop	<i>Digitaria californica</i>	plumero blanco, zacate punta blanca
Arizona cypress	<i>Cupressus arizonica</i>	cedro, cipres
Arizona fescue	<i>Festuca arizonica</i>	cañuela arizonica
Arizona sycamore	<i>Platanus wrightii</i>	lamo blanco, aliso, ciclamor
Arizona walnut	<i>Juglans major</i>	nogal
big bluestem	<i>Andropogon gerardii</i>	
Bigelow sage	<i>Artemisia bigelovii</i>	chamiso
birchleaf buckthorn	<i>Condalia spathulata</i>	teconblate
black grama	<i>Bouteloua eriopoda</i>	navillta
blue grama	<i>Bouteloua gracilis</i>	artiguilla, navajita
blue spruce	<i>Picea pungens</i>	abeto azul, picea azul
bluegrass	<i>Poa</i> spp.	epsinguilla, pasto azul
boxelder	<i>Acer negundo</i>	acer, acecinte, acer negundo, el palo blanco
bristlecone pine	<i>Pinus longaeva</i>	pino de cola de zorro, pino de piñas aritadas de las rocosas
bulrush	<i>Cyperus papyrus</i>	cyperus, papiro
burrograss	<i>Scleropogon brevifolius</i>	cola de zorra, zacate de burro
bush muhly	<i>Muhlenbergia porteri</i>	liendrilla, zacate aparejo, amacollada, teleraña
cactus apple	<i>Opuntia englemannii</i>	abrojo, coyonoxtle, cuija, joconstle
California false hellebore	<i>Veratium album</i>	balestera, cebadilla
corkbark fir, subalpine fir	<i>Abies lasiocarpa</i>	abeto blanco, pino real blanco
creosote bush, greasewood	<i>Larrea tridentata</i>	chaparral, hediondilla, gobernadora
curly mesquite	<i>Pleuraphis belangeri</i>	rizado, tobosa, zacate chino
currant (wax currant)	<i>Ribes</i> spp.	capulincillo, ciruelillo
desert willow	<i>Chilopsis linearis</i>	mimbres, sauce, flor de mimbres
Douglas-fir	<i>Pseudotsuga menziesii</i>	abeto, acahuite, cahuite, el pino real colorado
ear muhly	<i>Muhlenbergia arenacea</i>	liendrilla
Engelmann spruce	<i>Picea engelmannii</i>	picea, pino real
fluffgrass, low woollygrass	<i>Dasyochloa pulchela</i>	
fowl manna grass	<i>Glyceria striata</i>	gliceria estriada
Fremont cottonwood	<i>Populus fremontii</i>	alamo
Gambel oak	<i>Quercus gambelii</i>	encino, encino de hojas anchas
giant dropseed	<i>Sporobolus giganteus</i>	zacate gigante
giant sacaton	<i>Sporobolus wrightii</i>	zacate
goldenrod	<i>Solidago</i> spp.	vara de oro
gypsum grama	<i>Bouteloua brevisetata</i>	chino grama, navijita china

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Common Name	Scientific Name	Spanish Name(s)
hairy grama	<i>Bouteloua hirsuta</i>	grama, navajita, navajita velluda
honeysuckle	<i>Lonicera</i> spp.	madreselva
huckleberry	<i>Vaccinium myrtillus</i>	ráspero
Indiangrass	<i>Sorghastrum nutans</i>	zacate indio
Indian ricegrass	<i>Achnatherum hymenoides</i>	arroz indio
James' galleta	<i>Pleuraphis jamesii</i>	galleta
jointfir, Mormon tea	<i>Ephedra</i> spp.	canutillo, popotillo, tepopote
juniper	<i>Juniperus</i> spp.	sabina, cedron
Kentucky bluegrass	<i>Poa pratensis</i>	cañuela, espiguilla, gramade prados
lanceleaf cottonwood	<i>Populus x acuminata</i>	alamo
Lehmann lovegrass	<i>Eragrostis lehmanniana</i>	amor seco africano, pasto africano, zacate africano
limber pine	<i>Pinus flexilis</i>	ayacahuite, pino enano
little bluestem	<i>Schizachyrium scoparium</i>	popotillo azul, popotillo cañuelo
low woollygrass, fluffgrass	<i>Dasyochloa pulchella</i>	
lupine	<i>Lupinus</i> spp.	altramuz, cola de zorra, lupino
manzanita	<i>Arctostaphylos manzanita</i>	manzanilla, coralillo, madrone borracho, pinguica
Rocky Mountain maple	<i>Acer glabrum</i>	palo de azucar
mariola	<i>Parthenium incanum</i>	copalillo, guayule, guayuchemara
mat rockspirea	<i>Petrophyton caespitosum</i>	
mesquite	<i>Prosopis</i> spp.	tonillo
mesa dropseed	<i>Sporobolus flexuosus</i>	zacatón
mountain mahogany	<i>Cerocarpus</i> spp.	palo duro, palo ludo
narrowleaf cottonwood	<i>Populus angustifolia</i>	alamo
narrowleaf willow, coyote willow, acequia willow	<i>Salix exigua</i>	
needle and thread	<i>Hesperostipa comata</i>	
needlegrass	<i>Stipa tenacissima</i>	esparto, raigon
New Mexico bluestem	<i>Schizachyrium neomexicanum</i>	popotillo azul
New Mexico feathergrass	<i>Hesperostipa neomexicana</i>	barba blanca, flechilla neomexicana
New Mexico locust	<i>Robinia neomexicana</i>	garrobo, hojalito, uña de gato
oak (general)	<i>Quercus</i> spp.	encino, encinillo
ocotillo (candlewood, couchwhip)	<i>Fouquieria splendens</i>	ocotillo
Parry's bellflower	<i>Campanula parryi</i>	campanula, aguinaldo, rapónchigo
Parry's oatgrass	<i>Danthonia parryi</i>	
pine dropseed	<i>Blepharoneuron tricholepis</i>	pastille del pinar, popotillo del pinar
pinyon pine	<i>Pinus edulis</i>	piñon, ocote
plains lovegrass	<i>Eragrostis intermedia</i>	zacate llanero
plumed crinklemat	<i>Tiquilia greggii</i>	cenizo, herba del cenizo
ponderosa pine (yellow pine)	<i>Pinus ponderosa</i>	pino ponderosa, el pinabete amarillo, pinabete, pino blanco, pino real, pino real americano
pricklyleaf dogweed	<i>Dyssodia acerosa</i>	parralena, pagué
purple threeawn	<i>Artistida purpurea</i>	tres aristas
quaking aspen	<i>Populus tremuloides</i>	alamillo

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Common Name	Scientific Name	Spanish Name(s)
red grama	<i>Bouteloua trifida</i>	navillta
Rio Grande cottonwood	<i>Populus wislizenii</i>	alamo, guerigo
Rio Grande saddlebush	<i>Mortonia scabrella</i>	afinador
Rocky Mountain iris (blue flag)	<i>Iris missouriensis</i>	lirio
saddlebush	<i>Mortonia scabrella</i>	afinador
sagebrush (wormwood)	<i>Artemisia</i> spp.	chamiso, altamisa, estafiate, mariola, alcanfor
saltbush	<i>Atriplex</i> spp.	chamiso, cenizo
sand dropseed	<i>Sporobolus cryptandrus</i>	zacate encubierto
sand muhly	<i>Muhlenbergia arenicola</i>	liendrilla
Sandberg bluegrass	<i>Poa secunda</i>	
sandhill muhly	<i>Muhlenbergia pungens</i>	liendrilla
sedges (general)	<i>Carex</i> spp.	carrizo
serviceberry	<i>Amelanchier</i>	cornillo, corniluelo
shadscale	<i>Atriplex canescens</i>	chamizo
shootingstar	<i>Dodecatheon</i> spp.	sarapico
sideoats grama	<i>Bouteloua curtipendula</i>	banderilla
Sierra rush	<i>Juncus nevadensis</i>	junco
silkassel (quinine bush)	<i>Garrya flavescens</i>	guachichi, cuauchichic
snakebroom (broomweed)	<i>Gutierrezia</i> spp.	yerba de la vibora, escoba de la vibora, collálle
snowberry	<i>Chiococca alba</i>	aceitilla, cahinca, cainia
southwestern white pine	<i>Pinus strobiformis</i>	acahuite, acamita, acanita, huiyoco, ocote
spike dropseed	<i>Sporobolus contractus</i>	zacate alcalino espigado
spike fescue	<i>Festuca kingii</i>	cañuela
spruce (general)	<i>Picea</i> spp.	pinabete
sumac (lemonadeberry)	<i>Rhus</i> spp.	pajul del norte, lemonita
tarbush	<i>Flourensia cernua</i>	hojase, ojasé, hojansen
thinleaf alder	<i>Alnus tenuifolia</i>	aliso, aliso cano, baraña
threeawn	<i>Aristida</i> spp.	tres aristas
Thurber's fescue	<i>Festuca thurberi</i>	cañuela
tobosagrass	<i>Pleuraphis mutica</i>	toboso
velvet ash	<i>Fraxinus velutina</i>	fresno
velvet mesquite	<i>Prosopis velutina</i>	mesquite, algarroba, chachuaca
viscid acacia	<i>Acacia neovernicos</i>	
white fir	<i>Abies concolor</i>	abeto, pinabete, pino blanco, pino real blanco
whitethorn acacia	<i>Acacia constricta</i>	chabarroprieto, gigantillo, juisache
willow (general)	<i>Salix</i> spp.	jara, jarita, sauce, sauz
winterfat	<i>Krascheninnikovia lanata</i>	lanata
woody crinklemat	<i>Tiquilia canescens</i>	hierba de la virgen, orejade perro
Wright's beebrush	<i>Aloysia wrightii</i>	altamisa, oreganillo, vara dulce
yarrow, milfoil	<i>Achillea lanulosa</i>	plumajillo
yucca (Spanish bayonet/dagger)	<i>Yucca</i> spp.	amole, datil

1 **Note:** A variety of sources was used to compile this list:

Cibola National Forest Mountain Districts Forest Plan Revision

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Appendix C: Plan Revision Core Themes

These themes guide and summarize our work, and help to provide additional strategic focus while reminding us that through shared stewardship we gain immense benefits from the Cibola National Forest well beyond our own individual values and interests.

Respecting Cultural and Traditional Landscapes and Uses

The land is a life-sustaining resource that shapes who we are, helps form individual and community relationships, and strengthens ancestral connections. The Cibola has a rich history of people connected to this ancient landscape. We recognize that American Indians, land grant heirs, historic communities and residents of contemporary communities are here because of the land and the value they place on it. Our Forest management will serve the needs of present and future generations by acknowledging and honoring the different forest-based cultures, traditions, values, and economic benefits.

Valuing Unique Places and Features

Our sky islands contain a multitude of hidden gems waiting to be explored off the beaten path—spectacular geologic features, scenic vistas, landscape contrasts and stark transitions. These features give sense of place, promoting harmony between humans and nature. These features contribute to society through provision of nature-based education opportunities, spiritual renewal, artistic inspiration, employment and economic development, and outdoor play and exercise. These services are critical for the cultural and physical health of our society. It is where people come to “get away from it all” and experience solitude in four congressionally-designated wilderness areas, and is also a special gathering place for extended families and groups.

Managing Holistically for Watershed and Ecosystem Health

The Cibola National Forest plan revision has a responsibility to reduce the potential for uncharacteristic wildfire and the effects of climate change, as well as consider the regenerative capacity of the land and restoration economies. The “restoration economy” refers to the employment, capital, resources, and economic activity that emerge from investments in ecological restoration. Restoration projects can include restoring functional physical landscape processes, growing and planting native plants, supporting springs and pollinators, enhancing habitat, and improving water quality. While investments in restoration benefit the environment, restoration projects also require workers, materials, and services to implement. The marketplace for these goods and services can create employment, spur business and workforce development, and increase activity in local economies. Through holistic management this Plan will provide a framework for supporting restoration economies, multiple uses, and benefits for this generation and for generations to come.

Managing for Sustainable Recreation

The Cibola National Plan has a responsibility to provide a recreation program that is resilient and relevant for current and future generations, fosters social and economic opportunities, and sustains the health, diversity, and productivity of the land. This is achieved by collaborating with local communities and partners, and recognizing their contributions and connections to the land, as well as the role they share with us as stewards of the land. The recreation program should be integrated into all resource management decisions and support the Forest’s management priorities.

Appendix D: Proposed Management Areas and Draft Alternatives

Draft Forest Plan Alternatives and Management Areas and Narrative Descriptions of Each Alternative

Each Alternative Applies Differing Levels of Scale and Intensity of the Four Plan Revision Core Themes:

1. Respecting Cultural, Traditional, Historical, and Contemporary Landscapes and Uses
2. Valuing Unique Places and Features
3. Managing Holistically for Watershed and Ecosystem Health
4. Managing for Sustainable Recreation

Table 231. Comparison of Alternatives

Alternative A No Action- Existing 1985 Plan	Alternative B Preliminary Draft Plan (Proposed Action)	Alternative C No New Designated Areas Emphasis	Alternative D Alternative Management Areas and Recommended Wilderness Emphasis	Alternative E Backcountry Emphasis
<ul style="list-style-type: none"> • Retain all Management Areas from 1985 Plan • No new Management Areas • Retain All Existing Designated Areas, inc. Wilderness • No new Recommended Wilderness Areas • Existing Plan Components for: <ul style="list-style-type: none"> ○ Existing Designated Areas, including wilderness 	<ul style="list-style-type: none"> • Remove all Management Areas from 1985 Plan • New Management Areas • Retain All Designated Areas from 1985 Plan, inc. Wilderness • New Recommended Wilderness Areas • Revised Plan Components for: <ul style="list-style-type: none"> ○ Existing Designated Areas from 1985 Plan 	<ul style="list-style-type: none"> • Remove all Management Areas from 1985 Plan • No new Management Areas • Retain All Designated Areas from 1985 Plan, inc. Wilderness • No new Recommended Wilderness Areas • Revised Plan Components for: <ul style="list-style-type: none"> ○ Existing Designated Areas from 1985 Plan 	<ul style="list-style-type: none"> • Remove all Management Areas from 1985 Plan • New Management Areas • Retain All Designated Areas from 1985 Plan, inc. Wilderness • New Recommended Wilderness Areas • Revised Plan Components for: <ul style="list-style-type: none"> ○ Existing Designated Areas from 1985 Plan 	<ul style="list-style-type: none"> • Remove all Management Areas from 1985 Plan • New Management Areas • Retain All Designated Areas from 1985 Plan, inc. Wilderness • New Recommended Wilderness Areas • Revised Plan Components for: <ul style="list-style-type: none"> ○ Existing Designated Areas from 1985 Plan

Alternative A No Action- Existing 1985 Plan	Alternative B Preliminary Draft Plan (Proposed Action)	Alternative C No New Designated Areas Emphasis	Alternative D Alternative Management Areas and Recommended Wilderness Emphasis	Alternative E Backcountry Emphasis
<ul style="list-style-type: none"> ○ Existing CDNST ○ Existing Eligible (W&SR) ○ Existing Management Areas 1-18 	<ul style="list-style-type: none"> ○ CDNST from 1985 Plan ○ Updated Eligible W&SR ○ Proposed Management Areas (below) ○ Recommended Wilderness Areas (below) <ul style="list-style-type: none"> ● Forest-wide plan components for all remaining areas not included in above 	<ul style="list-style-type: none"> ○ CDNST from 1985 Plan ○ Updated Eligible W&SR <ul style="list-style-type: none"> ● Forest-wide plan components for all remaining areas not included in above 	<ul style="list-style-type: none"> ○ CDNST from 1985 Plan ○ Updated Eligible W&SR ○ Alternative Management Areas (below) ○ Alternative Recommended Wilderness Areas (below) <ul style="list-style-type: none"> ● Forest-wide plan components for all remaining areas not included in above 	<ul style="list-style-type: none"> ○ CDNST from 1985 Plan ○ Updated Eligible W&SR ○ Alternative Management Areas (below) ○ ALL areas having wilderness character are Recommended Wilderness (below) <ul style="list-style-type: none"> ● Forest-wide plan components for all remaining areas not included in above
<u>Recommended Wilderness</u> No new recommended wilderness	<u>Recommended Wilderness approximate acreage</u> Mount Taylor: None Magdalena: 48,900 acres Mountainair: 600 acres Sandia: None Total: 49,500 acres	<u>Recommended Wilderness approximate acreage</u> None	<u>Recommended Wilderness approximate acreage</u> Mount Taylor: 15,000 acres Magdalena: None Mountainair: 1,200 acres Sandia: 300 acres Total: 16,500 acres	<u>Recommended Wilderness approximate acreage</u> Mount Taylor: 15,500 acres Magdalena: 73,700 acres Mountainair: 4,200 acres Sandia: 900 acres Total: 94,300 acres

Alternative A No Action- Existing 1985 Plan	Alternative B Preliminary Draft Plan (Proposed Action)	Alternative C No New Designated Areas Emphasis	Alternative D Alternative Management Areas and Recommended Wilderness Emphasis	Alternative E Backcountry Emphasis
<u>Proposed Management Areas</u> No new proposed management areas	<u>Proposed Management Areas</u> Mount Taylor: Salado Canyon/Guadalupe; Mount Taylor Watershed, Little Water Canyon Magdalena: Sawtooth/Monument Rock, Dark Skies Mountainair: Fourth of July, Gallinas Municipal Watershed, Jumanos Pueblos, Cement Springs, Bighorn Sheep, Gross Kelly (Cattle only) Sandia: Las Huertas Canyon, East Mountains (Sandia) Outdoor Education/Recreation	<u>Proposed Management Areas</u> None	<u>Proposed Management Areas</u> Mount Taylor: None Magdalena: Enchanted Towers, OHV Use-Nogal and S. San Mateos, San Mateos Backcountry Wildlife Conservation Areas Mountainair: Gross Kelley Allotment as seed bank without communal grazing, Bighorn Sheep additional Areas Sandia: Communal Grazing	<u>Proposed Management Areas</u> Mount Taylor: None Magdalena: Backcountry Wildlife Conservation Areas, Expand the Dark Skies Mountainair: Gross Kelley Allotment as seed bank without communal grazing Sandia: Communal Grazing

1 Description of Alternatives

2 **Alternative A – (No Action, maintain existing Forest Plan)**
3 **Management Areas and Designated Areas Description**

4 This Alternative meets the four core themes with less scale and intensity than Alternatives B-E due
5 to the differing focus of the policy and direction of the 1982 forest planning regulations than the
6 2012 planning rule. The 2012 planning rule differs from the previous planning rule by taking into
7 account new understanding of science, land management, and the all-lands context for managing
8 resources that will meet modern and future needs. Whereas the 1982 planning regulations focused on
9 outputs, the 2012 planning rule focuses on outcomes with an emphasis on public collaboration.

10 1985 Plan Management Areas 1-18

11 **Management Area 1-** The management area is composed of the 37,232 acre Sandia Mountain
12 Wilderness. The area is adjacent to the Albuquerque metropolitan area. Management emphasis:
13 provide quality wilderness experience opportunities, dispersed recreation; wildlife diversity and
14 ecosystem health maintained through prescribed natural fire management practices.

15 **Management Area 2-** The 44,648 acre management area is the Sandia Ranger District excluding the
16 Sandia Mountain Wilderness and the military withdrawals. Management emphasis is to provide
17 opportunities for a variety of year round recreational experiences, wildlife diversity and population
18 viability maintained or improved through habitat management

19 **Management Area 3 -**The 100,007 acre management area is composed of the Manzano Mountain
20 Wilderness on the Mountainair Ranger District and the Apache Kid and the Withington Wilderness
21 on the Magdalena Ranger District. Management emphasis is to provide dispersed recreation
22 opportunities compatible with maintaining wilderness values and protecting resources.

23 **Management Area 4 -**The 33,112 acre management area is administered by the Black Kettle Ranger
24 District, which is not within the mountain districts analysis area.

25 **Management Area 5 -**The 230,842 acre management area is administered by the Kiowa and Rita
26 Blanca Ranger Districts, which is not within the mountain districts analysis area.

27 **Management Area 6 –** Reserved.

28 **Management Area 7 -** The 30,606 acre management area consists of the Langmuir Research site on
29 the Magdalena Ranger District. The area is legislatively designated for atmospheric and astronomical
30 research. Management emphasis is to preserve conditions necessary to meet research needs of
31 Langmuir Laboratory.

32 **Management Area 8 -** The 194,099 acre management area is located on the Mount Taylor Ranger
33 District. The primary management emphasis is on regulated even-aged timber management.

34 **Management Area 9 -** This is a 4,377 acre management area located on the Mount Taylor Ranger
35 District. Primary emphasis is on wildlife.

36 **Management Area 10 -** This 5,932 acre management area is located on the Mount Taylor Ranger
37 District. The primary emphasis is on maximum commercial timber production through regulated
38 timber management.

1 **Management Area 11** - The 102,430 acre management area located on the Magdalena (67,539
2 acres) and Mountainair Ranger Districts (34,891). Emphasis is to maintain forest and watershed
3 health, vigor, and productivity, as well as provide and maintain wildlife habitat diversity and old
4 growth.

5 **Management Area 12** -The 35,428 acre management area is located on the Mountainair (9,798
6 acres) and Magdalena (25,630) acres) Ranger Districts. Emphasis is to maintain forest and watershed
7 health, vigor, and productivity, as well as provide and maintain wildlife habitat diversity and old
8 growth.

9 **Management Area 13** -The 215,552 acre management area occurs on the Mountainair (7,845 acres),
10 Mount Taylor (60,465 acres), and Magdalena (147,242 acres) Ranger Districts. The primary
11 emphasis is in on wildlife management activities.

12 **Management Area 14** - This 236,185 acre management area is located on the Mount Taylor Ranger
13 District. Emphasis is to manage Pinyon-juniper for personal use and commercial firewood.
14 References 28 acres of potential RNA (Little Water Canyon).

15 **Management Area 15** - This 118,723 acre management area is located on the Mountainair Ranger
16 District. Emphasis is on range and wildfire management activities

17 **Management Area 16** - The 457,146 acre management area is located on the Magdalena Ranger
18 District's four mountain ranges. The primary emphasis is on range and wildlife management
19 activities

20 **Management Area 17** - The 20,486 acre management area adjacent to the Albuquerque
21 metropolitan area in the Sandia District is closed to public entry for security and safety purposes and
22 is managed by Kirtland Air Force Base (15,891 acres) and the Department of Energy (4,595 acres).

23 **Management Area 18** – The 17,419 acre management area is located on the Mount Taylor District,
24 predominately on the Zuni Mountains. Management emphasis is to plant and then maximize
25 commercial timber production. References 100 acres of potential RNA (Bluewater Creek).

26 Existing Designated Areas

27 **Congressionally Designated Areas**- Designated wilderness provides places where natural processes
28 dominate and the impacts of humans are minimized. Congress preserved these places to pass on to
29 future generations. Wilderness provides large areas for the study of nature and unique scientific and
30 educational opportunities

- 31 • Sandia Mountain Wilderness (Management Area 1 in 1985 Plan)
- 32 • Manzano Mountain Wilderness (Management Area 3 in 1985 Plan)
- 33 • Apache Kid Wilderness (Management Area 3 in 1985 Plan)
- 34 • Withington Wilderness (Management Area 3 in 1985 Plan)

35 **Bernalillo Watershed Research Natural Area** (referenced in forest-wide prescriptions applicable
36 to Management Areas 2 in 1985 Plan) - Research natural areas (RNAs) are administratively
37 designated by the Regional Forester, and managed to maintain the natural features for which they
38 were established. Because of the emphasis on natural conditions, they are excellent areas for
39 studying ecosystems.

1 **Inventoried Roadless Areas-** Inventoried roadless areas provide clean drinking water, function as
2 biological strongholds for populations of threatened and endangered species, provide large, relatively
3 undisturbed landscapes with high scenic quality, and provide opportunities for dispersed outdoor
4 recreation.

5 **National Historic Landmarks- Sandia Cave**

6 **Critical Habitat for Threatened and Endangered Species Habitat-** Mexican Spotted Owl Habitat
7 as Required by the 2012 Revised Mexican Spotted Owl Recovery Plan

8 **Continental Divide National and Scenic Trail** (Management Areas 8, 13 and 16 in 1985 Plan) -
9 National scenic trails, are established by Congress to provide for maximum outdoor recreation
10 potential and for the conservation and enjoyment of the nationally significant scenic, historic,
11 natural, or cultural qualities of the areas through which such trails may pass. National historic trails
12 follow as closely as possible and practicable the original trails or routes of travel of national
13 historical significance

14 **State and Nationally Designated Scenic Byways** - Scenic byways are roads recognized to contain
15 intrinsic qualities-- archaeological, cultural , historic, natural, recreational, and scenic. Seven national
16 scenic byways are within the Cibola National Forest area of influence, three of which were
17 designated by the state of New Mexico

18 **Department of Defense, Kirtland Air Force Base** (15,891 acres) and **Department of Energy**
19 (4,595 acres) **Withdrawn Areas** (Management Area 17 in 1985 Plan)

20 **Langmuir Research Site and Magdalena Ridge Observatory** (Management Area 7 in 1985 Plan)

21 **T'uf Shur Bien Preservation Trust Area-** special management area, created as a result of a land
22 claim dispute in which the Pueblo of Sandia recovered lands immediately east of its existing
23 reservation boundaries.

24 **Alternative B-(Preliminary Draft Plan Proposed Action- PA)** 25 **Management Areas and Designated Areas Description**

26 This Alternative meets the four core themes with a high level of scale and intensity. This is due to
27 Forest-wide plan components which describe desired conditions and management strategies that
28 adhere to all of the core themes in an integrated and collaborative way. These plan components
29 provide a strategic framework for managing the plan area and reflect the Forest's distinctive roles
30 and contributions. This Alternative consists of proposed management areas that were developed to
31 meet the core themes on a site specific basis throughout the Forest. Alternative B includes 49,500
32 acres of recommended wilderness which may further increase the scale and intensity of adhering to
33 the core themes of Valuing Unique Places and Features and Managing for Sustainable Recreation.

34 Existing Designated Areas as described in Alternative A

35 Updated Eligible Wild and Scenic Rivers

36 Management Areas

37 **Mount Taylor Ranger District:**

- 38 1) Salado Canyon/Guadalupe Management Area-
39 a. East of Canyon Rim should be boundary.

- 1 i. Unique
2 1. scenery, keep out trespass livestock, large volcanic rocks, seeps,
3 aspens, geology-sandstone bluffs, unroaded.
4 b. Eastern side of rim: Manage for the outstanding scenic, wildlife, and cultural areas.
5 c. Preserve the natural features and qualities that are consistent with Inventoried
6 Roadless Area
7 d. Characteristics where IRA exists; manage for wildlife habitat; characteristics of the
8 Traditional Cultural Property and traditional and cultural values.
- 9 2) Mount Taylor Management Area-
10 a. Watershed Restoration
11 b. Cultural and Traditional Cultural Uses including drinking water for Laguna and
12 Traditional Cultural Properties
13 c. Geologic uniqueness.
14 d. Timber Canyon area (Sec 33 and parts of 4): manage as special mgmt area for
15 preservation of crater core/other unique features
16 e. Manage fire risk/treatments. Sections 27, 34 and 3: WP and WR; “firebreak”
17 objective (steep slope in Secs 27 and 28).
18 f. High priority watershed for water to downstream communities.
19 g. Restoration focus for forest health, addressing invasives, resiliency, protection of
20 critical habitat,
21 h. Recognition of high value cultural resources and significance.
22 i. Timber Canyon is part of the Mount Taylor Watershed management area proposal.
23 j. Where management area overlaps with CDNST, the CDNST plan components
- 24 3) Little Water Canyon Management Area Low elevation plant community Mgmt. Area –
25 a. Little Water Canyon and possibly other similar plant communities with unknown
26 locations.
27 b. These have unique plant community, water scenery, large trees, maximum water
28 capture.
29 c. May need different plan component to retain large trees, including large oaks,
30 maximize water capture.
31 d. See little red circle on D2 input map, but there may be other locations.
32 e. One comment suggested not including NE side of Oso Ridge, but comment was later
33 retracted by commenter, per Michael Carpinelli.
34 f. Plan component needed to allow for debranching of spruce. Spruce fern community
35 is unique to Little Water Canyon and may be in other locations as well.
36 g. Michael Carpinelli has drafted a Forest-wide plan component that would address
37 these unique undiscovered botanical areas.

38 **Magdalena Ranger District:**

- 39 1) Sawtooth/Monument Rock MA
40 a. More emphasis on scenery mitigation, and high scenic integrity
41 b. Continue multiple uses—nexus between falcons and climbers

- 1 c. Team to discuss recreational value of area—rock climbing
- 2 d. Team discuss impacts to utilities
- 3 2) Dark Skies MA (20 acres outside of town)-
- 4 a. 20 acre site be designated as an astronomical observing area in the Cibola National
- 5 Forest just to the west of Magdalena, NM

6 **Mountainair Ranger District:**

- 7 1) 4th of July Canyon MA-
- 8 a. Protect unique scenic, botanical, recreational values.
- 9 b. Scenic Quality.
- 10 c. Southern extent of Big Tooth Maple.
- 11 d. Road Maintenance to facilitate fall color viewing.
- 12 e. Create road maintenance objective or management approach to facilitate passenger
- 13 car protection and sustain maples for long term desired condition.
- 14 f. Develop plan components to accomplish desired condition that includes active
- 15 restoration and integration w/Rec and other uses.
- 16 g. Area includes Tajique Creek which is an eligible W&SR.
- 17 h. Desired Condition provides education info @ site kiosk, interpretative trail, etc.
- 18 i. Management approach – provide fuelwood to deter illegal firewood cutting with
- 19 emphasis on oak.
- 20 j. This very unusual native colony of maple trees in the desert southwest deserves
- 21 special protection for its unique contribution to the bio-diversity of the Manzano
- 22 Mountains and for its high scenic values and recreation opportunities.
- 23 k. It is a very popular area for hikes and family picnics during the fall color season.
- 24 l. The trails are heavily impacted and need regular monitoring to curtail short-cutting
- 25 and associated erosion problems that may damage the trees.
- 26 2) Jumanos Pueblos MA-
- 27 a. Connected to Salinas Pueblo Missions & Salt Lakes.
- 28 b. Develop specific desired conditions to intensify current protection and complete
- 29 inventory for entire area.
- 30 c. Education, outreach, interpretation needed due to significant cultural landscape.
- 31 3) Gross Kelly Communal Grazing Allotment MA-
- 32 a. Traditionally, was a communal grazing area.
- 33 b. Specify cattle and no domestic sheep to avoid conflict with FS policy on managing
- 34 for bighorn sheep grazing.
- 35 c. Boundary would not overlap with bighorn sheep management area.
- 36 4) Cement Springs Civil War Historic MA-
- 37 a. Protection of [the area?],
- 38 b. Desired Conditions to co-manage with NPS.
- 39 c. Considered one of the best relics of Civil War era Existing springs.

- 1 5) Bighorn Sheep MA-
2 a. Use to be native, original herd documented by Aldo Leopold.
3 b. NMG&F have released and managed for 50 years.
4 c. Future hunting opportunities.
5 d. Wildlife viewing.
6 e. Co-fund & manage FS, NMG&FD, etc.,
7 f. Develop water sources for Bighorn Sheep – Balanced at one mile Apart.
8 g. Create and maintain desired habitat.
9 h. Need specific desired condition and plan components with NMG&FD & local
10 communities
11 i. Provide wood generated from treatments to meet desired condition to local
12 communities.
13 j. Phased Approach needed – describe in objectives and/or management approach
14 k. Define compatible uses.
15 l. Define through desired conditions how to contain the Bighorn [Sheep] to the
16 Management Area.
17 m. How to manage Bighorn [Sheep] if Gross Kelly Allotment becomes active.
18 n. Consider Mule Deer habitat emphasis as well as Bighorn [Sheep].
19 o. Bring back desirable shrubs as forage.
20 p. Look at Claunch Pinto SWCD Land management plan components
21 q. Recognized increased recreation use due to wildlife viewing.
22 r. Balance other wildlife, forest health, watershed needs through plan associations
23 required for all resource needs
24 s. Protect and enhance traditional plants and herbs for community use while managing
25 for Bighorn.
- 26 6) Gallinas Municipal Watershed and Unique Geologic Features MA-
27 a. Municipal water source for Corona – priority watershed concept
28 b. Future well needs.
29 c. Manage community water with rare earth mineral exploration opportunities.
30 d. Desired condition – provide for educational opportunities due to unique volcanic
31 geology – NM Tech, geologic district.
32 e. Community forest products provided through management.

33 **Sandia Ranger District:**

- 34 1) Las Huertas Canyon MA-
35 a. Protection of Traditional Cultural Properties, Traditional Cultural Uses, watershed,
36 Acequias and drinking water.
37 b. Protect wildland urban interface through forest restoration (Desired condition).
38 c. Integrate various management plan and uses, local knowledge, FS, Land Grants,
39 communities, Groups, etc.,

- 1 d. Conservation Districts (Mgmt approach) (Mgmt approach or Guideline) Area must
- 2 be managed much more collaboratively than other areas (Desired condition)
- 3 e. Other mgmt. approaches: Permits to allow traditional and cultural collection and
- 4 gathering Integrate local communities to achieve goals and objectives of watershed
- 5 restoration Provide and promote economic opportunities for local communities.
- 6 f. Collaborate and integrate with local, tribal, Land Grant, Conservation Districts,
- 7 communities=Landscape approach and local knowledge.
- 8 g. Where proposed management area boundary overlaps with Sandia Wilderness
- 9 activities proposed for the Management Area would need to be in compliance with
- 10 the Wilderness Act and agency direction.

11 2) East Mountains Outdoor Education/Recreation MA-

- 12 a. Focus on nature based activities.
- 13 b. Manage special uses to emphasize the land.
- 14 c. Provide environmental education opportunities and interpretation: especially with
- 15 youth and underserved populations.
- 16 d. Forge stronger human connections to the Forest. Encourage outdoor recreation and
- 17 exploration
- 18 e. Not developing a facility – just leaving an area to manage for outdoor education/
- 19 recreation without adding work.

20 **Recommended Wilderness**

21 **Mount Taylor Ranger District:**

22 None

23 **Magdalena Ranger District:**

- 24 1. Portion of D3_5K10- Recommend for recommended wilderness (redraw boundary to align
- 25 with IRA, exclude decommissioned rds and 14*A)
- 26 2. Portion of D3_5K11- Recommend Blue Mesa (east of Chamisa Canyon) to Madre Mountain
- 27 as recommended wilderness
- 28 3. Portion of D3_ADJ8- Manage area with wilderness character as recommended wilderness
- 29 with continuance of authorized and permitted uses.
- 30 4. Portion of D3_ADJ8.b- Manage area with wilderness character as recommended wilderness
- 31 5. Portion of D3_ADJ8.c- Manage area with wilderness character as recommended wilderness
- 32

33 **Mountainair Ranger District:**

- 34 1. Portion of D4_ADJ7- portion not managed as Wilderness Portal
- 35 2. All of D4_ADJ8
- 36

37 **Sandia Ranger District:**

38 None

1 **Alternative C-(No New Designated Areas Emphasis)**

2 This Alternative meets the four core themes with a lesser level of scale and intensity than
3 Alternatives B and D due to no new management areas, designated areas or recommended
4 wilderness. Alternative C would consist of Forest-wide and Existing Designated Area plan
5 component implementation. This Alternative may ultimately reduce the scale and intensity of
6 adhering to all of the core themes, especially for the themes of Respecting Cultural, Traditional,
7 Historical, and Contemporary Landscapes and Uses, Valuing Unique Places and Features and
8 Managing for Sustainable Recreation.

9

10 Existing Designated Areas as described in Alternative A

11 Updated Eligible Wild and Scenic Rivers

12 No Alternative Management Areas

13 No Recommended Wilderness

14

15 **Alternative D- (Alternative Management Areas and Recommended**
16 **Wilderness Emphasis)**

17 This Alternative is similar to Alternative B in adhering to the four core themes with a high level of
18 scale and intensity; however, different Management Areas and recommended wilderness areas are
19 proposed within Alternative D. As well, Alternative D proposes less recommended wilderness with a
20 total of 16,500 acres than Alternative B which proposes 49,500 acres of recommended wilderness.
21 There may be a lower scale and intensity of adhering to the core themes of Valuing Unique Places
22 and Features and Managing for Sustainable Recreation under this Alternative.

23 Existing Designated Areas as described in Alternative A

24 Updated Eligible Wild and Scenic Rivers

25 Alternative Management Areas

26 **Mount Taylor Ranger District:**

27 None

28 **Magdalena Ranger District:**

29 1. Backcountry Wildlife Conservation Areas-

30 a. These areas are located in the San Mateo Mountains and emphasize wildlife habitat
31 improvement, allowing for and encouraging prescribed and managed fire, habitat
32 conservation, semi-primitive non-motorized travel, maintaining existing recreation
33 improvements and opportunities, allow existing permitted grazing and range
34 improvements.

35 b. While other existing uses should be allowed, habitat conservation within the
36 Backcountry Wildlife Conservation Area should be prioritized over other uses, all

- 1 motorized use should be limited to those roads designated in the Magdalena Ranger
2 District's forthcoming travel management plan.
- 3 c. The construction of new roads or motorized trails within the Backcountry Wildlife
4 Conservation Area should be prohibited.
- 5 d. Temporary or permanent closure of roads that adversely affect key habitat areas
6 should be allowed as needed.
- 7 e. Motorized use off legal routes should be prohibited, except by agency staff in
8 emergencies or during search and rescue operations, forest and vegetation
9 management should be limited to wildlife habitat improvement projects, where there
10 is a demonstrated need.
- 11 f. Other wildlife improvement projects, such as the installation of guzzlers and water
12 sources for wildlife, should also be allowed, wildfire prevention and mitigation
13 activities should be limited to areas where structures, private development, or critical
14 infrastructure is threatened.
- 15 g. Prescribed fire should be allowed and encouraged, existing grazing rights should be
16 honored and grazing improvements should be implemented to ensure ecosystem
17 health, all existing camping, biking or other recreational facilities would be
18 maintained.
- 19 h. Future recreational development would be allowed only if it could be shown not to
20 diminish the area's backcountry and wildlife habitat values, wildlife habitat
21 protection should be prioritized over demand for developed recreation.
- 22 2. Enchanted Towers-
- 23 a. National destination for climbing, Climbing/falcons (seasonal use)
- 24 3. OHV Areas Nogal and South San Mateos- Not Mapped

25

26 **Mountainair Ranger District:**

- 27 1. Gross Kelley Allotment-
- 28 a. Grass Seed Bank no communal grazing
- 29 2. Bighorn Sheep-
- 30 a. all of wilderness phase inventory polygons D4_ADJ7 and D4_ADJ8

31 **Sandia Ranger District:**

- 32 1. Communal Grazing-
- 33 a. one area in northeast portion of Sandia Ranger District and another area south of I-
34 40 and west of highway 337-
- 35 b. restore historical communal grazing boundaries of the Cedro (Canon de Carnual)
36 Land Grant, the San Antonio de Las Huertas Land Grant and the San Pedro Land
37 Grant

38 **Alternative Recommended Wilderness**

39 **Mount Taylor Ranger District:**

- 40 1. Portion of D2_ADJ3- Eastern side as wilderness

41

1 **Magdalena Ranger District:**

2 None

3 **Mountainair Ranger District:**

4 1. D4_ADJ4- Manage Area north of Fourth of July canyon as recommended wilderness

5 2. D4_ADJ1- Entire polygon

6 3. D4_ADJ2- Manage southern portion as recommended wilderness

7

8 **Sandia Ranger District:**

9 1. D5_ADJ9- Manage area as recommended wilderness with the boundary to provide a
10 northern buffer west of Canon de Carnuel

11

12 **Alternative E- (Backcountry Emphasis)**

13 This Alternative is similar to Alternative B in adhering to the four core themes with a high level of
14 scale and intensity; however, different Management Areas and recommended wilderness areas are
15 proposed within Alternative E. As well, Alternative E proposes more recommended wilderness with
16 a total of 94,300 acres than Alternative B which proposes 49,500 acres of recommended wilderness.
17 Alternative E emphasizes wilderness and backcountry types of management which might increase
18 the level of scale and intensity for adhering to the core themes of Valuing Unique Places and
19 Features and Managing for Sustainable Recreation. An emphasis on wildlife habitat improvement
20 may potentially result in tradeoffs for other resources.

21 Existing Designated Areas as described in Alternative A

22 Updated Eligible Wild and Scenic Rivers

23 Alternative Management Areas

24 **Mount Taylor Ranger District:**

25 NONE

26 **Magdalena Ranger District:**

27 1. Backcountry Wildlife Conservation Areas-

28 a. These areas are located in the San Mateo Mountains and emphasize wildlife habitat
29 improvement, allowing for and encouraging prescribed and managed fire, habitat
30 conservation, semi-primitive non-motorized travel, maintaining existing recreation
31 improvements and opportunities, allow existing permitted grazing and range
32 improvements.

33 b. While other existing uses should be allowed, habitat conservation within the
34 Backcountry Wildlife Conservation Area should be prioritized over other uses, all
35 motorized use should be limited to those roads designated in the Magdalena Ranger
36 District's forthcoming travel management plan.

37 c. The construction of new roads or motorized trails within the Backcountry Wildlife
38 Conservation Area should be prohibited.

- 1 d. Temporary or permanent closure of roads that adversely affect key habitat areas
- 2 should be allowed as needed.
- 3 e. Motorized use off legal routes should be prohibited, except by agency staff in
- 4 emergencies or during search and rescue operations, forest and vegetation
- 5 management should be limited to wildlife habitat improvement projects, where there
- 6 is a demonstrated need.
- 7 f. Other wildlife improvement projects, such as the installation of guzzlers and water
- 8 sources for wildlife, should also be allowed, wildfire prevention and mitigation
- 9 activities should be limited to areas where structures, private development, or critical
- 10 infrastructure is threatened.
- 11 g. Prescribed fire should be allowed and encouraged, existing grazing rights should be
- 12 honored and grazing improvements should be implemented to ensure ecosystem
- 13 health, all existing camping, biking or other recreational facilities would be
- 14 maintained.
- 15 h. Future recreational development would be allowed only if it could be shown not to
- 16 diminish the area's backcountry and wildlife habitat values, wildlife habitat
- 17 protection should be prioritized over demand for developed recreation.
- 18 2. Expand the size of the Dark Skies Area-
- 19

20 **Mountainair Ranger District:**

- 21 1. Gross Kelley Allotment-
- 22 a. Grass Seed Bank no communal grazing
- 23

24 **Sandia Ranger District:**

- 25 1. Communal Grazing-
- 26 a. one area in northeast portion of Sandia Ranger District and another area south of I-
- 27 40 and west of highway 337-
- 28 b. restore historical communal grazing boundaries of the Cedro (Canon de Carnual)
- 29 Land Grant, the San Antonio de Las Huertas Land Grant and the San Pedro Land
- 30 Grant
- 31

32 **Alternative Recommended Wilderness**

33 **Mount Taylor Ranger District:**

- 34 1. Portion of D2_ADJ3- Eastern side of the canyon rim as recommended wilderness
- 35 2. Portion of D2_5K8- In the middle of the central and eastern portion (Timber Canyon area;
- 36 Sec 33 and parts of 4)
- 37

38 **Magdalena Ranger District:**

- 39 1. Portion of D3_5K7.d- northeast portion

- 1 2. Portion of D3_5K7- Western portion (Sections 31, 6 and 7)
- 2 3. Portion of D3_5K7.b- Eastern portion (Sections 36, 1 and 12)
- 3 4. Portion of D3_5K2- Interior portion void of constructed features and system trails
- 4 5. Portion of D3_5K3- southwest lobe of the area
- 5 6. D3_5K10- Area as a whole: redraw boundaries to align with Datil IRA, exclude
- 6 decommissioned roads in northern portion, exclude NFSR 14*A
- 7 7. D3_5K11- Area from Blue Mesa (east of NFSR 440/Chamisa Canyon) to Madre Mountain
- 8 has wilderness character
- 9 8. D3_ADJ3.c- entire area
- 10 9. D3_ADJ3.d- entire area
- 11 10. D3_ADJ3.f- entire area
- 12 11. D3_ADJ3.h- entire area
- 13 12. D3_ADJ3.i- entire area
- 14 13. Portion of D3_ADJ7- Northern portion
- 15 14. D3_5K19- North of the cherry-stemmed road (including entire area north of southern edge
- 16 of sections 24, 19, 20, and 21), particularly in the Casa Grande area
- 17 15. D3_ADJ8- Area along the southern portion immediately adjacent to the existing Apache Kid
- 18 Wilderness (excluding the southern tip) and continuing north to Grassy Flat Lookout.
- 19 16. D3_ADJ8.b- Within NW portion; south of the range allotment boundary fence and extending
- 20 just south of Cold Spring Canyon
- 21 17. D3_ADJ8.c- Within the northern area (north of Holdup tanks), excluding the Holdup range
- 22 improvement area, the Cooks Cabin area, and the closed mining claims/prospecting sections.
- 23 18. D3_ADJ8.d- North of Garcia canyon, within the Inventoried Roadless Area boundaries
- 24 19. D3_ADJ8.e- Within IRA and small portion north of IRA boundary.
- 25

26 **Mountainair Ranger District:**

- 27 1. D4_ADJ4- Manage Area north of Fourth of July canyon as recommended wilderness
- 28 2. D4_ADJ1- Area as a whole
- 29 3. D4_ADJ2- Area as a whole
- 30 4. Portion D4_5K2- interior portion
- 31 5. D4_ADJ7- Area as whole
- 32 6. D4_ADJ8- Area as a whole
- 33

34 **Sandia Ranger District:**

- 35 1. D5_ADJ9- Manage area as recommended wilderness with the boundary to provide a
- 36 northern buffer west of Canon de Carnuel
- 37 2. D5_ADJ4- Interior portion: east of 10K and north of Las Huertas Canyon
- 38

1 **Consideration of suggested alternative to maintain and restore the roadless values and**
2 **wilderness character of Chapter 70 inventoried areas that are not recommended for wilderness**

3 The Planning Directives outline the intent of the inventory as follows (1909.12, Chapter 70, Sec.71):

4 “The intent is to identify lands that may be suitable, so that they can be evaluated and to
5 allow for public input and feedback [...] Inclusion in the inventory is not a designation that
6 conveys or requires a particular kind of management.”

7 The purpose of the evaluation step of the four-step process is to then determine if areas in the
8 inventory have wilderness character. Those that are not found to have wilderness character are not
9 required to move forward into NEPA, per 1909.12, Chapter 70, Sec.72: "The Responsible Official is
10 not required to carry all lands evaluated forward for further NEPA analysis as potential
11 recommendations for inclusion in the National Wilderness Preservation System (secs. 73 and 74 of
12 this Handbook). "

13 The CNF has determined which areas of the inventory possess wilderness character, and those will
14 go on to be analyzed in alternatives. The remaining portions of the inventory have not been included
15 within any of the proposed alternatives in this preliminary draft plan for a particular kind of
16 management, pursuant to the intent of the Chapter 70 inventory and evaluation process.

17 **Consideration of request for recreation suitability in the Forest Plan Revision process:**

18 As stated in the Federal Register for the National Forest System Land Management Planning
19 Volume 77 #68 page 21264 Section 219.7 (c)(e)(v) and further reiterated in the FSH 1909.12 Land
20 Management Planning Handbook, Chapter 20 Land Management Plan, Section 22.15 Suitability of
21 Lands: “The suitability of lands need not be identified for every use or activity.”

22 The Recreation Opportunity Spectrum (ROS) is the Forest Service’s system for managing recreation
23 environments. The system is built on the assumption that people choose different settings for the
24 activities and experiences they desire. The system acts as a ‘zoning’ tool, with six distinct classes
25 representing a range (or spectrum) of settings, activities, development levels, access, remoteness,
26 naturalness, social encounters, etc. At the forest-wide planning scale, ROS helps to provide a context
27 within which various activities and settings are deemed appropriate. The final ROS map in the Forest
28 Plan will be used during project-level planning to ensure recreation is being considered equally with
29 all other resources. It will be used to guide projects and activities toward desired conditions for
30 recreation, and to measure the effects of projects and activities on recreation resources. ROS
31 classifications will also help project managers understand the level of development and infrastructure
32 that is appropriate in a particular setting. The CNF has determined that using ROS to establish forest-
33 wide classifications is sufficient for identifying which recreation activities are appropriate in
34 particular settings.

35

1 **Appendix E: Proposed Management Areas and**
2 **Draft Alternatives Mapping**

3 Please visit the Cibola National Forest and National Grasslands Forest Plan Revision website for
4 these maps:

5 <http://www.fs.usda.gov/goto/CibolaFPR>

1 **Appendix F: Recreation Opportunity Spectrum**
2 **Maps**

3 Please visit the Cibola National Forest and National Grasslands Forest Plan Revision website for
4 these maps:

5 <http://www.fs.usda.gov/goto/CibolaFPR>

1 **Appendix G: Scenery Integrity Levels for Scenery**
2 **Management System Maps**

3 Please visit the Cibola National Forest and National Grasslands Forest Plan Revision website for
4 these maps:

5 <http://www.fs.usda.gov/goto/CibolaFPR>

1 **Appendix H: Phase III Wilderness Inventory and**
2 **Areas with Wilderness Character Maps**

3 Please visit the Cibola National Forest and National Grasslands Forest Plan Revision website for
4 these maps:

5 <http://www.fs.usda.gov/goto/CibolaFPR>

1 **Appendix I: Eligible Wild and Scenic Rivers**

2 Please visit the Cibola National Forest and National Grasslands Forest Plan Revision website for
3 these maps:

4 <http://www.fs.usda.gov/goto/CibolaFPR>