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Lincoln National Forest

Draft Environmental Impact Statement

Volume 2, Appendices A - G

Chaves, Eddy, Lincoln, and Otero Counties, New Mexico

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Appendix A

Documentation of the Analyses of At-Risk Species

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Acronym or Abbreviation	Full Term
ERU	ecological response unit
Lincoln NF	Lincoln National Forest

Appendix A. Documentation of the Analyses of At-Risk Species

At-risk species are identified as federally recognized threatened, endangered, proposed, and candidate species, as well as potential species of conservation concern (SCC). Further, SCCs are defined in the 2012 Planning Rule as "a species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area."

The Forest Service has identified 54 at-risk species on the Lincoln National Forest (Lincoln NF), 7 of which are federally listed as threatened or endangered, 2 are Federal candidates, and 45 are SCC. The Lincoln NF at-risk species consist of 31 plants, 14 invertebrates, 3 fish, 2 birds, and 4 mammals, as follows:[1]

Plants

1. Sacramento Mountains thistle (*Cirsium vinaceum*)*
2. Sacramento prickly poppy (*Argemone pleiacantha* ssp. *pinnatisecta*)*
3. Todsen's pennyroyal (*Hedeoma todsenii*)*
4. Lee's pincushion cactus (*Coryphantha sneedii* var. *leei*)*
5. Kuenzler's hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*)*
6. Wright's marsh thistle (*Cirsium wrightii*)*
7. Goodding's onion (*Allium gooddingii*)
8. Wood lily (*Lilium philadelphicum*)
9. Green medusa orchid (a.k.a Ladies'-tresses orchid (*Microthelys rubrocallosa*)
10. Sierra Blanca cliff daisy (*Ionactis elegans*)
11. Gypsum blazingstar (*Mentzelia humilis* var. *guadalupensis*)
12. Golden bladderpod (*Lesquerella aurea*)
13. Fanmustard (*Nerisyrenia hypercorax*)
14. Sparsely flowered jewelflower (*Streptanthus sparsiflorus*)
15. Sacramento Mountain foxtail cactus (a.k.a Villard's pincushion cactus) (*Escobaria villardii*)
16. New Mexican stonecrop (*Rhodiola integrifolia* ssp. *neomexicana*)
17. Winged milk-vetch (a.k.a tall milk-vetch) (*Astragalus altus*)
18. Kerr's milk-vetch (*A. kerrii*)
19. Guadalupe mescal bean (*Sophora gypsophila* var. *guadalupensis*)
20. Shootingstar geranium (*Geranium dodecatheoides*)
21. Cloudcroft scorpionweed (*Phacelia cloudcroftensis*)
22. White Mountain false pennyroyal (*Hedeoma pulcherrima*)
23. Chapline's columbine (*Aquilegia chaplinei*)
24. White Mountain larkspur (*Delphinium novomexicanum*)
25. Wooton's hawthorn (*Crataegus wootoniana*)
26. Sierra Blanca cinquefoil (*Potentilla sierrae-blancae*)
27. Capitan Peak alumroot (Heuchera woodsiaphila)
28. Eggleaf coral-drops (Besseya oblongifolia)

[1] An * after a species indicates that it is federally recognized as a threatened, endangered, proposed, or candidate species.

29. Scarlet penstemon (*Penstemon cardinalis* ssp. *cardinalis*)
30. Royal red penstemon (*P. cardinalis* ssp. *regalis*)
31. Western spruce dwarf-mistletoe (*Arceuthobium microcarpum*)

Invertebrates

1. Dumont's fairy shrimp (*Streptocephalus henridumontis*)
2. Bonita diving beetle (*Stictotarsus neomexicanus*)
3. Caddisfly (*Psychoronia brooksi*)
4. Carlsbad agave borer (*Agathymus neumoegeni carlsbadensis*)
5. Henry's elfin (*Callophrys henrici solatus*)
6. Sacramento Mountains checkerspot (*Euphydryas anicia cloudcrofti*)
7. Poling's hairstreak (*Satyrium polingi*)
8. Guadalupe woodlandsnail (*Ashmunella carlsbadensis*)
9. Capitan woodlandsnail (*A. pseudodonta*)
10. Sierra Blanca woodlandsnail (*A. rhyssa*)
11. Ruidoso snaggletooth (*Gastrocopta ruidosensis*)
12. Vagabond holospira (*Holospira montivaga*)
13. Northern threeband (*Humboldtiana ultima*)
14. Mountainsnail (*Oreohelix strigosa nogalensis*)

Fish

1. Rio Grande chub (*Gila Pandora*)
2. Headwater catfish (*Ictalurus lupus*)
3. Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*)

Birds

1. Mexican spotted owl (*Strix occidentalis lucida*)*
2. Piñon jay (*Gymnorhinus cyanocephalus*)

Mammals

1. New Mexico meadow jumping mouse (*Zapus hudsonius luteus*)*
2. Peñasco least chipmunk (*Neotamius minimus atristriatus*)*
3. Guadalupe pocket gopher (*Thomomys bottae guadalupensis*)
4. *Davis Mountain cottontail (a.k.a robust cottontail) (Sylvilagus robustus)*

At-Risk Species—Threats, below, addresses threats that are known to affect at-risk species on the Lincoln NF. Through analysis of known data and scientific literature, these threats have been grouped into 12 categories, as follows: vegetation structure and composition (seral state departure, snag density departure, and coarse woody debris departure); risk of uncharacteristic wildfire; nonnative invasive species encroachment; altered hydrologic function; ground and soil disturbance; specific ecological features or conditions; vegetation management activities; ungulate grazing; pesticides and chemicals; insects and disease; recreation activities; and human-made features. Random weather events, such as drought, floods, avalanches, high wind, and climate change, are included as threats to at-risk species but are not treated as a threat category.

Most management actions conducted by the Forest Service on the Lincoln NF are intended to increase landscape resiliency to random weather events by moving ecosystems toward their desired conditions. Desired conditions generally reflect the historical range of variation of the system on the landscape. They

also emphasize landscape-scale ecosystem restoration and resiliency through adaptive management strategies to changing environmental conditions and stressors.

At-Risk Species—Individual Species, below, identifies plan components that would address the habitat characteristics or ecological conditions required for each at-risk species and their potential threats. Each species in that section contains a short description and a table that includes the ecological conditions, threat categories, and the plan components that apply to those ecological conditions or threat mitigation.

At-risk species management often requires two components. The first is usually tied to desired conditions for ecological restoration units (ERUs), and the second usually applies to species specific or tied to specific habitat features. Most at-risk species on the Lincoln NF are not associated with specific ecological response units but rather with specific habitats imbedded in ERUs; therefore, ecological conditions consist of general descriptions of habitat types unless a specific ERU is identified.

All plan components are identified with an alpha-numeric code that indicates where the component can be found in the forest plan. For example, FW-PPF-DC-MS-2 indicates the second desired condition (DC) listed in the mid-scale (MS) section, under the ponderosa pine forest (PPF) vegetation type forest-wide (FW). See Land Management Plan Coding section of the draft proposed plan for more details on plan component coding.

At-Risk Species—Threats

Vegetation Structure and Composition

Seral State Departure

Many at-risk species have specific habitat requirements that tie them to a seral state in an ERU. Seral states are a representation of ecosystem age from initiation through maturity, including differences in trajectory due to intermediate disturbances, abiotic influences, and management intensity (in current systems). Structural characteristics serve as surrogates for seral state, and each seral state occurs in a historical range of abundance within a vegetation type. For example, a healthy and productive forest will consist of a mix of young, mid-aged, and old trees within a historical range of proportions (reference condition) on the landscape. A complete description of vegetation types and their seral state composition is found in the assessment (Forest Service 2019).

Variability in vegetation structure contributes to the recruitment, retention, and size classes of other ecological indicators necessary for some species, such as snags (standing dead trees) or coarse woody debris, which is the amount of dead tree material on the ground. These components may be critical for the persistence of some species. Departure from reference conditions can negatively affect the habitat associated with these ecosystems. For example, a spruce-fir forest that consists of 80 percent early successional trees (young trees) may lack the structure and snags provided by old and dying trees. If this early successional state is overly abundant across the landscape, this can negatively affect at-risk species, depending on the structure provided by late seral conditions in the spruce-fir forest.

Highly departed systems can be a result of, or can promote, uncharacteristic disturbances, such as wildfire or insects and disease. Vegetation conditions, including how seral states naturally transition over time and with disturbances, are the foundation of most at-risk species habitat. Uncharacteristic disturbances often occur over larger spatial extents, with higher severity (canopy mortality) and perpetuate high departure conditions. This makes habitat for some species shrink, with fewer refugia[2] or other opportunities to

[2] An area where organisms can survive through periods of unfavorable conditions.

escape and more difficulty of retaining/recruiting those species, while habitat for other species increases spatially; therefore, vegetation that closely mirrors appropriate distributions of these natural vegetation transitional states, or seral states, makes better at-risk species habitat than vegetation that is departed from the appropriate seral state distributions (as defined by historical or reference conditions). The persistence of some at-risk species depends on reference condition seral states in one or across many vegetation types.

Table A-1. Vegetation structure and composition plan components

Plan Component Code		
FW-VEG-DC-1	FW-MCW-G-2	FW-PJC-DC-1
FW-VEG-DC-2	FW-MCD-DC-1	FW-PJO-DC-1
FW-VEG-DC-3	FW-MCD-DC-6	FW-JUG-DC-4
FW-VEG-G-2	FW-MCD-G-1	FW-JUG-DC-7
FW-SFF-DC- 1	FW-PPF-DC-1	FW-MMS-DC-LS-1
FW-SFF-DC- 3	FW-PPF-DC-6	FW-SDG/MSG-DC-5
FW-SFF-G-1	FW-PPF-G-1	FW-RIPAR-DC-WS-5
FW-MCW-DC-1	FW-PPE-DC- 1	
FW-MCW-DC-6	FW-PPE-DC-6	
FW-MCW-G-1		

Source: Forest Service 2020

Snag Density Departure

When a tree dies but remains standing it becomes a snag and provides habitat for an array of animals, especially birds. Ecologically a dead tree is as important to the forest ecosystem as a live one and provides several key ecological functions that influence the ecosystem. Snags provide homes for birds and foraging opportunities for insectivorous animals. If snags are not in adequate supply or are below desired conditions (identified as snags per acre), it may result in a lack of nesting locations or foraging areas for insectivorous birds or mammals. Conversely, large-scale fire often results in too many snags per acre and not enough live trees. Snag densities in reference condition should provide optimum habitat for at-risk species, so departed snag densities may result in significant negative impacts on at-risk species.

Table A-2. Snag density departure

Plan Component Code		
FW-SFF-DC- 2	FW-PPF-G-2	FW-CDS-DC-2
FW-SFF-DC- 3	FW-PPE-DC-2	FW-MSG/SDG-DC- 2
FW-SFF-DC- 4	FW-PPE-DC-3	FW-RIPAR-DC-WS-3
FW-MCW-DC- 2	FW-PPE-DC-7	FW-RIPAR-DC-WS-5
FW-MCW-DC- 3	FW-PJC-DC-2	FW-RIPAR-DC-FS-5
FW-MCW-DC- 4	FW-PJC-DC-3	FW-AQSPH-DC-WS-1
FW-MCW-DC-7	FW-PJO-DC-2	FW-AQSPH-DC-WS-2
FW-MCD-DC-LS-2	FW-PJO-G-3	FW-AQSPH-G-8
FW-PPF-DC-2	FW-JUG-DC-2	
FW-PPF-DC-9	FW-JUG-DC-3	

Source: Forest Service 2020

Coarse Woody Debris Departure

When a large tree falls it becomes coarse woody debris, which provides habitat for small animals and insects. When fallen trees rot, they store water and provide nutrients for the continued growth of the forest. Dead wood rotting on the forest floor eventually gets incorporated into the soil. This deteriorating wood feeds many insects and bacteria that provide nitrogen to feed the trees and other plants in the forest.

Coarse woody debris is not only limited to upland habitats; it has significant impact on riparian areas as well, and many aquatic species depend on downed woody material. Coarse woody debris not only provides foraging and escape cover for fish, but it contributes to the creation of optimum aquatic habitat by slowing water and contributing to pool development. Coarse woody debris is a key factor in proper functioning aquatic habitats.

Departures of coarse woody debris from reference conditions may result in significant negative impacts on at-risk species. If coarse woody debris is not in adequate supply or below desired conditions, it may result in lack of prey items for carnivorous birds or mammals. On the other hand, if coarse woody debris is in excess or is above desired conditions, it may create unfavorable soil conditions. This would be the outcome especially for at-risk plant species by prohibiting growth or germination or resulting in more intense fires that negatively affect soil conditions; thus, coarse woody debris loads in reference conditions should provide optimum habitat for terrestrial and aquatic vertebrate and invertebrate species, as well as optimum soil conditions for plant species.

The cause of departed coarse woody debris loads can usually be traced to long-term, human-caused actions, such as fire suppression, which has resulted in excess coarse woody debris in many of the forested vegetation types. Riparian areas, on the other hand, tend to lack enough coarse woody debris. The popularity of riparian areas for people, livestock, and wildlife often results in the suppression of woody recruitment because of increased trampling or grazing.

Table A-3. Coarse woody debris plan components

Plan Component Code		
FW-SFF-DC-2	FW-PPF-G-2	FW-CDS-DC- 2
FW-SFF-DC-3	FW-PPE-DC-2	FW-MSG/SDG-DC-2
FW-SFF-DC-4	FW-PPE-DC-3	FW-RIPAR-DC-WS-3
FW-MCW-DC-2	FW-PPE-DC-7	FW-RIPAR-DC-WS-5
FW-MCW-DC-3	FW-PJC-DC- 2	FW-RIPAR-DC-FS-5
FW-MCW-DC-4	FW-PJC-DC-3	FW-AQSPH-DC-WS-1
FW-MCW-DC-7	FW-PJO-DC-2	FW-AQSPH-DC-WS-2
FW-MCD-DC-2	FW-PJO-G-3	FW-AQSPH-G-8
FW-PPF-DC-2	FW-JUG-DC-2	
FW-PPF-DC-9	FW-JUG-DC-3	

Source: Forest Service 2020

Uncharacteristic Wildfire

Wildland fire plays a critical role in maintaining the health of an ecosystem. Many vegetation types on the Lincoln NF are classified as frequent-fire systems; they depend on certain fire-return intervals to maintain reference conditions for numerous vegetation characteristics, such as seral state and coarse woody debris. Long-term, historical fire suppression policies on the forest has resulted in an excess of fuel loads in many frequent fire systems. This often creates conditions for uncharacteristic wildfires, which are usually

defined as fires that burn at higher intensity or longer duration than what is typical under reference conditions.

Uncharacteristic wildfire often creates unfavorable habitat conditions for at-risk species. They can arise from highly departed systems with high fuel loadings, leading to high severity fires over larger areas, higher severity (canopy mortality), and continuing high departure, with other seral states being spatially dominant. This makes habitat for some species shrink, with fewer refugia or other opportunities to escape and more difficulty of retaining/recruiting those species, while habitat for other species increases spatially. There is also the problem of long-term type conversion, such as large extents of shrubland that take extremely long to move through succession, due to such conditions as lack of seed source and loss of soil productivity. Uncharacteristic wildfire can produce threats through smoke, heat, and direct flame. It may also destroy isolated or small populations of at-risk species. Currently, all the at-risk species on the Lincoln NF may be affected by uncharacteristic wildfire; however, the nature and severity of these impacts may vary between species and habitat type.

Table A-4. Catastrophic fire plan components

Plan Component Code		
FW-VEG-DC-2	FW-PPF-DC-8	FW-CDS-DC-3
FW-VEG-O-1	FW-PPE-DC-4	FW-MSG/SDG-DC-3
FW-VEG-O-2	FW-PPE-DC-8	FW-RIPAR-DC-WS-4
FW-SFF-DC-7	FW-PJC-DC-LS-1	FW-FIRE-DC-4
FW-MCW-DC-5	FW-PJO-DC-1	FW-FIRE-S-6
FW-MCW-DC-7	FW-JUG-DC-4	FW-FIRE-G-4
FW-MCD-DC-6	FW-GAMB-DC-3	FW-FIRE-G-5
FW-PPF-DC-4	FW-MMS-DC-3	FW-FIRE-G-6

Source: Forest Service 2020

Nonnative Invasive Species Encroachment

Nonnative species may become invasive when introduced to new areas, as they may have no impediments to establishment. When they appear on the landscape, native species must compete for available resources. Increased resource availability and altered disturbance regimes associated with human activities often increase the competitive advantage of invaders over that of natives. This places undue stress on native populations of at-risk species; this is because they depend on specific habitat conditions and can be negatively affected if nonnative invasive species alter the characteristics of their native habitats. Nonnative invasive species may include plants, such as musk thistle, teasel, and yellow bluestem, and animals, such as feral hogs, feral horses, and American bullfrogs.

Table A-5. Invasive vegetation encroachment plan components

Plan Component Code		
FW-VEG-DC-1	FW-AQSPH-DC-WS-2	FW-FIRE-G-10,11,12
FW-VEG-DC-2	FW-ATRISK-G-1	FW-DC-LOCMIN/SALMIN-G-8
FW-MSG/SDG-DC-1	FW-INVASIVE-DC-1	FW-DC-LOCMIN/SALMIN-G-11
FW-RIPAR-DC-WS-5	FW-INVASIVE-DC-2	FW-RENERGY-S-1
FW-RIPAR-DC-FS-5	FW-INVASIVE-O-1	FW-WILD-DC-7
FW-SOIL-DC-7	FW-INVASIVE-S-1,2,3	FW-WILD-G-9
FW-WATER-G-4	FW-INVASIVE-G-1,2,3,4,5,6,7,8,9,10	FW-RECWILD-S-2
FW-TERSPH-DC-3		

Source: Forest Service 2020

Altered Hydrologic Function

Hydrologic features on the Lincoln NF are streams, seeps, springs, wetlands, riparian corridors, and the underlying groundwater that support these features. Hydrologic features are a limiting factor on the Lincoln NF and are often the habitats most severely departed from reference conditions. Most of the water resources on these features are consumed for drinking water, livestock watering, agricultural irrigation, and oil and gas development and exploration (Forest Service 2019); however, water resources are also needed for many nonconsumptive uses and ecosystem services, such as primary production for native plants, soil formation, and nutrient cycling.

Water resources play an essential role in ecosystem function by integrating the complex physical, chemical, and biological processes that sustain life. The biotic composition, structure, and function of aquatic, wetland, and riparian ecosystems largely depend on specific hydrologic conditions. For many species associated with aquatic, riparian, and wetland ecosystems, the seasonal variation of hydrologic conditions often plays a major role in population dynamics and life cycle completion. Altering these hydrologic conditions can subsequently alter the composition, structure, or function of aquatic, riparian, and wetland ecosystems through their effects on physical habitat characteristics (Richter et al. 1996).

Human influences, such as developed sites, livestock grazing, vegetation management, water diversions, and prescribed fire, can alter hydrologic function. Roads and trails can cause fragmentation of these systems when placed parallel to streams or within the riparian corridor. Parallel fragmentation disconnects riparian areas from upland areas, which is necessary for the life cycle of some species, such as the New Mexico meadow jumping mouse. In addition, roads and trails can cause fragmentation when crossing a riparian area or wetlands. Crossing the riparian/wetland areas disrupts the continuity of hydrologic flow, which has also been known to disrupt life cycle processes, such as seed dispersal of the Sacramento Mountains thistle. Hydrologic features may also be altered by changes in weather patterns, such as drought and changes in snowpack and rainfall patterns.

Table A-6. Plan components related to altered hydrologic function

Plan Component Code			
FW-VEG-DC-1	FW-RIPAR-DC-WS-6	FW-WATER-G-3	FW-ATRISK-DC-4
FW-VEG-DC-2	FW-RIPAR-DC-FS-1,2,3,4,5	FW-WATER-G-4	FW-ATRISK-G-6
FW-SFF-DC-4	FW-RIPAR-O-1,2,3	FW-TERSPH-O-6	FW-FIRE-S-6
FW-SFF-DC-9	FW-RIPAR-S-1	FW-AQSPH-DC-WS-1	FW-RANGE-DC-3
FW-MCW-DC- 5	FW-RIPAR-G-2,3,6,7,8,9,10,11	FW-AQSPH-DC-WS-2	FW-RANGE-DC-5
FW-MCW-DC-10	FW-SOIL-DC-5	FW-AQSPH-DC-FS-1	FW-RANGE-G-2
FW-MCD-DC-4	FW-SOIL-DC-8	FW-AQSPH-O-1	FW-RANGE-G-5
FW-MCD-DC-8	FW-WATER-DC-1	FW-AQSPH-G-1	FW-DISREC-G-5
FW-PPF-DC-4	FW-WATER-DC-4	FW-AQSPH-G-1	FW-ROADS-DC-5
FW-PPF-DC-10	FW-WATER-DC-5	FW-AQSPH-G-2	FW-ROADS-DC-7
FW-PPE-DC-4	FW-WATER-DC-6	FW-AQSPH-G-3	FW-ROADS-G-1,2,4,5,10,11
FW-PPE-DC-8	FW-WATER-O-1	FW-AQSPH-G-4	FW-FAC-G-2
FW-PJC-DC-5	FW-WATER-O-2	FW-AQSPH-G-9	FW-LOCMIN/SALMIN-S-10
FW-JUG-DC-10	FW-WATER-S-1	FW-ATRISK-DC-1	FW-LOCMIN/SALMIN-G-10

Plan Component Code			
FW-RIPAR-DC-WS-1	FW-WATER-G-1	FW-ATRISK-DC-2	
FW-RIPAR-DC-WS-3	FW-WATER-G-2	FW-ATRISK-DC-3	

Source: Forest Service 2020

Ground and Soil Disturbance

Soils are complex and dynamic systems that consist of a mineral component, organic matter, air, water, and various organisms. These systems result from the interaction between parent material, climate, topography, and organisms throughout time and space. Soils store water, supply nutrients for plants, and provide a medium for plant growth. Unfavorable soil conditions often decrease viability of at-risk species, depending on the specific soil type or condition. Most at-risk species that rely on soil conditions are plants, but some invertebrates also have an affinity for certain soil types.

Ground or soil disturbance can affect at-risk species in a multitude of ways. Using heavy wheeled or tracked equipment on roads, trails, fire lines, log landings, and skid trails can compact soil and crush plant species. Heavy equipment use can also alter soil characteristics necessary for at-risk plants, thereby limiting their ability to fully use suitable habitat. Invertebrates and amphibians can also be affected by such use, when soil characteristics are altered or soil is compacted.

Other activities that increase ground and soil disturbance may include installing log landings and skid trails for timber harvest or fuels reduction. Recreational facilities and range improvements, such as campgrounds, picnic areas, ski areas, water improvements, and mineral and feed sites for livestock, also can disturb the ground and soil. Fuel reduction activities, such as fire line construction, material and heavy equipment staging, pile burning, and jackpot burning, can also disturb the soil. These can expose bare mineral soil and alter the physical and chemical properties of soil.

Even less intensive activities, such as dispersed camping, biking, livestock and foot traffic, and off-highway vehicle use, can disturb the soil. Since some at-risk populations may be isolated and small, even the smallest of footprints may affect their viability if it occurs in a highly sensitive area.

Another means by which ground and soil disturbance can affect at-risk species is through erosion and subsequent siltation of waterways. When soil is disturbed the likelihood of erosion increases, especially if there are uncharacteristic weather events, such as high wind or excessive rain. If the ground is disturbed near a waterway, this can ultimately lead to excessive siltation when the exposed soils are carried into streams and riparian corridors; this can reduce the quality of suitable habitat.

Table A-7. Plan components that relate to ground and soil disturbance

Plan Component Code		
FW-VEG-DC-1	FW-INVASIVES-G-10	FW-LOCMIN/SALEMIN-DC-1
FW-VEG-DC-2	FW-RANGE-G-5	FW-LOCMIN/SALEMIN-O-1
FW-RIPAR-DC-WS-3	FW-DISREC-DC-1	FW-LOCMIN/SALEMIN-S-4,5,6
FW-RIPAR-G-2	FW-DISREC-G-5	FW-LOCMIN/SALEMIN-G-8
FW-RIPAR-G-3	FW-ROADS-DC-5	FW-LOCMIN/SALEMIN-G-14
FW-SOILS-DC-1,2,3,4,5,6,7,8	FW-ROADS-DC-7	
FW-SOILS-O-1	FW-ROADS-G-1	
FW-SOILS-G-1,2,3,4,5	FW-ROADS-G-3	
FW-WATER-DC-1	FW-FAC-G-2	

Plan Component Code		
FW-WATER-O-1	FW-LEASEMIN-DC-1	
FW-AQSPH-DC-WS-2	FW-LEASEMIN-G-4	

Source: Forest Service 2020

Specific Ecological Features or Conditions

Specific ecological features sometimes limit the distribution and viability of at-risk species, especially if a species requires certain geophysical features. The very limited nature of their distribution and size makes the species more vulnerable and less resilient to random events. On the Lincoln NF, several at-risk species require specific geophysical formations or soil characteristics to persist. For example, some bird species require specific rock or cliff formations for nesting, and some plants and invertebrates require certain soil characteristics that are due to specific geologic formations.

Geological formations on the Lincoln NF are as follows: boulder fields; Andesitic boulders; talus slopes; travertine, Tansil-Limestone, and Permean-Yeso formations; caves; bluffs; and other rock formations. The unique features are imbedded in the landscape and are inherently restricted. In addition, certain soil characteristics from specific geologic formations, such as the Tansil-Limestone, Permean-Yeso Formations, gypsum, and sandstone, are also limited on the landscape. Due to their slow rate of formation, geological features and soils are essentially nonrenewable resources.

Table A-8. Plan components that relate to specific ecological features or conditions

Plan Component Code		
FW-VEG-DC-1	FW-CAVE-O-1	FW-LEASEMIN-G-1
FW-VEG-DC-2	FW-CAVE-G-1,2,3,4,5,6	FW-LOCMIN/SALEMIN-DC-6
FW-RIPAR-DC-WS-1	FW-CAVE-DC-2	FW-LOCMIN/SALEMIN-S-9
FW-SOIL-DC-1	FW-ATRISK-DC-1,2,3,4	FW-LOCMIN/SALEMIN-G-9
FW-TERSPH-DC-2	FW-ATRISK-G-6	FW-LOCMIN/SALEMIN-G-16
FW-TERSPH-DC-8		
FW-TERSPH-G-6		

Source: Forest Service 2020

Vegetation Management

Vegetation management practices, including timber harvesting, fuels reduction, prescribed burning, and planting, are intended to move ecosystems toward their desired conditions. Desired conditions generally reflect the historical range of variation of the system on the landscape, but they can also emphasize structural and compositional states that provide specific habitat needs for certain species, such as the northern goshawk or Mexican spotted owl. Vegetation management can alter local conditions in a system from one state to another or alter some component of the system in order to meet an objective that moves the system toward desired conditions. This can affect horizontal and vertical structure and composition, which affects both coarse filter and fine filter habitat needs for species that occur on site.

Vegetation management can enhance habitat requirements for some species, while removing or reducing specific habitat characteristics for others. Timber harvest or canopy removal may pose a concern for at-risk species that require either large, mature trees or closed canopy forest conditions for specific life cycle stages, such as breeding and reproduction. For instance, Mexican spotted owl nest/roost sites need closed canopies to protect them from aerial predation during reproduction. Some plants, such as the ladies'-tresses orchid, also require dense canopy cover to produce a thick duff layer, which helps maintain soil moisture and shade and reduce understory competition.

Vegetation management also can remove or damage nest trees, burrows, ground nests, and hibernation or torpor[3] sites. Prescribed fire produces direct threats from smoke, heat, and direct flames, affecting vegetation and soils, and indirect threats, such as soil loss and redistribution and sedimentation into streams and waterbodies.

Table A-9. Plan components related to vegetation management

Plan Component Code		
FW-VEG-O-1	FW-RIPAR-G-9,10,11,12	FW-CAVE-G-4
FW-VEG-O-2	FW-WATER-DC-7	FW-CAVE-G-6,7,8
FW-VEG-G-1	FW-WATER-G-2	FW-FORESTRY-DC-3
FW-VEG-G-4	FW-TERSPH-DC-6	FW-FORESTRY-DC-5
FW-SFF-DC-8	FW-TERSPH-O-1	FW-FORESTRY-DC-6
FW-MCW-DC-8	FW-TERSPH-O-5	FW-FORESTRY-S-2
FW-MCW-G-3	FW-TERSPH-O-6	FW-FORESTRY-S-8
FW-MCW-G-4	FW-TERSPH-S-1	FW-FORESTRY-S-9
FW-PPF-DC-9	FW-TERSPH-G-4,5,6,7	FW-FORESTRY-G-9
FW-PPF-G-2	FW-TERSPH-G-12	FW-FORESTRY-G-11
FW-PJO-G-2	FW-TERSPH-G-14	FW-FORESTRY-G-13
FW-PJO-G-4	FW-ATRISK-G-1	FW-FORESTRY-G-17
FW-GAMB-DC-4	FW-ATRISK-G-2	FW-ROADS-DC-1
FW-RIPAR-DC-WS-2	FW-ATRISK-G-7	FW-ROADS-G-9,10,11
FW-RIPAR-S-1	FW-ATRISK-G-8	FW-RECWILD-S-3
FW-RIPAR-G-6	FW-INVASIVE-S-1	FW-RECWILD-G-4
	FW-INVASIVE-G-5	FW-RNA-S-2

Source: Forest Service 2020

Ungulate Grazing

Ungulate grazing can alter the short-term and long-term structure and compositions of plant communities in the Southwest (Zwartejes et. al 2005). Given the arid nature of the Southwest, aquatic habitats and their associated riparian vegetation are both rare and highly vulnerable, yet many species depend on them in order to persist (Zwartejes et. al 2005). Upland and riparian soils and vegetation can be negatively affected through grazing and browsing pressure by both livestock and native ungulates. Soils can be compacted and eroded under heavy grazing pressure, and plant species composition may shift toward undesirable species as a result of forage preference. Riparian and aquatic habitats may experience concentrated use resulting in streambank, seep, and springside degradation, soil loss, and vegetation loss. These in turn can affect aquatic organisms through sedimentation and higher stream temperatures, thereby decreasing viability and reproduction.

Livestock change vegetation structure and cover in ways important to small mammals; native ungulates may be affected more by interference competition and changes in forage quantity and quality. The community-level total abundance of small mammals typically declines with grazing. Species richness of small mammals either declines or stays the same, as authors of many studies found a change in species composition from ungrazed to grazed sites, while the number of species remained similar.

Individual species responses of small mammals vary. Voles, harvest mice, cotton rats, and shrews show consistently negative responses to grazing, while deer mice, kangaroo rats, ground squirrels, and rabbits and hares show positive or variable responses. In general, species adapted to open habitats are often positively affected by grazing, while species needing denser cover are negatively affected. Aquatic

[3] Suspended animation.

species, such as fish and invertebrates, can experience reduced viability and reproductive capacity from increased sedimentation and water temperature. This comes about when streamside vegetation and shaded cover are reduced due to grazing.

Table A-10. Plan components related to ungulate grazing

Plan Component Code		
FW-VEG-DC-3	FW-RIPAR-G-1	FW-RANGE-S-2,3
FW-MCW-G-4	FW-WATER-DC-2	FW-RANGE-G-1
FW-MSG-G-1	FW-RANGE-DC-1	FW-DISREC-DC-1
FW-RIPAR-DC-WS-2	FW-RANGE-DC-3	FW-DISREC-G-3
FW-RIPAR-DC-WS-4	FW-RANGE-DC-5	FW-ROADS-DC-7
FW-RIPAR-DC-WS-5	FW-RANGE-DC-6	FW-RECWILD-DC-6

Source: Forest Service 2020

Pesticides and Chemicals

Pesticide and chemical applications pose a concern to at-risk species. It is well known that many bird species are highly susceptible to pesticides. For example, pesticides have caused reproductive failure in such species as peregrine falcons. The presence of nonnative plants can have detrimental effects on native at-risk species. Herbicides can be used to improve habitat conditions by treating nonnative invasive plants; however, direct inadvertent application to at-risk species can be detrimental.

Likewise, pesticides are used to remove feral hogs or nonnative fish species. While pesticide use is highly regulated on the forest, impacts from off the forest, such as herbicide use along road rights-of-way, may still be an issue. Other chemical applications on the Lincoln NF that could pose a threat to at-risk species may include magnesium chloride used for deicing and dust abatement on roads, petroleum products used to ignite fires, or chemical fire retardant used to fight wildfires.

Table A-11. Pesticides or chemical application plan components

Plan Component Code		
FW-VEG-G-6	FW-AQSPH-S-2	FW-FIRE-S-6
FW-RIPAR-S-2	FW-INVASIVE-G-6	FW-AIR-1
FW-AQSPH-S-1		

Source: Forest Service 2020

Insects and Disease

Most forest insects (including pollinators) and pathogens in the Southwest are naturally occurring components of ecosystems and play an important role in dynamic process. They affect short- and long-term vegetation structural diversity, provide food and habitat for animals, and contribute to biological diversity (Forest Service 2013). Some of these organisms are among the major disturbance agents in the Southwest, which can cause major shifts in forest composition and structure. The degree of shift depends on the insect or disease and on the conditions of the ecosystem affected. For example, under drought conditions, bark beetle populations can increase dramatically and cause large-scale tree mortality.

Introduced or nonnative insects and pathogens can also be found in Southwest forests; however, their disturbance is often more severe, resulting in the destruction of species or extreme shifts in forest structure and species composition. This would result in long-term alterations to ecosystem functions, such as primary productivity, nutrient cycling, and wildlife habitat. These introduced organisms often pose a severe threat to a species or ecosystem. This is because the environmental constraints that restrict the

organisms in their native habitat, such as predators and chemical or physical defense mechanisms, are no longer present.

In at-risk species, disease-inducing pathogens usually result in mortality or decreased vigor. Historically, populations for many at-risk species were widespread, with many scattered small populations, which made them more resilient to disease. If a disease were to occur, nearby populations could then move in to bolster surviving individuals to quickly restore the population. Populations that have now become more isolated cannot respond as quickly and may ultimately suffer from reduced gene flow; alternatively, a species may be experiencing impacts from concurrent threats, as is the case for many at-risk species.

Some of the insects and diseases that are known to occur on the Lincoln NF include *Pseudogymnoascus destructans* (white-nose syndrome; affects bat species), *Yersinia pestis* (plague; affects small mammals), *Rhinocyllus conicus* (thistle weevil; affects Sacramento Mountains thistle), and RHDV-2 (rabbit hemorragic disease; may affect Davis Mountain cottontail).

Table A-12. Plan components related to insects and disease

Plan Component Code		
FW-VEG-DC-1	FW-PJO-G-2	FW-INVASIVE-S-1,2,3
FW-VG-DC-2	FW-JUG-DC-4	FW-INVASIVE-G-7
FW-SFF-DC-4	FW-WATER-G-3	FW-CAVE-DC-2
FW-MCW-DC-5	FW-TERSPH-DC-3	FW-FORESTRY-G-4,5,6
FW-MCD-DC-4	FW-TERSPH-DC-9	FW-RANGE-S-1
FW-PPF-DC-4	FW-TERSPH-DC-12	FW-RECWILD-DC-4
FW-PPE-DC-4	FW-TERSPH-0-3,4,	FW-RECWILD-S-1
FW-PJC-DC-1	FW-TERSPH-S-1	FW-RNA-DC-1
FW-PJO-DC-1	FW-TERSPH-G-9	
FW-PJO-G-1	FW-ATRISK-G-1	

Source: Forest Service 2020

Recreation

In a recent study, Larson et al. (2016) conducted a global systemic review of the effects of recreation on animals. They cited recreation as a leading factor in endangering plant and animal species on U.S. Federal lands; they listed it as a threat to 188 at-risk bird species globally. Recreation can affect biological function and disrupt critical life stages of at-risk species, such as reproduction, nesting/calving, or even feeding. This is especially the case during times of high stress, such as breeding season and hibernation. Recreation that can negatively affect at-risk species includes hiking, biking, horseback riding, motorized vehicle riding, dispersed camping, rock climbing, caving, and xxx collecting rocks or plants. Additional disturbances resulting from recreation may include human presence, noise from indiscriminate shooting and large groups, and harassment from humans and domestic dogs. At-risk species on the Lincoln NF are known to be negatively affected by many of these activities.

Table A-13. Intrusive human activity plan components

Plan Component Code		
FW-RIPAR-G-4	FW-FORESTRY-DC-3	FW-DISREC-DC-10
FW-SOILS-G-3	FW-FORESTRY-G-12	FW-DISREC-G-3
FW-WATER-DC-WS-2	FW-REC-DC-6	FW-DISREC-G-5
FW-TERSPH-DC-6	FW-REC-DC-7	FW-RECSU-DC-3

Plan Component Code		
FW-TERSPH-DC-11	FW-DEVREC-DC-5	FW-RECSU-S-13
FW-TERSPH-G-6	FW-DEVREC-G-1	FW-RECSU-G-1
FW-TERSPH-G-13	FW-DEVREC-G-3	FW-ROADS-DC-4,5,6,7
FW-AQSHP-DC-WS-3	FW-DEVREC-G-8	FW-ROADS-G-2
FW-CAVE-S-2	FW-DISREC-DC-1	FW-ROADS-G-10
FW-CAVE-S-4	FW-DISREC-DC-2	FW-ROADS-G-12
FW-ARCH-G-8	FW-DISREC-DC-8	FW-ATRISK-G-4

Source: Forest Service 2020

Human-made Features

Impacts on at-risk species may occur when human-made structures result in direct mortality of at-risk species. Obstructions may consist of obstacles or barriers that may prevent species from fulfilling basic life cycle needs or may actually cause direct mortality from trampling, collision and forceful striking (such as from wind turbines, cell towers, facilities, or fences), prolonged entanglement (such as by barbed wire), or entrapment (such as water troughs and toilet vents). Species that are known to be at risk on the Lincoln NF are occasionally known to be affected by human-made features that cause direct mortality. Plan components that address human-made impacts, such as mortality and altered behavior), are listed in table A-14.

Table A-14. Human-made features plan components

Plan Component Code		
FW-RIPAR-G-3	FW-REC-O-1	FW-LANDSU-G-5
FW-RIPAR-G-10	FW-REC-DC-7	FW-LEASEMIN-G-1,2,3
FW-SOILS-G-3	FW-DEVREC-O-1	FW-LOCMIN/SALEMIN-DC-1
FW-WATER-G-3	FW-DEVREC-G-1	FW-LOCMIN/SALEMIN-DC-5
FW-TERSPH-O-2	FW-DEVREC-G-3,4	FW-LOCMIN/SALEMIN-S-8
FW-TERSPH-O-5,6	FW-DISREC-DC-1	FW-LOCMIN/SALEMIN-G-1
FW-TERSPH-G-1,2,3	FW-DISREC-DC-8,9,10	FW-RENEREGY-DC-1
FW-AQSPH-O-4	FW-DISREC-G-3	FW-RENEREGY-G-3
FW-AQSPH-G-1,2	FW-DISREC-G-5	FW-RENEREGY-G-5
FW-AQSPH-G-5	FW-ROADS-DC-5,6,7	FW-NRT-DC-2
FW-ATRISK-G-1	FW-ROADS-O-2	FW-RECWILD-S-3
FW-ATRISK-G-3,4	FW-ROADS-G-2	FW-WSR-G-3
FW-CAVE-O-2	FW-ROADS-G-5	FW-RNA-S-3
FW-RANGE-DC-5	FW-ROADS-G-9,10,11,12	FW-RNA-S-7
FW-RANGE-O-1	FW-FAC-DC-1	MA-CAVEMA-S-3,4
FW-RANGE-G-3,4,5,6	FW-FAC-G-2,3	

Source: Forest Service 2020

At-Risk Species—Individual Species

Federally Listed Species

Sacramento Mountains thistle

Sacramento Mountains thistle (*Cirsium vinaceum*) is federally listed as threatened, and no critical habitat has been designated. This species is restricted to wet deposits of travertine (calcium carbonate) in wetlands, meadows, or sub-irrigated areas associated with springs, streams, and seeps at high elevations in the Sacramento Mountains. Sacramento Mountains thistle is not closely associated with any one ecological response unit because the ecological condition that best suits it—wet travertine deposits—is localized and may be surrounded by several different ecological response units.

- This species occurs in a variety of riparian ecological response units, including those that have variable moisture levels. Restricted distribution of this species in suitable habitat is likely the result of habitat degradation and land use along streams between travertine seeps (Craddock and Huenneke 1997). Craddock and Huenneke (1997) note that, where riparian habitat conditions have improved, Sacramento Mountains thistle has successfully colonized corridors between more discrete populations. The trend and condition of spring sites and riparian habitat are most critical for the continued existence of Sacramento Mountains thistle. Additional threats are invasive species encroachment, insect predation, livestock grazing, timber harvest, road building, and recreation.

Table A-15. Plan components that address ecological condition and threats for Sacramento Mountains thistle

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Travertine formations Seeps and springs Riparian areas	Altered hydrologic function Invasive species encroachment Specific ecological features or condition Ground and soil disturbance Human activities (recreational disturbance) Ungulate grazing	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-1 & 4 FW-INVASIVE-DC-1 & 2 FW-RANGE-DC-2, 4 & 6	FW-VEG-G-1, 5 & 6 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 6	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
	Vegetation management activities Insects and disease	FW-ROADS-DC-5 & 7 FW-DISREC-DC-5, 8 & 9	FW-FIRE-G-10, 11 & 12 FW-FORESTY-S-2 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-INVASIVE-G-3, 4, 5 & 8 FW-FIRE-G-6 & 9 FW-FORESTRY-G-14 FW-RANGE-G-3 & 7 FW-DEVREC-G-8 FW-DISREC-G-3 FW-ROADS-G-2 & 11

Source: Forest Service 2020

Sacramento prickly poppy

Sacramento prickly poppy (*Argemone pleiacantha* ssp. *pinnatisecta*) is a federally endangered species. It is an herbaceous perennial, endemic to the western escarpment of the Sacramento Mountains in south-central New Mexico. Sacramento prickly poppy is found in xeric uplands and mesic sites that are in arid canyon beds, stream banks, areas surrounding springs and seeps, and in dry terraces above riparian zones. It also grows between rocks and gravel of streambeds; on bars of silt, rock, and gravel with vegetation present; and on cut slopes.

This species has been documented at elevations from ranging from 4,200 feet in Dog Canyon to 7,120 feet in the upper part of Alamo Canyon (Malaby 1987). Although Sacramento prickly populations that are most persistent and have the highest population numbers appear to be more closely associated with the Fremont Cottonwood/Shrub ecological response unit, this species does not have an affinity for one ecological response unit. This species appears to require some form of water-driven, active soil erosion and deposition. Threats to Sacramento prickly poppy are drought (or alterations in hydrologic flow), surface-disturbing activities from road construction and maintenance (including mowing and herbicide use), livestock grazing, and off-highway vehicle use.

Table A-16. Plan components that address ecological condition and threats for Sacramento prickly poppy

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Riparian areas Seeps and springs Herbaceous wetland	Altered hydrologic function Specific ecological features or condition Ground and soil Disturbance Pesticides and chemicals Human activities (recreational disturbance) Ungulate grazing Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 5, 7 & 8 FW-WATER-DC-1, 2, 3, 4, 5, 6 &7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-1 & 4 FW-INVASIVE-DC-1 & 2 FW-RANGE-DC-2, 4 & 6 FW-DISREC-DC-5, 8 & 9 FW-ROADS-DC-5	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 6 FW-FIRE-G-10, 11 & 12 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-3 & 4 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3, 4, 5 & 8 FW-FIRE-G-5, 6 & 9 FW-RANGE-G-7 FW-DISREC-G-3 FW-ROADS-G-11

Source: Forest Service 2020

Todsen's pennyroyal

Todsen's pennyroyal (*Hedeoma todsenii*) is a federally listed endangered species found in the San Andres and Sacramento Mountains of south-central New Mexico. Critical habitat was designated when the species was listed but included only those original areas on White Sands Missile Range (USFWS 2001). Suitable habitat consists of gypseous-limestone soils on north-facing slopes in piñon-juniper woodland, at elevations of 6,200 to 7,400 feet. Almost half of Lincoln NF is comprised of piñon-juniper woodland communities; however, Todsen's pennyroyal occupies less than 100 acres of habitat on the Lincoln NF. One thought as to why this species is so restricted is that Todsen's pennyroyal may have survived from more than 10,000 years ago, when the region was cooler and suitable habitat was more contiguous (USFWS 2001; Sivinski 2009). On the Lincoln NF, piñon-juniper woodland is often comprised of large, even-age, structured patches, dominated by moderate- to high-density tree canopy with limited to scarce understory. Typical stressors and drivers, such as fire and insect and disease outbreaks, have high severity and occur infrequently. They create and maintain the even-aged nature of this vegetation type; however, fire is infrequent in areas occupied by Todsen's pennyroyal (rocky scarps or moist gypseous-limestone soil), due to soil conditions in such areas. On these sites, such factors as insect and disease may be the only disturbance agents that affect woodland development.

Suitable habitat for Todsen's pennyroyal accounts for a very small portion of the piñon-juniper woodland vegetation type; nevertheless, the departure of some of these ecosystem characteristics may have greater threats and risk factors for Todsen's pennyroyal. Currently there are no direct threats resulting from land use or management that affect Todsen's pennyroyal. In the 1986 Forest Plan (Forest Service 1986) for the Lincoln NF, the La Luz Management Area, where the species is located, was classified as unsuitable and inappropriate for timber management and fuelwood production. This simply means that there would be no recurring production of wood products through regulated timber harvest;[4] however, timber may still be harvested for restoration purposes or to meet other multiple use objectives. This area is also currently closed to livestock grazing, as the livestock permit has been withdrawn.

Natural threats to Todsen's pennyroyal consist of low sexual reproduction, limited dispersal ability and suitable habitat, and possibly wildfire. The effects of fire on Todsen's pennyroyal are not currently known. This species has an extensive rhizome system that may help it rebound quickly following a wildfire. In addition, there might be less competition with other species for resources following fire, which may result in increased vigor and reproductive success; however, vegetation removed by wildfire may expose soil, subsequently increasing soil temperature and erosion, which could diminish population numbers (Sivinski 2009).

Table A-17. Plan components that address ecological condition and threats for Todsen's pennyroyal

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Gypseous-limestone soils Piñon-juniper communities	Specific ecological features or condition Uncharacteristic wildfire	FW-VEG-DC-1, 2 & 3 FW-PJO-DC- 1, 2 & 3 FW-TERSPH-DC-1, 3, 5, 7, 8, 9 & 14 FW-ATRISK-DC-1 & 4 FW-FIRE-DC-1 & 4	FW-VEG-G-1 & 5 FW-PJO-G-1 & 2 FW-FIRE-S-1 & 4 FW-FIRE-G-3 & 4 FW-FORESTY-S-2 FW-FORESTRY-G-3, 9 & 13	FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-5, 6 & 9 FW-FORESTRY-G-7 & 14

Source: Forest Service 2020

Lee's pincushion cactus

Lee's pincushion cactus (*Coryphantha sneedii* var. *leei*) is a federally endangered species with no designated critical habitat. This species is restricted to the Tansil-Limestone Formation and generally grows on north-facing ledges. The Tansil-Limestone Formation is hard and resistant to erosion; it supports sparse Chihuahuan Desert scrub with low shrubs, numerous succulents, and herbaceous species. Lee's pincushion cactus generally occurs between 3,900 and 4,900 feet in elevation. On the Lincoln NF, this habitat occurs on steep slopes that are difficult to access and

[4] Refer to the Timber Suitability Appendix E in the Draft Environmental Impact Statement for definition of a regulated timber harvest.

unsuited for most management activities. As a result, population surveys are not regularly conducted for the Lee's pincushion cactus on the Lincoln NF.

In the 1986 recovery plan (USFWS 1986), threats listed for Lee's pincushion cactus were commercial and private collection, habitat destruction or modification, and natural limiting factors. At present, collection is not thought to be a major threat since populations on Lincoln NF are relatively inaccessible. While its habitat offers protection from many threats, it also results in a highly restricted range. Seemingly suitable habitat does occur in and around known populations, where occurrences of the cactus drops abruptly in areas with apparently continuous habitat. Other threats may include wildfire, climate change, and severe, long-term drought. Due to the highly restricted habitat of Lee's pincushion cactus, a wildfire or prescribed burn could affect a significant portion of occupied habitat. Regardless, more research is needed to determine the impact of fire on Lee's pincushion cactus (USFWS Service 1986).

Table A-18. Plan components that address ecological condition and threats for Lee pincushion cactus

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Tansil-Limestone Formation Chihuahuan Desert scrub	Specific ecological features or condition Uncharacteristic wildfire Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-CDS-DC -1, 2, & 3 FW-TERSPH-DC-1, 5, 7, 8, 9 & 14 FW-ATRISK-DC-1 & 4	FW-VEG-G-1 FW-TERSPH-G-9 & 10 FW-FIRE-S-1 & 4 FW-FIRE-G-3, 4, 10, 11 & 12 FW-FORESTY-S-1 & 2 FW-FORESTRY-G-3, 9 & 13	FW-TERSPH-G-4, 5, 7 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-5, 6 & 9

Source: Forest Service 2020

Kuenzler's hedgehog cactus

Kuenzler's hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*) is federally listed as threatened with no designated critical habitat. It is endemic to the eastern slopes of the Capitan, Guadalupe, and Sacramento Mountains in south-central New Mexico. Key habitats for the Kuenzler's hedgehog cactus are cracks of limestone outcrops on moderate slopes and shallow soils on flat steps of hillsides that exhibit a step-and-riser configuration. Preferred soils are skeletal, with a limestone parent material, including Lithic Argiustolls or Lithic Haplustolls (USFWS 1985). Suitable habitat is primarily situated in Piñon-Juniper Woodlands, at an elevational range of about 5,800 to 6,400 feet; however, Kuenzler hedgehog cactus also occurs in Piñon-Juniper Grassland, Mountain Mahogany Mixed Shrubland, Juniper Grassland, and Semi-Desert Grassland ERUs. Factors imposing threats and risks to the survival of the Kuenzler's hedgehog cactus are collection, habitat fragmentation, livestock use, and altered fire regimes. Fire, specifically uncharacteristic wildfire, is listed as a moderate threat to Kuenzler hedgehog cactus (USFWS 2017). Additional threats are small population size and density, climate change, land management (or habitat modification), livestock grazing, parasitic

insects, and herbivory. Other activities that destroy soils and vegetation, such as road construction and heavy equipment use off existing roads, may also threaten this species.

Table A-19. Plan components that address ecological condition and threats for Kuenzler's hedgehog cactus

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Shallow limestone derived soils and cracks of limestone outcrops Piñon-juniper communities	Specific Ecological Features Or Condition Uncharacteristic Wildfire Ground and soil disturbance Recreation Vegetation management activities Ungulate grazing Insects and disease	FW-VEG-DC-1, 2 & 3 FW-PJO-DC-1, 2 & 3 FW-SOIL-DC-1 & 2 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-ATRISK-DC-1 & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-3 FW-DISREC-DC-5, 8 & 9 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-TERSPH-O-3 FW-FIRE-S-1 & 4 FW-FIRE-G-3, 4 & 8 FW-FORESTY-S-2 FW-FORESTRY-G-3, 9 & 13 FW-RANGE-G-1	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, 10 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9 FW-FORESTRY-G-7 & 14 FW-RANGE-G-7 FW-ROADS-G-11

Source: Forest Service 2020

Wright's marsh thistle

Wright's marsh thistle (*Cirsium wrightii*) is a candidate species proposed for Federal listing. It occurs in wet meadows associated with alkaline springs, seeps, and marshy edges of streams at elevations of from 3,450 to 7,850 feet. More specifically, Wright's marsh thistle is closely associated with spring sites connected to riparian ERUs, mainly Fremont Cottonwood/Shrub and Herbaceous Wetland. Currently, all riparian ERUs are substantially departed from reference conditions for certain key characteristics. Hydrological alteration in riparian systems is one of the biggest threats to Wright's marsh thistle. Throughout its range, suitable habitat has been altered or degraded because of past land and water management activities, which have included agriculture and urban development, diversion of springs, and groundwater capture. Furthermore, these declining habitat conditions are worsened by prolonged drought and climate change. Additional threats are invasive species encroachment, ungulate grazing, and insect predation.

Table A-20. Plan components that address ecological condition and threats for Wrights' marsh thistle

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Seeps and springs Riparian areas Herbaceous wetland Fremont cottonwood/shrub	Altered hydrologic function Invasive species encroachment Ungulate grazing Insect and disease	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-WATER-DC-1, 4, 5, 6 & 7 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-1 & 4 FW-INVASIVE-DC-1 & 2 FW-RANGE-DC-3 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 6, 8, 9 & 10 FW-WATER-O-1 FW-WATER-G-1 FW-AQSPH-O-1 & 4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2, 6 & 10 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-1, 3, 5, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-S-1 FW-ATRISK-G-1, 2, 3, 5 & 6 FW-INVASIVE-G-3, 4, 5 & 8

Source: Forest Service 2020

Mexican spotted owl

Mexican spotted owl (*Strix occidentalis lucida*) is a federally threatened species and has designated critical habitat on the Smokey Bear and Sacramento Ranger Districts. The Mexican spotted owl also occupies canyonlands on the Guadalupe Ranger District. Most of the Basin and Range ERU protected activity centers are on the Lincoln NF. This species is nonmigratory and feeds primarily on small mammals. The Mexican spotted owl requires a variety of mixed conifer habitats, proximity to riparian areas, standing snags for roosting and nesting, and, in the Guadalupe Mountains, rocky outcrops and caves.

Indiscriminate vegetation management had negatively affected its habitat before the Mexican spotted owl was listed as threatened in 1995. Fuelwood harvesting, livestock grazing, agriculture or development for human habitation, and forest insects and disease were also mentioned as major factors influencing the Mexican spotted owl population (USFWS 2012). Other threats are the potential for increasing malicious and accidental harm from humans, such as shooting and vehicle collisions;, military operations; other habitat alterations, such as power line and road construction and noxious weed control; mining; and recreation. Also if another owl species, the barred owl expands its range, it could result in competition or hybridization with the Mexican spotted owl.

The primary threats to the Mexican spotted owl populations in the U.S. have transitioned from timber harvest to an increased risk of uncharacteristic wildfire. Recent forest management now emphasizes sustainable ecological function and a return to pre-settlement fire regimes, both of which are more compatible with maintaining spotted owl habitat conditions than the even-aged management regime practiced at the time

of listing (USFWS 2012). The Mexican Spotted Owl Recovery Plan (USFWS 2012) lists wildfire as a major threat to the owl on the Basin and Range ERU.

Activities that affect habitat and prey species also affect the Mexican spotted owl. The primary constituents for designated critical habitat are snags, dead and down woody material, tree species diversity, canopy cover greater than 40 percent, herbaceous understory, and a diversity of hardwoods and plant species. A diverse prey base depends on the availability and quality of diverse habitat. Mexican spotted owl prey species need adequate levels of residual plant cover, various canopy cover types, diverse understory and shrub cover, and a high downed log volume; therefore, a wide diversity of forest and vegetation conditions are important to the Mexican spotted owl and its prey.

Timber harvest, prescribed burning, and other management activities follow the Mexican Spotted Owl Recovery Plan (USFWS 2012), along with consultation with the USFWS. These management activities can still disturb the Mexican spotted owl and its habitat.

Table A-21. Plan components that address ecological conditions and threats for Mexican spotted owl

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Mixed conifer with frequent fire ERU Mixed-conifer with aspen ERU Riparian areas	Seral state departure Snag density departure Coarse woody debris departure Uncharacteristic wildfire Ground and soil disturbance Recreation Ungulate grazing Vegetation management activities Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-MCW-DC-1, 2, 3, 4 & 5 FW-MCW-DC-MS-1, 2 & 3 FW-MCD-DC-1, 2, 3, 4, 5, 6 & 7 FW-SOIL-DC-1, 2, 3, 4, 5, 7 & 8 FW-TERSPH-DC-1, 3, 4, 5, 7, 9, 10 & 14 FW-ATRISK-DC-2 & 4 FW-FIRE-DC-1, 3 & 4 FW-FORESTY-DC-7 FW-ROADS-DC-5 & 7 FW-SFF-DC-LS-1, 3 & 4 FW-SFF-DC-MS-1, 2 & 3 FW-ATRISK-DC- 2 & 4 FW-RANGE-DC-3 FW-REC-DC-7 FW-DISREC-DC-5, 8 & 9	FW-VEG-G-1 FW-MCW-G-1, 2, 3 & 4 FW-MCD-S-1 FW-MCD-G-1, 2 & 3 FW-SOIL-O-1 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2, 6, 8 & 9 FW-ROADS-O-2 FW-SFF-G-1, 2, 3 FW-TERSPH-O-6 FW-FORESTRY-G-3, 8, 9, 11 & 13 FW-RANGE-G-2 FW-DEVREC-G-1 FW-ROADS-G-1, 8 & 9	FW-MCW-DC-9 FW-MCD-DC-8 FW-SFF-DC-9 FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, & 13 FW-ATRISK-DC-3 FW-ATRISK-S-2 FW-ATRISK-G-1 & 5 FW-FIRE-G-6, 9, 11 & 12 FW-FORESTRY-G-2, 3, 7, 8, 14 & 16 FW-DISREC-G-3 FW-ROADS-G-1, 7, & 9 FW-ROADS-G-11

Source: Forest Service 2020

New Mexico meadow jumping mouse

New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) is a federally endangered species and has designated critical habitat on the Sacramento Ranger District. The New Mexico meadow jumping mouse occurs in riparian communities along rivers and streams, springs and wetlands, or canals and ditches that contain herbaceous wetlands that are tall, dense, persistent, and emergent, especially characterized by the presence of primarily forbs and sedges (*Carex* spp. or *Schoenoplectus pungens*); or scrub-shrub riparian areas that are composed of willows or alders with an understory of primarily forbs and sedges; and flowing water that provides saturated soils throughout the New Mexico meadow jumping mouse's active season. Other important factors in these habitats are an average height of herbaceous vegetation of 24 to 27 inches, composed primarily of sedges and forbs.

Because the New Mexico meadow jumping mouse requires such specific suitable habitat conditions, populations have a high potential for being destroyed when habitat is altered or eliminated. When localities are destroyed there is little or no opportunity for natural recolonization of the area. This is due to the species' limited dispersal capacity and the current conditions of isolated populations. There has been a reduction in occupied localities, likely due to cumulative habitat loss and fragmentation across the range of the New Mexico meadow jumping mouse. Threats to the New Mexico meadow jumping mouse are habitat loss, degradation and fragmentation from ungulate grazing (such as loss of native riparian vegetation), water use, lack of water due to drought, and uncharacteristic wildfires. Additional threats are from scouring floods, loss of beaver ponds, highway reconstruction, and unregulated recreation. These multiple sources of habitat loss do not act independently, but cumulatively may magnify the effects of habitat loss on the small, remaining New Mexico meadow jumping mouse populations.

Table A-22. Plan components that address ecological conditions and threats for New Mexico meadow jumping mouse

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Mixed-conifer with frequent fire ERU Mixed-conifer with aspen ERU Riparian areas	Altered hydrologic function Ungulate grazing Ground and soil disturbance Uncharacteristic wildfire Recreation Vegetation management activities Nonnative invasive species	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-1 & 4 FW-INVASIVE-DC-1 & 2	FW-VEG-G-1, 5 & 6 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 6 FW-FIRE-G-10, 11 &	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3, 4, 5 & 8

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
	Pesticides and chemicals Drought/climate change Human-made features	FW-RANGE-DC-2, 4 & 6 FW-ROADS-DC-5 & 7 FW-DISREC-DC-5, 8 & 9	12 FW-FORESTY-S-2 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-FIRE-G-6 & 9 FW-FORESTRY-G-14 FW-RANGE-G-3 & 7 FW-DEVREC-G-8 FW-DISREC-G-3 FW-ROADS-G-2 & 11

Source: Forest Service 2020

Peñasco least chipmunk

Peñasco least chipmunk (*Neotamius minimus atristriatus*) is a candidate species proposed for Federal listing. Historically, the species in the White Mountains and Sacramento Mountains occupied two distinctly different habitats. The White Mountains habitat, on the Smokey Bear Ranger District, is characterized by high elevation talus slopes and glacial cirques surrounded by Engelmann spruce (*Picea engelmannii*), quaking aspen (*Populus tremuloides*), corkbark fir (*Abies lasiocarpa*), and Douglas-fir above the tree line in the White Mountains (Frey and Boykin 2007). The Sacramento Mountains habitat, on the Sacramento Ranger District, is characterized by mature ponderosa pine forest, with an open canopy grassland structure, with widely spaced trees at high elevation (Frey and Boykin 2007; Frey and Hays 2017). The open canopy and grassland structure are interspersed with large cover structures, such as occasional scattered trees and deciduous shrub cover. These are key habitat features common to both locations (Frey and McKibben 2018).

The Peñasco least chipmunk faces threats from present or threatened destruction, modification, and curtailment of its habitat from the alteration or loss of mature ponderosa pine forests in the Sacramento Mountains. In this area, open ponderosa pine forests have essentially been eliminated due to the historical impact of past land use, such as logging, fire suppression and uncharacteristic wildfires, livestock grazing, and private land development (USFWS 2015b; Frey and Hays 2017). The historical habitat of the Sacramento Mountains population has mostly been replaced by dense coniferous stands of young trees that are unsuitable for the Peñasco least chipmunk (Frey and Boykin 2007; Kaufmann and others 1998). An additional threat to this species is possible competition with the closely related gray-footed chipmunk (*Tamias canipes*) (NMDGF 2016; USFWS 2015b).

Very little is known about the life history of the Peñasco least chipmunk. Moreover, the highly fragmented nature of its current distribution is a contributor to the vulnerability of the Peñasco least chipmunk and increases the likelihood of very small, isolated populations being destroyed. Based on current knowledge, the single greatest cause of decline of the Peñasco least chipmunk in the Sacramento Mountains is the loss, alteration, and fragmentation of mature ponderosa pine forests (Frey and Boykin 2007).

Table A-23. Plan components that address ecological conditions and threats for Peñasco least chipmunk

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Montane subalpine grasslands ERU Open spruce-fir Mixed conifer with aspen ERU Mixed-conifer with frequent fire ERU Ponderosa pine ERU	Seral state departure Coarse woody debris departure Soil and ground disturbance Uncharacteristic wildfire Specific ecological features or condition Nonnative invasive species encroachment Recreation Ungulate grazing Human-made features	FW-VEG-DC-1, 2 & 3 FW-SFF-DC-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-ATRISK-DC- 2 & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-3 FW-REC-DC-7 FW-DISREC-DC-5, 8 & 9 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-SFF-G-1, 2, 3 FW-TERSPH-O-6 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2, 8 & 9 FW-FORESTRY-G-3, 8, 9, 11 & 13 FW-RANGE-G-2 FW-DEVREC-G-1 FW-ROADS-G-1, 8 & 9	FW-MCW-DC-9 FW-MCD-DC-8 FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6, 9, 11 & 12 FW-FORESTRY-G-2, 3, 7, 8, 14 & 16 FW-ROADS-G-1, 7, & 9 FW-SFF-DC-FS-1 FW-ATRISK-S-2 FW-ATRISK-G-1 & 5 FW-DISREC-G-3 FW-ROADS-G-11

Source: Forest Service 2020

Species of Conservation Concern

Goodding's onion

Goodding's onion (*Allium gooddingii*) largely inhabits the base of steep slopes and moist drainage bottoms in the shade of spruce-fir and mixed conifer forest with aspen, at elevations of 6,500 to 9400 feet. On the Lincoln NF, it is found above 10,000 feet in both conifer forest understories and open meadow areas, avalanche chutes and ski runs in spruce-fir forest. Threats to this species are winter and summer recreation activities, logging, road construction, and livestock grazing. A preliminary study of Goodding's onion affected by wildfire indicates that it may survive direct impacts from wildfire but is unable to maintain itself when the habitat is completely altered by high severity fires resulting in canopy removal; therefore, uncharacteristic wildfire may be another potential threat (Roth 2016).

Table A-24. Plan components that address ecological condition and threats for Goodding's onion

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Openings within spruce-fir forest	Recreation Uncharacteristic wildfire vegetation management Ungulate grazing Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-SFF-DC-LS-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-ATRISK-DC- 2 & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-3 FW-REC-DC-7 FW-DISREC-DC-5, 8 & 9 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-SFF-G-1, 2, 3 FW-TERSPH-O-6 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2, 8 & 9 FW-FORESTRY-G-3, 8, 9, 11 & 13 FW-RANGE-G-2 FW-DEVREC-G-1 FW-ROADS-G-1, 8 & 9	FW-SFF-DC-9 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-S-2 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9 FW-FORESTRY-G-7, 14 & 16 FW-DISREC-G-3 FW-ROADS-G-11

Source: Forest Service 2020

Wood lily

Wood lily (*Lilium philadelphicum*) is very rare in New Mexico despite having a broad range throughout the rest of the United States. Wood lily occupies montane conifer forest and subalpine conifer forests at 7,000 to 10,000 feet, usually in wetlands associated with mature conifer forest. Threats to this species are feral horse and livestock grazing, wetland or habitat alteration, and collection.

Table A-25. Plan components that address ecological condition and threats for wood lily

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Riparian areas Wet meadows	Nonnative invasive species encroachment Altered hydrologic function Ungulate grazing	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-INVASIVE-DC-1 & 2 FW-RANGE-DC-3, 4 & 6	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2 & 10 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 10 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3, 4, 5, 6 & 8 FW-RANGE-S-3 FW-RANGE-G-3 & 7

Source: Forest Service 2020

Ladies'-tresses orchid

Currently, the known distribution for ladies'-tresses orchid (*Microthelys rubrocallosa*) in the United States is a small portion of Otero County, New Mexico. It occurs under dense canopies (60 percent or higher) of Douglas-fir and ponderosa pine (mixed conifer), in a deep litter and duff layer, at elevations of approximately 7,500 to 8,100 feet. Individuals are almost always in areas where few other plants grow and the aspect is often northerly, although a series of occurrences have been located on a very shaded southern exposure. This species is often found on the toe slope or on a step in a steep slope, perhaps due to litter accumulation and duff development. Ladies'-tresses orchid inhabits late seral mixed conifer habitats that are characterized by high canopy cover, thick needle litter, and a thick duff layer; therefore, vegetation management activities, such as prescribed fire or mechanical removal of trees, would be highly detrimental to the species due to habitat alteration; however, uncharacteristic wildfire also poses a threat. A few individuals that had been discovered in the 2000 Scott Abel burn scar persisted for a few years after its habitat was drastically altered by the wildfire; but those individuals have not been observed for several years. Treatments confined to the perimeter of populations and outside of the plant's characteristic habitat could benefit the species by reducing the threat of wildfire. Mechanical, or preferably hand treatments, would be less risky since it may be difficult to keep prescribed fire out of the habitat.

Table A-26. Plan components that address ecological condition and threats for ladies'-tresses orchid

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Mixed-conifer frequent-fire Mixed-conifer with aspen	Vegetation management activities Ground and soil disturbance Uncharacteristic wildfire Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-MCW-DC-LS-1, 2, 3, 4, 5, 6, 7 & 8 FW-MCD-DC-LS-1, 2, 3, 4, 5, 6 & 7 FW-SOIL-DC-1, 2, 3, 4, 5, 7 & 8 FW-TERSPH-DC-1, 3, 4, 5, 7, 10 & 14 FW-ATRISK-DC-2 & 4 FW-FIRE-DC-1, 3 & 4 FW-FORESTY-DC-7FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-MCW-G-1, 2, 3 & 4 FW-MCD-S-1 FW-MCD-G-1, 2 & 3 FW-SOIL-O-1 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2, 6, 8 & 9 FW-FORESTRY-G-9, 10 & 13 FW-ROADS-O-2	FW-MCW-DC-9 FW-MCD-DC-8 FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6, 9, 11 & 12 FW-FORESTRY-G-2, 3, 7, 8 & 14 FW-ROADS-G-1, 7, & 9

Source: Forest Service 2020

Sierra Blanca cliff daisy (*Ionactis elegans*)

Sierra Blanca cliff daisy (*Ionactis elegans*) is a narrow endemic, known from a few locations on Sierra Blanca in the Sacramento Mountains. This species inhabits igneous rock faces/cliffs in montane coniferous forest habitat at 7,600 to 9,500 feet. The relatively inaccessible nature of this species' habitat affords it considerable protection from most human impacts; therefore, there are no major threats to habitat; however, rock climbing may pose a threat. Also, some populations may be threatened by wildfire; in 2012, one of the known locations was burned in the Little Bear fire.

Table A-27. Plan components that address ecological condition and threats for Sierra Blanca cliff daisy

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Igneous rock features and cliffs	Recreation Activities Specific ecological features or conditions Uncharacteristic wildfire	FW-VEG-DC-1, 2 & 3 FW-TERSPH-DC-1, 7, 8, 9 & 14 FW-ATRISK-DC- 2 & 4 FW-FIRE-DC-1 & 4 FW-REC-DC-7	FW-VEG-G-1 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8	FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9

Source: Forest Service 2020

Gypsum blazingstar

Gypsum blazingstar (*Mentzelia humilis* var. *guadalupensis*) is endemic to the open gypsum outcrops of the Yeso Formation on the west slope of the northern Guadalupe Mountains. It occurs at elevations of about 4,425 to 5,080 feet. Threats to this species are not fully known. Livestock could graze in its habitat, but water sources are distant, and cattle have not been observed in its habitat.

Table A-28. Plan components that address ecological condition and threats for gypsum blazingstar

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Gypsum outcrops of the Yeso Formation Chihuahuan desert scrub	Specific ecological features or condition	FW-VEG-DC-1, 2 & 3 FW-CDS-DC-1, 2, & 3 FW-TERSPH-DC-1, 7, 9 & 14 FW-ATRISK-DC-1 & 4 FW-FIRE-DC-4	FW-VEG-G-1 FW-FIRE-S-1 & 4	FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-5

Source: Forest Service 2020

Golden bladderpod

Golden bladderpod (*Lesquerella aurea*) occupies calcareous soils in open areas of ponderosa pine or mixed ponderosa pine/Douglas-fir forests (mixed-conifer with aspen and mixed-conifer with frequent fire), at about 6,500 to 9,000 feet. This species is often found along roadcuts and in other disturbed sites, on open areas, and on calcareous soils derived in the San Andres Formation. Golden bladderpod is threatened by its limited range, although it can be locally abundant in the Sacramento Mountains. Its year-to-year population sizes partly depend on annual temperature patterns and the timing and amount of precipitation, which vary greatly and present potential vulnerability to such processes as random weather patterns. Local development is a potential threat, but the species colonizes roadsides and is often found in disturbed habitats.

Table A-29. Plan components that address ecological condition and threats for golden bladderpod

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Open slightly disturbed areas	Specific ecological features or condition Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-SOIL-DC-1, 2, 3, 4, 7 & 8 FW-TERSPH-DC-1, 3, 5, 7, 10 & 14 FW-ATRISK-DC-2 & 4 FW-FIRE-DC-1, 3 & 4 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-SOIL-O-1 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2 FW-FORESTRY-G-9 & 13	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9 FW-FORESTRY-G-3 & 7 FW-ROADS-G-1

Source: Forest Service 2020

Fanmustard

Fanmustard (*Nerisyrenia hypercorax*) is a gypsum-loving species. It inhabits only sparsely vegetated exposures of gypseous clay of the Yeso Formation near the base of the western escarpment (or rim) of the Guadalupe Mountains, between 4,265 and 5,249 feet. It is usually most abundant in and along the edges of deeply incised ravines. Threats to this species, aside from its restricted habitat, appear to be limited. Suitable habitat for fanmustard is remote and subject to very little disturbance other than cattle grazing; however, gypsum in the area appears to be rarely visited by cattle, presumably due to the steep topography and low forage production associated with these outcrops. The herbicide tebuthiuron has been applied near this band of gypsum to remove shrubs. Although its effects on *N. hypercorax* are not known, extending these vegetation treatments onto gypsum would be a cause for concern (NMRPTC 1999).

Table A-30. Plan components that address ecological condition and threats for fanmustard

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Gypsum outcrops of the Yeso Formation Chihuahuan desert scrub	Specific ecological features or condition Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-CDS-DC-1, 2, & 3 FW-TERSPH-DC-1, 7, 9 & 14 FW-ATRISK-DC-1 & 4 FW-FIRE-DC-4	FW-VEG-G-1 FW-FIRE-S-1 & 4	FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-5

Source: Forest Service 2020

Sparsely-flowered jewelflower

Sparsely-flowered jewelflower (*Streptanthus sparsiflorus*) occurs in limestone canyon bottoms and riparian areas in montane scrub (Chihuahuan desert scrub, mountain mahogany shrub, and piñon-juniper communities) at elevations of 5,000 to 7,000 feet. This species is apparently endemic to the Guadalupe Mountains; however, little is known of its distribution and habitat requirements. Suitable habitat for this species is mostly in very rugged and remote locations, so current land uses, such as livestock grazing and recreational hiking, pose no threat; however, suitable habitat seems to be limited and population numbers vary widely from year to year, depending on rainfall, which presents potential vulnerability.

Table A-31. Plan components that address ecological condition and threats for sparsely-flowered jewelflower

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Limestone boulders, and gravelly canyons and arroyos Riparian areas	Specific ecological features or condition Altered hydrologic function Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6

Source: Forest Service 2020

Villard's pincushion cactus

Villard's pincushion cactus (*Escobaria villardii*) inhabits loamy soils of desert grassland with Chihuahuan desert scrub on broad gravelly limestone benches, in mountainous terrain between 4,500 and 6,500 feet. This species is highly endemic and has a very small distribution on the Lincoln NF, as it is known to occur only along the western escarpment of the Sacramento Mountains. Threats to this species are unknown; however, the few locations and low distributional redundancy of this species presents potential vulnerability to random events.

Table A-32. Plan components that address ecological condition and threats for Villard's pincushion cactus

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Broad, gravelly limestone benches Chihuahuan desert scrub Semi-desert grassland	Specific ecological features or condition Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-CDS-DC-1, 2, & 3 FW-SDG-DC-1, 2, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 5, 7, 8, 9 & 14 FW-ATRISK-DC-2 & 4 FW-FIRE-DC-4	FW-VEG-G-1 FW-SDG-G-1 FW-FIRE-S-1 & 4 FW-FIRE-G-3 & 4	FW-SDG-DC-8 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-5, 6 & 8

Source: Forest Service 2020

New Mexican stonecrop

New Mexican stonecrop (*Rhodiola integrifolia* ssp. *neomexicana*) is a highly endemic plant that is known to occur only in the vicinity of Sierra Blanca peak in the Sacramento Mountains. Its habitat consists of igneous soils in montane subalpine grasslands, scree-slopes, and rocky openings in spruce-fir forest at elevations of 9,900 to 11,800 feet. Threats may include limited habitat, recreation, road improvements, and communication facilities. Sierra Blanca is heavily used for winter skiing and summer hiking. A few locations of New Mexico stonecrop occur in ski runs and on road cuts along the highway leading to Ski Apache. The radio towers and access road on Buck Mountain also are in suitable habitat for the species. In addition, the few locations and low distributional redundancy of this species presents potential vulnerability to random events.

Table A-33. Plan components that address ecological condition and threats for New Mexican stonecrop

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Bare rock/talus/scree	Specific ecological features or condition Recreation Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-SOIL-DC-1, 2, 3, 4, 6, 7 & 8 FW-TERSPH-DC-1, 3, 5, 7, 8, 9, 10 & 14 FW-ATRISK-DC- 2 & 4 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-SOIL-O-1 FW-DEVREC-G-1	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-DISREC-G-3 FW-ROADS-G-11 FW-LOCMIN/SALEMIN-S-9

Source: Forest Service 2020

Tall milk-vetch (a.k.a. winged milk-vetch)

Tall milk-vetch (*Astragalus altus*) occupies limestone soils on steep slopes and road cuts in lower montane coniferous forest at elevations of 6,500 to 8,200 feet. This species is a rare endemic that is found only in ponderosa pine forest habitats, in the portion of the Sacramento Mountains next to Cloudcroft, New Mexico. It will often inhabit road cuts and other sites for some years after disturbance and may be generally increasing with the increase of road building in its geographic area (NMRPTC 1999); however, highway maintenance and herbicide application for weed control could affect plants inhabiting road rights-of-way. Residential and recreational development in the area is extensive and may also pose a threat to this species. Deer and elk occasionally browse on these plants, but its palatability to livestock has not been determined, and the effects of forest fire on this species have not been studied.

Table A-34. Plan components that address ecological condition and threats for tall milk-vetch

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Openings on steep slopes and road cuts Ponderosa pine forest	Ground and soil disturbance/road maintenance Pesticides and chemicals Specific ecological features or condition Recreation	FW-VEG-DC-1, 2 & 3 FW-PFF-DC-1, 2, 3, 4, 5, 6, 7, 8 & 9 FW-SOIL-DC-1, 2, 3, 4, 7 & 8 FW-TERSPH-DC-1, 3, 5, 7, 10 & 14 FW-ATRISK-DC-2 & 4 FW-INVASIVE-DC-1 & 2 FW-FIRE-DC-1, 3 & 4 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-PPF-G-1 & 2 FW-SOIL-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2 FW-FORESTRY-G-9 & 13 FW-DEVREC-G-1	FW-PFF-DC-10 FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-INVASIVE-G-3, 4, 5 & 8 FW-FIRE-G-6 & 9 FW-FORESTRY-G-3 & 7 FW-DISREC-G-2, 3 & 5 FW-ROADS-G-1 & 11

Source: Forest Service 2020

Kerr's milk-vetch

Kerr's milk-vetch (*Astragalus kerrii*) is endemic to central New Mexico, known only from about a 60- to 100-square-mile area of the eastern Capitan Mountains in Lincoln County. Suitable habitat consists of dry, sandy, or gravelly bars or benches of granitic alluvium in piñon-juniper woodland and lower ponderosa pine forest at elevations of 5,420 to 7,520 feet. Kerr's milk-vetch appears to require some form of active soil erosion and deposition, including rain-driven gravel deposits in otherwise dry arroyos. Few threats are known, but pipelines, grazing, and vehicles may affect some individuals; the effects of forest fire or altered fire regimes have not been studied.

Table A-35. Plan components that address ecological condition and threats for Kerr's milk-vetch

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Riparian area, arroyos, and sandy or gravelly bars and benches	Human-made features Ungulate grazing Ground and soil disturbance/road maintenance Altered hydrologic function Uncharacteristic wildfire	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 5 & 8 FW-WATER-DC-1, 2, 3, 4, 5, 6 &7 FW-TERSPH-DC-1, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-4 & 6 FW-ROADS-DC-5 & 7 FW-LANDSU-DC-1	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-1 & 4 FW-FIRE-S-1, 4 & 6 FW-FIRE-G-3, 4, 8 & 12 FW-RANGE-S-2 & 3 FW-RANGE-G-1 & 2 FW-LANDSU-G-8	FW-RIPAR-DC-FS-1, 2, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-2 & 4 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-AQSPH-G-2, 3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-FIRE-G-6 & 9 FW-RANGE-G-7 FW-ROADS-G-1 & 11

Source: Forest Service 2020

Guadalupe mescal bean

Guadalupe mescal bean (*Sophora gypsophila* var. *guadalupensis*) is an endemic species that is known only from a few populations in the Guadalupe (Upper Dog Canyon area) and Brokeoff Mountains in New Mexico and adjacent Culberson County, Texas. This species inhabits outcrops of pink, limy, fine-grained sandstone that is 1 to 2 percent gypsum, which is often masked by a surface pavement of limestone gravel and cobble. Suitable habitat occurs in Chihuahuan desert scrub and juniper savanna at elevations of 5,260 to 6,650 feet. Threats to this species are either limited or unknown. It is rare and is restricted to specialized habitat in an area less than approximately 96 square miles. Although current land uses do not represent any significant threat, the few locations and low distributional redundancy of this species can lead to a greater risk of catastrophic loss, from random events.

Table A-36. Plan components that address ecological condition and threats for Guadalupe mescal bean

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Outcrops of fine-grained sandstone with gypsum	Specific ecological features or condition Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-TERSPH-DC-1, 7, 8, 9 & 14 FW-ATRISK-DC-2 & 4	FW-VEG-G-1	FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5

Source: Forest Service 2020

Shootingstar geranium

Shootingstar geranium (*Geranium dodecatheoides*) was discovered only in 2010. This species is known to occur in only a few locations in Lincoln County, New Mexico. Shootingstar geranium occurs primarily among andesitic boulders and outcrops near the edge of canyon-bottom riparian forest at elevations of 7,550 to 9,900 feet. Very little is known about this species, but its few locations and low distributional redundancy presents potential vulnerability to random processes.

Table A-37. Plan components that address ecological condition and threats for Shootingstar geranium.

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Andesitic boulders and outcrops Riparian areas	Specific ecological features or condition Altered hydrologic function Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4	FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6

Source: Forest Service 2020

Cloudcroft scorpionweed

Cloudcroft scorpionweed (*Phacelia cloudcroftensis*) is an annual species that is extremely rare and difficult to find (NMRPTC 1999). It is known from only a few very small populations along Highway 82 west of Cloudcroft and in the mountain valley south of Bent. Cloudcroft scorpionweed inhabits disturbed sites in arroyo channels or along roads in mixed conifer forest down to upper piñon-juniper woodlands at elevations of 6,500 to 7,700 feet. Threats are from mowing, herbicide application, roadside construction, maintenance, and related disturbances.

Table A-38. Plan components that address ecological condition and threats for Cloudcroft scorpionweed

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Open, rocky and disturbed areas Riparian areas	Ground and soil disturbance/road maintenance Specific ecological features or condition	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 5, 7 & 8 FW-WATER-DC-1, 2, 4, 5, 6 &7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-INVASIVE-DC-1 & 2 FW-ROADS-DC-5 & 7	FW-VEG-G-1 & 6 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-G-1, 2 & 10	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-3 & 4 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3, 4, 5 & 8 FW-ROADS-G-1 &11

Source: Forest Service 2020

White Mountain false pennyroyal

White Mountain false pennyroyal (*Hedeoma pulcherrima*) is endemic to mountains of south-central New Mexico, with only a handful of documented occurrences, despite survey efforts. Suitable habitat consists of open rocky or disturbed habitats, including roadsides on steep hillsides in montane coniferous forest and piñon-juniper woodland between elevations of 7000 to 9000 feet. Threats may include development, grazing, and competition with encroaching plants. Additional field work is needed to determine potential fire effects.

Table A-39. Plan components that address ecological condition and threats for White Mountain false pennyroyal

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Open, rocky and disturbed areas	Human-made features Ground and soil disturbance/road maintenance Ungulate grazing Nonnative invasive species encroachment Uncharacteristic wildfire	FW-VEG-DC-1, 2 & 3 FW-SOIL-DC-1, 2, 3, 4, 7 & 8 FW-TERSPH-DC-1, 3, 5, 7, 10 & 14 FW-ATRISK-DC-2 & 4 FW-INVASIVE-DC-1 & 2 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-4 & 6 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-SOIL-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-RANGE-S-2 & 3 FW-RANGE-G-1 & 2	FW-PPF-DC-10 FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-INVASIVE-G-3, 4, 5 & 8 FW-FIRE-G-6 & 9 FW-RANGE-G-7 FW-ROADS-G-1 & 11

Source: Forest Service 2020

Chapline's columbine

Chapline's columbine (*Aquilegia chaplinei*) is an endemic species that inhabits moist, shaded crevices, among boulders, and along streams in limestone rock or derived soil, in riparian canyons, deciduous woodland, and Chihuahuan desert scrub at elevations of 4,700 to 5,500 feet. Suitable habitat appears to be subject to periodic flooding. Threats are varied, depending on the location, but include few occurrences, low numbers, extremely small range, and habitation of limited, moist, relict habitat. Some populations are protected from many threats because they are largely isolated in remote canyons; however, some of the canyons and waterfalls where it occurs are heavily visited sites near trails. The Sitting Bull Falls population is easily accessible and slightly affected by recreationists, as are popular sites on neighboring national park lands. Plant collecting is another threat associated with high visitation areas. In addition, this species is a notable garden plant and propagated material is offered for sale, but heavily visited sites may still be subject to collection of whole plants or seed. Populations on the western slope of the Sacramento Mountains are vulnerable to habitat loss from diversion of water for municipal uses. Threats also include livestock in grazing areas.

Table A-40. Plan components that address ecological condition and threats for Chapline's columbine

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Limestone crevices, boulders, and rocks or derived soils Seeps and springs Riparian areas Chihuahuan desert scrub	Specific ecological features or condition Ground and soil disturbance (roads and trails) Recreational/plant collection Altered hydrologic Function Ungulate grazing (vegetation removal)	FW-VEG-DC-1, 2 & 3 FW-CDS-DC-1, 2, & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-RANGE-DC-4 & 6 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-RANGE-S-2 & 3 FW-RANGE-G-1 & 2 FW-DEVREC-G-1	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-RANGE-G-7 FW-DISREC-G-2, 3 & 5

Source: Forest Service 2020

White Mountain larkspur

White Mountain larkspur (*Delphinium novomexicanum*) occurs along drainages in canyon bottoms and forest meadows in lower and upper montane coniferous forests at elevations of 7,200 to 11,200 feet. This species is restricted to the Sacramento Mountains (including Sierra Blanca) in south-central New Mexico. Although some botanists have viewed this species as being fairly common within its limited range, population sizes have never been assessed (NMRPTC 1999). There are few documented occurrences and little information on its distribution or abundance. Threats to White Mountain larkspur are any land use practice that results in drying riparian zones and wet meadows. Potential human-made threats are activities associated with livestock grazing, logging, and water diversions. It is unknown whether livestock use this species of *Delphinium*; however, some *Delphinium* species are poisonous to cattle, so ranchers sometimes target this genus for poisonous weed control (NMRPTC 1999). This species' response to fire has not been studied.

Table A-41. Plan components that address ecological condition and threats for White Mountain larkspur

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Riparian areas Wet meadows	Altered hydrologic function Ungulate grazing (vegetation removal) Vegetation management	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-RANGE-DC-3, 4 & 6	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 10 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-RANGE-S-3 FW-RANGE-G-3 & 7

Source: Forest Service 2020

Wooton's hawthorn

Wooton's hawthorn (*Crataegus wootoniana*) is a regional endemic, with limited populations in fragile habitats. Suitable habitat consists of riparian areas along streams, canyon bottoms, forest understory, and meadow areas in lower montane coniferous forest at elevations of 6,500 to 8,000 feet. Distribution, abundance, and habitat have not been well quantified or fully described for this species. Threats are any activity that affects riparian habitat. Such habitat is declining within its range due to development projects most often associated with livestock grazing. Direct impacts of grazing are poorly described or quantified and require further study, as does the impact of fire; however, both fire and livestock grazing may pose a threat to Wooton's hawthorn.

Table A-42. Plan components that address ecological condition and threats for Wooton's hawthorn

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Open meadows Riparian areas	Altered hydrologic function Ungulate grazing (vegetation removal) Uncharacteristic wildfire	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-3, 4 & 6	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 10 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-FIRE-G-6 & 9 FW-RANGE-S-3 FW-RANGE-G-3 & 7

Source: Forest Service 2020

Sierra Blanca cinquefoil

Sierra Blanca cinquefoil (*Potentilla sierrae-blancae*) occupies a niche on almost barren ridges that are subject to high winds and extremes of temperature, forming ground cover where little else can grow. Suitable habitat consists of open windswept crests of ridges and mountaintops on igneous rock substrate with thin soil at 11,000 to 12,000 feet. It occasionally is found on igneous cliffs and outcrops in canyons as low as 8,000 feet (NMRPTC 1999). This species is not significantly threatened by land uses in its habitat currently, but increased winter and summer recreation at Ski Apache and climate change could affect it (NMRPTC 1999). A few populations of Sierra Blanca cinquefoil are in the burn perimeter of the 2012 Little Bear fire; however, due to the nature of its habitat, this species was not significantly affected by the fire, even if the surrounding forest composition was changed dramatically (Roth 2016).

Table A-43. Plan components that address ecological condition and threats for Sierra Blanca cinquefoil

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Igneous rock outcrops and substrate	Recreational Specific ecological features or condition	FW-VEG-DC-1, 2 & 3 FW-TERSPH-DC-1, 5, 7, 8, 9 & 14 FW-ATRISK-DC- 2 & 4 FW-FIRE-DC-1, 3 & 4 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9	FW-VEG-G-1 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-DEVREC-G-1	FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9 FW-DISREC-G-3

Source: Forest Service 2020

Capitan Peak alumroot

Capitan Peak alumroot (*Heuchera woodsiaphila*) was discovered in 2006. It appears to be limited to the Capitan Mountains, where it inhabits moist soil pockets in stable granitic talus on north and northeastern slopes in montane coniferous forest between 8,370 to 9,510 feet. There is little activity in this plant's remote habitat, and it appears to be equally abundant in burned and unburned areas following wildfire (Alexander 2008); however, the few locations and low distributional redundancy of this species presents potential vulnerability to random events.

Table A-44. Plan components that address ecological condition and threats for Capitan Peak alumroot

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Granitic talus	Specific ecological features or condition Drought/random events	FW-VEG-DC-1, 2 & 3 FW-SOIL-DC-1, 2, 3, 4, 6, 7 & 8 FW-TERSPH-DC-1, 3, 5, 7, 8, 9, 10 & 14 FW-ATRISK-DC- 2 & 4	FW-VEG-G-1 FW-SOIL-O-1	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-LOCMIN/SALEMIN-S-9

Source: Forest Service 2020

Sierra Blanca kittentails

Sierra Blanca kittentails (*Besseya oblongifolia*) is a localized, extremely rare, endemic species on Sierra Blanca. Its known global range consists of the montane subalpine grassland of Sierra Blanca at 11,000 to 12,000 feet. This species is largely inaccessible and has relatively few threats; however, it occurs near the Ski Apache resort and recreation activities there have recently expanded to allow its use in summer. In addition, a climate change vulnerability assessment for the Lincoln NF (Forest Service 2016) indicates that the entire ERUs that this species occupies is in the high or very high vulnerability category.

Table A-45. Plan components that address ecological condition and threats for Sierra Blanca kittentails

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Montane subalpine grassland	Specific ecological features or condition Recreation Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-MSG-DC-1, 2, 3, 4, 5, 6 &7 3 FW-TERSPH-DC-1, 5, 7, 10 & 14 FW-ATRISK-DC-2 & 4 FW-FIRE-DC-1, 3 & 4 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9	FW-MSG-G-1 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-DEVREC-G-1	FW-MSG-DC-8 FW-TERSPH-G-4, 5, 7, 9, & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9 FW-DISREC-G-3

Source: Forest Service 2020

Scarlet penstemon

Scarlet penstemon (*Penstemon cardinalis* ssp. *cardinalis*) is known only from the Sacramento and Capitan Mountains, where populations are scattered and small. This species inhabits canyon bottoms and rocky slopes in piñon-juniper woodland and lower montane coniferous forest (ponderosa pine and Douglas-fir) at elevations ranging from 7,000 to 9,000 feet. The few locations and low distributional redundancy presents potential vulnerability to random processes. Prevailing land uses do not appear to be a significant threat (NMMRPTC 1999). Commercially grown seeds and plants grown from seed are available through local native plant nurseries; collecting the plant could pose a minor threat.

Table A-46. Plan components that address ecological condition and threats for Scarlet penstemon

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Canyon bottoms and rocky slopes	Specific ecological features or condition drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6

Source: Forest Service 2020

Guadalupe penstemon

Guadalupe penstemon (*Penstemon cardinalis* ssp. *regalis*) is a rare species with a limited range in the Guadalupe Mountains of New Mexico and Texas. It generally inhabits limestone cliffs and boulders, slopes and canyon bottoms in montane scrub, piñon-juniper woodland, and lower montane coniferous forest at elevations of 4,500 to 6,000 feet. The few locations and low distributional redundancy presents potential vulnerability to random processes. Additional threats are collection, oil and gas exploration, off-highway vehicle use, and feral hogs. Although this species is known from only six recently verified locations in Texas and New Mexico, other historical occurrences are from remote areas and may still be extant. The remote, inaccessible nature of its habitat offers a great deal of protection from human impacts (NMRPTC 1999).

Table A-47. Plan components that address ecological condition and threats for Guadalupe penstemon

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Limestone cliffs and boulders Canyon bottoms and rocky slopes	Specific ecological features or condition Recreation Human-made features Ground and soil disturbance/road maintenance Nonnative invasive species encroachment Drought/random weather events	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-INVASIVE-DC-1 & 2 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9 FW-LEASEMIN-DC-1	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-G-1 & 2 FW-LEASEMIN-S-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3 & 5 FW-DISREC-G-3 FW-LEASEMIN-G-1

Source: Forest Service 2020

Western spruce dwarf-mistletoe

Western spruce dwarf-mistletoe (*Arceuthobium microcarpum*) is a native parasitic plant that is restricted to higher elevations and depends on spruce trees in a small geographic range in Arizona and New Mexico. It is found in spruce forests (*Picea engelmanii* and *P. pungens*) at 7,874 to 10,007 feet. The impacts of timber and fire management are unknown, but the low distributional redundancy of this species present potential vulnerability to wildfire, insect and disease outbreaks, and other random processes.

Table A-48. Plan components that address ecological condition and threats for Western spruce dwarf-mistletoe

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Spruce-fir forest	Specific ecological features or condition Drought/random events	FW-VEG-DC-1, 2 & 3 FW-SFF-DC-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 4, 5, 7 & 14 FW-ATRISK-DC-2 & 4 FW-FIRE-DC-1, 3 & 4 FW-FORESTY-DC-7	FW-SFF-G-1, 2, 3 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2, 6, 8 & 9 FW-FORESTRY-G-8, 9, 10 & 13	FW-SFF-DC-9 FW-TERSPH-G-4, 5, 7, 10 & 13 FW-ATRISK-G-1 & 5 FW-FIRE-G-6, 7, 9 & 12 FW-FORESTRY-G-3, 7, 14 & 16

Source: Forest Service 2020

Dumont's fairy shrimp

Dumont's fairy shrimp (*Streptocephalus henridumontis*) is a large (about .6 inches) freshwater branchiopod that is occurs in northwest Mexico, Arizona, and Hidalgo County, New Mexico. it inhabits cloudy, warm, temporary pools, stock tanks, and playas. Threats are loss of temporary wetlands from agricultural practices, improper grazing practices, point and nonpoint discharge of contaminants, road improvement, mosquito abatement, natural systems modification, wetland jurisdiction, and changes in flow patterns (NMDGF 2016). Substantial concern exists about the species' capability to persist over the long term in the plan area. This is because the few locations and its low distributional redundancy leads to a greater risk of catastrophic loss on the Lincoln NF.

Table A-49. Plan components that address ecological condition and threats for Dumont's fairy shrimp

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Mixed-conifer with frequent fire ERUs Mixed-conifer with aspen ERUs Riparian areas Ponderosa pine ERU Open grassland habitat	Seral state departure Uncharacteristic wildfire Ungulate grazing Altered hydrologic function Ground and soil disturbance Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-1 & 4 FW-INVASIVE-DC-1 & 2 FW-RANGE-DC-2, 4 & 6 FW-ROADS-DC-5 & 7 FW-DISREC-DC-5, 8 & 9	FW-VEG-G-1, 5 & 6 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 6 FW-FIRE-G-10, 11 & 12 FW-FORESTY-S-2 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3, 4, 5 & 8 FW-FIRE-G-6 & 9 FW-FORESTRY-G-14 FW-RANGE-G-3 & 7 FW-DEVREC-G-8 FW-DISREC-G-3 FW-ROADS-G-2 & 11

Source: Forest Service 2020

Bonita diving beetle

Bonita diving beetle (*Stictotarsus neomexicanus*) is an aquatic species found on the Smokey Bear Ranger District. Its overall habitat is not well known, but at least one of the two localities is a creek. Species of this genus seem to prefer clear, shallow, still water, such as pools or shores with variable substrates but sparse vegetation. The known habitat in New Mexico is the middle section of a moderate gradient, montane stream, bordered by willows, cottonwood, and other deciduous trees at 6,000 feet (NatureServe 2020). The species that depend on permanent water are under at least moderate threat of habitat loss or degradation (NatureServe 2018). Substantial concern exists about the species' capability to persist over the long term in the plan area. Aquatic habitats are vulnerable to multiple threats.

Table A-50. Plan components that address ecological condition and threats for Bonita diving beetle

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Mixed-conifer with frequent fire ERUs Mixed-conifer with aspen ERUs Riparian areas Ponderosa pine ERU	Seral state departure Uncharacteristic wildfire Altered hydrological function Ground and soil disturbance Pesticides and chemicals Ungulate grazing Vegetation management	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-1 & 4 FW-INVASIVE-DC-1 & 2 FW-RANGE-DC-2, 4 & 6 FW-ROADS-DC-5 & 7 FW-DISREC-DC-5, 8 & 9	FW-VEG-G-1, 5 & 6 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 6 FW-FIRE-G-10, 11 & 12 FW-FORESTY-S-2 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3, 4, 5 & 8 FW-FIRE-G-6 & 9 FW-FORESTRY-G-14 FW-RANGE-G-3 & 7 FW-DEVREC-G-8 FW-DISREC-G-3 FW-ROADS-G-2 & 11

Source: Forest Service 2020

Caddisfly

Caddisfly (*Psychoronia brooksi*) is found at high elevations in clear stream headwaters, near seeps or springs. It is known only from the north Fork of the Rio Ruidoso at the Ski Apache resort, on the Smokey Bear Ranger District. The north fork of the Rio Ruidoso is a flowing stream with a maximum width of about 8.2 feet. Pupae were aggregated along the sides of the largest boulders, just below the water surface (NatureServe 2018). Substantial concern exists about the species' capability to persist over the long term in the plan area, as the known range is extremely small. The literature does not cite specific threats, but aquatic habitats are vulnerable to multiple threats, as stated in the table below.

Table A-51. Plan components that address ecological condition and threats for caddisfly

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Mixed-conifer with frequent fire ERUs Mixed-conifer with aspen ERUs Riparian areas Spruce-fir ERU	Uncharacteristic wildfire Altered hydrological function Ground and soil disturbance Pesticides and chemicals Ungulate grazing Vegetation management	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-1 & 4 FW-INVASIVE-DC-1 & 2 FW-RANGE-DC-2, 4 & 6 FW-ROADS-DC-5 & 7 FW-DISREC-DC-5, 8 & 9	FW-VEG-G-1, 5 & 6 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 6 FW-FIRE-G-10, 11 & 12 FW-FORESTY-S-2 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3, 4, 5 & 8 FW-FIRE-G-6 & 9 FW-FORESTRY-G-14 FW-RANGE-G-3 & 7 FW-DEVREC-G-8 FW-DISREC-G-3 FW-ROADS-G-2 & 11

Source: Forest Service 2020

Carlsbad agave borer

Carlsbad agave borer (*Agathymus neumoegeni carlsbadensis*) is a skipper that primarily feeds on agave plants. The habitat has been described as shrub grassland or open piñon-juniper woodland where the larval food plant*, Agave parryi,* is abundant. It was first described on Carlsbad Cavern National Park, at 5,470 feet, on the mesa at the head of Yucca Canyon, Guadalupe Mountains. Substantial concern exists about the species' capability to persist over the long term in the plan area, due to human intrusions, disturbance impacts on host plants, and over-collection (NMDGF 2016).

Table A-52. Plan components that address ecological condition and threats for Carlsbad agave borer

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Piñon-juniper grassland ERU Desert shrub ERU Desert grassland ERU	Seral state departure Uncharacteristic wildfire Recreation Ground and soil disturbance Pesticides and Chemicals	FW-VEG-DC-1, 2 & 3 FW-PJO-DC-LS-1, 2 & 3 FW-SOIL-DC-1 & 2 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-ATRISK-DC-1 & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-3 FW-DISREC-DC-5, 8 & 9 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-TERSPH-O-3 FW-FIRE-S-1 & 4 FW-FIRE-G-3, 4 & 8 FW-FORESTY-S-2 FW-FORESTRY-G-3, 9 & 13 FW-RANGE-G-1	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, 10 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9 FW-FORESTRY-G-7 & 14 FW-RANGE-G-7 FW-ROADS-G-11

Source: Forest Service 2020

Henry's elfin

Henry's elfin (*Callophrys henrici solatus*) is a North American butterfly, found primarily in open forest and open woodlands, and it may be found in pine/oak forests, shrublands, or ponderosa pine. Documented on the Sacramento and Guadalupe Ranger Districts, it is often observed at the ecotones[5] of openings and forests; habitat can vary based on local food plant preference. Conversion of habitat to pine plantation, development, and canopy closure may reduce habitat; pesticide spraying, fire suppression, and prescribed burning are described as direct threats to the species. Additional threats are natural systems modification and climate change (NMDGF 2015).

[5] A transition zone between two biological communities.

Table A-53. Plan components that address ecological condition and threats for Henry's elfin

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Riparian areas Ponderosa pine ERU Pine-oak woodland Desert shrub ERU	Seral state departure Uncharacteristic wildfire Altered hydrologic function Recreation Drought/climate change Pesticides and chemicals Ground and soil disturbance Vegetation management	FW-VEG-DC-1, 2 & 3 FW-PJO-DC-LS-1, 2 & 3 FW-PFF-DC- LS-1, 2, 3, 4, 5, 6, 7, 8 & 9 FW-SOIL-DC-1, 2, 3, 4, 5, 7, 8, 10, & 14 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-ATRISK-DC-1, 2, & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-3 FW-DISREC-DC-1,5, 7, 8 & 9 FW-INVASIVE-DC-1 & 2 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-PPF-G-1 & 2 FW-TERSPH-O-3 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2 FW-FORESTRY-G-3, 9 & 13 FW-RANGE-G-1 FW-SOIL-O-1 FW-INVASIVE-G-1, 2 & 10 FW-DEVREC-G-1	FW-PFF-DC-10 FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, 10 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9 FW-FORESTRY-G-3, 7 & 14 FW-RANGE-G-7 FW-INVASIVE-G-3, 4, 5 & 8 FW-DISREC-G-2, 3 & 5 FW-ROADS-G-1 & 11

Source: Forest Service 2020

Sacramento Mountains checkerspot

Sacramento Mountains checkerspot (*Euphydryas anicia cloudcrofti*) is one of several butterflies that have survived from the Pleistocene epoch that inhabit the Sacramento Mountains; it is found on the Sacramento Ranger District. It prefers sunny meadows, with moist soils and adequate host plants (New Mexico penstemon [*Penstemon neomexicanus*] and valerian [*Valeriana edulis*]); nectar, such as that from orange sneezeweed (*Helenium* [= *Hymenoxys*] *hoopesii*); structures for pupal attachment; and litter in upper montane and subalpine mixed-conifer forests for suspended development during unfavorable environmental conditions (USFWS 2005). It inhabits meadows in the upper montane and subalpine mixed-conifer forest, at about 7,800 to 9,000 feet, in the vicinity of Cloudcroft. Adults are often found in association with the larval food plants, New Mexico penstemon, valerian, and adult nectar sources. New Mexico penstemon, the primary host plant where it lays its eggs, is an endemic perennial forb. This plant has a restricted range in the Capitan and Sacramento Mountains, where it may be common and relatively abundant. Valerian may be a secondary host plant for larvae after unfavorable environmental conditions, particularly in early spring, if conditions have not

been favorable for New Mexico penstemon growth. Areas of suitable habitat may be small and capable of supporting only a few butterflies. In addition to sneezeweed (preferred), adults feed on nectar from New Mexico elder (*Sambucus cerulea*), yellow salsify (*Tragopogon dubius*), western yarrow (*Achillea millefolium*), spike verbena (*Verbena macdougalii*), dandelion (*Taraxacum officinale*), figwort (*Scrophularia montana*), short-rayed coneflower (*Ratibida tagetes*), cutleaf coneflower (*Rudbeckia laciniata*), musk thistle (*Carduus nutans*), Arizona rose (*Rosa woodsii*), Wheeler's wallflower (*Erysimum capitatum*), and wild onion (*Allium* species). They depend on the microclimate and food plants associated with the moist soils of drainages and possibly on the habitat heterogeneity of forest edges for escape and during unfavorable environmental conditions.

New Mexico penstemon and orange sneezeweed appear to favor sites with disturbed soils, so cattle may increase their density; however, cattle herbivory and trampling of *P. neomexicanus* may reduce forage quality for Sacramento Mountains checkerspot larvae. In general, ungrazed or lightly grazed sites may offer greater vegetation height and heterogeneity, compared with heavily grazed sites. Cattle cropping New Mexico penstemon could reduce potential sites for the species to lay eggs and therefore its breeding success. Cattle and elk tend to avoid feeding on sneezeweed, which may permit sneezeweed to flourish under grazed conditions (USFWS 2005).

Areas of suitable habitat may be small and capable of supporting only a few butterflies (USFWS 2005). Reasons for the proposed listing were habitat loss from proposed development, random events such as drought and wildfire, and threats from collection (USFWS 2005). Overgrazing has led to the extinction of some butterfly populations in the United States, including butterflies in the genus *Euphydryas*. Constant cattle presence in wetlands and drainages can alter soil, water, and vegetation properties (microtopography, soil compaction and overland water flow, erosion, desiccation, and removal of herbaceous plants and litter). These activities create drier conditions in riparian areas and meadows because they lower the water table over time. In most of the montane West, fire suppression combined with selective herbivory by grazers,[6] has enabled woody species to encroach on meadows, often yielding dense stands of small-diameter trees. This alters fire patterns in the spruce-fir communities at higher elevations, which naturally exhibit relatively infrequent, mixed-severity fires and yield open stands of mature trees, with relatively high moisture availability (USFWS 2005). The New Mexico Department of Game and Fish (2006) lists off-highway vehicles, development, invasive plants, improper grazing practices, and over-collection as threats. Other risk factors are feral horses, invasive plants, development, recreation associated with off-highway vehicles and camping, random events such as drought and wildfire, and threats from collection (NMDGF 2006; NatureServe 2018; USFWS 2005).

[6] Consumption of understory grasses and sedges that otherwise may inhibit steady tree recruitment.

Table A-54. Plan components that address ecological condition and threats for Sacramento Mountains checkerspot

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Mixed-conifer with frequent fire Mixed-conifer with aspen Riparian areas	Seral state departure Uncharacteristic wildfire Altered hydrologic function Ungulate grazing Ground and soil disturbance Recreation Vegetation management Nonnative invasive species Pesticides and chemicals Drought/climate change	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-RANGE-DC-3, 4 & 6	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 10 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-RANGE-S-3 FW-RANGE-G-3 & 7

Source: Forest Service 2020

Poling's hairstreak

Poling's hairstreak (*Satyrium polingi*) is a butterfly of the family Lycaenidae. Documented on the Smokey Bear and Guadalupe Ranger Districts, the populations of *F. polingi* are known only from three sites in New Mexico: Organ Mountains, Guadalupe Mountains, and Capitan Mountains (Cary and Holland 1992). The habitat consists of oak woodlands. Nonmigratory and basically sedentary, like its better known relatives, it may leave habitat and fly at least several hundred feet to locate nectar, when necessary (NatureServe 2018). Adults feed on flower nectar, and larvae feed on the leaves, buds, and male catkins of Emory oaks and gray (scrub) oaks. The New Mexico Department of Game and Fish lists agriculture and aquaculture, invasive and problematic species, human intrusions and disturbance, overgrazing, possible exotic weeds, and over-collection as threats (NMDGF 2015). In general, habitats are subject to overgrazing by livestock and ungulates, which may reduce survival of host seedlings. Invasion of alien weeds is a potential issue, but it is not reported for the species (NatureServe 2018). Fire of unnatural frequency or intensity is likely to affect the oak host plant of *Satyrium polingi organensis* (BISON-M 2018).

Table A-55. Plan components that address ecological condition and threats for Poling's hairstreak

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Pine-oak woodland Riparian habitat Ponderosa pine ERU Mountain montane shrubland Desert shrub	Seral state departure Uncharacteristic wildfire Ungulate grazing Vegetation management Recreation Nonnative invasive species Ground and soil Disturbance Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-PJO-DC-1, 2 & 3 FW-PPF-DC-1, 2, 3, 4, 5, 6, 7, 8 & 9 FW-SOIL-DC-1, 2, 3, 4, 5, 7, 8, 10, & 14 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-ATRISK-DC-1, 2, & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-3 FW-DISREC-DC-1,5, 7, 8 & 9 FW-INVASIVE-DC-1 & 2 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-PPF-G-1 & 2 FW-TERSPH-O-3 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2 FW-FORESTRY-G-3, 9 & 13 FW-RANGE-G-1 FW-SOIL-O-1 FW-INVASIVE-G-1, 2 & 10 FW-DEVREC-G-1	FW-PPF-DC-10 FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, 10 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9 FW-FORESTRY-G-3, 7 & 14 FW-RANGE-G-7 FW-INVASIVE-G-3, 4, 5 & 8 FW-DISREC-G-2, 3 & 5 FW-ROADS-G-1 & 11

Source: Forest Service 2020

Guadalupe woodlandsnail

Guadalupe woodlandsnail (*Ashmunella carlsbadensis*) is a small, land snail found on the Guadalupe Ranger District in the Canyonlands. Originally found and described as a fossil from the Pleistocene epoch, living specimens were found nearby in the same canyons along the Guadalupe Mountains escarpment. The species is found in the lower slopes on talus and where deep leaf litter has accumulated (Metcalf et al. 1977). It inhabits relatively dry microclimates, compared with other terrestrial snails; dry cliffs to some extent; and patches of scrub oak and sumac in ravines (Nekola 2016). Fire is likely the potential threat of highest magnitude and imminence for many snails, depending on the microhabitats used and the surrounding matrix of ERUs. The snails occupy tiny patches of suitable habitat over small areas. Fires can destroy such population areas, which may be comprised of leaf litter that can be completely consumed by fire. This poses additional management challenges for using fire as a tool to restore the larger matrix of surrounding ERUs (Nekola 2016).

Table A-56. Plan components that address ecological condition and threats for Guadalupe woodlandsnail

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Savannah open woodland Oak woodland ERU Rock and cliff habitat	Uncharacteristic wildfire Specific ecological features Ground and soil disturbance Recreation Vegetation management Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-PJO-DC-1, 2 & 3 FW-TERSPH-DC-1, 3, 5, 7, 8, 9 & 14 FW-ATRISK-DC-1 & 4 FW-FIRE-DC-1 & 4	FW-VEG-G-1 & 5 FW-PJO-G-1 & 2 FW-FIRE-S-1 & 4 FW-FIRE-G-3 & 4 FW-FORESTY-S-2 FW-FORESTRY-G-3, 9 & 13	FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-5, 6 & 9 FW-FORESTRY-G-7 & 14

Source: Forest Service 2020

Capitan woodlandsnail

Capitan woodlandsnail (*A. pseudodonta*) is a land snail known from the Capitan, Patos, and Carissa Mountains on the Smokey Bear Ranger District. It is known to occupy talus accumulations. At the eastern end of Capitan Mountain, specimens occur in a talus accumulation at the lower end of Forest Trail 64, north of the Pine Lodge settlement, at about 6,200 feet. The species seems to thrive even at such lower elevations if talus is present (Metcalf and Smartt 1997). BISON-M (2015) lists these elevations at 6,001 to 9,000 feet. Fire is likely the potential threat of highest magnitude and imminence for many snails, depending on the microhabitats used and the surrounding matrix of ERUs. The snails occupy tiny patches of suitable habitat over small areas. Fires can destroy such population areas if they reach the occupied habitat patches. These patches may be comprised of leaf litter, which can be completely consumed by fire. This poses additional management challenges for using fire to restore the larger matrix of surrounding ERUs (Nekola 2016). Litter-inhabiting species will be affected by burning litter; for higher elevation species, only those that occupy areas deep in the middle of talus fields would be insulated from fire impacts (Nekola 2016).

Table A-57. Plan components that address ecological condition and threats for Capitan woodlandsnail

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Ponderosa Pine ERU Riparian areas Talus Canyon bottoms Piñon-juniper woodland ERU Piñon-juniper grassland ERU	Uncharacteristic wildfire Specific ecological features Ground and soil disturbance Recreation Vegetation management Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-TERSPH-DC-1, 3, 5, 7, 8, 9, 10 & 14 FW-ATRISK-DC- 2 & 4 FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-INVASIVE-DC-1 & 2 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9 FW-LEASEMIN-DC-1	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-LOCMIN/SALEMIN-S-9 FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-INVASIVE-G-3 & 5 FW-DISREC-G-3 FW-LEASEMIN-G-1

Source: Forest Service 2020

Sierra Blanca woodlandsnail

Sierra Blanca woodlandsnail (*A. rhyssa*) in the Sierra Blanca Mountains has been described as both a fossil and a living specimen (Metcalf and Smartt 1997). In the Sierra Blanca-Sacramento Mountains complex, *A. rhyssa* is common; in the Guadalupe Mountains, it occurs as a fossil (Worthington 2010). In the Sacramento Mountains, *A. rhyssa* is especially common along canyons, occurring as low as 5,750 feet. It is found in limestone talus at lower elevations (BISON-M 2015); at higher elevations, it may be found throughout the forests above 7,000 feet (Metcalf and Smartt 1997). *A. rhyssa* tolerates the highest summits of Sierra Blanca and Nogal Peaks, the former being almost 6,500 feet higher than the lowest elevations inhabited. At these very high altitudes, the species inhabits talus, much as its relatives do at the lowest elevations. Fire is likely the potential threat of highest magnitude and imminence for many snails, depending on the microhabitats used and the surrounding matrix of ERUs. Litter-inhabiting species would be affected by burning litter; for higher elevation species, only those that occupy areas deep in the middle of talus fields would be insulated from fire impacts (Nekola, 2016).

Table A-58. Plan components that address ecological condition and threats for Sierra Blanca woodlandsnail

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Mixed-conifer with frequent fire ERU Mixed-conifer with aspen ERU Riparian areas Talus slopes Ponderosa pine ERU Montane subalpine grassland ERU	Uncharacteristic wildfire Specific ecological features Ground and soil disturbance Recreation Vegetation management Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-TERSPH-DC-1, 3, 5, 7, 8, 9, 10 & 14 FW-ATRISK-DC- 2 & 4 FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-INVASIVE-DC-1 & 2 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9 FW-LEASEMIN-DC-1	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-LOCMIN/SALEMIN-S-9 FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-INVASIVE-G-3 & 5 FW-DISREC-G-3 FW-LEASEMIN-G-1

Source: Forest Service 2020

Ruidoso snaggletooth

Ruidoso snaggletooth (*Gastrocopta ruidosensis*) is a small terrestrial snail with a shell length of less than .2 inches that occurs only on the eastern slopes of the Sacramento and Sangre de Cristo Mountains of eastern New Mexico. The type specimen was found in an anthill on the Smokey Bear Ranger District. This species is restricted to this mountain range, although fossil records were mapped in states east of New Mexico (Metcalf and Smartt 1997). They are commonly found in bare soil, under stones, and in thin layers of litter on mid-elevation cliffs and limestone grasslands, as well as in talus and scree slopes. Metcalf and Smartt (1997) collected those (*G. ruidosensis*) along canyons in forested areas, mostly from the Tularosa and Peñasco Canyons (BISON-M 2015). NatureServe (2018) habitat categories are bare rock/talus/scree, cliff, and savanna. Fire is likely the potential threat of highest magnitude and imminence for many snails, depending on the microhabitats used and the surrounding matrix of ERUs (Nekola 2016). The species is vulnerable due to its limited distribution in New Mexico.

Table A-59. Plan components that address ecological condition and threats for Ruidoso snaggletooth

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Ponderosa pine ERU Piñon-juniper grassland ERU Piñon-juniper woodland ERU Limestone cliffs, rock bluffs Talus and scree Montane woodland Pine-oak woodland ERU	Uncharacteristic wildfire Specific ecological features Ground and soil disturbance Recreation Vegetation management Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-PJO-DC-1, 2 & 3 FW-TERSPH-DC-1, 3, 5, 7, 8, 9 & 14 FW-ATRISK-DC-1 & 4 FW-FIRE-DC-1 & 4	FW-VEG-G-1 & 5 FW-PJO-G-1 & 2 FW-FIRE-S-1 & 4 FW-FIRE-G-3 & 4 FW-FORESTY-S-2 FW-FORESTRY-G-3, 9 & 13	FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-5, 6 & 9 FW-FORESTRY-G-7 & 14

Source: Forest Service 2020

Vagabond holospira

Vagabond holospira (*Holospira montivaga*) is found on arid western slopes of the Guadalupe Mountains. In addition to such habitats, it inhabits the more mesic, higher parts of the range, especially in wooded canyons. Living specimens were found along ledges on the walls of Devil's Den Canyon among ponderosa and piñon pines and Gambel and live oaks, at about 6,950 feet (Metcalf and Smartt 1997). Range is restricted to the Guadalupe Mountains of Texas and New Mexico. It is considered imperiled both globally and in New Mexico. Nekola (2016) asserts that fire is the most significant threat to this and other terrestrial snails. In the case of upper montane species, the only refuge would be deep in the middle of talus patches of significant size. For species in drier settings, burning the leaf litter in an occupied patch could be catastrophic to that subpopulation. Additional threats are climate change, ground-disturbing activities, and a limited distribution.

Table A-60. Plan components that address ecological condition and threats for Vagabond holospira

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Ponderosa pine ERU Piñon-juniper grassland ERU Piñon-juniper woodland ERU Limestone cliffs, rock bluffs Talus and scree Montane woodland Pine-oak woodland ERU Mixed-conifer with frequent fire ERU	Uncharacteristic wildfire Specific ecological features Ground and soil disturbance Recreation Vegetation management Drought/climate change Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-PJO-DC-1, 2 & 3 FW-TERSPH-DC-1, 3, 5, 7, 8, 9 & 14 FW-ATRISK-DC-1 & 4 FW-FIRE-DC-1 & 4	FW-VEG-G-1 & 5 FW-PJO-G-1 & 2 FW-FIRE-S-1 & 4 FW-FIRE-G-3 & 4 FW-FORESTY-S-2 FW-FORESTRY-G-3, 9 & 13	FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-5, 6 & 9 FW-FORESTRY-G-7 & 14

Source: Forest Service 2020

Northern threeband

Northern threeband (*Humboldtiana ultima*) is a terrestrial snail found on the Guadalupe Ranger District in tiny habitat patches in north-facing cliffs; it burrows under riparian leaf litter, such as that from maple trees. This species can be found amid a mixture of rock rubble and leaf litter of deciduous trees in deep canyons but not on talus accumulations in New Mexico (Metcalf and Smartt 1997). In Texas, it occurs in leaf litter in mesic canyons of limestone mountains in forested ravines and rocky outcrops and in soil and under rocks (Fullington 1979). The Guadalupe Mountain, Texas, distribution occurs above 6,500 feet, usually in forested ravines and rocky outcrops (Fullington 1979). Threats to the species and habitat are fire, mining, deforestation, climate change, and destabilization of talus sprawls (NatureServe 2018; NMDGF 2006).

Table A-61. Plan components that address ecological condition and threats for Northern threeband

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Ponderosa pine ERU Canyons and talus slopes Pine-oak woodland ERU Mountain mahogany ERU Oak woodland ERU Riparian areas	Uncharacteristic wildfire Specific ecological features Ground and soil Disturbance Recreation Vegetation management Pesticides and chemicals Drought/climate change	FW-VEG-DC-1, 2 & 3 FW-TERSPH-DC-1, 3, 5, 7, 8, 9, 10 & 14 FW-ATRISK-DC- 2 & 4 FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-INVASIVE-DC-1 & 2 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9 FW-LEASEMIN-DC-1	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-LOCMIN/SALEMIN-S-9 FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-INVASIVE-G-3 & 5 FW-DISREC-G-3 FW-LEASEMIN-G-1

Source: Forest Service 2020

Mountainsnail

Mountainsnail (*Oreohelix strigosa nogalensis*) is found only in the Sierra Blanca Mountains on the Smokey Bear Ranger District and in canyons above 7,000 feet (BISON-M 2015). It inhabits "steep, leafy slopes with very little rock, near the canyon bed, the trees mostly maple; higher, close under the peak, it was taken among aspens" (Pilsbry 1939). It occupies more open habitat in the pine-oak woodland surrounding Nogal Peak (Metcalf and Smartt 1997). Fire is likely the potential threat of highest magnitude and imminence for many snails, depending on the microhabitats used and the surrounding matrix of ERUs (Nekola 2016). There is substantial concern about the species' capability to persist over the long term in the plan area. It is geographically restricted and is limited to small localized populations. It is a ". . . narrow endemic with potential for extinction due to chance events acting on small localized populations" (NatureServe 2020).

Table A-62. Plan components that address ecological condition and threats for mountainsnail

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Mixed-conifer with aspen ERU Riparian areas Pine-oak woodland ERU Canyon bottoms	Uncharacteristic wildfire Specific ecological features Ground and soil disturbance Recreation Vegetation management Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-TERSPH-DC-1, 3, 5, 7, 8, 9, 10 & 14 FW-ATRISK-DC- 2 & 4 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-INVASIVE-DC-1 & 2 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9 FW-LEASEMIN-DC-1	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-LOCMIN/SALEMIN-S-9 FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-INVASIVE-G-3 & 5 FW-DISREC-G-3 FW-LEASEMIN-G-1

Source: Forest Service 2020

Rio Grande Chub

Rio Grande chub (*Gila Pandora*) has a historical distribution largely throughout the cool water reaches of the Rio Grande and the Pecos River and their tributaries in northern New Mexico (BISON-M). This includes several tributaries to the Pecos River in the Sacramento and Guadalupe Mountains. Historical populations on the Lincoln NF were in perennial waters on the north side of the Capitan Mountains Wilderness Area, Rio Bonito, Rio Ruidoso, Agua Chiquita, Rio Peñasco, Last Chance Canyon, and Black Canyon (BISON-M 2018); however, only two occurrences have been documented in the past decade, one in the lower Rio Peñasco on the Sacramento Ranger District and one in Last Chance Canyon on the Guadalupe Ranger District (USFS 2016). FishNet2 yielded two records on the Guadalupe Ranger District, one at Sitting Bull Falls and one at Turkey Canyon; also, just outside of the Smokey Bear Ranger District, it was recorded in Rio Bonito, Little, and Salado Creeks (2018).

The Rio Grande chub is most common in flowing pools of headwaters, creeks, and small rivers, often near the inflow of riffles and in association with such cover as undercut banks, aquatic vegetation, and plant debris; it also occurs in impoundments. It is also commonly found in pools of small to moderate-sized perennial streams at higher elevations, where the water is cooler and the substrate consists of sand, gravel, or cobble

(Bestgen et al. 2003). Instream cover, such as an undercut bank, large woody debris, overhanging vegetation, or aquatic plants, is an important component of suitable habitat (Bestgen et al. 2003). Larger individuals occupy pools and runs and areas below instream structures; they spawn in riffle habitat without building nests.

The species' primary threats are stream degradation and nonnative species (NatureServe 2018). Other threats are nonnative fishes stocking, habitat deterioration, bank degradation, water diversion, and reduction of water quality in the Rio Grande drainage (NMDGF 2006). As described in the Lincoln NF Assessment, many areas of floodplain riparian and wet meadows on the Lincoln NF are either impaired or nonfunctioning due to past land management practices and ongoing stressors, such as nonnative fish stocking, habitat deterioration, such as riparian canopy removal, road stream crossings, and grazing practices; bank degradation, such as headcuts, soil compaction, and channelization; loss or reduction of riparian and aquatic vegetation; and water diversion and reduction of water quality. These threats are widespread and often take place concurrently in the same site (Forest Service 2019). Adverse conditions may be compounded during periods of inadequate moisture, such as during the past several years.

Table A-63. Plan components that address ecological condition and threats for Rio Grande chub

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Riparian areas Mountain Mahogany ERU Pine-oak woodland ERU Ponderosa Pine ERU Mixed conifer with aspen ERU Piñon-juniper grassland ERU	Seral state departure Uncharacteristic fire Nonnative species Altered hydrologic function Ground and soil disturbance Recreation Ungulate grazing Vegetation management Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-1 & 4 FW-INVASIVE-DC-1 & 2 FW-RANGE-DC-2, 4 & 6 FW-ROADS-DC-5 & 7 FW-DISREC-DC-5, 8 & 9	FW-VEG-G-1, 5 & 6 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 6 FW-FIRE-G-10, 11 & 12 FW-FORESTY-S-2 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3, 4, 5 & 8 FW-FIRE-G-6 & 9 FW-FORESTRY-G-14 FW-RANGE-G-3 & 7 FW-DEVREC-G-8 FW-DISREC-G-3 FW-ROADS-G-2 & 11

Source: Forest Service 2020

Headwater catfish

Headwater catfish (*Ictalurus lupus*) inhabit clear, headwater streams in the Rio Grande drainage of New Mexico, Texas, and Mexico and gulf slope streams of northeastern Mexico (Kelsch and Hendricks 1986; Sublette et al. 1990). It is native to the Pecos River and Rio Grande basins of Texas and New Mexico (Hubbs et al. 1991). Headwater catfish persist, to a diminished extent, in headwater streams of the Pecos River drainage. On the Lincoln NF, it has been documented at Sitting Bull Falls and Last Chance Canyon in the Guadalupe Ranger District. The species occupies clear temperate waters (BISON-M 2018). It occupies streams generally with a moderate gradient; among sandy and rocky riffles, runs, and pools of clear creeks. Headwater catfish is presumably an omnivorous bottom-feeder, like other members of the catfish family (BISON-M 2018). This species is not tied to a specific ERU. Threats on the Lincoln NF are grazing, water quality (*E.coli* and sedimentation), recreation such as swimming and fishing, road stream crossings, loss of riparian canopy cover, reduction of riparian and aquatic vegetation, water shortage and drought, and introduction of nonnative invasive species. Habitat for this species is very limited on the Lincoln NF, estimated at less than 1 percent. Several overlapping threats are concurrent in these sites, thereby compounding the stresses to the species and habitat.

Table A-64. Plan components that address ecological condition and threats for headwater catfish

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Riparian areas Mountain mahogany ERU Pine-oak woodland ERU Ponderosa pine ERU Mixed conifer with aspen ERU Piñon-juniper grassland ERU	Seral state departure Uncharacteristic fire Nonnative species Altered hydrologic function Ground and soil disturbance Recreation Ungulate grazing Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-CDS-DC-1, 2, & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-RANGE-DC-4 & 6 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-RANGE-S-2 & 3 FW-RANGE-G-1 & 2 FW-DEVREC-G-1	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-RANGE-G-7 FW-DISREC-G-2, 3 & 5

Source: Forest Service 2020

Rio Grande cutthroat trout

Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*) is native to the Rio Grande drainage. Though populations were in the plan area were once destroyed, it has been reintroduced. There are accounts in the 1870s of speckled trout fitting the description of Rio Grande cutthroat trout in Rio Bonito near Ft. Stanton and other neighboring streams. The species' habitat is clear, cold-flowing streams with gravel and cobble substrates and pools with overhanging banks, debris, and vegetation. Threats to the species are nonnative invasive fish introductions, habitat degradation, reduced streamside cover due to grazing, timber activities, and uncharacteristic wildfire and drought.

Table A-65. Plan components that address ecological condition and threats for Rio Grande cutthroat trout

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Riparian areas Pine-oak woodland ERU Ponderosa pine ERU Mixed conifer with aspen ERU Piñon-juniper woodland ERU	Seral state departure Uncharacteristic fire Nonnative species Altered hydrologic function Ground and soil disturbance Recreation Ungulate grazing Pesticides and chemicals Drought	FW-VEG-DC-1, 2 & 3 FW-RIPAR-DC-WS-1, 3, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5 & 8 FW-WATER-DC-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-1 & 4 FW-INVASIVE-DC-1 & 2 FW-RANGE-DC-2, 4 & 6 FW-ROADS-DC-5 & 7 FW-DISREC-DC-5, 8 & 9	FW-VEG-G-1, 5 & 6 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-INVASIVE-O-1 FW-INVASIVE-G-1, 2 & 10 FW-FIRE-S-1 & 6 FW-FIRE-G-10, 11 & 12 FW-FORESTY-S-2 FW-RANGE-S-2 FW-RANGE-G-1 & 2	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 4, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-O-2 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-DC-FS-1 FW-AQSPH-S-2 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-INVASIVE-G-3, 4, 5 & 8 FW-FIRE-G-6 & 9 FW-FORESTRY-G-14 FW-RANGE-G-3 & 7 FW-DEVREC-G-8 FW-DISREC-G-3 FW-ROADS-G-2 & 11

Source: Forest Service 2020

Piñon Jay

Piñon jay (*Gymnorhinus cyanocephalus*) are primarily piñon-juniper woodland obligates, but the will use other habitat if piñon-juniper woodland does not exist (Wiggins 2005). They are found throughout piñon-juniper woodlands and sometimes in piñon-juniper grasslands on the Lincoln NF. Although predicted to remain in low departure from reference conditions, piñon-juniper habitats are predicted to have the greatest variation on the Lincoln NF when it comes to climate change vulnerability. Piñon jays are synchronized, colonial nesters that begin breeding in the cold of winter in areas where pine-seed crops were abundant the previous autumn (Poole 2018). The primary threats to piñon jay population persistence is a widespread die-off of piñon pine in the southwestern United States, together with departure in seral state conditions from THE loss of dense and old growth piñon-juniper woodlands, changes in the fire regime, and stand-replacing fire (Wiggins 2005).

Table A-66. Plan components (coarse and fine filter) that address ecological condition and threats for piñon jay

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Piñon-juniper woodlands ERU Piñon-juniper grasslands ERU	Seral state departure Snag departure Uncharacteristic wildfire	FW-VEG-DC-1, 2 & 3 FW-PJO-DC-1, 2 & 3 FW-SOIL-DC-1 & 2 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-ATRISK-DC-1 & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-3 FW-DISREC-DC-5, 8 & 9 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-TERSPH-O-3 FW-FIRE-S-1 & 4 FW-FIRE-G-3, 4 & 8 FW-FORESTY-S-2 FW-FORESTRY-G-3, 9 & 13 FW-RANGE-G-1	FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, 10 & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6 & 9 FW-FORESTRY-G-7 & 14 FW-RANGE-G-7 FW-ROADS-G-11

Source: Forest Service 2020

Guadalupe pocket gopher

Guadalupe pocket gopher (*Thomomys bottae guadalupensis*) is found on the Guadalupe Ranger District. It prefers loamy sandy soils, avoiding rocky soils. These soils are often found in canyon bottoms and along riparian areas in the deeper canyons. Pocket gophers live almost entirely underground in tunnels they have dug. They require soil that is suitable for digging tunnels and sufficient tuberous roots and plant material for food (BISON-M 2018). In the Guadalupe Mountains National Park, this subspecies occurs at moderate to high elevations in shallow, rocky soil, often in association with *Agave lecheguilla*. It frequently feeds on the roots of *A. lecheguilla* and may kill individual plants (Genoways et al. 1975, 1979). At survey areas in the Guadalupe Mountains National Park, where specimens have been collected, vegetation included open canyon woodland, open juniper woodland and grassland, pine-oak meadow, and open pine woodland. They have been found in shortgrass plains, sacaton grassland, oak savanna, and riparian areas with sycamore, cottonwood, and rabbitbrush (BISON-M 2018). Limited distribution and restricted

range are issues for the gopher. It is subject to habitat loss due to drought and climate change. Texas Parks and Wildlife (2011) lists drier periods, drought, wildfire, and loss of riparian and canyon vegetation; inappropriate grazing in sensitive areas; increasing human development and recreational access in sensitive areas; climate change; isolated genetically (larger contiguous areas of habitat in geographically isolated sites is important) as threats for Guadalupe pocket gophers (Texas Parks and Wildlife 2011).

Table A-67. Plan components that address ecological condition and threats for Guadalupe pocket gopher

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Piñon-Juniper Woodlands ERU Piñon-juniper grassland ERU Desert scrub ERU Mountain mahogany ERU Riparian areas Canyons Ponderosa pine stringers	Seral state departure Uncharacteristic wildfire Ungulate grazing Recreation Drought/climate change Altered hydrologic function Vegetation management Pesticides and chemicals	FW-VEG-DC-1, 2 & 3 FW-CDS-DC-1, 2, & 3 FW-RIPAR-DC-WS-1, 3, 4, 5 & 6 FW-SOIL-DC-1, 2, 3, 4, 5, 6, 7 & 8 FW-WATER-DC-1, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9, 10 & 14 FW-AQSPH-DC-WS-1 & 2 FW-ATRISK-DC-2 & 4 FW-RANGE-DC-4 & 6 FW-REC-DC-7 FW-DISREC-DC-1, 5, 8 & 9	FW-VEG-G-1 FW-RIPAR-O-1, 2 & 3 FW-RIPAR-G-1, 3, 8, 9 & 10 FW-SOIL-O-1 FW-WATER-O-1 FW-WATER-G-1 FW-TERSPH-O-6 FW-AQSPH-O-4 FW-RANGE-S-2 & 3 FW-RANGE-G-1 & 2 FW-DEVREC-G-1	FW-RIPAR-DC-FS-1, 2, 3, 4 & 5 FW-RIPAR-G-2, 6, 11, 12 & 13 FW-SOIL-G-2, 3, 4 & 5 FW-WATER-S-1 FW-WATER-G-2, 3 & 4 FW-TERSPH-G-4, 5, 7 & 13 FW-AQSPH-G-3, 6, 7 & 9 FW-ATRISK-DC-3 FW-ATRISK-G-1, 5 & 6 FW-RANGE-G-7 FW-DISREC-G-2, 3 & 5

Source: Forest Service 2020

Davis Mountain cottontail (a.k.a. robust cottontail)

Davis Mountain cottontail (*Sylvilagus robustus*) is a species of cottontail rabbit endemic to four mountain ranges in the southwestern United States and adjacent Mexico. Historically, this species was known to be endemic to four mountain ranges the Guadalupe Mountains, Davis Mountains, and Chisos Mountains in Texas and the Guadalupe Mountains in New Mexico. In Coahuila, Mexico, it is known from the Sierra de la Madera. The Chisos and Guadalupe Mountains populations are believed to have been destroyed. The species inhabits piñon oak-juniper woodland areas, in mountain ranges at elevations mostly between 4,700 and 8,000 feet, though sometimes also at lower elevations. These areas tend to be dry, brushy mountain areas, and these rabbits inhabit dense brush of sumac and mahogany, emerging only toward evening to feed (Schmidly and Bradley 2016; Vestal 2005).

Guadalupe Mountain records in Culbertson County, Texas, are from about 8 miles south of New Mexico. Frey (2004) asserted "Consequently, it probably occurs throughout adjacent areas of the Guadalupe Mountains in New Mexico." Davis and Robertson (1944; Culbertson County, Texas) wrote "These large cottontails are difficult to find and more difficult to collect. They prefer coniferous areas, and, whenever discovered, disappear with a flash of the white tail thick young pines and underbrush. There have been no specimens of this cottontail from the Sierra Diablo, although it probably occurs there." Genoways et al. (1975) wrote "The eastern cottontail may be one of the rarest species of mammals currently occurring in the Guadalupe Mountains National Park." Specimens have been recorded only from The Bowl (Davis 1940; Davis and Robertson 1944; Hall and Kelson 1951; Hall 1951), where it evidently is confined to dense stands of Douglas-fir and ponderosa pine. There is also a record of the species on the Mescalero Tribal lands, near Cloudcroft, New Mexico, in high elevation mixed conifer and aspen. It inhabits desert shrublands and evergreen woodlands, often associated with large boulders and crevices (Texas Parks and Wildlife 2011). It is not known to occur below 4,921 feet and is more common above 5,906 feet. Lee et al. (2010) report that it "inhabits piñon–oak–juniper woodlands at elevations above 1,400 m, near the tops of various mountains . . . ."

Threats to the species are driven by the small range in New Mexico, Texas, and adjacent Mexico; the species occupies sky island[7] settings only. The species is declining in its limited range, which includes the Guadalupe Mountains. It has disappeared from one of the four mountain ranges from which it is known (Lee et al. 2010; NatureServe 2018). Because of geographic isolation, climate change may be a factor affecting the species, as well as drought, wildfire, grazing, and, potentially, insect infestation (Texas Parks and Wildlife 2011).

[7] Isolated mountains surrounded by radically different lowland environments

Table A-68. Plan components that address ecological condition and threats for Davis Mountain cottontail

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines (Fine Filter)
Montane subalpine grasslands ERU Open spruce-fir Mixed conifer with aspen ERU Mixed conifer with frequent fire ERU Ponderosa Pine ERU	Seral state departure Coarse woody debris departure Soil and ground disturbance Uncharacteristic wildfire Recreation Ungulate grazing Drought/climate change Pesticides and chemicals Altered hydrologic function Vegetation management	FW-VEG-DC-1, 2 & 3 FW-SFF-DC-LS-1, 3, 4, 5, 6 & 7 FW-TERSPH-DC-1, 3, 5, 7, 9 & 14 FW-ATRISK-DC- 2 & 4 FW-FIRE-DC-1, 3 & 4 FW-RANGE-DC-3 FW-REC-DC-7 FW-DISREC-DC-5, 8 & 9 FW-ROADS-DC-5 & 7	FW-VEG-G-1 FW-SFF-G-1, 2, 3 FW-TERSPH-O-6 FW-FIRE-S-1 & 4 FW-FIRE-G-1, 2, 3, 4 & 8 FW-FORESTY-S-2, 8 & 9 FW-FORESTRY-G-3, 8, 9, 11 & 13 FW-RANGE-G-2 FW-DEVREC-G-1 FW-ROADS-G-1, 8 & 9	FW-MCW-DC-9 FW-MCD-DC-8 FW-SOIL-G-2, 3, 4 & 5 FW-TERSPH-G-4, 5, 7, 9, & 13 FW-ATRISK-DC-3 FW-ATRISK-G-1 & 5 FW-FIRE-G-6, 9, 11 & 12 FW-FORESTRY-G-2, 3, 7, 8, 14 & 16 FW-ROADS-G-1, 7, & 9 FW-SFF-DC-9 FW-ATRISK-S-2 FW-ATRISK-G-1 & 5 FW-DISREC-G-3 FW-ROADS-G-11

Source: Forest Service 2020

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Appendix B

Documentation of Wilderness Recommendation Process

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Appendix B. Draft Documentation of Wilderness Recommendation Process

Introduction

When revising a forest plan, the Forest Service is required to identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System (NWPS) and determine whether to recommend to Congress any such lands for wilderness. A description of this process can be found in chapter 70 of the Forest Service Land Management Planning Handbook 1909.12. This process includes the following four steps:

1. Inventory—Identify and create an inventory of all lands that may or may not be suitable for inclusion in the NWPS using a given set of criteria.
2. Evaluation—Evaluate the wilderness characteristics of all lands included in the inventory that may be suitable for inclusion in the NWPS, using a given set of criteria, and assign a ranking of high, moderate, low, or no for their wilderness characteristics.
3. Analysis—Based on the ranking, the forest supervisor will determine which areas to further analyze through the NEPA process.
4. Recommendation—Based on the analysis, the forest supervisor will decide which areas, if any, to recommend to Congress for inclusion in the NWPS.

Lands evaluated and analyzed through this process and the resulting NEPA analysis have only preliminary administrative recommendations. Recommended wilderness is distinct from designated wilderness; recommended wilderness is managed in accordance with forest plan direction, as opposed to the Wilderness Act of 1964. Congress has reserved the authority to make final decisions on wilderness designation.

Step 1: Inventory

The primary function of the inventory step is to efficiently, effectively, and transparently identify all lands on the Lincoln NF to be evaluated for wilderness characteristics, as defined in the Wilderness Act. An inventory is intended to be broad and inclusive. Sections 71.21 through 71.22b of chapter 70 in the Forest Service Land Management Planning Handbook 1909.12 outline the criteria for what should be included in the inventoried areas. There are two criteria: size and improvements.

The final inventory criteria identified in the Forest Service Handbook (FSH 1909.12, chapter 70, sections 71.21 through 71.22b) were further defined through an interdisciplinary team (ID team) and public engagement.

Performing an inventory required that National Forest System lands on the Lincoln NF meet certain criteria. For the purposes of the exercise, inventory criteria fell into the following three broad categories with roads as a subset under improvements:

Size

Blocks of land must be 5,000 acres or larger to be included in the inventory. Smaller parcels can be considered, but only with good justification; examples include blocks of land contiguous to an existing wilderness, WSA, or wilderness inventory of other Federal ownership.

Improvements

Improvements (built features such as structures, etc.) can be a little tricky. Only those improvements that are not substantially noticeable in the area as a whole are included in the inventory. The Forest Service has defined substantially noticeable to mean that an improvement is substantially noticeable when it creates a noticeable difference in form, line, color, texture, or pattern in the surrounding natural landscape at a size, scale, or concentration that contrasts with the surrounding natural landscape. To be substantially noticeable in the area as a whole, the improvement or concentration of improvements must be more dominant than the surrounding natural landscape scene, or it must be visually apparent using aerial imagery. Improvements mapped as point features in geospatial data may be documented as areas, with 100 feet around that single feature to account for footprint and geospatial mapping errors. The list below includes improvements that would be substantially noticeable and would be removed from the inventory:

- Surfaced runways or landing pads with permanent structures
- Vegetation treatments that are substantially noticeable using the definition above, such as clear-cut forested areas, regeneration harvests, fuel breaks, and areas of piñon-juniper chaining
- Vertical structures (1) that extend above the surrounding tree or shrub height, (2) that require regular access for maintenance, (3) where the associated ground disturbance is 1 acre or greater, or (4) that occur in a concentration
- Range developments with improvements (such as windmills) that extend above the surrounding tree or shrub height and have associated ground disturbance of 1 acre or greater or occur in a concentration that is substantially noticeable
- Areas of commercial open-pit mining, active mining operations, or gas extraction wells
- Developed recreation sites (such as ski areas, campgrounds, or interpretive sites) as defined by management areas or special-use permit boundaries
- Power lines or other utilities with cleared rights-of-way, other permanently installed linear right-of-way structures (such as a tramway), and permanent aboveground pipelines over 6 inches in diameter
- Non-earthen dams, post-fire flooding control improvements (i.e., filter dams made of nonnatural materials), and terraced areas
- Structures with a modern appearance whose area's primary function is dedicated to housing or a concentration of other permanent building structures, including developed recreation improvement structures

Roads

Blocks of land were also removed from the inventory based on the presence of certain roads. Open roads per the 1986 Forest Plan's travel management decision were removed from the inventory. These open roads are maintained to levels 2, 3, 4, or 5 and are roads maintained for use by high-clearance vehicles (level 2) or maintained for travel by a prudent driver in a standard passenger car (levels 3, 4, or 5). Other jurisdiction roads open to the public, such as county roads and state roads, which pass through National Forest System lands were also removed from the inventory. Removed roads have a buffer of about 100 feet on either side of the road centerline to account for the road width, right-of-way maintenance, and potential geospatial data inaccuracies.

Inventory Process

From June 28, 2019, to July 31, 2019, the Draft Inventory Criteria was posted for public comment. From September 25, 2019, to October 30, 2019, maps and the draft process paper were posted online for public review and feedback. The Forest Service reviewed public feedback received on the draft inventory maps and the draft process paper; the Forest Service also produced final inventory maps and an updated process paper. The final inventory maps do not include any additional land areas identified by the forest supervisor.

Step 2: Evaluation

The evaluation of lands inventoried for wilderness character is based on the criteria identified in the Forest Service Handbook (FSH 1909.12, chapter 70, section 72.1) and further defined by the Forest Service through resource specialists and public engagement. Chapter 70, section 72.1 of the Forest Service Land Management Planning Handbook 1909.12 outlines criteria for evaluation of lands for wilderness characteristics.

The primary function of this step was to evaluate the wilderness characteristics of all lands included in the final inventory. In this step the Forest Service used five criteria to evaluate the areas from the inventory for their wilderness characteristics: (1) size, (2) apparent naturalness, (3) outstanding opportunities for solitude or a primitive and unconfined type of recreation, (4) unique and outstanding qualities, and (5) manageability. These criteria, definitions, and ranking guides, as defined by the Forest Service and its publics, are outlined in this document.

Evaluation Process

From June 28, 2019, to July 31, 2019, the Draft Evaluation Criteria was released for public review and comment. The intent of the forest supervisor and the planning team was to ensure the process for evaluation was transparent and accessible to the public for input and feedback. The draft evaluation criteria for the Lincoln NF wilderness recommendation process has been through one round of public review.

By seeking public review in the development of the evaluation criteria, stakeholders were able to provide input and be familiar with the process used to evaluate the wilderness characteristics of the lands identified through the inventory step. A summary of public input and concerns received through comment on the draft evaluation criteria is as follows:

Some comments on this document focused on interpreting the Wilderness Act or the FSH 1909.12 chapter 70 direction, or both, including the following comments:

". . . recommends LNF's [Lincoln National Forest's] definition of 'substantially noticeable' be altered. . ."

". . . we believe the draft inventory process paper accurately reflects the Chapter 70 inventory requirements. . ."

Comments also focused on clarifying what constitutes substantially noticeable improvements and how they would be evaluated, such as:

". . . areas with constructed and nonconstructed features related to livestock watering be [should be] removed from further consideration. . ."

". . . the forest should include any areas with vegetation treatments – regardless of noticeability. . ."

Other comments were in support of particular polygons as recommend wilderness, while other comments were opposed to recommended wilderness. For example:

"I strongly support putting GRD81 (11,592 acres) into federal protection as a wilderness area. . ."

"The . . . Guadalupe District needs to continue to be managed for multiple use NOT managed for Wilderness."

In response to both internal and external comments, the Forest Service developed a scoring system to assist with and clarify the evaluation of wilderness characteristics to help distinguish between polygon ratings. The scoring system was used to help rank the apparent naturalness, opportunity for solitude or primitive and unconfined recreation, and manageability. These changes to the evaluation criteria are reflected in tables 1–6 in this document. All unique and outstanding qualities were described when present in the area, but no additional points were assigned to the polygons. These values are not required to be present, but they should be noted.

The Forest Service considered all comments and concerns in this document's revisions and referenced them when working through the evaluation process, which is documented in Step 2, below (Evaluation of Lands Inventoried for Wilderness Character).

From November through December 2019, the ID team systematically evaluated all lands identified in the inventory and ranked the areas as high, moderate, low, or no for the level of wilderness characteristics they contain. The wilderness characteristics criteria are derived from the definition of wilderness provided in the Wilderness Act, and by the Forest Service Planning Handbook 1909.12, chapter 70. Each area was evaluated for the following characteristics:

- Size
- Apparent naturalness
- Opportunities for solitude or primitive and unconfined recreation
- Unique and outstanding qualities (these are not mandated to be present for an area to have wilderness characteristics, but they are noted where they occur)
- Manageability to protect wilderness characteristics

The Forest Service held five internal evaluation meetings to walk through the evaluation criteria for each of the inventoried areas. These meetings were held in Alamogordo, New Mexico, on October 28 and 31, November 15 and 25, and December 12, 2019. At these meetings, a team of representatives from the districts and the Lincoln NF evaluated the inventoried areas, polygon by polygon, for their wilderness characteristics using the evaluation criteria. To ensure consistency in evaluation, three members of the team attended all 5 days of the meetings. Ranking determinations for each of the inventoried areas can be found in the Final Wilderness Evaluation Rationale.

The ID team worked to accurately identify improvements—both those that were considered substantially noticeable and those that were not considered substantially noticeable—contained in the polygon, and ensured the boundaries of the polygons were consistent with the improvements on the ground. In making these determinations, the team referenced comments received (both internally and externally) on the inventoried areas to ensure identified improvements were noted and evaluated accordingly.

During the evaluation process, the team recommended the adjustment of boundaries due to features inconsistent with wilderness characteristics (e.g., an area with mostly high apparent naturalness with the exception of an obvious gravel pit near the boundary). These recommended adjustments helped ensure

areas were given an accurate rank for their level of wilderness characteristics. An entire polygon was not removed initially, if a small boundary adjustment could be made. These adjustments are to be considered during the analysis phase to assist with management of the polygons.

In March 2020, the Forest Service released a draft evaluation map, online StoryMap[1], and draft documentation to support assigned rankings. Public comment and review was extended to April 30, 2020. The Forest Service used public input received in finalizing the evaluation maps and process document.

Evaluation Rank Determination Guide

All the areas identified in the inventory were evaluated based on their wilderness characteristics, per the 2012 Planning Rule and final directives. There were 87 separate areas identified in the inventory and evaluated per the evaluation criteria.

Each criterion (size, apparent naturalness, opportunities for solitude or primitive and unconfined recreation, unique and outstanding qualities, and manageability) was evaluated systematically in the numerical order they were assigned in the evaluation process documentation. At any point in the process, if an area received a rating of "no" for any of the first three evaluation criteria (size, apparent naturalness, and opportunities for solitude or unconfined recreation), the evaluation was not continued for that area. The evaluated area was instead assigned a summary score of "no" for the level of wilderness characteristics that it contained and removed from any further discussion in the evaluation. The evaluation did not continue for that area because the Wilderness Act requires these characteristics of a wilderness area.

The directives state the Forest Service should evaluate the degree to which an area contains unique and outstanding qualities. These values are not required to be present in an area for the area to be recommended for inclusion in the NWPS, but their presence should be identified and evaluated where they exist (FSH 1909.12 chapter 70, section 72.1). Such features or values may include the following:

- Rare plant or animal communities or rare ecosystems. Rare can be determined locally, regionally, nationally, or within the system of protected designations.
- Outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features
- Historic and cultural resource sites (confidentiality requirements with respect to cultural resource sites must be respected [25 United States Code 3056])
- Research natural areas
- High-quality water resources or important watershed features

Each evaluated area was assigned an overall ranking of the level of wilderness characteristics it possesses. The rankings are high, moderate, low, or no. A ranking of very high was added to further refine the scoring of areas and assist in the Analysis phase of the process. These rankings were determined through a point system based on the area's wilderness characteristics, the apparent naturalness, opportunities for solitude or unconfined recreation, and manageability. For these characteristics, a ranking or score was assigned based on the following number of points:

[1] StoryMaps include narrative text and other multimedia content along with geospatial maps to provide a fuller story behing the maps.

- No = 0 points–2.5 points
- Low = 2.6 points–5.0 points
- Moderate = 5.1 points–7.5 points
- High = 7.6 points–8.9 points
- Very High = 9-10 points

Table 1 describes the criteria and the points possible in each category. Tables 2–6 outline the considerations made when determining the rank given in each category (high, moderate, low, or no).

In the evaluation of the inventoried areas, each consideration's intent was to help further describe potential discussion topics for each of the five wilderness characteristics criterion (per FSH 1909.12, chapter 70). The specific considerations used in the evaluation depended on the area being evaluated; all points outlined in the tables below were not necessary (see tables 2–6).

Table B-1. Points Possible for Wilderness Characteristics

Wilderness Characteristic	Description	How Evaluated	Total Points Possible
Size	This criterion evaluates if an area less than 5,000 acres is of sufficient size to make its preservation and use in an unimpaired condition practicable. More information on this criterion can be found in table 2.	**Yes/No** If an area received a "yes," it was moved forward in the evaluation process; if it received a "no," the area was given an overall wilderness characteristic rank of no.	N/A
Apparent Naturalness	This criterion evaluates the degree to which an area generally appears to be affected primarily by the forces of nature, with the imprints of humans' work substantially unnoticeable. There are three categories of apparent naturalness: the composition of plant and animal communities, the ecological (vegetation treatments) conditions, and improvements. More information on this criterion can be found in table 3.	**Average Rank Value** The Forest Service gave an average score based on the three categories: the composition of plant and animal communities, the ecological (vegetation treatments) conditions, and improvements.	10
Outstanding Opportunities for Solitude or Unconfined Recreation*	This criterion evaluates the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation. More information on this criterion can be found in table 4.	**Highest Rank Value** The score was determined by the highest rank value between the two categories: solitude or unconfined recreation.	10

Wilderness Characteristic	Description	How Evaluated	Total Points Possible
	**An area only has to possess one or the other; the area does not have to possess outstanding opportunities for both elements, nor does it need to have outstanding opportunities on every acre.*		
Unique and Outstanding Qualities*	This criterion evaluates the degree to which the area may contain ecological, scenic, historic or tribal, features of scientific, or high-value water resource values. There are five categories of unique and outstanding qualities. More information on this criterion can be found in table 5. **These values are not required to be present in an area for the area to be recommended for inclusion in the NWPS, but their presence should be identified and noted where they exist.*	**Yes/No** If the area had any unique or outstanding qualities, these qualities were noted in the description of the polygon; however, no points were given for having a unique and outstanding quality.	N/A
Manageability	This criterion evaluates the degree to which the area may be managed to preserve its wilderness characteristics, considering current conditions. More information on this criterion can be found in table 6.	**Rank Value** Points were determined based on the rank value the area was given.	10
Preliminary Overall Score and Rating	There is a possible rating of no, low, moderate, and high; these ratings are based on scores (no = 0–2.5, low = 2.6–5.0, moderate = 5.1–7.5, high = 7.6–8.9, and very high = 9-10).	Scores from apparent naturalness, solitude or primitive and unconfined recreation, and manageability were averaged for the total points possible.	10
Averaged Total Points Possible			**10**

Size

This criterion evaluated if an area less than 5,000 acres was of sufficient size to make its preservation and use in an unimpaired condition practicable. The ID team assigned a score of yes or no to all of the inventoried areas. Rationale for the score was documented. If an area received a score and ranking of no, the evaluation of that area was discontinued. If the area received a score of yes, the evaluation continued.

Table B-2. Size Criteria

Evaluation Criteria	Considerations Made during Evaluation	Wilderness Characteristic Determination Guide
Evaluate how an area less than 5,000 acres is of sufficient size to make its preservation and use in an unimpaired condition practicable.	Consider areas less than 5,000 acres if they are adjacent to another wilderness area (or an area proposed to be one). Consider primitive areas or areas that are part of another wilderness inventory on an adjacent land management agency unit. Consider if areas smaller than 5,000 acres can be combined. Consider if the terrain, bodies of water, vegetation, and/or geographic location may facilitate protection of the entire area's wilderness characteristics. Consider if the surrounding or inholding areas are in nonfederal ownership or are managed currently for uses that would make the area impractical to manage as a wilderness due to its relative size. Include any additional information related to the manageability of an area less than 5,000 acres.	Yes: Any area greater than 5,000 acres. Areas less than 5,000 acres that are contiguous to existing wilderness, primitive areas, administratively recommended wilderness, or wilderness inventory of other Federal ownership. Areas less than 5,000 acres that are a sufficient size to manage as a wilderness based on considerations. No: Areas less than 5,000 acres that are not contiguous to any existing wilderness, primitive areas, administratively recommended wilderness, or wilderness inventory of other Federal ownership.

Apparent Naturalness

This criterion evaluated the degree to which an area generally appeared to be affected primarily by the forces of nature, with the imprints of humans' work substantially unnoticeable. For each identified area, the ID team evaluated the apparent naturalness of the area. The standard for this criterion was how natural the area would appear to an average forest visitor. This criterion included three basic questions:

- What is the composition of plant and animal communities?
- To what extent does the area appear to reflect ecological conditions that would normally be associated with the area without human intervention (degree of noticeable vegetation treatments)?
- To what extent do improvements in the area represent a departure from apparent naturalness?

The ranking scores given by individual team members for this criterion were averaged to determine the overall ranking and score for apparent naturalness. The ID team applied an overall ranking of high, moderate, low, or no for the level of apparent naturalness; the ranking was accompanied by a detailed narrative documenting the considerations made and the rationale of the assigned rank. The rankings were as follows:

- No = 0 points–2.5 points
- Low = 2.6 points–5.0 points
- Moderate = 5.1 points–7.5 points
- High = 7.6 points–10 points

Table B-3. Apparent Naturalness Criteria

Evaluation Criteria	Considerations Made During Evaluation	Wilderness Characteristic Determination Guide
Question 1. What is the composition of plant and animal communities? The purpose of this question is to determine if plant and animal communities appear substantially unnatural.	Do the plant and animal communities appear substantially unnatural to the average forest visitor? Describe the vegetation types, associations, and plant and animal communities, including atypical vegetation associations or type changes (e.g., forest to woodland conversion from large, catastrophic fires). How are concentrations of nonnative plants or animals, or both, distributed across the landscape? Other (include any additional information related to the question)	High—The composition of plant and animal communities appears natural to the average forest visitor. Exotic, invasive, and/or nonnative plant and animal communities are sparse to absent in the area. Moderate—In most areas, the composition of plant and animal communities would appear natural to the average forest visitor. Exotic, invasive, and/or nonnative plant and animal communities are found in infrequent, small to moderate patch sizes in the area. Low—The composition of plant and animal communities appears unnatural to the average forest visitor in substantial portions of the area. Exotic, invasive, and/or nonnative plant and animal communities represent frequent, small to moderate patch sizes in the area. No—The composition of plant and animal communities represents a departure from apparent naturalness in the majority of the area and is easily noticed by the average forest visitor. Exotic, invasive, and/or nonnative plant and animal communities are predominant in the area.
Question 2. To what extent does the area appear to reflect ecological conditions that would normally be associated with the area without human intervention?	How would the average forest visitor perceive the impacts on the naturalness of the area from human intervention? Describe the appearance, distribution, and amount of vegetation restoration treatments (e.g., thinning); timber harvest areas; and associated activities (e.g., clear-cuts, bulldozer lines, and fuel breaks). Does the vegetation appear natural? (Consider elements, including but not limited to, vegetation, wildlife, soil, and air.) Other (include any additional information related to the question)	High—To the average forest visitor, the vegetation appears natural, reflects healthy ecosystem function, and shows little to no influence of previous human intervention. Restoration treatments in the area have minimal physical impacts and have the potential to restore a more natural appearance in a short time. Moderate—To the average forest visitor, the vegetation does not appear natural in isolated spots or is scattered. Evidence of human intervention on the landscape is uncommon, and most visitors to the area would not notice any previous human intervention. The area may require more intensive restoration treatments in insolated spots to improve the apparent naturalness.

Evaluation Criteria	Considerations Made During Evaluation	Wilderness Characteristic Determination Guide
		Impacts/signs of human intervention would only persist for a few years. Low—To the average forest visitor, the vegetation often does not appear natural in the area. Ecosystem function is impaired. Limited signs of human intervention are visible to the average visitor. The area may require more intensive restoration treatments in a moderate proportion of the overall area to improve the apparent naturalness, with the physical impacts/signs of human intervention persisting for a number of years. No—To the average forest visitor, the vegetation does not appear natural throughout the area. Human intervention to the apparent naturalness is obvious to the average forest visitor. The majority of the area requires intensive treatments to restore apparent naturalness. Physical impacts/signs of human intervention are likely to persist for long periods of time.
Question 3. To what extent do improvements in the area represent a departure from apparent naturalness?	Consider the extent to which the improvements cause the appearance to depart from apparent naturalness to the area as a whole. Consider the appearance and concentrations of all improvements listed below: • Linear travel ways, including any remaining roads (including system, decommissioned, temporary, or user-created), system trails, and known unauthorized routes • Airstrips, heliports, or landing zones • Permanently installed vertical structures extending above the tree line • Areas of mining activity, including exploration and prospecting • Range or wildlife improvements, such as fences, agricultural water pipelines (typically less than 2-inch diameter), water troughs, earthen tanks, corrals, or trick tanks • Recreation improvements • Ground-return telephone lines, electric lines, and power lines • Watershed treatment areas, such as contouring, diking, and channeling • Structures, dwellings, and other relics	High—There is little or no evidence of human influence on the landscape. The presence of improvements is rare or scattered. The presence or appearance of improvements does not detract from apparent naturalness. It is rare to see improvements. Moderate—There is unnoticeable or unobjectionable human influence. The presence of improvements is low overall throughout the area; it may be concentrated in some spots but is more typically dispersed through the area. It is common to find spots where improvements are absent or unseen. The appearance of improvements detracts from apparent naturalness in some areas. Low—There is noticeable evidence of human influence; the area has a high level of human disturbance. The presence of improvements is high overall throughout the area and is often concentrated. Although spots where improvements are absent or unseen are uncommon, they exist. The appearance of improvements

Evaluation Criteria	Considerations Made During Evaluation	Wilderness Characteristic Determination Guide
	of past occupation (that are not considered a part of the cultural landscape) Other (include any additional information related to the question)	detracts from the apparent naturalness in most areas. No—There is obvious evidence of human influence. The presence of improvements is very high throughout the area, and there are very few or no spots where improvements are absent or unseen. The appearance of improvements detracts from the apparent naturalness throughout the area.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation

This criterion evaluated the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation. An area only had to possess one or the other; the area did not have to possess outstanding opportunities for both elements and did not need to have outstanding opportunities on every acre. The definitions for this criterion are identified in table 4.

Since an area did not need both opportunities for solitude or unconfined recreation for it to have wilderness character, one score for the highest ranking of the two categories was the overall score for this characteristic. The ID team applied an overall ranking of high, moderate, low, or no for the outstanding opportunity for solitude or a primitive and unconfined type of recreation; the ranking was accompanied by a narrative documenting the considerations made and the rationale of the assigned rank. Team members' individual numeric scores were averaged for an overall ranking and score.

- No = 0 points–2.5 points
- Low = 2.6 points–5.0 points
- Moderate = 5.1 points–7.5 points
- High = 7.6 points–10 points

Table B-4. Outstanding Opportunities for Solitude or Primitive and Unconfined Type of Recreation Criteria

Evaluation Criteria	Considerations Made During Evaluation	Wilderness Characteristic Determination Guide
Consider impacts that are pervasive and influence a visitor's opportunity for solitude within the evaluated area.	Consider the proximity and distance to impacts and the degree of permanent intrusions. Consider the pervasiveness of impacts. Describe the area's general topography and vegetation in the context of sight, sound, and screening. Other (include any additional information)	High—There is a common or significant feeling of being alone or remote from civilization throughout the area. Views of high human impact areas are distant, absent, or seldom. Encounters with humans are rare. Moderate—Opportunities to feel alone are possible in the majority of the area, though signs of civilization are possible. Views of high human impact areas occur infrequently but are possible. Encounters with, or evidence of, humans are uncommon.

Evaluation Criteria	Considerations Made During Evaluation	Wilderness Characteristic Determination Guide
		Low—There is little opportunity to feel alone, and there are some signs of civilization. Frequent views of high human impact areas and encounters with, or evidence of, humans are common or likely. No—There is no opportunity to feel alone. Encounters with, or evidence of, humans are unavoidable. Signs of civilization are pervasive. Views of high human impact areas occur frequently.
Consider the opportunity to engage in primitive-type or unconfined recreation that leads to a visitor's ability to feel a part of nature. Note: Examples of primitive-type recreation include observing wildlife, hiking, backpacking, horseback riding, fishing, hunting, cross-country skiing, bouldering, primitive camping, and enjoying nature.	Is the area relatively free of restrictions on visitor behavior, providing an unconfined experience? What is the level of challenge and risk in the area? What is the likelihood of encounters with others? Are facilities or user controls provided, which decrease opportunities for self-reliant recreation? Does adjacent land management support or decrease opportunities for self-reliant recreation? Other (include any additional information)	High—There are abundant opportunities for engaging in primitive or unconfined recreation. These opportunities are of high quality or risk, or both. Moderate—There are some opportunities for engaging in primitive or unconfined recreation. At least some of these opportunities are of high quality or risk, or both, or these opportunities are all of moderate quality and/or moderate risk. Low—There are few opportunities to engage in primitive and unconfined recreation. Most existing opportunities are poor quality with low risk. No—There are no opportunities to engage in primitive and unconfined recreation.

Unique and Outstanding Qualities

This criterion evaluated the degree to which the area contained ecological, geological, or other features of scientific, educational, scenic, or historical value. When the ID team evaluated unique and outstanding qualities, it considered if the features were iconic or unique at a regional or national scale, and the extent that the feature defined how people think about and value the area. These values were not required to be present in an area for the area to be recommended for inclusion in the NWPS, but their presence was identified and evaluated where they existed.

Table B-5. Unique and Outstanding Qualities Criteria

Evaluation Criteria	Considerations Made During Evaluation	Wilderness Characteristic Determination Guide
Does the area contain rare plant or animal communities or rare ecosystems? Note: Rare in this context is defined as national or regional in scale.	Consider the presence of rare species, habitat, or ecosystems. Other (include any additional information)	Yes—There are habitats or known occurrences of rare plant or animal communities (e.g., threatened and endangered species or species of conservation concern). No—There are no unique or outstanding values for rare plant or animal communities or rare ecosystems.

Evaluation Criteria	Considerations Made During Evaluation	Wilderness Characteristic Determination Guide
What is the percentage of scenery class 1[2]? In addition, are there any outstanding landscape features, such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?	Consider the percentage of the area mapped as scenery class 1 in the Forest Service's Scenery Management System inventory. Describe any outstanding and unique features in the area, including the significance and extent. Other (include any additional information)	Yes—There are unique or outstanding landscape features (e.g., waterfalls, mountains, viewpoints, waterbodies, or geologic features). No—There are no unique or outstanding landscape features.
Are there historic and cultural resource sites in the area of regional or national significance? For example, are there NRHP-listed resources? Also, are there areas of importance to tribes? Consider if the feature is nationally recognized (for example, through an official designation, such as the NRHP) or if the feature is considered a priority heritage asset.	Consider the presence of significant historic or cultural resources sites. Consider the presence of tribal traditional cultural properties, sacred sites, or traditional use areas. Other (include any additional information)	Yes—There are regionally or nationally significant historic and cultural resource sites. For example, there are NRHP-listed sites. No—There are not unique or outstanding historic and cultural resources.
Are there any research natural areas?	Consider the percentage of the area that is part of a research natural area. Other (include any additional information)	Yes—There are research natural areas. No—There are no research natural areas.
Are there any high-quality water resources, such as eligible wild and scenic rivers, municipal watersheds, or important watershed features?	Consider the presence and extent of high-quality water resources or important watershed features in the area. Other (include any additional information)	Yes—There are high-quality watershed values and features in the area. No—There are no high-quality water resources or important watershed features.

Manageability

This criterion evaluated the degree to which the area may be managed to preserve its wilderness characteristics, considering current conditions, trends of use, and existing management challenges. For each identified area, the ID team evaluated if the area could be managed to preserve its wilderness characteristics. The ID team applied an overall ranking of high, moderate, low, or no for manageability. Team members' individual numeric scores were averaged for an overall ranking and score.

- No = 0 points–2.5 points
- Low = 2.6 points–5.0 points
- Moderate = 5.1 points–7.5 points
- High = 7.6 points–10 points

According to public comments received during the comment period (from June 28, 2019, to July 31, 2019), the public expressed concern with the Forest Service's ability to manage wilderness areas to

[2] Scenic classes are developed to determine the relative scenic value of lands within a particular landscape character. Scenic class 1 has high public value.

preserve their wilderness characteristics. Being able to effectively manage an area as a recommended wilderness is important to the Forest Service; by providing effective management, the Forest Service can work to maintain or enhance the area's wilderness characteristics, if recommended. The ID team made recommendations on polygon boundary changes to improve manageability; these recommendations will be considered in the analysis step, which follows.

Table B-6. Manageability Criteria

Evaluation Criteria	Considerations Made During Evaluation	Wilderness Characteristic Determination Guide
Can the area be managed to preserve its wilderness characteristics? Describe factors that are or are not compatible with managing for wilderness character.	Consider the shape and configuration of the area. Describe the boundary, the edge-to-interior ratio, and the presence and extent of cherry-stemmed roads, etc. Consider the presence and extent of legally established rights or uses within the area and how these uses may support or affect managing an area for wilderness characteristics. Examples include active mining claims, special uses, and inholdings. Consider the presence and extent of any specific Federal or State laws that may be relevant to the availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics (including, but not limited to, recovery, designated, or proposed critical habitat). Describe management of adjacent lands. Consider the presence and extent of the wildland-urban interface in the area. Include the percentage, if possible, as an indicator of the ability to manage the area to protect wilderness characteristics. Describe management activities or restrictions within the area (e.g., signed management decisions). Consider the presence of inventoried roadless areas. Include the percentage, if possible. Other (include any additional information)	High—Management to preserve the wilderness characteristics is easy throughout the area. The shape, configuration, extent of cherry-stemmed roads, and inholdings have few impacts on manageability. The presence and extent of management activities and other uses that detract from wilderness characteristics are isolated. Moderate—Management to preserve the area's wilderness characteristics is possible throughout most of the area. There are some characteristics of the shape, configuration, extent of cherry-stemmed roads, and inholdings that would affect the wilderness characteristics of the area. The presence and extent of management activities and other uses that detract from wilderness characteristics are scattered. Low—Management to preserve the area's wilderness characteristics is difficult throughout most of the area. There are aspects of the shape, configuration, extent of cherry-stemmed roads, and inholdings that commonly affect the area's wilderness characteristics. The presence and extent of management activities and other uses that detract from wilderness characteristics occur across most of the area. No—It is impossible to manage the majority of the area to preserve its wilderness characteristics. Aspects of the shape, configuration, extent of cherry-stemmed roads, and inholdings that affect the area's wilderness characteristics are unavoidable. The presence and extent of management activities and other uses that detract from wilderness characteristics are pervasive throughout the area.

Final Documentation of Evaluation

After considering public comments, the ID team completed the evaluation process and produced the Final Wilderness Evaluation Process document, Final Wilderness Evaluation Rationale, and Final Evaluation

Map. Any lands (areas) shown on the series of inventory and evaluation process maps and described in the Final Evaluation Determination Rationale and other process documentation, will not imply designation or require a particular kind of management. Inclusion or removal of any of these lands in the analysis will continue to be open for consideration throughout the plan revision process, until the forest supervisor signs the record of decision for the Forest Plan environmental impact statement (EIS).

Step 3. Analysis

The Forest Service developed criteria for the selection of recommended wilderness areas to be included in the EIS for the plan revision. Please note that not all lands included in the inventory and subsequent evaluations are required to be carried forward to an alternative.

Several factors were considered in determining the recommended wilderness areas in each alternative. The areas were selected based on consideration of the information within the wilderness evaluation. The evaluation indicated which areas had wilderness characteristics, such as naturalness, outstanding opportunities for solitude or primitive and unconfined recreation, and other special features of ecological, geological, scientific, educational, scenic, or historical value. Based on the level of wilderness characteristics, no areas that received a moderate, low, or no overall wilderness characteristic ranking will be analyzed in the EIS. When considering these areas, the responsible official had the discretion to cut or group polygons to help with boundary management and the preservation of wilderness characteristics.

Process for Step 3: Analysis

In addition to including the environmental effects analysis in the recommended wilderness section of the draft EIS, chapter 70 of the Forest Service Land Management Planning Handbook 1909.12 requires that for each area included in one or more alternatives, the following items must be identified:

- The name of the area and the number of acres to be considered
- The location and a summarized description of a recommended boundary for each area
- A brief description of the general geography, topography, and vegetation of the recommended area
- A brief description of the current uses and management of the area
- A description of the area's wilderness characteristics and the ability of the Forest Service to protect and manage the area to preserve its wilderness characteristics
- A brief summary of the factors considered and the process used in evaluating the area and developing the alternatives
- A brief summary of the ecological and social characteristics that would provide the basis for the area's suitability for inclusion in the NWPS

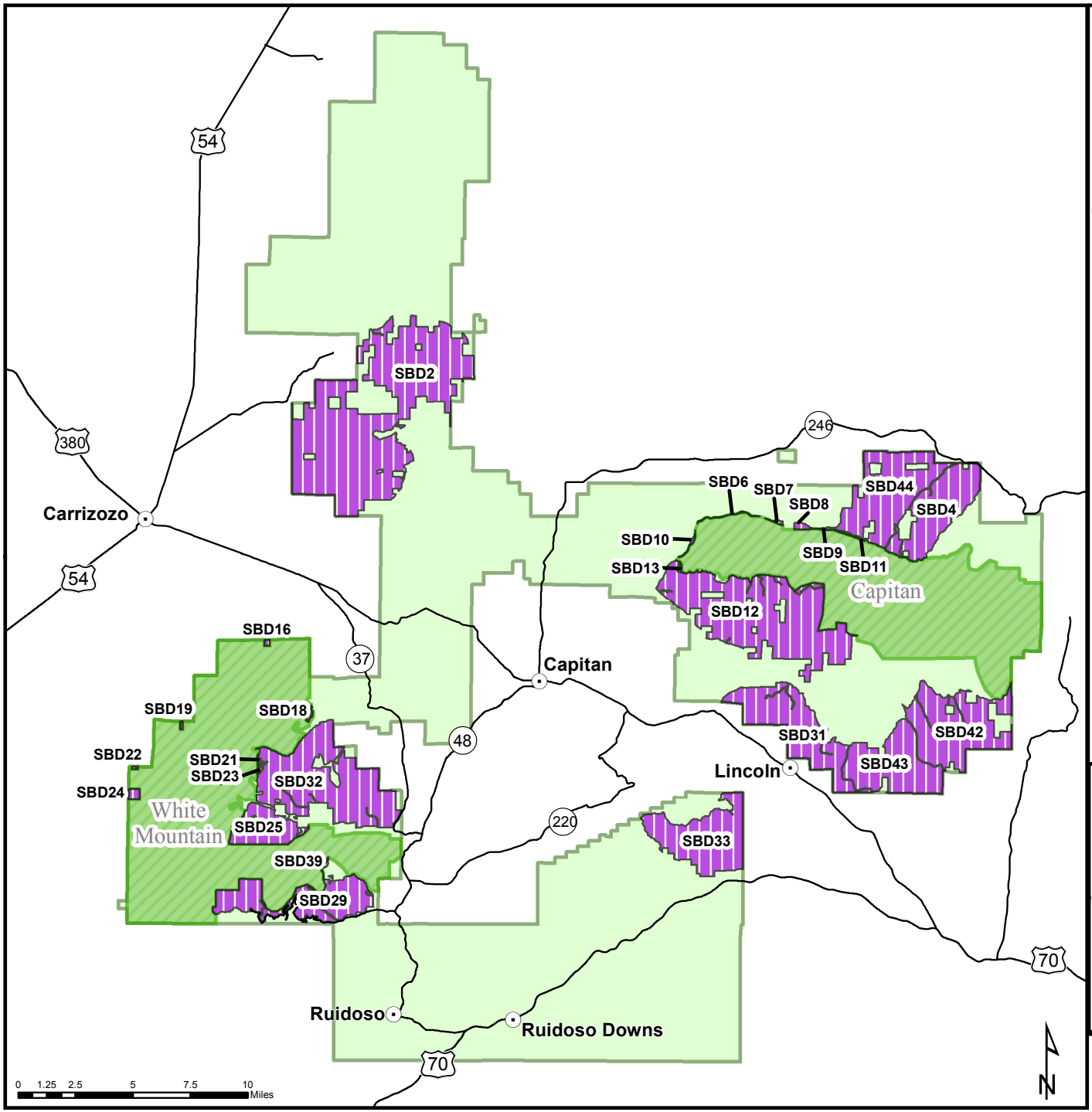
The following sections outline the criteria for selection of areas in each of the alternatives for plan revision; they also provide a summary table and rationale of each area included in the alternative.

Table 7 contains the final wilderness evaluation ranks and alternative recommendations. Further detailed descriptions of each can be found in the alternative sections below. Figures B-1, B-4, and B-5 include the evaluation areas separated by ranger districts. Figures B-2 and B-3 show the evaluation areas adjacent to the White Mountains and Capitan designated wilderness areas.

Table B-7. Summary of Evaluations Areas with Alternative Recommendations

Polygon Number	District	Acres (in evaluation)	Final Wilderness Characteristics Evaluation Rank	Alternative Recommendation
SBD1	Smokey Bear	11,181	Low	Not recommended
SBD2	Smokey Bear	20,949	High	Recommended in alternative C
SBD3	Smokey Bear	8,492	Moderate	Not recommended
SBD4	Smokey Bear	4,966	High	Recommended in alternative C
SBD5	Smokey Bear	4,636	Moderate	Not recommended
SBD6	Smokey Bear	40	High	Recommended in alternatives B, C, D, and E
SBD7	Smokey Bear	38	High	Recommended in alternatives B, C, D, and E
SBD8	Smokey Bear	113	High	Recommended in alternatives B, C, D, and E
SBD9	Smokey Bear	58	High	Recommended in alternatives B, C, D, and E
SBD10	Smokey Bear	41	High	Recommended in alternatives B, C, D, and E
SBD11	Smokey Bear	13	High	Recommended in alternatives B, C, D, and E
SBD12	Smokey Bear	13,264	High	Recommended in alternative C
SBD13	Smokey Bear	24	High	Recommended in alternatives B, C, D, and E
SBD14	Smokey Bear	4,261	Moderate	Not recommended
SBD15	Smokey Bear	11,229	Moderate	Not recommended
SBD16	Smokey Bear	39	Very high	Recommended in alternatives B, C, D, and E
SBD17	Smokey Bear	1,721	Moderate	Not recommended
SBD18	Smokey Bear	44	Very high	Recommended in alternatives B, C, D, and E
SBD19	Smokey Bear	25	High	Recommended in alternatives B, C, D, and E
SBD20	Smokey Bear	33	Moderate	Not recommended
SBD21	Smokey Bear	20	High	Recommended in alternative B, C, D, and E
SBD22	Smokey Bear	21	Very high	Recommended in alternatives B, C, D, and E
SBD23	Smokey Bear	6	High	Recommended in alternatives B, C, D, and E
SBD24	Smokey Bear	153	Very high	Recommended in alternatives B, C, D, and E
SBD25	Smokey Bear	2,476	High	Recommended in alternative C
SBD26	Smokey Bear	10	Moderate	Not recommended
SBD27	Smokey Bear	29	Moderate	Not recommended
SBD28	Smokey Bear	100	Moderate	Not recommended
SBD29	Smokey Bear	4,938	High	Recommended in alternative C
SBD30	Smokey Bear	36	Moderate	Not recommended
SBD31	Smokey Bear	6,129	High	Recommended in alternative C
SBD32	Smokey Bear	10,023	High	Recommended in alternative C
SBD33	Smokey Bear	5,742	High	Recommended in alternative C
SBD34	Smokey Bear	10,854	Low	Not recommended
SBD35	Smokey Bear	10,410	Moderate	Not recommended
SBD36	Smokey Bear	34	Moderate	Not recommended
SBD37	Smokey Bear	34	Moderate	Not recommended
SBD38	Smokey Bear	105	Low	Not recommended
SBD39	Smokey Bear	29	High	Recommended in alternatives B, C, D, and E
SBD40	Smokey Bear	10,233	Moderate	Not recommended
SBD41	Smokey Bear	8,523	Moderate	Not recommended
SBD42	Smokey Bear	6,754	High	Recommended in alternative C
SBD43	Smokey Bear	5,238	High	Recommended in alternative C
SBD44	Smokey Bear	6,505	High	Recommended in alternative C
SRD45	Sacramento	13,734	Low	Not recommended
SRD46	Sacramento	13,553	Moderate	Not recommended
SRD47	Sacramento	7,621	High	Recommended in alternative C

Polygon Number	District	Acres (in evaluation)	Final Wilderness Characteristics Evaluation Rank	Alternative Recommendation
SRD48a	Sacramento	16,000	High	Recommended in alternative C
SRD48b	Sacramento	53,027	High	Recommended in alternative C
SRD49	Sacramento	5,652	Moderate	Not recommended
SRD50	Sacramento	18,201	High	Recommended in alternative C
SRD51	Sacramento	18,447	Moderate	Not recommended
SRD52	Sacramento	6,440	Very high	Recommended in alternative B, C, and D
SRD53	Sacramento	19,600	Moderate	Not recommended
SRD54	Sacramento	6,073	Moderate	Not recommended
SRD55	Sacramento	15,962	Moderate	Not recommended
SRD56	Sacramento	5,246	High	Recommended in alternative C
SRD57	Sacramento	6,560	Moderate	Not recommended
SRD58	Sacramento	5,112	Very high	Recommended in alternative B, C, and D
SRD59	Sacramento	5,007	Moderate	Not recommended
SRD60	Sacramento	6,768	Very high	Recommended in alternative B, C, and D
SRD61	Sacramento	5,032	Moderate	Not recommended
SRD62	Sacramento	8,348	Moderate	Not recommended
SRD63	Sacramento	11,453	High	Recommended in alternative C
SRD64	Sacramento	25,146	High	Recommended in alternative C
SRD65	Sacramento	20,990	Moderate	Not recommended
SRD66	Sacramento	6,377	Moderate	Not recommended
GRD67	Guadalupe	48,374	High	Recommended in alternative C
GRD68	Guadalupe	5,421	High	Recommended in alternative C
GRD69	Guadalupe	7,974	High	Recommended in alternative C
GRD70	Guadalupe	6,457	High	Recommended in alternative C
GRD71	Guadalupe	5,619	High	Recommended in alternative C
GRD72	Guadalupe	14,570	Moderate	Not recommended
GRD73	Guadalupe	6,782	High	Recommended in alternative C
GRD74	Guadalupe	19,256	High	Recommended in alternative C
GRD75	Guadalupe	12,773	High	Recommended in alternative C
GRD76	Guadalupe	8,587	High	Recommended in alternative C
GRD77	Guadalupe	6,137	High	Recommended in alternative C
GRD78	Guadalupe	5,908	Moderate	Not recommended
GRD79	Guadalupe	8,188	Moderate	Not recommended
GRD80	Guadalupe	5,143	Moderate	Not recommended
GRD81	Guadalupe	11,592	High	Recommended in alternative C
GRD82	Guadalupe	8	High	Recommended in alternatives B, C, and D
GRD83	Guadalupe	36	Very high	Recommended in alternatives B, C, and D
GRD84	Guadalupe	48	Moderate	Not recommended
GRD85	Guadalupe	427	Very high	Recommended in alternatives B, C, and D
Guadalupe Escarpment WSA	Guadalupe	21,000	Very high	Recommended in alternatives B, C, D, and E



Recommended Wilderness Areas Smokey Bear Ranger District

- Recommended Wilderness Areas
- Designated Wilderness Areas
- Smokey Bear Ranger District

Figure B-1

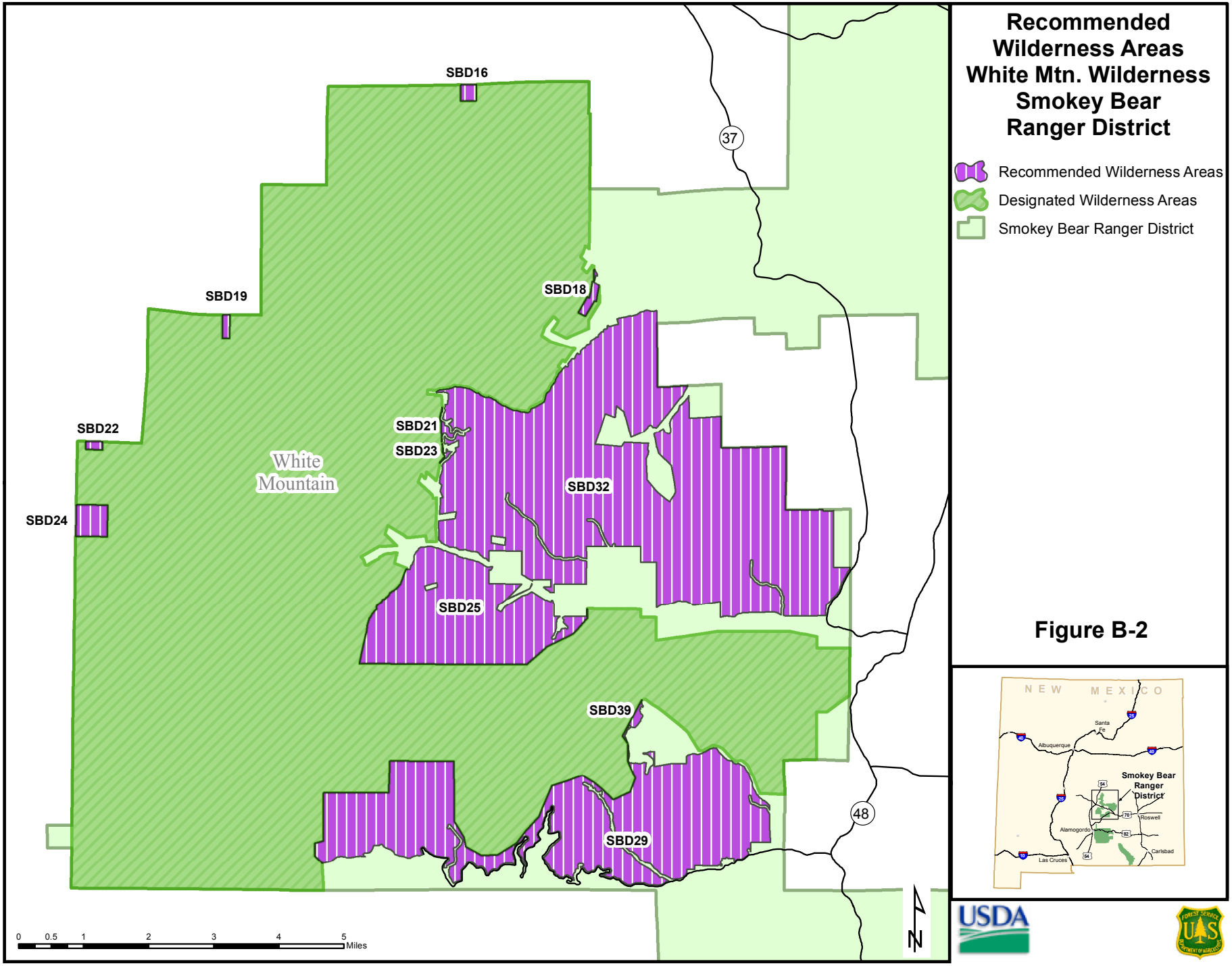

Recommended Wilderness Areas
White Mtn. Wilderness
Smokey Bear Ranger District
Recommended Wilderness Areas
Designated Wilderness Areas
Smokey Bear Ranger District
SBD16
SBD19
SBD18
SBD22
SBD21
SBD23
SBD24
White Mountain
SBD32
SBD25
SBD39
SBD29
37
48
0 0.5 1 2 3 4 5 Miles
N
NEW MEXICO
Santa Fe
Albuquerque
Smokey Bear Ranger District
Roswell
Alamogordo
Las Cruces
Carlsbad
USDA

Figure B-2

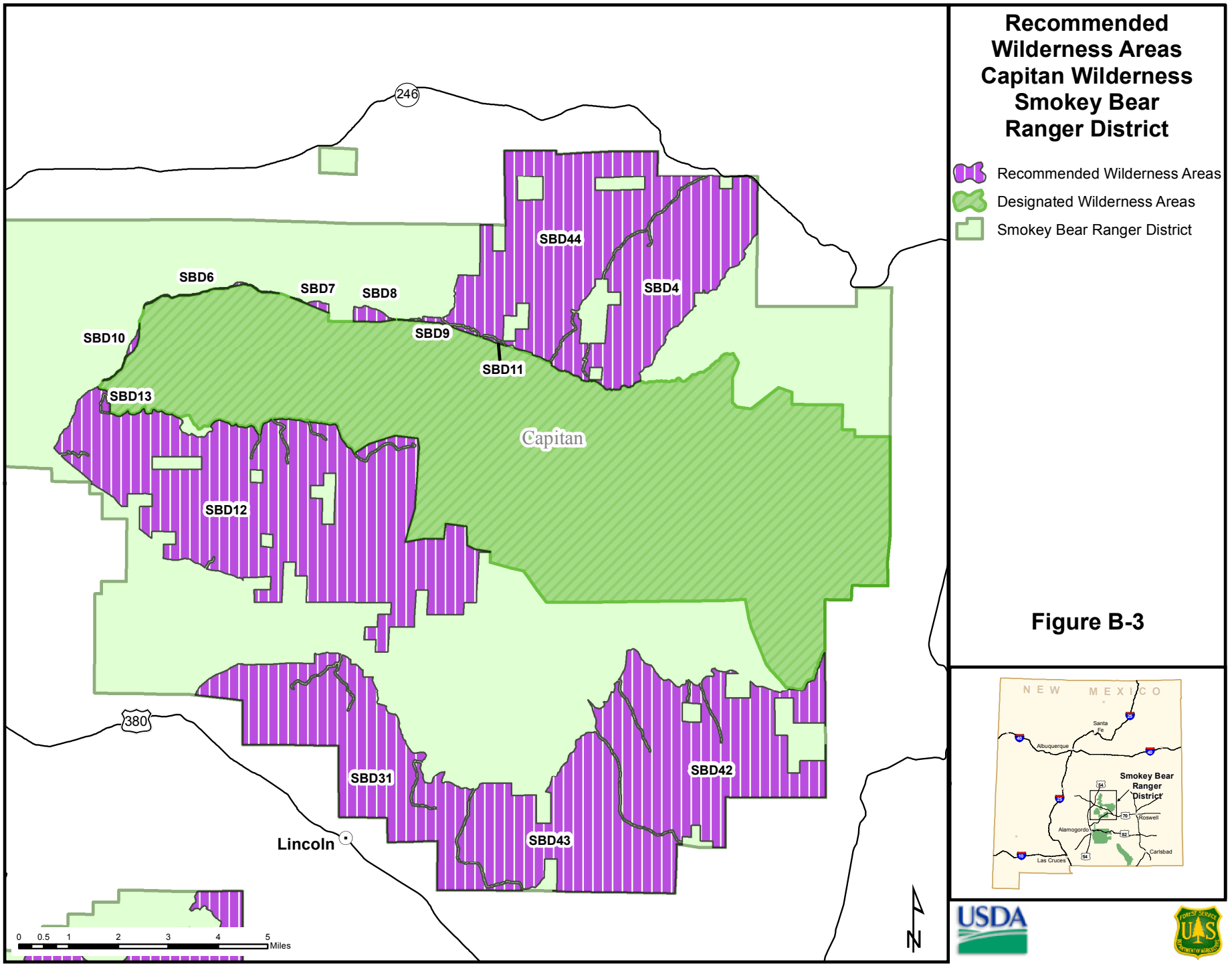
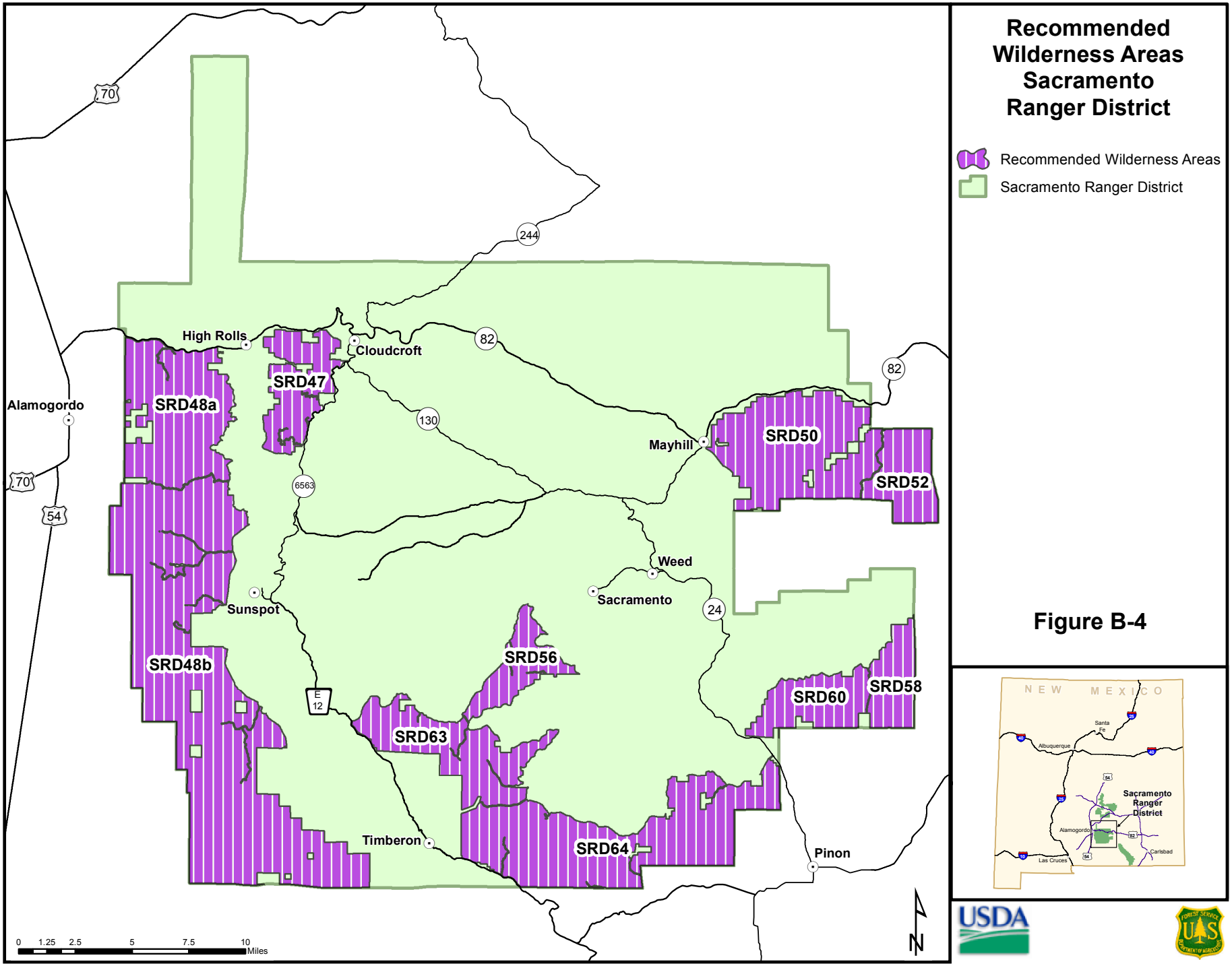

Recommended Wilderness Areas
Capitan Wilderness
Smokey Bear Ranger District
Recommended Wilderness Areas
Designated Wilderness Areas
Smokey Bear Ranger District
246
SBD44
SBD4
SBD6
SBD7
SBD8
SBD9
SBD10
SBD11
SBD13
Capitan
SBD12
380
SBD31
SBD42
SBD43
Lincoln
0 0.5 1 2 3 4 5 Miles
N
NEW MEXICO
Santa Fe
Albuquerque
Smokey Bear Ranger District
Roswell
Alamogordo
Carlsbad
Las Cruces
USDA

Figure B-3


Recommended Wilderness Areas Sacramento Ranger District
Recommended Wilderness Areas
Sacramento Ranger District
Figure B-4
High Rolls
Cloudcroft
Alamogordo
Mayhill
Weed
Sacramento
Sunspot
Timberon
Pinon
SRD47
SRD48a
SRD48b
SRD50
SRD52
SRD56
SRD58
SRD60
SRD63
SRD64
70
244
82
130
6563
54
24
E 12
0 1.25 2.5 5 7.5 10 Miles
N
NEW MEXICO
Santa Fe
Albuquerque
Sacramento Ranger District
Alamogordo
Carlsbad
Las Cruces
USDA

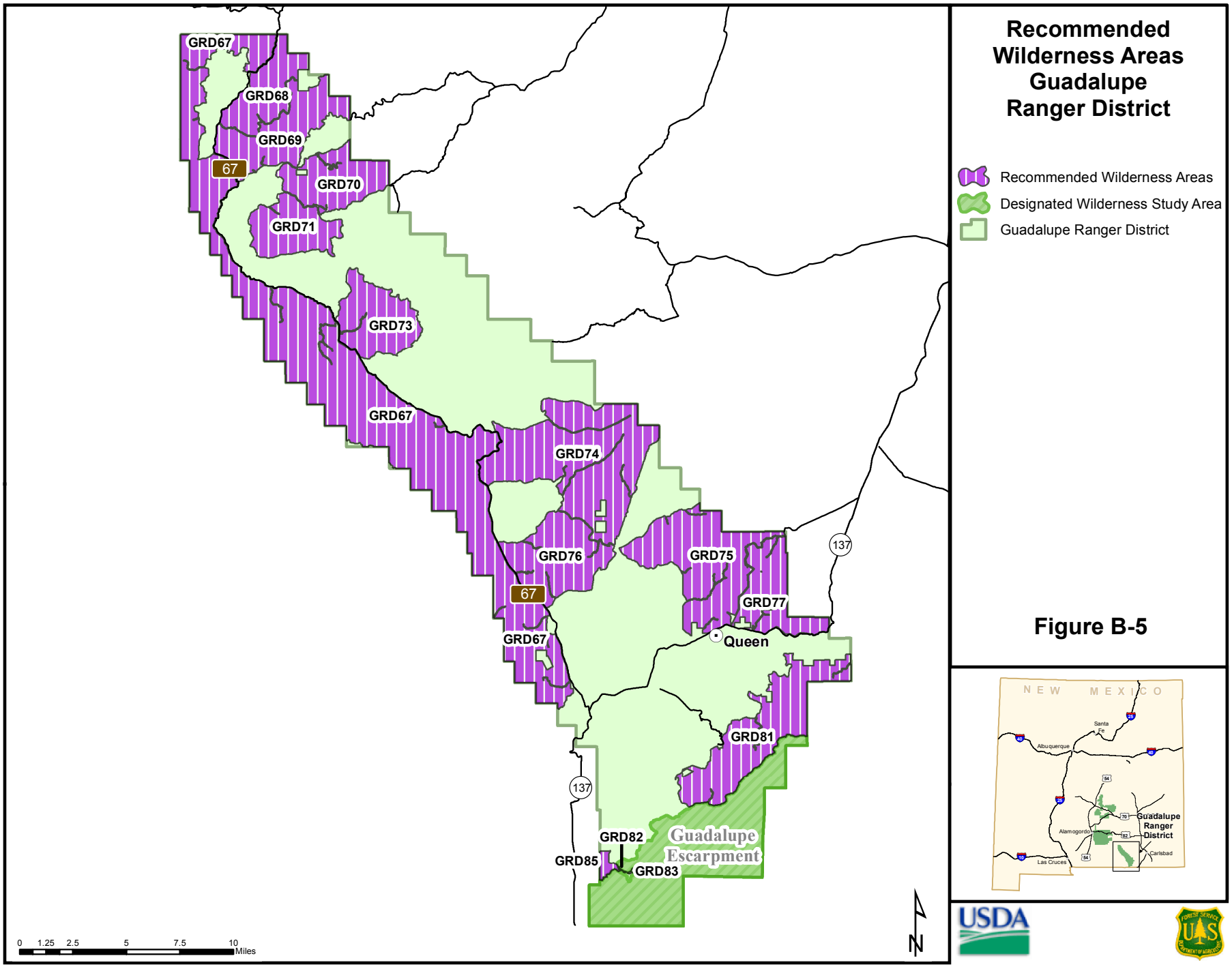

Recommended Wilderness Areas Guadalupe Ranger District
Recommended Wilderness Areas
Designated Wilderness Study Area
Guadalupe Ranger District
GRD67
GRD68
GRD69
GRD70
GRD71
GRD73
GRD67
GRD74
GRD76
GRD75
GRD77
GRD67
GRD81
GRD82
GRD85
GRD83
Guadalupe Escarpment
Queen
67
137
0 1.25 2.5 5 7.5 10 Miles
N
NEW MEXICO
Santa Fe
Albuquerque
Alamogordo
Las Cruces
Carlsbad
Guadalupe Ranger District
USDA

Figure B-5

Alternative A

The no-action alternative is based on the 1986 Forest Plan. There were no recommended wilderness areas to carry forward from the 1986 Forest Plan into this alternative.

Alternative B (Balance Multiple Use/Restoration)

Alternative B includes 22 recommended wilderness areas totaling 40,500 acres. Alternative B is the Forest Service's proposed draft forest plan that was developed under the 2012 Planning Rule. It was developed to address key issues identified by the ID team and the public to address the needs for change and issues, as identified in chapter 1 of the draft EIS. Alternative B addresses the need to better manage ERUs. It also addresses how to move the ERUs toward desired conditions, while maintaining the Lincoln NF's role in contributing to local economies. The economies are supported by revenue from recreation, timber and forest products, livestock grazing, and minerals extraction. Alternative B responds to the need for restoring fire regimes, reintroducing natural fire, and restoring sensitive resources, such as riparian and aquatic areas and wildlife habitat.

Alternative B Criteria

The selection of areas recommended for wilderness under this alternative will be carefully considered in the context of the other multiple-use considerations that the Forest Service is balancing in developing management area recommendations. Alternative B will use information gathered in the evaluation of the areas that have the highest level of wilderness characteristics (including manageability).

Alternative B will include areas in which:

- There is a very high cumulative wilderness characteristics rating and score of 9–10 identified in the evaluation process; or
- The management of current designated wilderness or WSAs would be improved by incorporating evaluation polygons within existing wilderness boundaries; and
- There are no tradeoffs identified, such as planned restoration treatments (e.g., vegetation or riparian).

These criteria were selected because they identify the areas with the highest amount of wilderness characteristics that the Forest Service has the ability to manage in perpetuity for these characteristics. The selection of these areas would allow the Forest Service to increase the primitive area on the Lincoln NF and meet the needs of the public, while allowing for adaptive management consistent with this alternative.

Polygon SBD6 Recommended Wilderness Area

Factor	Description
Acres	40
Summarized description of the recommended boundary	This area is a long, narrow strip of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 10 air miles northeast from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 6,800 to 6,950 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest, which provides suitable habitat for a variety of wildlife.

Factor	Description
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** North Capitan **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation cover throughout the area is ponderosa pine forest. The vegetation is the same as that of the adjacent wilderness; the average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side and has additional short segments of user-created pullouts. Dispersed camping is popular in the central portion. **Solitude:** The road is visible; other than that, sounds and development are not present or visible. The road is rarely traveled. Encounters with other people occur mostly during hunting season. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, like the adjacent wilderness. High-quality recreation opportunities may be present when combined with the adjacent wilderness. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This polygon is adjacent to the wilderness; it is long and narrow and could be managed similarly. To the north is multiple-use land management. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD7 Recommended Wilderness Area

Factor	Description
Acres	38 acres
Summarized description of the recommended boundary	This area is a triangular strip of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 10 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 6,940 to 7,140 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block
Description of the wilderness characteristics and the Forest Service's ability to protect and manage	**Natural quality:** The majority of the vegetation cover throughout the area is ponderosa pine forest. The vegetation is the same as that of the adjacent wilderness; the average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side and has additional short segments of user-created pullouts.

Factor	Description
the area to preserve its wilderness characteristics	**Solitude:** The road is visible; other than that, sounds and development are not present or visible. The chance to see other people is low. **Unconfined and primitive recreation:** Primitive recreation is like that in the adjacent wilderness, making the opportunity high. There are no developed recreation facilities. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This small polygon is adjacent to the wilderness and could be managed the same way. There are no known mineral rights. To the north is multiple-use land management.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD8 Recommended Wilderness Area

Factor	Description
Acres	113
Summarized description of the recommended boundary	This area is a small triangular piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 13 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,020 to 7,170 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest and a lesser amount of montane/subalpine grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation cover throughout the area is ponderosa pine forest and a lesser amount of montane/subalpine grassland. The vegetation is the same as that of the adjacent wilderness; the average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side with wilderness to the south. **Solitude:** The road is visible; other than that, sounds and development are not present or visible. Only during hunting season is there a low chance to see another person. **Unconfined and primitive recreation:** Current primitive recreation use is dispersed camping and hunting, like the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This fairly small polygon is adjacent to the wilderness and could be managed in the same way. Management of adjacent land to the south is wilderness; to the north, it is multiple use. There are no known mineral rights.

Factor	Description
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD9 Recommended Wilderness Area

Factor	Description
Acres	58
Summarized description of the recommended boundary	This area is a small, narrow, linear piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 13.5 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,030 to 7,090 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest with mixed conifer- frequent fire and montane/subalpine grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Captain Mountains **Adjacent uses:** Capitan Wilderness **Range allotment:** Block
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The area has previously burned in a wildfire. The vegetation is the same as that of the adjacent wilderness; the average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side. **Solitude:** The adjacent road is visible; other than that, sounds and development are not present or visible. Only during hunting season is there a low chance to see another person. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, like the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This fairly small polygon is adjacent to the wilderness and could be managed in the same way. Management of adjacent land to the south is wilderness; to the north, it is multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD10 Recommended Wilderness Area

Factor	Description
Acres	41
Summarized description of the recommended boundary	This area is a small, narrow, linear piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 9 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep to moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 6,920 to 7,400 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest at higher elevations; at lower elevations it is piñon-juniper woodland, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Capitan Mountains and South Capitan Mountains **Adjacent uses:** Capitan Wilderness **Range allotment:** Block
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been no vegetation treatments in this area. The southern portion has burned in a wildfire. The average visitor would think the vegetation natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the west side. Dispersed camping is popular on the northern end of the area. **Solitude:** The adjacent road is visible; other than that, sounds and development are not present or visible, **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, the same as it is in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This fairly small polygon is adjacent to the wilderness to the east and could be managed in the same way. Management to the west is multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD11 Recommended Wilderness Area

Factor	Description
Acres	13
Summarized description of the recommended boundary	This area is a small, narrow, linear piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography,	Located approximately 14 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger

Factor	Description
topography, and vegetation	District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,050 to 7,120 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest with lesser amounts of mixed conifer-frequent fire and a small amount of montane/subalpine grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The area has previously burned in a wildfire. The vegetation is the same as that of the adjacent wilderness; the average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side. **Solitude:** The adjacent road is visible; other than that, sounds and development are not present or visible. Only during hunting season is there a low chance to see another person. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, which is the same as it is in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This polygon is small, long, and narrow. It is adjacent to the wilderness and could easily be managed the same. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD13 Recommended Wilderness Area

Factor	Description
Acres	24
Summarized description of the recommended boundary	This area is a small, fairly triangular piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 8 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,740 to 8,080 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire and a small component of ponderosa pine forest, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** South Capitan Mountains **Adjacent uses:** Capitan Wilderness **Range allotment:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The average visitor would see the landscape as entirely natural and the same as adjacent wilderness. The area has burned in a wildfire. **Undeveloped quality:** A National Forest System road bounds the polygon. It is the only visible improvement and located adjacent to the area. **Solitude:** The adjacent road is the only visual intrusion, although it is not traveled at a high level. The vertical topography does not necessarily screen sight and sound from a distance. Encounters with others would be on the adjacent road. There are no trails in this area. **Unconfined and primitive recreation:** The area is relatively free of restrictions, and primitive recreation would be the same as it is in the adjacent wilderness. There are no facilities here. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This small polygon is next to designated wilderness, so the management could be the same without difficulty. The shape of the road does not appear to be an issue, as there is no known off-road use in this area. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped with no infrastructure. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD16 Recommended Wilderness Area

Factor	Description
Acres	39
Summarized description of the recommended boundary	This area is a small, square piece of land adjacent to the White Mountain Wilderness. The boundary follows the White Mountain Wilderness boundary on three sides and the forest boundary to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 4 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 6,650 to 6,910 feet. The majority of the vegetation cover in the area is piñon-juniper woodland, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and private land **Range allotment:** Diamond Peak

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments, and the average visitor would think it was natural. **Undeveloped quality:** There are no improvements here, and the area will look natural. **Solitude:** Although the polygon is small, there are no visuals or noise from civilization. Solitude is due to the remote location. There is a very low likelihood of encountering someone else. **Unconfined and primitive recreation:** Primitive recreation is hunting, hiking, and camping. There is no developed recreation. There is no restriction on primitive recreation, and uses are similar to the adjacent wilderness. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** none **Manageability:** The small shape and configuration, with three sides on the wilderness boundary, make this area highly manageable. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD18 Recommended Wilderness Area

Factor	Description
Acres	44
Summarized description of the recommended boundary	This area is a small, fairly rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with private land to the northeast.
Brief description of the general geography, topography, and vegetation	Located approximately 3 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 7,270 to 7,700 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** roaded natural and semiprimitive nonmotorized **Scenic integrity objectives:** no data **1986 Forest Plan management area:** White Mountain Wilderness and Carrizo Peak/Nogal Peak; **Adjacent uses:** White Mountain Wilderness and private land; currently Forest Service multiple use. **Range allotment:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments, and the average visitor would think it was natural. **Undeveloped quality:** The area is surrounded by wilderness on three sides and adjacent to private land. There are no improvements here, and the area will look natural. **Solitude:** The topography is composed of valley and ridges that screen the area. The surrounding area is mostly wilderness. Civilization cannot be seen or heard, providing solitude. **Unconfined and primitive recreation:** There are no developed recreation facilities, and there is a high opportunity for unconfined recreation. It is hard to get to the area. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** The area has goshawk habitat. **Manageability:** The small shape and configuration, with the wilderness boundary, make this area highly manageable. The small area is mostly surrounded by wilderness. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped with no infrastructure. • The area has goshawk habitat, and 73 percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD19 Recommended Wilderness Area

Factor	Description
Acres	25
Summarized description of the recommended boundary	This area is a small, fairly rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with the forest boundary to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 8.5 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 6,760 to 6,900 feet. The majority of the vegetation cover in the area is piñon-juniper grassland and a small amount of piñon-juniper woodland. The area has patches of grass cover, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and private land **Range allotment:** Finley

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments; the average visitor would consider it natural, except for the trailhead parking lot. **Undeveloped quality:** There is a range fence on the southern and east sides. On the north is a trailhead with dispersed camping and no developed facilities. Other than the trailhead area, the vegetation would look natural and the same as in adjacent wilderness. **Solitude:** The average visitor can see people and vehicles at the trailhead. The vegetation is fairly open and does not screen the trailhead well. Once people leave the trailhead, they do not see other visitors. **Unconfined and primitive recreation:** There is no developed recreation at the trailhead; there is just a dirt road. Recreation is fairly unconfined at this popular trailhead, as this is the only trailhead in this area. Once away from the trailhead and road, the opportunities are similar to those in the adjacent wilderness. **Other features of value:** none **Manageability:** The small shape and configuration, with the wilderness boundary, make this area highly manageable. This small area has wilderness on three sides, making management comparable. There are no known mineral rights. **Suggested modification:** Consider modifying the boundary and cherry stemming the existing trailhead.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • With the exception of a trailhead, the area is undeveloped. • Ninety-two percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are some opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD21 Recommended Wilderness Area

Factor	Description
Acres	20
Summarized description of the recommended boundary	This area is a small, somewhat triangular, irregular piece of land adjacent to the White Mountain Wilderness and a National Forest System road. The majority of the boundary follows the White Mountain Wilderness boundary with the forest boundary to the north and south.
Brief description of the general geography, topography, and vegetation	Located approximately 6 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep mountain slopes. Elevation in this area ranges from 8,550 to 8,790 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire and oak, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** adjacent to the White Mountain Wilderness **Range allotment:** Loma Grande

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. Vegetation is the same as that in adjacent wilderness. The average visitor would think the vegetation is natural. **Undeveloped quality:** There are no vegetation treatments. **Solitude:** The average visitor can see the road switchback. The road use is fairly high for a dirt road, so there will be some noise. Vegetation and topography do not screen the road. **Unconfined and primitive recreation:** The average visitor might feel confined by the road, but the White Mountain Wilderness is in close proximity and adjacent to the west. The topography of the area provides opportunity for varied primitive recreation, including activities that are challenging. People need to be self-sufficient here. There are no developed facilities. **Other features of value:** Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat **Manageability:** The management, based on shape, is affected by the road switchbacks. However, management would probably be fairly easy. This is because it is adjacent to the wilderness and the topography is very difficult. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There are Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat. • One hundred percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are some opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD22 Recommended Wilderness Area

Factor	Description
Acres	21
Summarized description of the recommended boundary	This area is a small, rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with State land to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 11 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 6,610 to 6,760 feet. The majority of the vegetation cover in the area is piñon-juniper grassland and piñon-juniper woodland. The area is somewhat grass covered, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and State **Range allotment:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. Vegetation is the same as that in the adjacent wilderness. The average visitor would think it was natural. **Undeveloped quality:** There is a range fence on the north boundary. The northern boundary has a two-track road located on adjacent State land. The area would look natural. **Solitude:** The polygon is surrounded by wilderness on three sides. To the north is State land, and it is difficult to access. Due to remoteness, there would be very little evidence of civilization. There is a very low likelihood of seeing others. **Unconfined and primitive recreation:** There is a high amount of unconfined recreation once there. It is free of restriction on primitive recreation. There are no developed recreation facilities. Opportunities are similar to those in the adjacent wilderness once away from the trailhead and road. **Other features of value:** none **Manageability:** This remote small area is surrounded by wilderness on three sides, making management easy. There are no known mineral rights. Adjacent land is wilderness or State.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD23 Recommended Wilderness Area

Factor	Description
Acres	6
Summarized description of the recommended boundary	This area is a small, somewhat rectangular, irregular piece of land adjacent to the White Mountain Wilderness and a National Forest System road. The majority of the boundary follows the White Mountain Wilderness boundary with the forest boundary to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 6 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep mountain slopes. Elevation in this area ranges from 8,215 to 8,370 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire and oak, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** Rio Bonito **Adjacent uses:** White Mountain Wilderness **Range allotment:** Loma Grande

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. Vegetation is the same as that in the adjacent wilderness. The average visitor would think the vegetation is natural. **Undeveloped quality:** There are no vegetation treatments. **Solitude:** The average visitor can see the road switchback. The road use is fairly high for a dirt road, so there will be some noise. Vegetation and topography do not screen the road. **Unconfined and primitive recreation:** The average visitor might feel confined by the road, but the White Mountain Wilderness is in close proximity and adjacent to the west. The topography of the area provides opportunity for varied primitive recreation, including activities that are challenging. People need to be self-sufficient here. There are no developed facilities. **Other features of value:** Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat **Manageability:** The management, based on shape, is affected by the road switchbacks. However, management would probably be fairly easy. This is because the area is adjacent to the wilderness and the topography is very difficult. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat • One hundred percent of the area is scenery class 1. • There is a NRHP-listed cultural resource adjacent, and buried deposits may occur here. **The social characteristics that provide the basis for suitability are as follows:** • Some solitude maybe present due to adjacency to wilderness. • There are some opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD24 Recommended Wilderness Area

Factor	Description
Acres	153
Summarized description of the recommended boundary	This area is a small, rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with the forest boundary to the west.
Brief description of the general geography, topography, and vegetation	Located approximately 12 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep and moderate slopes. Elevation in this area ranges from 6,730 to 7,180 feet. The majority of the vegetation cover in the area is piñon-juniper woodland and piñon-juniper grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and private land **Range allotments:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments, and the average visitor would think the vegetation was natural. The vast majority of the area looks natural and the same as the adjacent wilderness. **Undeveloped quality:** On the western side there is a two-track road leading to a small corral, old windmill, stock water tank, and trough. This is a trailhead that has no outside access. To the west outside of the boundary are the remnants of a windmill and another storage tank. The vast majority of the area looks natural and the same as the adjacent wilderness. **Solitude:** The polygon is surrounded by wilderness on three sides. To the west is private land, which makes this area difficult to access. There is little evidence of civilization. There is a very low likelihood of seeing other people. **Unconfined and primitive recreation:** There is a high amount of unconfined primitive recreation once there. The landscape is similar to the adjacent wilderness. There are no developed recreation facilities **Other features of value:** none **Manageability:** This small area is surrounded by wilderness on three sides. There are no known mineral rights. Adjacent land is wilderness or private. There is no legal access across the private land.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD39 Recommended Wilderness Area

Factor	Description
Acres	29
Summarized description of the recommended boundary	This area is a small, fairly narrow piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary on its west side with a National Forest System road to the southeast.
Brief description of the general geography, topography, and vegetation	Located approximately 4 air miles from Angus in Lincoln County, this area is in the Smokey Bear Ranger District. This small area is characterized by steep and moderate slopes. Elevation in this area ranges from 9,250 to 9,590 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire with a lesser amount of montane/subalpine grassland.
Current uses and management	**Recreation opportunity spectrum:** roaded natural **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness **Range allotment:** Alto

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** It was burned in the 2012 Little Bear Fire. Most of the area looks natural and the same as the adjacent wilderness. There have been no vegetation treatments. The average visitor would think it was natural. **Undeveloped quality:** Adjacent improvements outside the polygon include a trailhead. There is a prefabricated concrete pit toilet that is screened by topography and vegetation. There is also a NRHP-listed lookout tower that is low in profile and constructed of native stone. The area would appear natural. **Solitude:** When in proximity, visitors can see the trailhead parking lot. Solitude would increase rapidly as a visitor approached the White Mountain Wilderness. The trail is not heavily used, and people are not often seen on it. **Unconfined and primitive recreation:** Recreation here would feel unconfined and primitive, as the area is located on steep mountain ridgetops and slopes. Due to its shape, it is a short distance to the adjacent wilderness. **Other features of value:** Mexican spotted owl, goshawk, Sacramento mountain salamander, and Peñasco least chipmunk habitat. Monjeau Lookout, a NRHP-listed site, is adjacent. **Manageability:** This is a small and narrow polygon adjacent to the wilderness; visually, it looks like the wilderness. Access is on a pedestrian trail, which facilitates management. Adjacent management is wilderness and multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are Mexican spotted owl, goshawk, Sacramento mountain salamander, and Peñasco least chipmunk habitat. • One hundred percent of the area is scenery class 1, with excellent views of Sierra Blanca and Nogal Peak. • Monjeau Lookout, a NRHP-listed site, is adjacent. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SRD52 Recommended Wilderness Area

Factor	Description
Acres	6,440
Summarized description of the recommended boundary	This area is a rectangular piece of land adjacent to the Lincoln NF boundary on the north, east, and south side with a National Forest System road to the west.
Brief description of the general geography, topography, and vegetation	Located approximately 8.5 air miles from Mayhill in Otero County, the area is in the Sacramento Ranger District. This area is characterized by moderate slopes. Elevation in this area ranges from 6,050 to 6,929 feet. The majority of the vegetation cover throughout the area is piñon-juniper and grassland.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive motorized, and semiprimitive nonmotorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** Snow Canyon **Adjacent use:** private and BLM **Range allotment:** Mule Canyon and Cady

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The average visitor would not see any vegetation treatments. The vast majority of the area looks natural. **Undeveloped quality:** Improvements include range fences, a trough, stock tank and water storage tank, windmills, and two more improvements adjacent to the area. There are several two-track roads and no inholdings. The improvements are scattered and not clustered or pervasive, which supports naturalness. **Solitude:** The area will look natural, and noise will be minimal, except maybe in hunting season. The general topography is rolling ridges with some steep arroyos. A visitor probably would not see someone else, which supports solitude. **Unconfined and primitive recreation:** There are minimal primitive recreation restrictions. The area is remote, thereby challenging, and primitive recreation opportunities vary. Visitors would need to be self-reliant to recreate here. **Other features of value:** This area has Kuenzler's hedgehog cactus habitat. **Manageability:** The shape is basically rectangular with no cherry-stem roads and no inholdings. There are no known mineral rights. **Suggested modification:** Remove dirt tank, water tank, and livestock pens from the southwest boundary.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is Kuenzler's hedgehog cactus habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location of the area and the lack of road access. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD58 Recommended Wilderness Area

Factor	Description
Acres	5,112
Summarized description of the recommended boundary	This area is a rectangular piece of land adjacent to the Lincoln NF boundary on the east and south sides with a National Forest System road to the west.
Brief description of the general geography, topography, and vegetation	Located approximately 10.5 air miles from Weed in Otero County, this area is in the Sacramento Ranger District. This area is characterized by moderate slopes and ridges. Elevation in this area ranges from 6,310 to 7,091 feet. The majority of the vegetation cover throughout the area is piñon-juniper evergreen shrub and mountain mahogany-mixed shrubland. There are small amounts of piñon-juniper grassland and piñon-juniper woodland.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive motorized, and semiprimitive nonmotorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** Cuevo Canyon **Adjacent uses:** private, State, and BLM land **Range allotment:** Cuevo and North Bluewater

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are very little to no vegetation treatments in this area. The average visitor would see natural vegetation. **Undeveloped quality:** Improvements include range fences, water storage tanks, and level 1 roads. Improvements are scattered and not pervasive; they do not affect naturalness. **Solitude:** The area will have minimal noise, except maybe in hunting season. The general topography is rolling hills and ridges with some steep arroyos that screen noise and sights. Other than hunting season, visitors probably would not see another person while there. **Unconfined and primitive recreation:** Due to the remoteness, there are minimal restrictions. A variety of primitive recreational activities could be pursued here. Recreation here can be challenging; cell phone service could be limited. Visitors would need to be self-reliant. **Other features of value:** none **Manageability:** The shape is basically rectangular with no cherry-stem road and no inholdings. The shape, location, and lack of access aid in management. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD60 Recommended Wilderness Area

Factor	Description
Acres	6,768
Summarized description of the recommended boundary	This area is a triangular piece of land adjacent to the Lincoln NF boundary on the south side with a National Forest System road to the north, west, and east.
Brief description of the general geography, topography, and vegetation	Located approximately 7.5 air miles from Weed in Otero County, the area is in the Sacramento Ranger District. This area is characterized by moderate slopes. Elevation in this area ranges from 6,710 to 6,793 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire. There are small amounts of Gambel oak shrubland, herbaceous wetland, montane/subalpine grassland, and ponderosa pine forest.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive nonmotorized **Scenic integrity objectives:** high and low **1986 Forest Plan management area:** Cuevo Canyon **Adjacent uses:** private land **Range allotment:** North Bluewater, Antelope, and Avis

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are little to no vegetation treatments, and the average visitor would see natural vegetation. **Undeveloped quality:** Improvements include range fences, three water storage tanks, dirt tanks, level 1 roads, numerous two-track roads, and adjacent private land. Improvements are not clustered or pervasive. The area would appear natural. **Solitude:** The area has rolling topography with ridges and canyons. Noise would be minimal, except maybe in hunting season. Vegetation and topography screen noises and sights. The chance of seeing someone else would be low. **Unconfined and primitive recreation:** Due to the remoteness, there are minimal restrictions and an opportunity for a variety of primitive recreation. Remoteness can also make recreation challenging. Visitors would need to be self-reliant. **Other features of value:** There is Mexican spotted owl habitat. **Manageability:** The shape is basically triangular with no cherry-stem roads, which supports manageability. There are no known mineral rights. Adjacent land is multiple-use management and private land. The location is fairly remote.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is Mexican spotted owl habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the lack of roads, the vegetation, and the remote location of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD82 Recommended Wilderness Area

Factor	Description
Acres	8
Summarized description of the recommended boundary	This area is small and rather narrow, located adjacent to the Guadalupe Escarpment Wilderness Study Area on the northeast side. It has a National Forest System road to the southwest.
Brief description of the general geography, topography, and vegetation	Located approximately 11 air miles from Queen in Eddy County, the area is in the Guadalupe Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 7,200 to 7,268 feet. The vegetation cover in the area is ponderosa pine-evergreen oak with a very small component of mixed conifer-frequent fire, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** roaded natural **Scenic integrity objectives:** high **1986 Forest Plan management area:** South Guadalupe **Adjacent uses:** Guadalupe Escarpment WSA **Range allotment:** Soldier Spring

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There was a fire in 1990, but it is not noticeable today. There have been vegetation treatments over the past 10 years. There may have been some brush removal in the 1990s. The average person would consider the area natural in appearance. **Undeveloped quality:** Improvements nearby include range fences, a corral, and a storage tank. Forest Road 540 runs along the south side of the area. There are dispersed camp sites in the area along the road. **Solitude:** The road is close by and gets some use. There is the storage tank and corral outside the northwest point. The WSA is adjacent on the northeast side, which provides more opportunity for solitude as visitors travel in that direction. Vegetation screens the tank and road once visitors move away from them. **Unconfined and primitive recreation:** There are no recreation improvements here, and the WSA is nearby. There are varied opportunities for primitive and unconfined recreation here and also available a short distance, to the northeast, in the WSA. **Other features of value:** There is habitat for pincushion cactus, forage for Mexican spotted owl, and a golden eagle nest nearby. **Manageability:** The shape is small, linear, and narrow. However, there is an adjacent WSA. The lack of inroads and adjacent WSA support manageability. There are no known mineral rights. Range improvements exist outside the north corner.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is habitat for pincushion cactus, forage for Mexican spotted owl, and a golden eagle nest nearby. • One hundred percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is moderately present due to adjacency to a road and the WSA. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent WSA opportunities.

Polygon GRD83 Recommended Wilderness Area

Factor	Description
Acres	36
Summarized description of the recommended boundary	This area is small and somewhat triangular. It is located adjacent to the Guadalupe Escarpment Wilderness Study Area on the north, east, and west sides with a National Forest System road to the south.
Brief description of the general geography, topography, and vegetation	Located approximately 11 air miles from Queen in Eddy County, this area is in the Guadalupe Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 7,160 to 7,200 feet. Approximately half of the vegetation cover in the area is mixed conifer-frequent fire, with lesser amounts of mountain mahogany mixed shrubland and ponderosa pine-evergreen oak, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** Dark Canyon **Adjacent uses:** Guadalupe Escarpment WSA **Range allotment:** Soldier Springs

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been no vegetation management activities in this area. The average visitor would believe the area and vegetation look natural. **Undeveloped quality:** Improvements include a level 2 National Forest System road to the south outside of the area. An old mining prospect occurs in the area, but it is quite unnoticeable and may look like erosion to the average person. **Solitude:** Other than the road on the south side, the majority of the boundary is adjacent to the WSA. There is a high degree of solitude in this area. **Unconfined and primitive recreation:** There are no visible improvements and no fence lines. A person would feel that a variety of primitive recreation choices were available and the area is unconfined. **Other features of value:** This is Mexican spotted owl habitat, and there is a parliament in the area. It is also pincushion cactus habitat. There is the potential for Davis Mountain cottontail to exist here. There is a golden eagle nest nearby. **Manageability:** This is a fairly small polygon, but the majority of the boundary is next to a WSA. There are no cherry-stem roads or other roads providing interior access. The lack of interior access and the proximity to the WSA promote manageability. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • This is Mexican spotted owl habitat; there is a parliament in the area. It is also pincushion cactus habitat. There is a golden eagle nest nearby. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to the WSA. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent WSA opportunities.

Polygon GRD85 Recommended Wilderness Area

Factor	Description
Acres	427
Summarized description of the recommended boundary	This area is straight on the west and north sides and irregular on the east and southeast sides. It is located adjacent to the Devils Canyon Wilderness Study Area on the west side, with a National Forest System road to the east.
Brief description of the general geography, topography, and vegetation	It is located approximately 11 air miles from Queen in Eddy County in the Guadalupe Ranger District. This area is characterized by steep and moderate slopes. Elevation in this area ranges from 6,200 to 7,240 feet. The majority of the vegetation cover in the area is mountain mahogany mixed shrubland, with lesser amounts of ponderosa pine-evergreen oak, and a much smaller component of mixed conifer-frequent fire and little walnut-ponderosa pine, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** roaded natural and semiprimitive nonmotorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** Dark Canyon and West Guadalupe **Adjacent uses:** Devil's Den Canyon WSA on BLM land **Range allotment:** Soldier Springs

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the area is cliff and escarpment with no known vegetation treatments. The average visitor would think it looks natural. **Undeveloped quality:** Improvements include a short-range fence. Hiking trail 202, which is not maintained, may not exist now. The near lack of improvements and no vegetation treatments would make the area look quite natural. **Solitude:** Solitude would be high, other than Forest Road 540 on a small portion of the polygon's east side. In addition, the area overlooks a BLM WSA to the west. There is a very low chance of seeing someone else or encountering sights and sounds of civilization. **Unconfined and primitive recreation:** Due to the lack of improvements and rugged country, the opportunity for unconfined and primitive recreation opportunities is very high. **Other features of value:** There is habitat for Mexican spotted owl; pincushion cactus; Davis Mountain cottontail; species of conservation concern invertebrates; and species of conservation concern snails. **Manageability:** The land to the west is a BLM WSA and to the southeast across the dirt road is the Guadalupe Escarpment Wilderness Study Area. The majority of the boundary does not have roads, and it is very rugged country. There are no known mineral rights. The lack of interior road access and the location between WSAs make manageability high. **Suggested modification:** Consider a small boundary adjustment to remove the range corral and pens on the east side next to Forest Road 540.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is habitat for Mexican spotted owl and pincushion cactus. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to the WSA. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent WSA opportunities.

Polygon Guadalupe Escarpment WSA

Factor	Description
Acres	21,000
Summarized description of the recommended boundary	This area is long and irregular. The south, west, and east sides of the polygon are on the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located approximately 8 air miles from Queen in Eddy County, this area is in the Guadalupe Ranger District. This area is characterized by steep canyons and ridges. Elevation in this area ranges from 5,360 to 7,420 feet. The majority of the vegetation cover in the area is mountain mahogany, ponderosa pine-evergreen oak, and mixed conifer, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive motorized, semiprimitive nonmotorized **Scenic integrity objectives:** very high **1986 Forest Plan management area:** South Guadalupe, Upper McKittrick **Adjacent uses:** National Park Service, BLM **Range allotments:** Soldier Springs, Dark Canyon, Black River, and McCollaum

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** Parts of the area have burned in a wildfire. There have been no vegetation management activities. The average person would believe the vegetation looks natural. **Undeveloped quality:** Improvements include a couple of wildlife trick tanks; there are few fences, as natural features like cliffs serve to manage livestock. The very low number of vegetation activities and improvements adds to the high degree of naturalness. **Solitude:** The lack of roads, only a few pedestrian trails, a lack of improvements, and the extreme landscape provide excellent solitude. In addition, there are two adjoining wilderness areas under National Park Service management. **Unconfined and primitive recreation:** Because of the lack of access and extreme topography, primitive and unconfined recreation here is the highest in the district. **Other features of value:** There is habitat for Mexican spotted owl, Davis Mountain cottontail, invertebrates, and plants. There is cave habitat for bats. Peregrine falcon and golden eagle may use the area. It also contains the Guadalupe pine. There are significant cultural resources, and caves are present. It includes a research natural area; significant water resources include several long reaches of the Big Canyon and North McKittrick Canyon eligible wild and scenic rivers. **Manageability:** The polygon is large, and access is very limited. It is bordered by a BLM WSA and wilderness areas within two national parks. There are no known mineral rights. These make manageability high.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped with no infrastructure. • There is habitat for Mexican spotted owl, Davis Mountain cottontail, invertebrates, and plants. There is cave habitat for bats. Peregrine falcon and golden eagle may use the area. It also contains Guadalupe pine trees. • Ninety-nine percent of the area is scenery class 1. There are magnificent views of rugged canyons. • Significant cultural resources and caves are present. • A research natural area is present. • Significant water resources include several long reaches of the Big Canyon and North McKittrick Canyon eligible wild and scenic rivers. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the size, lack of access, rugged topography, and adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness and WSA opportunities.

Alternative C (Conservation)

Alternative C includes 51 recommended wilderness areas totaling 402,000 acres. This alternative was developed in response to public commenters who expressed a desire to minimize human intervention on the Lincoln NF and allow natural processes to manage the natural resources. This alternative emphasizes passive vegetation management; recommends more wilderness; and deemphasizes commercial use of timber, forest products, livestock grazing, and motorized access to the Lincoln NF. It does this through plan components that decrease acres suitable for timber and prioritize decommissioning roads that affect riparian areas or hinder habitat connectivity.

The selection of areas recommended for wilderness under this alternative will be carefully considered in the context of the other multiple-use considerations that the Forest Service is considering specific to this alternative. Alternative C emphasizes naturalness and primitive recreation opportunities. Acres of

recommended wilderness in alternative C will be selected based on consideration of the information in the wilderness evaluation.

Alternative C Criteria

Alternative C will include areas in which:

- The area received a high overall wilderness characteristic ranking (score 7.6–10) in the evaluation; or
- The area received support for recommendation through broad-based public comment (not completed).

These criteria were selected because they fit into the theme of the alternative with an increase in primitive recreation opportunities, which is more in line with recommended wilderness management.

Polygon SBD2 Recommended Wilderness Area

Factor	Description
Acres	20,949
Summarized description of the recommended boundary	The area contains two adjacent, separate mountain peaks and is shaped like an "eight," which might make it difficult to manage as one unit. The area could be divided into two units and the boundary based on an elevation at the base of the mountain.
Brief description of the general geography, topography, and vegetation	It is located approximately 11 air miles northeast of Carrizozo in Lincoln County. This large area is characterized by steep slopes that become moderate at the base of the mountains. Elevation in this area ranges from 5,900 to 9,605 feet. The majority of the vegetation contains piñon-juniper woodland, mixed conifer-frequent fire, and ponderosa pine forest with small amounts of montane/subalpine grassland, mountain mahogany mixed shrubland, piñon-juniper grassland, and ponderosa pine/willow.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, roaded natural **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** Jicarilla Mountains and Carrizo Peak/Nogal Peak **Adjacent uses:** State and private land **Range allotment:** Welch, Bar W, Spencer, Pino, and Benado Gap

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation contains piñon-juniper woodland, mixed conifer-frequent fire, and ponderosa pine forest with small amounts of grassland and mixed shrubland. Wildlife consists of black bear, mountain lion, mule deer, and elk along with rodents, turkeys, and birds. **Undeveloped quality:** The average visitor might see some small vegetation treatments on the north and east base of Patos Mountain and through Benado Gap; otherwise, there is not much vegetation management in the area. Patos Mountain burned in a wildfire in the 1990s. With the growth of shrubs, the majority of the area looks natural. **Solitude:** The area supports a variety of primitive and unconfined recreation, due to the size, rugged topography, and limited roads. Visitors can find very challenging recreation given the topography. There are no developed recreation facilities. **Unconfined and primitive recreation:** Primitive recreation is hiking, dispersed camping, and hunting. **Other features of value:** The area has Mexican spotted owl and Sacramento mountain salamander habitat, along with goshawk nesting. There are no known mineral rights. **Manageability:** The area contains two separate mountain peaks and is shaped like an "eight," which might make it difficult to manage as one unit. There are some cherry-stem roads and also level 1 roads at lower elevations. **Suggested modification:** Change the boundary to a higher elevation, thereby eliminating some of the lower-elevation level 1 roads and dividing the peaks; this may not necessary improve manageability.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is Mexican spotted owl and Sacramento mountain salamander critical habitat, along with goshawk nesting. • There are significant cultural resources. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the rugged mountainous area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SBD4 Recommended Wilderness Area

Factor	Description
Acres	4,966
Summarized description of the recommended boundary	This area is fairly rectangular and is located between the Capitan Wilderness and Lincoln NF boundary. It is bounded on the east and west sides by National Forest System roads.
Brief description of the general geography, topography, and vegetation	It is located approximately 7.5 air miles northwest from Arabela in Lincoln County. This area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 5,515 to 7,080 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland and ponderosa pine forest with small amounts of mixed conifer-frequent fire, montane/subalpine grassland, and piñon-juniper grassland. These provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high, moderate, and low **1986 Forest Plan management area:** North Capitan **Adjacent uses:** Capitan Wilderness, private land, and multiple-use National Forest System lands **Range allotment:** Arroyo Seco

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation cover throughout the area is piñon-juniper woodland and ponderosa pine forest with small amounts of mixed conifer-frequent fire and grassland. Wildlife consists of black bear, mountain lion, mule deer, and elk along with rodents and birds. The area burned in 2019. The average person would see a wildfire mosaic similar to vegetation in the adjacent wilderness. The average visitor would think the vegetation was natural. **Undeveloped quality:** Improvements consist of occasional range fences. The road along the west side was reinforced as a fire line; this is still evident. Several level 1 roads and a few two-track roads occur. Dispersed camping is popular along the western margin and on the northeast end. The area has some inholdings that include at least three areas with mineral rights. Improvements are relatively few; the area appears to be quite natural. **Solitude:** There are relatively few improvements. The country is steeper than it looks on a map and is well screened. The area feels remote, and there are not a lot of people there, which provide for solitude. **Unconfined and primitive recreation:** Roads into the area require a high-clearance vehicle. This is challenging country due to the remoteness and the rugged landscape, which adds to the opportunity for primitive recreation. There are no developed facilities. Primitive recreation is dispersed camping and hunting, like in the adjacent wilderness. High-quality recreation opportunities may be present when combined with the adjacent wilderness. **Other features of value:** There is Kuenzler's hedgehog cactus and Mexican spotted owl habitat. **Manageability:** This polygon is adjacent to the wilderness. The roads on either side are very difficult to travel, which aids manageability. It is difficult to cross due to the topography. Mineral rights are located on the margins.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat and Kuenzler's hedgehog cactus habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD6 Recommended Wilderness Area

Factor	Description
Acres	40
Summarized description of the recommended boundary	This area is a long, narrow strip of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 10 air miles northeast from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 6,800 to 6,950 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest, which provides suitable habitat for a variety of wildlife.

Factor	Description
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** North Capitan **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation cover throughout the area is ponderosa pine forest. The vegetation is the same as that of the adjacent wilderness. The average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side and has additional short segments of user-created pullouts. Dispersed camping is popular in the central portion. **Solitude:** The road is visible; other than that, sounds and development are not present or visible. The road is rarely traveled. Encounters with other people occur mostly during hunting season. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, like it is in the adjacent wilderness. High-quality recreation opportunities may be present when combined with the adjacent wilderness. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This polygon is adjacent to the wilderness; it is long and narrow and could be managed similarly. To the north is multiple-use land management. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD7 Recommended Wilderness Area

Factor	Description
Acres	38
Summarized description of the recommended boundary	This area is a triangular strip of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 10 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 6,940 to 7,140 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality** The majority of the vegetation cover throughout the area is ponderosa pine forest. The vegetation is the same as that of the adjacent wilderness. The average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side and has additional short segments of user-created pullouts. **Solitude:** The road is visible; other than that, sounds and development are not present or visible. The chance to see other people is low. **Unconfined and primitive recreation:** Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. There are no developed recreation facilities. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This small polygon is adjacent to the wilderness and could be managed the same way. There are no known mineral rights. To the north is multiple-use land management.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD8 Recommended Wilderness Area

Factor	Description
Acres	113
Summarized description of the recommended boundary	This area is a small, triangular piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 13 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,020 to 7,170 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest and a lesser amount of montane/subalpine grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation cover throughout the area is ponderosa pine forest and a lesser amount of montane/subalpine grassland. The vegetation is the same as that of the adjacent wilderness. The average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side with wilderness to the south. **Solitude:** The road is visible; other than that, sounds and development are not present or visible. Only during hunting season is there a low chance to see another person. **Unconfined and primitive recreation:** Current primitive recreation use is dispersed camping and hunting, like in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which make the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This fairly small polygon is adjacent to the wilderness and could be managed in the same way. Management of adjacent land to the south is wilderness; to the north, it is multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD9 Recommended Wilderness Area

Factor	Description
Acres	58
Summarized description of the recommended boundary	This area is a small, narrow, linear piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 13.5 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,030 to 7,090 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest with mixed conifer-frequent fire and montane/subalpine grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Captain Mountains **Adjacent uses:** Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The area has previously burned in a wildfire. The vegetation is the same as that of the adjacent wilderness. The average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side. **Solitude:** The adjacent road is visible; other than that, sounds and development are not present or visible. Only during hunting season is there a low chance to see another person. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, like in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which make the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This fairly small polygon is adjacent to the wilderness and could be managed in the same way. Management of adjacent land to the south is wilderness; to the north, it is multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD10 Recommended Wilderness Area

Factor	Description
Acres	41
Summarized description of the recommended boundary	This area is a small, narrow, linear piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 9 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep to moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 6,920 to 7,400 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest at higher elevations and piñon-juniper woodland at lower elevations. These provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Capitan Mountains and South Capitan Mountains **Adjacent uses:** Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been no vegetation treatments in this area. The southern portion has burned in a wildfire. The average visitor would think the vegetation is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the west side. Dispersed camping is popular on the northern end of the area. **Solitude:** The adjacent road is visible; other than that, sounds and development are not present or visible. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, which is the same as it is in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which make the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This fairly small polygon is adjacent to the wilderness to the east and could be managed in the same way. Management to the west is multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD11 Recommended Wilderness Area

Factor	Description
Acres	13
Summarized description of the recommended boundary	This area is a small, narrow, linear piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 14 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,050 to 7,120 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest with lesser amounts of mixed conifer-frequent fire and a small amount of montane/subalpine grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The area has previously burned in a wildfire. The vegetation is the same as that of the adjacent wilderness. The average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side. **Solitude:** The adjacent road is visible; other than that, sounds and development are not present or visible. Only during hunting season is there a low chance to see another person. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, which is the same as it is in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This polygon is small, long, and narrow. It is adjacent to the wilderness and could easily be managed the same. There are no known mineral rights. Management of adjacent land to the south is wilderness; to the north, it is multiple use.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD12 Recommended Wilderness Area

Factor	Description
Acres	13,264
Summarized description of the recommended boundary	This area is large and adjacent to the south boundary of the Capitan Wilderness. The remaining boundary follows National Forest System roads and private land. It is irregularly shaped along the southern boundary due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 8 air miles from Capitan in Lincoln County, this area lies adjacent to the Capitan Wilderness in the Smokey Bear Ranger District. This large area is characterized by steep slopes on the northern side, with slopes becoming moderate on the south side at lower elevations. Elevation in this area ranges from 6,620 to 10,030 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest and piñon-juniper woodland, with a lesser amount of mixed conifer-frequent fire and small amounts of herbaceous wetland, mixed conifer-frequent fire, montane/subalpine grassland, piñon-juniper grassland, ponderosa pine/willow, spruce-fir forest, and a component of sparsely vegetated land; these provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, and roaded natural **Scenic integrity objectives:** very high, high, moderate, and low **1986 Forest Plan management area:** South Capitan **Adjacent uses:** private land **Range allotment:** VI

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation cover throughout the area is ponderosa pine forest and piñon-juniper woodland. The southeast corner has had some vegetation treatments and may not appear as natural as the rest of the polygon. Overall, the average visitor would consider the vegetation natural. **Undeveloped quality:** The lower elevation of the area has occasional range fences, trick tanks, storage tanks, and stock tanks. There are motorized trails or roads to inholdings. The communication towers on the summit outside the polygon are visible. There may be visible telephone and power distribution lines to the inholdings at the lower elevations. Overall, the majority of this large area would appear natural. **Solitude:** In the upper elevations, there are few intrusive sounds. On the lower elevations, visitors can see homes and hear noise. The upper elevations have deep canyons that screen sounds and visuals. The chance of seeing other people occurs on the roads, but is very low off the roads. **Unconfined and primitive recreation:** Given the large area, variety of topography, and mountain slopes, recreation feels unconfined. The area provides an opportunity for varied primitive recreation, including activities that are challenging. Primitive recreation is dispersed camping and hunting, like in the adjacent wilderness. High-quality recreation opportunities may be present when combined with the adjacent wilderness. **Other features of value:** There is Mexican spotted owl and Sacramento mountain salamander critical habitat. Kuenzler's hedgehog cactus may be present in the lower elevations. **Manageability:** The inholdings on the south boundary and irregular edge created make management challenging. Management of the land to the north is wilderness. It would be easier to manage the area by removing the irregular private land boundaries and moving the boundary to the south-face trail #57 with a buffer on the trail. There are no known mineral rights. **Suggested modification:** Consider a boundary change to the south-face trail #57 and add a buffer to shift the boundary away from private land and roads, reducing the stair-stepped boundary on the south.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • Much of the area appears natural. • The area is mostly undeveloped. • There is Mexican spotted owl and Sacramento mountain salamander critical habitat; there may be Kuenzler's hedgehog cactus habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD13 Recommended Wilderness Area

Factor	Description
Acres	24
Summarized description of the recommended boundary	This area is a small, fairly triangular piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.

Factor	Description
Brief description of the general geography, topography, and vegetation	Located approximately 8 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,740 to 8,080 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire and a small component of ponderosa pine forest, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** South Capitan Mountains **Adjacent uses:** Capitan Wilderness **Range allotment:** none
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The average visitor would see the landscape as entirely natural and the same as adjacent wilderness. The area has burned in a wildfire. **Undeveloped quality:** A National Forest System road bounds the polygon; it is the only visible improvement and located adjacent to the area. **Solitude:** The adjacent road is the only visual intrusion, although it is not traveled at a high level. The vertical topography does not necessarily screen sights and sounds from a distance. Encounters with others would be on the adjacent road. There are no trails in this area. **Unconfined and primitive recreation:** The area is relatively free of restrictions, and primitive recreation would be the same as it is in the adjacent wilderness. There are no facilities here. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This small polygon is next to designated wilderness, so the management could be the same without difficulty. The shape of the road does not appear to be an issue as there is no known off-road use in this area. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped with no infrastructure. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD16 Recommended Wilderness Area

Factor	Description
Acres	39
Summarized description of the recommended boundary	This area is a small, square piece of land adjacent to the White Mountain Wilderness. The boundary follows the White Mountain Wilderness boundary on three sides and the Lincoln NF boundary to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 4 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 6,650 to 6,910 feet. The majority of the vegetation cover in the area is piñon-juniper woodland, which provides suitable habitat for a variety of wildlife.

Factor	Description
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and private land **Range allotment:** Diamond Peak
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments, and the average visitor would think it was natural. **Undeveloped quality:** There are no improvements here, and the area will look natural. **Solitude:** Although the polygon is small, there are no visuals or noise from civilization. Solitude is due to the remote location. There is a very low likelihood of encountering someone else. **Unconfined and primitive recreation:** Primitive recreation is hunting, hiking, and camping. There is no developed recreation. There is no restriction on primitive recreation, and uses are similar to the adjacent wilderness. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** none **Manageability:** The small shape and configuration, with three sides on the wilderness boundary, make this area highly manageable. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD18 Recommended Wilderness Area

Factor	Description
Acres	44
Summarized description of the recommended boundary	This area is a small, fairly rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with private land to the northeast.
Brief description of the general geography, topography, and vegetation	Located approximately 3 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 7,270 to 7,700 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** roaded natural and semiprimitive nonmotorized **Scenic integrity objectives:** no data **1986 Forest Plan management area:** White Mountain Wilderness and Carrizo Peak/Nogal Peak **Adjacent uses:** White Mountain Wilderness and private land; the Forest Service currently manages it for multiple use. **Range allotment:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments, and the average visitor would think it was natural. **Undeveloped quality:** The area is surrounded by wilderness on three sides and adjacent to private land. There are no improvements here, and the area will look natural. **Solitude:** The topography is composed of valley and ridges that screen the area. The surroundings are mostly wilderness; visitors cannot see or hear civilization, which provides solitude. **Unconfined and primitive recreation:** There are no developed recreation facilities, and there is a high opportunity for unconfined recreation. It is hard to get to the area. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** The area has goshawk habitat. **Manageability:** The small shape and configuration, with the wilderness boundary, make this area highly manageable. The small area is mostly surrounded by wilderness. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped with no infrastructure. • The area has goshawk habitat, and it is 73 percent scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD19 Recommended Wilderness Area

Factor	Description
Acres	25
Summarized description of the recommended boundary	This area is a small, fairly rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with the Lincoln NF boundary to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 8.5 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 6,760 to 6,900 feet. The majority of the vegetation cover in the area is piñon-juniper grassland and a small amount of piñon-juniper woodland. The area has patches of grass cover; all of these provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness. **Adjacent uses:** White Mountain Wilderness and private land. **Range allotment:** Finley

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. The average visitor would consider it natural, except for the trailhead parking lot. **Undeveloped quality:** There is a range fence on the southern and east sides. On the north is a trailhead with dispersed camping and no developed facilities. Other than the trailhead area, the vegetation would look natural and the same as adjacent wilderness. **Solitude:** The average visitor can see people and vehicles at the trailhead. The vegetation is fairly open and does not screen the trailhead well. Once visitors leave the trailhead, they do not see other visitors. **Unconfined and primitive recreation:** There is no developed recreation at the trailhead; there is just a dirt road. Recreation is fairly unconfined at this popular trailhead, as this is the only trailhead in this area. Opportunities are similar to the adjacent wilderness once away from the trailhead and road. **Other features of value:** none **Manageability:** The small shape and configuration, with the wilderness boundary, make this area highly manageable. This small area has wilderness on three sides, making management comparable. There are no known mineral rights. **Suggested modification:** Consider modifying the boundary and cherry stemming the existing trailhead.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • With the exception of a trailhead, the area is undeveloped. • Ninety-two percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are some opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD21 Recommended Wilderness Area

Factor	Description
Acres	20
Summarized description of the recommended boundary	This area is a small, somewhat triangular, irregular piece of land adjacent to the White Mountain Wilderness and a National Forest System road. The majority of the boundary follows the White Mountain Wilderness boundary with the Lincoln NF boundary to the north and south.
Brief description of the general geography, topography, and vegetation	Located approximately 6 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep mountain slopes. Elevation in this area ranges from 8,550 to 8,790 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire and oak, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** Rio Bonito. **Adjacent uses:** White Mountain Wilderness. **Range allotment:** Loma Grande

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think the vegetation is natural. **Undeveloped quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think the vegetation is natural. **Solitude:** The average visitor can see the road switchback. The road use is fairly high for a dirt road, so there will be some noise. Vegetation and topography do not screen the road. **Unconfined and primitive recreation:** The average visitor might feel confined by the road, but the White Mountain Wilderness is in close proximity and adjacent to the west. The topography of the area provides opportunity for varied primitive recreation, including activities that are challenging. People need to be self-sufficient here. There are no developed facilities. **Other features of value:** Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat **Manageability:** The management, based on shape, is affected by the road switchbacks. However, management would probably be fairly easy. This is because it is adjacent to the wilderness and the topography is very difficult. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There are Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat. • One hundred percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are some opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD22 Recommended Wilderness Area

Factor	Description
Acres	21
Summarized description of the recommended boundary	This area is a small, rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with State land to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 11 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 6,610 to 6,760 feet. The majority of the vegetation cover in the area is piñon-juniper grassland and piñon-juniper woodland. The area has patches of grass cover; all of these provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and State **Range allotment:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think it was natural. **Undeveloped quality:** There is a range fence on the north boundary. The northern boundary has a two-track road located on adjacent State land. The area would look natural. **Solitude:** The polygon is surrounded by wilderness on three sides, and there is State land to the north. This polygon is difficult to access. Due to the remoteness, there would be very little evidence of civilization. There is a very low likelihood of seeing others. **Unconfined and primitive recreation:** There is a high amount of unconfined recreation once there. It is free of restriction on primitive recreation. There are no developed recreation facilities. Opportunities are similar to those in the adjacent wilderness once away from the trailhead and road. **Other features of value:** none **Manageability:** This remote small area is surrounded by wilderness on three sides, making management easy. There are no known mineral rights. Adjacent land is wilderness or State land.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD23 Recommended Wilderness Area

Factor	Description
Acres	6
Summarized description of the recommended boundary	This area is a small, somewhat rectangular, irregular piece of land adjacent to the White Mountain Wilderness and a National Forest System road. The majority of the boundary follows the White Mountain Wilderness boundary with the Lincoln NF boundary to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 6 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep mountain slopes. Elevation in this area ranges from 8,215 to 8,370 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire and oak, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** Rio Bonito **Adjacent uses:** White Mountain Wilderness **Range allotment:** Loma Grande

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think the vegetation is natural. **Undeveloped quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think the vegetation is natural. **Solitude:** The average visitor can see the road switchback. The road use is fairly high for a dirt road, so there will be some noise. Vegetation and topography do not screen the road. **Unconfined and primitive recreation:** The average visitor might feel confined by the road, but the White Mountain Wilderness is in close proximity and adjacent to the west. The topography of the area provides an opportunity for varied primitive recreation, including activities that are challenging. People need to be self-sufficient here. There are no developed facilities. **Other features of value:** Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat **Manageability:** The management, based on shape, is affected by the road switchbacks. However, management would probably be fairly easy. This is because it is adjacent to the wilderness and the topography is very difficult. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat • One hundred percent of the area is scenery class 1. • There is a NRHP-listed cultural resource adjacent, and buried deposits may occur here. **The social characteristics that provide the basis for suitability are as follows:** • Some solitude maybe present due to adjacency to wilderness. • There are some opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD24 Recommended Wilderness Area

Factor	Description
Acres	153
Summarized description of the recommended boundary	This area is a small, rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with the Lincoln NF boundary to the west.
Brief description of the general geography, topography, and vegetation	Located approximately 12 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep and moderate slopes. Elevation in this area ranges from 6,730 to 7,180 feet. The majority of the vegetation cover in the area is piñon-juniper woodland and piñon-juniper grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and private land **Range allotments:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments, and the average visitor would think the vegetation is natural. The vast majority of the area looks natural and the same as the adjacent wilderness. **Undeveloped quality:** On the western side there is a two-track road leading to a small corral, old windmill, stock water tank, and trough. This is a trailhead that has no outside access. Outside of the boundary to the west are the remnants of a windmill and another storage tank. The vast majority of the area looks natural and the same as the adjacent wilderness. **Solitude:** The polygon is surrounded by wilderness on three sides. To the west is private land, making this area difficult to access. There would be very little evidence of civilization. There is a very low likelihood of seeing other people. **Unconfined and primitive recreation:** There is a high amount of unconfined primitive recreation once there. The landscape is similar to the adjacent wilderness. There are no developed recreation facilities. **Other features of value:** none **Manageability:** This small area is surrounded by wilderness on three sides. There are no known mineral rights. Adjacent land is wilderness or private. There is no legal access across private land.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD25 Recommended Wilderness Area

Factor	Description
Acres	2,476
Summarized description of the recommended boundary	This area is somewhat trapezoidal. The majority of the boundary follows the White Mountain Wilderness boundary to the south, a National Forest System road to the north, and private land.
Brief description of the general geography, topography, and vegetation	Located approximately 5 air miles from Alto in Lincoln County, this area lies adjacent to the boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This area is characterized by steep mountain slopes to the south and west with lower elevation to the east. Elevation in this area ranges from 7,530 to 8,420 feet. The majority of the vegetation cover throughout the area is spruce-fir forest with a lesser amount of mixed conifer-frequent fire. There are small amounts of montane/subalpine grassland, narrow-leaf cottonwood/shrub, and upper montane conifer/willow.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, roaded natural, and rural. **Scenic integrity objectives:** high, moderate, and very low **1986 Forest Plan management area:** Rio Bonito **Adjacent uses:** White Mountain Wilderness, private, and municipal **Range allotment:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been some vegetation treatments, including mastication, along the trail. Aspens have been planted in Big Bear Canyon, and they are fenced for protection from elk. Replanting of trees has occurred around the campground and in the riparian areas. The area burned in a 2012 wildfire. Although there are treatments, the vegetation is similar to the surrounding landscape, including adjacent wilderness. The average visitor would think the vegetation is natural. **Undeveloped quality:** Improvements in the area include scattered mining prospects, shafts, and pits. This area also has some old two-track roads with switchbacks. There is a small inholding. Two windmills are located on the north side. A developed campground is located on the northeast corner. There is a pervasive and intensive amount of dispersed camping along and outside the north boundary. The vast majority of the area would appear natural. **Solitude:** The north boundary is heavily use for camping; farther south and upslope, there are very few people. The ridgeline and existing timber screen the dispersed camping use along the Bonito River. Away from the north boundary area of the polygon, visitors would not usually see someone else. **Unconfined and primitive recreation:** The farther south visitors travel up the steep slopes and into the canyons, recreation gets more unconfined. The area provides an opportunity for varied primitive recreation, including activities that are challenging. **Other features of value:** Mexican spotted owl and Sacramento mountain salamander habitat **Manageability:** The polygon is large and fairly square with wilderness on three sides. The north and east boundary along the Bonito River are very popular for dispersed and developed recreational use. There may be existing mineral rights in this area. Adjacent land is managed as wilderness, multiple use, private and, municipal. **Suggested modification: C**onsider buffering the north boundary to exclude all intensive dispersed camping and removing improvement features from the polygon south of Blue Hole Pond.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are Mexican spotted owl and Sacramento mountain salamander habitat. • Eighty-six percent of the area is scenery class 1. • There is historic mining in the area. • About 0.55 miles of the South Fork of the Bonito River, which is eligible as wild and scenic, are within the southeast corner. • The area also has a municipal watershed. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD29 Recommended Wilderness Area

Factor	Description
Acres	4,938
Summarized description of the recommended boundary	This area is very irregular, square on the west side, narrow in the center, and rectangular on the east side. On the west side, the majority of the boundary follows the White Mountain Wilderness boundary. The eastern third follows roads and wilderness to the north and east.

Factor	Description
Brief description of the general geography, topography, and vegetation	Located approximately 3 air miles from Alto in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This large area is characterized by steep mountain slopes to the west with lower elevations to the east. Elevation in this area ranges from 7,530 to 10,760 feet. The vegetation cover throughout the area is in nearly equal proportions of mixed conifer-frequent fire, ponderosa pine forest, and spruce-fir forest. There is a small portion of montane/subalpine grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, roaded natural, and rural. **Scenic integrity objectives:** very high, high, moderate, and very low **1986 Forest Plan management area:** Upper Ruidoso **Adjacent uses:** White Mountain Wilderness and private **Range allotment:** Alto
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** This area burned in 2012 during the Little Bear Fire. Vegetation treatments done prior to the Little Bear Fire are not visible since they burned. Vegetation in the area includes mature trees in pockets in canyons and along some roads. The average visitor would think the vegetation is natural. **Undeveloped quality:** The area has cherry-stem roads and is adjacent to private land, a major mountaintop communication site, a campground, and a ski area. There are summer homes at the top of Eagle Creek. There are some prospect pits on the eastern side. Improvements are scattered and can be bypassed. **Solitude:** The ability to perceive external sights and sounds depends on where visitors are in the polygon. Once they get away from the communication site or ski area, the very steep and rugged topography, along with the vegetation, screen intrusive sights and sounds. The road to the summer homes on Eagle Creek is not very visible; the road and summer homes are in the bottom of a steep canyon. There is a lot of room to find solitude. **Unconfined and primitive recreation:** There are very good opportunities for primitive and unconfined recreation due to the space available and the steep, rough, and high-elevation topography. Given the landscape, people would need to be self-reliant. **Other features of value:** Mexican spotted owl habitat, Peñasco least chipmunk habitat, Sacramento mountain salamander habitat, and goshawk foraging habitat **Manageability:** The polygon is large; the southern boundary has a few challenges, and the eastern side has homes. There have been user-created trails into the area from the back of the homes, but the Little Bear Fire removed some of those trails through erosion. Generally, the topography in the rest of the area is very steep and rough, which helps with manageability. There may be some mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are Mexican spotted owl, Peñasco least chipmunk, Sacramento mountain salamander, and goshawk habitat. • Ninety-two percent of the area is scenery class 1 with rugged mountain views. • There are significant cultural and tribal resources in the area. • About 0.5 miles of the South Fork of the Bonito River, which is eligible as a wild and scenic river, is located in the north portion. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD31 Recommended Wilderness Area

Factor	Description
Acres	6,129
Summarized description of the recommended boundary	This area is longer than wider, and irregular along the edges. The majority of the boundary follows the Lincoln NF boundary to the south and is stair stepped along the southern boundary. The northern and eastern edges are bounded by National Forest System roads.
Brief description of the general geography, topography, and vegetation	It is located approximately 1 air mile from Lincoln in Lincoln County in the Smokey Bear Ranger District. This area is characterized by moderate mountain slopes and ridges. Elevation in this area ranges from 5,680 to 6,650 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland with a small amount of juniper grassland and piñon-juniper grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, and roaded natural **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** South Capitan Mountains **Adjacent uses:** Private, State, and BLM land **Range allotment:** Salazar and Baca Administrative Site
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There is very little vegetation treatment in the area; the wildlife openings look natural. The average person would also believe the vegetation looks natural. **Undeveloped quality:** Improvements consist of range fences, several dirt tanks, a windmill, dispersed camping, and two-track trails. **Solitude:** The topography, drainages, and vegetation screen sights and sounds. A visitor probably would not see someone, other than during hunting season. **Unconfined and primitive recreation:** Other than range fences, primitive recreation in the area is unconfined. Portions of the terrain are fairly rugged and challenging. People would have the opportunity to be self-reliant. **Other features of value:** The area may have Kuenzler's hedgehog cactus and other species of conservation concern cacti. **Manageability:** The area has a lot of boundary edges, but the area is fairly rugged terrain. Three cherry-stem roads may provide interior access and access to two-track roads. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • The area may have Kuenzler's hedgehog cactus habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the rugged terrain. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SBD32 Recommended Wilderness Area

Factor	Description
Acres	10,023
Summarized description of the recommended boundary	This area is somewhat triangular and irregular along the edges. About a third of the boundary follows the Lincoln NF boundary to the east and is stair stepped along the eastern boundary. The northern and southern edges are bounded by National Forest System roads.

Factor	Description
Brief description of the general geography, topography, and vegetation	Located approximately 1.5 air miles from Angus in Lincoln County, the area is in the Smokey Bear Ranger District. This area is characterized by steep to moderate mountain slopes. Elevation in this area ranges from 7,090 to 8,630 feet. The majority of the vegetation cover throughout the area is mainly mixed conifer-frequent fire and ponderosa pine forest. There are lesser amounts of piñon-juniper woodland, montane/subalpine grassland, narrow-leaf cottonwood/shrub, and upper montane conifer/willow.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, roaded natural, and rural **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** South Capitan Mountains **Adjacent uses:** private and State land **Range allotment:** Loma Grande
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The area burned in 2012 during the Little Bear Fire. Despite the burning, the average visitor would think it looked natural, as the vegetation has a mosaic created by the fire. **Undeveloped quality:** The area has cherry-stem roads, contains private land inholdings, and is adjacent to private land. There are also a number of historic mining prospects, shafts, and pits in the area. The eastern boundary has numerous homes. Since improvements and roads are scattered, the large size of the area and the vegetation make the area natural. **Solitude:** The topography is steep with canyons and mountain ridges. The homes on the east side are the primary intrusion, but given the size and topography of the area it is easy to get away from the homes. The roads in the area are narrow and end in canyons. Given the size and topography of the area, the opportunity for solitude is very good. There are pockets of vegetation and trees in stands. Away from the roads, a visitor probably would not see someone else. **Unconfined and primitive recreation:** The topography of the area is quite steep with ridges and canyons. This provides very good opportunities for varied primitive recreation, including activities that are challenging. **Other features of value:** habitat for Mexican spotted owl, bald eagles, goshawk, and Sacramento mountain salamander **Manageability:** The large area aids in manageability. The inholdings and roads are not a big issue due to the steep and rugged topography. There may be mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is habitat for Mexican spotted owl, bald eagles, goshawk, and Sacramento mountain salamander. • Sixty-seven percent of the area is scenery class 1, with great views of the White Mountain Wilderness from the ridges and peaks. • There are two NRHP-listed sites in adjacent areas. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to proximity to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with nearby wilderness opportunities.

Polygon SBD33 Recommended Wilderness Area

Factor	Description
Acres	5,742
Summarized description of the recommended boundary	This area is somewhat triangular. The boundary on the east runs north to south. It is stair stepped on the south and west sides where it meets private land. The remaining west and north boundaries meet National Forest System roads.

Factor	Description
Brief description of the general geography, topography, and vegetation	Located approximately 3.5 air miles from Lincoln in Lincoln County, the area is in the Smokey Bear Ranger District. This area is characterized by moderate slopes and ridges. Elevation in this area ranges from 5,770 to 6,680 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland and lesser amounts of juniper grassland. There are small amounts of Fremont cottonwood/shrub and piñon-juniper grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, and roaded natural **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** Lower Ruidoso **Range allotment:** North Coe and Devil's Canyon **Adjacent uses:** private, State, and Bureau of Land Management land
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been some vegetation pushes and burning, with burnt circles and chard trees. The average person would think the vegetation is natural. **Undeveloped quality:** Improvements consist of range fences, several dirt tanks, water storage tanks, trick tanks, and numerous two-track trails. The area has a gravel pit in the northwest corner. Consider removing the gravel pit from the polygon, as it is substantially noticeable. **Solitude:** During hunting season, people could hear or see someone. Wood cutting in the fall may provide noise. The topography, ridges, and canyons, along with the vegetation (piñon, juniper, and oak), screen noise and sights. Outside of hunting season, visitors probably would not see many people, which supports solitude. **Unconfined and primitive recreation:** Hunting, hiking, and dispersed camping occur on the edges due to limited access. There is trash dumping and shooting on the edge too. Overall, recreation can be primitive and unconfined due to the rugged landscape. **Other features of value:** Kuenzler's hedgehog cactus and Villard's pincushion cactus habitat. **Manageability:** The triangular shape and boundary with one small cherry-stem road support manageability. Mineral rights in the area are unknown; there is a gravel pit. **Suggested modification: C**onsider a boundary change to the northwest corner; remove the gravel pit, as it is substantially noticeable.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is Kuenzler's hedgehog cactus habitat. • Caves are present. • There are also significant cultural and tribal features. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the vegetation and topography. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SBD39 Recommended Wilderness Area

Factor	Description
Acres	29
Summarized description of the recommended boundary	This area is a small, fairly narrow piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary on its west side with a National Forest System road to the southeast.
Brief description of the general geography, topography, and vegetation	Located approximately 4 air miles from Angus in Lincoln County, the area is in the Smokey Bear Ranger District. This small area is characterized by steep and moderate slopes. Elevation in this area ranges from 9,250 to 9,590 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire with a lesser amount of montane/subalpine grassland.

Factor	Description
Current uses and management	**Recreation opportunity spectrum:** roaded natural **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness **Range allotment:** Alto
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** It was burned in the 2012 Little Bear Fire. Most of the area looks natural and the same as the adjacent wilderness. There have been no vegetation treatments. The average visitor would think it was natural. **Undeveloped quality:** Adjacent improvements outside the polygon include a trailhead. There is a prefabricated concrete pit toilet that is screened by topography and vegetation. There is also a NRHP-listed lookout tower that is low in profile and constructed of native stone. The area would appear natural. **Solitude:** When in proximity, people can see the trailhead parking lot. Solitude would increase rapidly as a visitor approached the White Mountain Wilderness. The trail is not heavily used; a visitor does not often see people on it. **Unconfined and primitive recreation:** Recreation here would feel unconfined and primitive, as it is located on steep mountain ridgetops and slopes. Due to its shape, it is a short distance to the adjacent wilderness. **Other features of value:** Mexican spotted owl, goshawk, Sacramento mountain salamander, and Peñasco least chipmunk habitat. Monjeau Lookout, a NRHP-listed site, is adjacent. **Manageability:** This is a small and narrow polygon adjacent to the wilderness; visually, it looks like the wilderness. Access is on a pedestrian trail, which facilitates management. Adjacent management is wilderness and multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are Mexican spotted owl, goshawk, Sacramento mountain salamander, and Peñasco least chipmunk habitat. • One hundred percent of the area is scenery class 1, with excellent views of Sierra Blanca and Nogal Peak. • Monjeau Lookout, a NRHP-listed site, is adjacent. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD42 Recommended Wilderness Area

Factor	Description
Acres	6,754
Summarized description of the recommended boundary	This area is somewhat rectangular with irregular boundary edges. Most of the east and south boundaries follow the Lincoln NF boundary where it is stair stepped. The northern and western edges are bounded by National Forest System roads.
Brief description of the general geography, topography, and vegetation	Located approximately 6 air miles from Lincoln in Lincoln County, the area is in the Smokey Bear Ranger District. This area is characterized by moderate mountain slopes and ridges. Elevation in this area ranges from 5,870 to 6,670 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland. There are smaller amounts of ponderosa pine forest, piñon-juniper grassland, and ponderosa pine/willow.

Factor	Description
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, and roaded natural **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** South Capitan Mountains **Adjacent uses:** Private and State **Range allotment:** Latham and Matney Springs
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are not any known vegetation treatments. The average visitor would think it looked natural. **Undeveloped quality:** Improvements consist of occasional range fences, dirt tanks, and two-track trails. The roads look rugged and unused. The area has an inholding and is adjacent to private land. Overall, the area would appear natural. **Solitude:** Solitude would be easy to find since the area is fairly remote with restrictions on access. **Unconfined and primitive recreation:** Primitive and unconfined recreation would be easy to pursue, as the area is fairly remote. There are some range fences, inholdings, and two-track roads that are scattered or unobtrusive. **Other features of value:** There is possible goshawk foraging habitat. **Manageability:** It is a fairly square polygon with private land on the north and east sides. This polygon is fairly remote and not easily accessed. There is a lot of polygon's edge with private land; adjacent management is multiple use and private. Adjacent management makes manageability a little more challenging, but the remoteness helps. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is possible goshawk foraging habitat. • Caves are present. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remoteness. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SBD43 Recommended Wilderness Area

Factor	Description
Acres	5,238
Summarized description of the recommended boundary	This area is somewhat triangular with irregular boundary edges. Most of the east and south boundaries follow the Lincoln NF boundary where it is stair stepped. The northern and western edges are bounded by National Forest System roads and land inholdings.
Brief description of the general geography, topography, and vegetation	Located approximately 3 air miles from Lincoln in Lincoln County, the area is in the Smokey Bear Ranger District. This area is characterized by moderate mountain slopes and ridges. Elevation in this area ranges from 6,045 to 6,225 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland with a lesser amount of piñon-juniper grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** South Capitan Mountains **Adjacent uses:** Private and State **Range allotment:** Baca and Matney Springs

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are limited vegetation management activities here, and the average visitor would think it looked natural. **Undeveloped quality:** Improvements consist of range fences, several dirt tanks, and numerous two-track trails. Improvements are not clustered or overly intrusive. The area has some adjacent private land parcels. Given the lack of vegetation treatments and scattered improvements, the area would appear natural. **Solitude:** Solitude would be easy to find here since the area is fairly remote country. The chance of seeing someone else would be low. **Unconfined and primitive recreation:** Primitive and unconfined recreation opportunities would also be high since the area is fairly remote. **Other features of value:** none **Manageability:** This is a fairly square polygon with private parcels on two sides; there is a lot of edge that is private. This polygon is fairly remote. Adjacent management is multiple use and private. The amount of private land on the boundary makes management a bit more challenging. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • Much of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remoteness. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SBD44 Recommended Wilderness Area

Factor	Description
Acres	6,505
Summarized description of the recommended boundary	This area is trapezoidal. The east boundary follows a National Forest System road. The south boundary is on a National Forest System road and wilderness. The west and north boundaries are stair stepped along private land.
Brief description of the general geography, topography, and vegetation	Located approximately 15.5 air miles from Capitan in Lincoln County, the area is in the Smokey Bear Ranger District. This area is characterized by moderate mountain slopes and ridges. Elevation in this area ranges from 5,660 to 7,090 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland with a lesser amount of ponderosa pine forest. There are small amounts of mixed conifer-frequent fire, montane/subalpine grassland, Arizona walnut, and piñon-juniper grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, and roaded natural **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** Wilderness and private **Range allotment:** block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no known vegetation treatments in this area. The average visitor would think it was natural. **Undeveloped quality:** Improvements consist of occasional range fences and two-track trails. The area has inholdings, but they are not developed and appear similar to the surrounding landscape. **Solitude:** The area is remote and rarely visited. The topography is rolling hills on the north side becoming steeper on the south side. There is some dispersed camping along the west side. Vegetation screens sights and any sounds. There is a low likelihood of seeing someone else. **Unconfined and primitive recreation:** The remoteness makes this area challenging. There is a high opportunity for unconfined or primitive recreation. There are not many fences, and the roads are very rough. **Other features of value:** There is a very small amount of Mexican spotted owl habitat with goshawk foraging habitat. **Manageability:** The shape is trapezoidal with some inholdings and a few two-track roads. The north side is private land. The area is difficult to access. The remoteness and poor access increase manageability.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is a very small amount of Mexican spotted owl habitat with goshawk foraging habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the size and proximity to wilderness. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD47 Recommended Wilderness Area

Factor	Description
Acres	7,621
Summarized description of the recommended boundary	This area is somewhat oval. The east boundary follows a National Forest System road and private land. The south boundary is on a National Forest System road. Most of the west and north boundaries are stair stepped along private land.
Brief description of the general geography, topography, and vegetation	Located approximately 1.5 air miles from Cloudcroft in Otero County, this area is in the Sacramento Ranger District. This area is characterized by mountaintop slopes and ridges. Elevation in this area ranges from 7,010 to 9,230 feet. Approximately half of the area vegetation cover is mixed conifer-frequent fire. There are smaller amounts of mountain mahogany mixed shrubland, piñon-juniper woodland, mixed conifer with aspen, ponderosa pine forest, ponderosa pine/willow, montane/subalpine grassland, and Arizona alder-willow.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized, roaded natural, rural, and urban **Scenic integrity objectives:** very high, moderate, and low **1986 Forest Plan management area:** Mountain Park and Upper James **Adjacent uses:** private land **Range allotment:** Sacramento

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The average visitor would not see vegetation treatments due to the slope. Trees are thick in this area. **Undeveloped quality:** Improvements include range fences, particularly along the boundaries; cherry-stem roads; some motorized trails; and numerous adjacent private residences and land. **Solitude:** Intrusive sights and sounds would occur near the roads and next to inholdings. The vegetation and slope screen these intrusions well. Once visitors are in the woods, it would be difficult to hear anything and see other people, which support solitude. There is a low likelihood of seeing other people. **Unconfined and primitive recreation:** There are not many restrictions on recreation behavior. The area provides an opportunity for varied primitive recreation, including activities that are challenging due to topography and dense vegetation. There are no developed recreation facilities. **Other features of value:** There is Mexican spotted owl, Sacramento mountain salamander, and goshawk habitat. **Manageability:** The polygon is fairly rectangular with some cherry-stem roads and a large amount of adjacent private land. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is Mexican spotted owl, Sacramento mountain salamander, and goshawk habitat. • Seventy-nine percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the size of the polygon. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD48a Recommended Wilderness Area

Factor	Description
Acres	16,000
Summarized description of the recommended boundary	This is a large, rectangular area. The east boundary follows a National Forest System road and private land. The south boundary is on a pipeline. Most of the west boundary is on the Lincoln NF boundary, and the north boundary follows a road.
Brief description of the general geography, topography, and vegetation	Located approximately 0.5 air miles from Alamogordo in Otero County, the area is in the Sacramento Ranger District. This area is characterized by a mountain escarpment, deep canyons, moderate and steep slopes, and ridges. Elevation in this area ranges from 4,860 to 8,090 feet. The majority of the vegetation cover throughout the area is considered to be sparsely vegetated. Lesser amounts of vegetation consist of piñon-juniper woodland, Chihuahuan desert scrub, ponderosa pine forest, desert willow, Fremont cottonwood/shrub, herbaceous wetland, mixed conifer-frequent fire, mountain mahogany mixed shrubland, piñon-juniper evergreen shrub, piñon-juniper grassland, ponderosa pine/willow, and semidesert grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, roaded natural, and urban **Scenic integrity objectives:** high, moderate, low, and very low **1986 Forest Plan management area:** Alamo **Adjacent uses:** municipal, private, and BLM **Range allotment:** Dry Canyon

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The average visitor would see vegetation treatments along the roads, but these treatments would look natural given the treatment types and methods. **Undeveloped quality:** Improvements include motorized trails, an unofficial user-created shooting area, a hang glider launch site, range fences, dispersed camping, and a few trick tanks. There is historic mining disturbance located near High Rolls on Forest Service Road 90; the old tailing piles now have vegetation and trees growing on them. **Solitude:** If visitors are near a level 2 road, there will be noise. Visitors may hear shooting depending on where they are in this large polygon; there is an unofficial shooting range. During hunting season, visitors may see someone. There is off-highway vehicle use on the west side road and dispersed camping. Once off the road, visitors probably would not see anyone. The steep canyon terrain and vegetation screen intrusive sights and sounds, which provides solitude. The motorized trails may introduce some localized noise. **Unconfined and primitive recreation:** The area is free of most restrictions; primitive recreation is as varied and challenging as visitors would like due to the steep topography and canyons. There are no developed facilities. **Other features of value:** Desert big horn sheep, Sacramento prickly poppy, peregrine falcon, golden eagle, and bats are present. There are about 0.8 miles of Fresnal Creek, which is eligible as wild and scenic, in the northeast portion. It contributes to the municipal watershed. **Manageability:** For the most part, the rugged topography makes it hard to access and thereby helps with management. **Suggested modification:** Consider a cherry-stem road or access to the hang gliding area and buffering the shooting range off Highway 82. Both areas are in the north portion of the polygon.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • Desert big horn sheep, Sacramento prickly poppy, peregrine falcon, golden eagle, and bats are present. • There are significant cultural resources and Mescalero Apache traditional land. • About 70 percent of the area is in an inventory roadless area. • It contributes to the municipal watershed. • There are about 0.8 miles of Fresnal Creek, which is eligible as wild and scenic, in the northeast portion. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the size and rugged topography. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD48b Recommended Wilderness Area

Factor	Description
Acres	53,027
Summarized description of the recommended boundary	This is a large, somewhat rectangular area. The east boundary follows a National Forest System road and private land. It is stair stepped along the private land. The south boundary follows the Lincoln NF boundary. Most of the west side is on the Lincoln NF boundary, and the north boundary follows a pipeline.

Factor	Description
Brief description of the general geography, topography, and vegetation	Located approximately 11 air miles from Alamogordo in Otero County, this area is in the Sacramento Ranger District. This area is characterized by a mountain escarpment, deep canyons, moderate and steep slopes, and ridges. Elevation in this area ranges from 4,270 to 7,630 feet. The majority of the vegetation cover throughout the area is considered to be sparsely vegetated. Lesser amounts of vegetation consist of piñon-juniper woodland, Chihuahuan desert scrub, ponderosa pine forest, desert willow, Fremont cottonwood/shrub, herbaceous wetland, mixed conifer-frequent fire, mountain mahogany mixed shrubland, piñon-juniper evergreen shrub, piñon-juniper grassland, ponderosa pine/willow, and semidesert grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, roaded natural, and rural **Scenic integrity objectives:** high, moderate, low, and very low **1986 Forest Plan management area:** Alamo and Grapevine **Adjacent uses:** municipal, private, Department of Defense, and BLM **Range allotment:** Sacramento, San Andres, and Escondido
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The average visitor would see some vegetation treatments along the roads, and these would look natural due to the treatment methods. **Undeveloped quality:** Improvements consist of range fences, stock tanks, and storage tanks. There is a major communication site located on Long Ridge, which is cherry stemmed. The communication site may be visible from some locations. The southern portion of the polygon is used by the Department of Defense for military training. Through an interagency agreement, the roads in this area may be maintained by the Department of Defense, but there are no other military improvements. There are no developed recreation sites. **Solitude:** Alamogordo is visible in the viewshed, and visitors may be able to see the communication site on Long Ridge at a distance. Given the distance of these improvements, there is still the feeling of solitude. Generally due to the topography and size of the polygon, visitors do not perceive intrusive sights and sounds. It would be rare to see someone else unless on a road. The general topography is very rugged with canyons and steep slopes and cliffs. **Unconfined and primitive recreation:** There are very few restrictions on the varied primitive recreational activities here due to the area topography and remoteness. **Other features of value:** There is Mexican spotted owl habitat and Sacramento prickly poppy habitat. There is the potential for bats. A bald eagle nest and peregrine falcon are noted. It is a traditional Mescalero Apache homeland and gathering area. About 3.2 miles of Dog Canyon, eligible as a wild and scenic river, are located in this unit. **Manageability:** This is a large polygon with some rugged interior topography. There are some cherry-stem roads on ridgetops, but they are hard to access. The majority of the area is an inventory roadless area, which aids with management. **Suggested modification:** Consider removing the MacGregor use area of the forest, as it is under an agreement with the Department of Defense for training; it is in the southern end of the polygon.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • Much of the area appears natural. • The area is mostly undeveloped. • There is Mexican spotted owl habitat, Sacramento prickly poppy habitat and the potential for bats. A bald eagle nest and peregrine falcon are noted. • There are NRHP-listed cultural resources. • It is a traditional Mescalero Apache homeland and gathering area. • About 3.2 miles of Dog Canyon, which is eligible as a wild and scenic river, are located in this unit. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the size and rugged topography of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD50 Recommended Wilderness Area

Factor	Description
Acres	18,201
Summarized description of the recommended boundary	This is area is rather square. The east boundary follows a National Forest System road and the Lincoln NF boundary. The south side follows the Lincoln NF boundary. Most of the west side is on a National Forest System road, and the north boundary follows private land.
Brief description of the general geography, topography, and vegetation	Located approximately 0.25 air miles from Mayhill in Otero County, the area is in the Sacramento Ranger District. This area is characterized by moderate slopes and ridges. Elevation in this area ranges from 6,515 to 7,200 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland, with a smaller amount of piñon-juniper grassland. There are small amounts of ponderosa pine forest, Colorado Plateau/Great Basin grassland, and Rio Grande cottonwood/shrub.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, roaded natural, and rural **Scenic integrity objectives:** high, moderate, and low **1986 Forest Plan management area:** Snow Canyon **Adjacent uses:** private and BLM **Range allotment:** Sacramento, Mule Canyon, and Hunter
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are some vegetation treatments, but they would look fairly natural given the methodology. The average visitor would not notice the treatments. **Undeveloped quality:** Improvements include range fences, numerous dirt tanks, trick tanks, storage tanks, several two-track roads, and some inholdings. Improvements are not clustered; rather, they are scattered in the area and do not affect naturalness. **Solitude:** The average person can see roads and range development. There could be some chainsaw noise or hunting. The more rolling topography does not screen sights and sounds as well, but the vegetation screens most improvements. Visitors might see other people, especially during hunting season; this moderately affects solitude. **Unconfined and primitive recreation:** Given the proximity to roads, some primitive and moderately unconfined recreation could be pursued. There are no developed recreation facilities. **Other features of value:** none **Manageability:** The polygon is a fairly large square or solid shape without a lot of outside access, which supports manageability. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is mostly present due to the size and topography. • There are some high-quality opportunities for primitive and unconfined recreation.

Polygon SRD52 Recommended Wilderness Area

Factor	Description
Acres	6,440
Summarized description of the recommended boundary	This area is a rather rectangular piece of land adjacent to the Lincoln NF boundary on the north, east, and south sides with a National Forest System road to the west.

Factor	Description
Brief description of the general geography, topography, and vegetation	Located approximately 8.5 air miles from Mayhill in Otero County, this area is in the Sacramento Ranger District. This area is characterized by moderate slopes. Elevation in this area ranges from 6,050 to 6,929 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland and grassland.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive motorized, and semiprimitive nonmotorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** Snow Canyon **Adjacent use:** private and BLM **Range allotment:** Mule Canyon and Cady
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The average visitor would not see any vegetation treatments. The vast majority of the area looks natural. **Undeveloped quality:** Improvements include range fences, a trough, a stock tank, a water storage tank, windmills, and two more improvements adjacent to the area. There are several two-track roads and no inholdings. The improvements are scattered and not clustered or pervasive, which supports naturalness. **Solitude:** The area will look natural, and noise will be minimal, except maybe in hunting season. The general topography is rolling ridges with some steep arroyos. A visitor probably would not see someone else, which supports solitude. **Unconfined and primitive recreation:** There are minimal primitive recreation restrictions. The area is remote, thereby challenging, and primitive recreation opportunities vary. Visitors would need to be self-reliant to recreate here. **Other features of value:** This area has Kuenzler's hedgehog cactus habitat. **Manageability:** The shape is basically rectangular with no cherry-stem roads and no inholdings. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is Kuenzler's hedgehog cactus habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location of the area and the lack of road access. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD56 Recommended Wilderness Area

Factor	Description
Acres	5,246
Summarized description of the recommended boundary	This area is a triangular piece of land bounded by National Forest System roads.
Brief description of the general geography, topography, and vegetation	Located approximately 5.5 air miles from Weed in Otero County, the area is in the Sacramento Ranger District. This area is characterized by moderate mountaintop slopes. Elevation in this area ranges from 7,760 to 8,617 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire. The area has small amounts of ponderosa pine forest, herbaceous wetland, montane/subalpine grassland, and piñon-juniper woodland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized and roaded natural **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** Carrisa and Upper Agua Chiquita **Adjacent use:** private **Range allotment:** Perk, Agua Chiquita Trail, and Pendleton

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the area has had vegetation treatments; however, the average visitor would think it looked natural. **Undeveloped quality:** Improvements include fences; grazing is evident along the roads. There is riparian exclosure consisting of pipe fence, two-track roads, two cherry-stem roads, and several adjacent inholdings. The improvements are not clustered or occur near main roads or the boundary. There are more interior lands that appear natural. **Solitude:** The steep topography and thick vegetation screen the roads. The chance to see or hear other people is low. **Unconfined and primitive recreation:** The area is relatively free of restrictions on behavior. The rough topography makes for a variety of recreation that is primitive, including activities that are challenging. **Other features of value:** habitat for Mexican spotted owl, Sacramento mountain salamander, goshawk, and New Mexico meadow jumping mouse **Manageability:** The area is rather triangular; a cherry-stem road almost cuts the polygon in half and provides access to the center, but the topography is rough. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are habitats for Mexican spotted owl, Sacramento mountain salamander, goshawk, and New Mexico meadow jumping mouse. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the steep and rough topography of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD58 Recommended Wilderness Area

Factor	Description
Acres	5,112
Summarized description of the recommended boundary	This area is a rather rectangular piece of land adjacent to the Lincoln NF boundary on the east and south sides with a National Forest System road to the west.
Brief description of the general geography, topography, and vegetation	Located approximately 10.5 air miles from Weed in Otero County, this area is in the Sacramento Ranger District. This area is characterized by moderate slopes and ridges. Elevation in this area ranges from 6,310 to 7,091 feet. The majority of the vegetation cover throughout the area is piñon-juniper evergreen shrub and mountain mahogany mixed shrubland. There are small amounts of piñon-juniper grassland and piñon-juniper woodland.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive motorized, and semiprimitive nonmotorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** Cuevo Canyon **Adjacent uses:** private, State, and BLM **Range allotment:** Cuevo and North Bluewater

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are very little to no vegetation treatments in this area. The average visitor would see natural vegetation. **Undeveloped quality:** Improvements include range fences, water storage tanks, and level 1 roads. Improvements are scattered and not pervasive; they do not affect naturalness. **Solitude:** The area will have minimal noise, except maybe in hunting season. The general topography is rolling hills and ridges with some steep arroyos that screen noise and sights. Other than hunting season, visitors probably would not see another person while there. **Unconfined and primitive recreation:** Due to the remoteness, there are minimal restrictions. A variety of primitive recreational activities could be pursued here. Recreation here can be challenging; cell phone service could be limited. Visitors would need to be self-reliant. **Other features of value:** none **Manageability:** The shape is basically rectangular with no cherry-stem road and no inholdings. The shape, location, and lack of access aid in management. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD60 Recommended Wilderness Area

Factor	Description
Acres	6,768
Summarized description of the recommended boundary	This area is a rather triangular piece of land adjacent to the Lincoln NF boundary on the south side with a National Forest System road to the north, west, and east.
Brief description of the general geography, topography, and vegetation	Located approximately 7.5 air miles from Weed in Otero County, this area is in the Sacramento Ranger District. This area is characterized by moderate slopes. Elevation in this area ranges from 6,710 to 6,793 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire. There are small amounts of Gambel oak shrubland, herbaceous wetland, montane/subalpine grassland, and ponderosa pine forest.
Current uses and management	**Recreation opportunity spectrum:** roaded natural and semiprimitive nonmotorized **Scenic integrity objectives:** high and low **1986 Forest Plan management area:** Cuevo Canyon **Adjacent uses:** private land **Range allotment:** North Bluewater, Antelope, and Avis

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are little to no vegetation treatments, and the average visitor would see natural vegetation. **Undeveloped quality:** Improvements include range fences, three water storage tanks, dirt tanks, level 1 roads, numerous two-track roads, and adjacent private land. Improvements are not clustered or pervasive; the area would appear natural. **Solitude:** The area has rolling topography with ridges and canyons. Noise will be minimal except maybe in hunting season. Vegetation and topography will screen noises and sights. The chance of seeing someone else would be low. **Unconfined and primitive recreation:** Due to the remoteness, there are minimal restrictions, and there is an opportunity for a variety of primitive recreation. Remoteness can also make recreation challenging. Visitors would need to be self-reliant. **Other features of value:** There is Mexican spotted owl habitat. **Manageability:** The shape is basically triangular with no cherry-stem roads, which supports manageability. There are no known mineral rights. Adjacent land is multiple-use management and private land. The location is fairly remote.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is Mexican spotted owl habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the lack of roads, the vegetation, and the remote location of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD63 Recommended Wilderness Area

Factor	Description
Acres	11,453
Summarized description of the recommended boundary	The shape is kind of long and odd with a narrow part on the east side. National Forest System roads are located on the east, north, and west sides. The southwest side is stair stepped along private land.
Brief description of the general geography, topography, and vegetation	Located approximately 3 air miles from Timberon in Otero County, the area is in the Sacramento Ranger District. This area is characterized by moderate slopes. Elevation in this area ranges from 7,600 to 8,848 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire. There are lesser amounts of Gambel oak shrubland, herbaceous wetland, mixed conifer with aspen, montane/subalpine grassland, piñon-juniper woodland, ponderosa pine forest, ponderosa pine/willow, and upper montane conifer/willow.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive nonmotorized, and semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** Upper Agua Chiquita and Carrisa **Adjacent uses:** private land **Range allotment:** Scott Able and Agua Chiquita Trail

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The vegetation has been thinned in a few places. Wildlife openings have been created with broadcast burns. Due to the treatment method, the average visitor would consider the area natural. **Undeveloped quality:** Improvements include range fences, several cherry-stem roads, two-track roads, inholdings, and adjacent private land. There is a NRHP-listed lookout tower. Improvements are not clustered or overly pervasive. **Solitude:** The area vegetation and topography screen sights and sounds. The topography is fairly rugged and the vegetation thick, which screen the area from intrusive noise and sights. There is a low chance to see other people. **Unconfined and primitive recreation:** Primitive recreation restrictions are very low given the remoteness. A variety of primitive recreational activities can be pursued; the area can be challenging due to the topography. There are no developed recreation sites. **Other features of value:** There is Mexican spotted owl and Sacramento mountain salamander habitat. There is goshawk nesting habitat and a bald eagle wintering area. There is a NRHP-listed lookout tower. About 3.45 miles of the Monument Canyon, which is an eligible wild and scenic river, are within the polygon. **Manageability:** The shape is kind of long and odd with a narrow part on the east side. It has four cherry-stem roads. There is private land along the southwest side. However, the area is steep and rugged, which creates natural barriers that aid with manageability. Management nearby is multiple use and private land. There are a couple of potential mineral right claims.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are Mexican spotted owl and Sacramento mountain salamander habitat. There is goshawk nesting habitat and a bald eagle wintering area. • There is a NRHP-listed lookout tower. • About 3.45 miles of the Monument Canyon, which is an eligible wild and scenic river, are within the polygon. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the topography of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon SRD64 Recommended Wilderness Area

Factor	Description
Acres	25,146
Summarized description of the recommended boundary	The shape is long and irregular. National Forest System roads are located on the north side. The south, east, and part of the west side are stair stepped along private, State, and BLM land.
Brief description of the general geography, topography, and vegetation	Adjacent to the east side of Timberon in Otero County, the area is in the Sacramento Ranger District. This area is characterized by moderate slopes. Elevation in this area ranges from 6,600 to 8,503 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland, mountain mahogany mixed shrubland, and mixed conifer-frequent fire. There are smaller amounts of Colorado Plateau/Great Basin grassland, mixed conifer with aspen, montane/subalpine grassland, piñon-juniper evergreen shrub, piñon-juniper grassland, and ponderosa pine forest.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive nonmotorized, and semiprimitive motorized **Scenic integrity objectives:** high, moderate, and very low **1986 Forest Plan management area:** Lick Ridge and Carrisa **Adjacent uses:** private, State, and BLM **Range allotment:** Carrissa, Jeffers, Pinon Draw, and Avis

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been some older (5–10 years) burns with some wildlife openings . The area does not appear to have been treated in a while. The average visitor would think it looks quite natural. **Undeveloped quality:** Improvements include range fences, several cherry-stem roads, two-track roads, level 1 roads, motorized trails, inholdings, and adjacent inholdings. There is a windmill/tower located on one of the inholdings. **Solitude:** The topography is rugged with some steep drainages. The vegetation is thick. Sights and sounds would be screened. Hunting may occur seasonally. **Unconfined and primitive recreation:** The area is mostly free of restrictions. Primitive recreation is hunting, camping, hiking, and horseback riding. Developed recreation is off-highway vehicle driving on roads and trails; however, the area is large, and these motorized activities can be avoided. The terrain is challenging. There are no developed recreation sites. **Other features of value:** Mexican spotted owl and Sacramento mountain salamander habitat along with a goshawk nesting area **Manageability:** The shape is long; the southern and eastern edges are Lincoln NF boundaries. There are short, cherry-stem roads and small inholdings. Despite the boundary, the topography and remoteness make the area more manageable. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are Mexican spotted owl and Sacramento mountain salamander habitat, along with a goshawk nesting area. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD67 Recommended Wilderness Area

Factor	Description
Acres	48,374
Summarized description of the recommended boundary	The shape is very long and narrow. National Forest System roads are located on the east side. The west and north sides follow the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located about 15 miles to the east of Pinon in Otero and Eddy Counties, the area is in the Guadalupe Ranger District. This area is characterized by moderate slopes on the east side and a very steep escarpment on the west side. Elevation in this area ranges from 4,550 to 6,746 feet. Vegetation consists of semidesert grassland, piñon-juniper grassland, rock, and Chihuahuan desert scrub.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive nonmotorized, and semiprimitive motorized **Scenic integrity objectives:** high, moderate, and very low **1986 Forest Plan management area:** North Guadalupe, West Guadalupe, and Central Guadalupe **Adjacent uses:** private, State, and BLM **Range allotment:** Bear Springs, Prude, Panama, Wood, Rim, National, and Board Tree Last Chance

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no known vegetation treatments in the area. The average visitor would think it looks natural. **Undeveloped quality:** Improvements include range fences, especially in the northern portion, along with water storage tanks, nine fairly short cherry-stem roads, two-track roads, level 1 roads, dispersed camping areas, and two windmills in the northern portion. Given the very large size and lack of vegetation treatments, the area is natural in appearance. **Solitude:** There are some very deep and rugged canyons, such as Little Dog Canyon, blocking visuals and sounds. From the rim visitors can see crow flats with occasional ranch structures at a great distance. The vegetation also screens sights and sounds. The rim road binds the polygon, but it is not heavily used outside of hunting season; it is a popular area for hunting Barbary sheep. This is a very windy area and not popular for camping. There is a low chance of seeing someone else outside hunting season. **Unconfined and primitive recreation:** The majority of the area is very steep. It would be difficult to traverse the length of the southern portion, but visitors could get into a canyon. In the wider portion there is a lot of opportunity for an unconfined experience of high quality. The steep and rugged topography makes recreation in the area very challenging. There are no developed recreation facilities. **Other features of value:** Golden eagle and peregrine falcon nesting; the vistas and the rugged canyons are stunning. **Manageability:** The polygon is large and long. It is narrow in some places. The north end has more range improvements. There is a lot of boundary edge, but the topography is very steep. There are cherry-stem roads, but they do not provide a lot of access, again due to the topography. There are no known mineral rights. **Suggested modification:** Remove the dirt tank and complete the removal of livestock pens near the excluded water tank and troughs on the north side of the polygon. Remove Bates Park Tank, Upper Dog Tank, and Indian Tank. Complete removal of livestock pens and provide completed access to inholdings on the south end of the polygon.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are golden eagle and peregrine falcon nesting. • Vistas and the rugged canyons are stunning. • The area has the potential for significant cultural resources and caves. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location and rugged topography of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD68 Recommended Wilderness Area

Factor	Description
Acres	5,421
Summarized description of the recommended boundary	The shape is rectangular. National Forest System roads are located on the north, south, and west sides. The east side follows the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located about 18 miles to the east of Pinon in Otero County, the area is in the Guadalupe Ranger District. This area is characterized by ridges and canyons. Elevation in this area ranges from 5,670 to 6,491 feet. The majority of the vegetation cover throughout the area is piñon-juniper grassland with a lesser amount of semidesert grassland.

Factor	Description
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive nonmotorized, and semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Guadalupe **Adjacent uses:** private and BLM **Range allotment:** Bullis Springs and Bear Springs
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** Piñon-juniper thinning has occurred using a lop and scatter method. The average visitor would believe the treatment and vegetation look natural. **Undeveloped quality:** Improvements include numerous range fences, along with water storage tanks, a level 1 road, and two-track roads. Dispersed camping is popular along County Road 30. County Road 30 runs along the northwest side and is a main entry point for this side of the Guadalupe Mountains. The combination of range fences, the county road, and dispersed camping make the area moderately natural. **Solitude:** During hunting season, visitors could hear gunshots and see other people camping and hunting. The rest of the year, visitors would have a low chance of seeing someone. The county road is not busy. Once visitors are away from the roads, they would not hear or see the occasional trucks. The canyons would provide additional screening and solitude. **Unconfined and primitive recreation:** Due to the remoteness of the area, there are not a lot of restrictions on primitive recreation. The rocky ground and remoteness make use of the area challenging. There is limited cell service. The heat during the summer can cause health issues. There are no developed recreation facilities. **Other features of value:** habitat for Kuenzler's hedgehog cactus **Manageability:** One cherry-stem road does not provide access to the interior. The county road on the northwest side is not heavily traveled. The low amount of access helps with management. There are no known mineral rights. **Suggested modification:** Remove the dirt tank and add a cherry stem for access on the north corner.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is habitat for Kuenzler's hedgehog cactus. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location and low amount of access to the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD69 Recommended Wilderness Area

Factor	Description
Acres	7,974
Summarized description of the recommended boundary	The shape is rectangular. National Forest System roads are located on the north, south, and west sides. The east side follows the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located about 18 miles to the east of Pinon in Otero County, the area is in the Guadalupe Ranger District. This area is characterized by ridges and canyons. Elevation in this area ranges from 5,500 to 6,491 feet. The vegetation cover throughout the area is mostly piñon-juniper grassland with about 20 percent of semidesert grassland and a small component of desert willow.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive nonmotorized, and semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Guadalupe **Adjacent uses:** private and BLM **Range allotment:** Bullis Springs, Bear Springs, Sargent, and Prude

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are older lop and scatter treatments; nothing has occurred within the last 10 years. The average visitor would think the vegetation looks natural. **Undeveloped quality:** Improvements include range fences and pens, along with water storage tanks, dirt tanks, and spring developments. There are a couple of level 1 roads and two-track roads; dispersed camping is popular in the area along the western side. Dispersed camping occurs during hunting season. The improvements are not clustered or pervasive. **Solitude:** The topography is ridges and canyons. The area is remote. The rim road passes along the west boundary but has limited travel use. There are no high-use areas other than dispersed camping during hunting season on the west side. The vegetation and canyons screen the intrusive sights and sounds. The chance of seeing another person is low. **Unconfined and primitive recreation:** The area has few restrictions, given the remoteness and size. The canyons run the length of the polygon, so visitors would have a lower chance of seeing a forest/county road and feeling confined. The area has rocky terrain, a lack of cell service, rattlesnakes, and cactus, which raise the level of needed self-reliance. **Other features of value:** habitat for Kuenzler's hedgehog cactus **Manageability:** This is a fairly large, remote area with minimal cherry-stem roads, which aid with management. There are some level 1 roads that provide access. The topography is fairly rugged with canyons. There are no known mineral rights. Management of adjacent land is multiple use, with no private inholdings. **Suggested modification:** Consider excluding livestock pens on and near the northwest boundary. Remove Chirp Tank and its improvements.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is habitat for Kuenzler's hedgehog cactus. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location and the minimal amount of access to the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD70 Recommended Wilderness Area

Factor	Description
Acres	6,457
Summarized description of the recommended boundary	The shape is rectangular. National Forest System roads are located on the north, south, and west sides. The east side follows the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located about 22 miles to the southeast of Pinon in Otero County, the area is in the Guadalupe Ranger District. This area is characterized by ridges and canyons. Elevation in this area ranges from 5,920 to 6,300 feet. The vegetation cover throughout the area is piñon-juniper grassland with nearly equal cover of semidesert grassland.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive nonmotorized, and semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Guadalupe and East Guadalupe **Adjacent uses:** private, State, and BLM **Range allotment:** Sargent, Hardin, and Prude

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no known vegetation treatments. Parts of the area burned in 2018. The forage is heavily grazed in places. The average visitor would believe the vegetation looks natural. **Undeveloped quality:** Improvements include a windmill and range fences, along with livestock working pens. There are two cherry-stem roads, a level 1 road, two-track roads, and an inholding. Improvements are not clustered or pervasive and only have a minor effect on naturalness. **Solitude:** The topography is ridges and canyons. It is hard to access from the east side. The county road on the south side and the inholding might provide some local sights and sounds, but they would be minimal. During hunting season, visitors might see someone. **Unconfined and primitive recreation:** The area is remote, so there are few restrictions on primitive recreation behavior. The area is rocky and rugged and may have limited cell service, which require a visitor to be self-sufficient. **Other features of value:** habitat for Kuenzler's hedgehog cactus **Manageability:** This is a fairly large polygon with limited cherry-stem roads. Access is generally restricted due to the topography, which aids in management. There are no known mineral rights. **Suggested modification:** Add a cherry stem on the existing access road to the private inholding near the north boundary.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD71 Recommended Wilderness Area

Factor	Description
Acres	5,619
Summarized description of the recommended boundary	The shape is rather circular and surrounded by National Forest System roads.
Brief description of the general geography, topography, and vegetation	Located about 20 miles to the southeast of Pinon in Otero County, the area is in the Guadalupe Ranger District. This area is characterized by ridges and canyons. Elevation in this area ranges from 6,090 to 6,690 feet. The majority of the vegetation cover throughout the area is piñon-juniper grassland with a very small component of semidesert grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** North Guadalupe **Adjacent uses:** Forest Service **Range allotment:** Prude and Panama

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been limited vegetation treatments on the western side, consisting of lop and scatter. The average public would believe the vegetation looks natural. **Undeveloped quality:** Improvements include range fences, along with water storage tanks, a dirt tank, and two windmills. There is a cherry-stem road, level 1 roads, and two-track roads. Two tracks traverse the area, but they are very rough and may not exist in places. The rugged canyon lands of this polygon mask improvements like windmills. **Solitude:** There are very few intrusive sights and sounds, even during hunting season. The topography consists of ridges, canyons, and bottoms. The vegetation and topography provide screening. A visitor probably would not see another person. **Unconfined and primitive recreation:** The area is remote, and restrictions on primitive recreation are limited. The ground is rocky and rather challenging to hike across. There is little cell service. A visitor needs to be self-sufficient for personal well-being. **Other features of value:** none **Manageability:** The shape is oval with roads around the boundary. Interior two-track roads are very difficult to travel. The lack of interior access and the topography aid in management. There are no known mineral rights. **Suggested modification:** Remove the dirt tank and associated livestock pen from the southeast side.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location and limited access to the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD73 Recommended Wilderness Area

Factor	Description
Acres	6,782
Summarized description of the recommended boundary	The shape is rather circular and surrounded by National Forest System roads.
Brief description of the general geography, topography, and vegetation	Located about 26 miles to the southeast of Pinon in Otero County, the area is in the Guadalupe Ranger District. This area is characterized by ridges and canyons. Elevation in this area ranges from 5,570 to 6,450 feet. The majority of the vegetation cover throughout the area is piñon-juniper grassland; a little more than 25 percent is semidesert grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized and roaded natural **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Guadalupe and East Guadalupe **Adjacent uses:** Forest Service and some private land **Range allotment:** Panama

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are some small wildlife opening projects in the area and no recent fires. The average visitor would think the vegetation looks natural. **Undeveloped quality:** Improvements include range fences, along with two water storage tanks and a dirt tank. There is one cherry-stem road, three level 1 roads, two-track roads, and three trick tanks; dispersed camping occurs on the western side. There is a barrow pit on the western side off State Road 518. The improvements are not clustered, which aids with naturalness. **Solitude:** On the north and western boundaries, there is a county road, including the rim road. Neither has much traffic except during hunting season. There is a ranch on the north side that may have some noises, such as truck running, voices, and other mechanical noises. The terrain and vegetation would screen sounds once visitors are a short distance from the roads. A visitor probably would not see another person. **Unconfined and primitive recreation:** The area is remote, and there may be some cell phone service. There is a variety of opportunities for unconfined primitive recreation, including high-quality challenging activities, due to the remoteness and rocky, rough terrain. **Other features of value:** none **Manageability:** The terrain is rugged, and access is limited; these aid in manageably. There are no known mineral rights. **Suggested modification:** Consider removing the barrow pit on the northwest side from the polygon; it is substantially noticeable.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is the potential for caves. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location of the area and limited access. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD74 Recommended Wilderness Area

Factor	Description
Acres	19,256
Summarized description of the recommended boundary	The shape is triangular and surrounded by National Forest System roads. The northeast side is located on the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located about 10 miles from Queen in Otero and Eddy Counties, the area is in the Guadalupe Ranger District. This area is characterized by ridges and canyons. Elevation in this area ranges from 4,690 to 6,000 feet. The majority of the vegetation cover throughout the area is piñon-juniper grassland; a little more than 25 percent is semidesert grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, and roaded natural **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Guadalupe and East Guadalupe **Adjacent uses:** BLM and some private land **Range allotment:** National

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation cover throughout the area is semidesert grassland, with nearly equal amounts of piñon-juniper grassland. There is a very small component of little walnut-chinkapin oak and interior chaparral. Approximately 15 percent is classified as sparsely vegetated. **Undeveloped quality:** There have been some small lop and scatter vegetation treatments. There has been some managed wildfire. The average visitor would think the vegetation looks natural. **Solitude:** Intrusive sights are primarily range improvements (fences and tanks). The topography and vegetation will screen the range improvements due to the scale of the improvements. Sounds would be limited unless visitors are next to the ranch headquarters. Vehicle traffic noise would be minimal outside of hunting season. There is a low chance of seeing others, as very few people recreate there. **Unconfined and primitive recreation:** Due to the remoteness of the area, primitive recreation would be unrestricted. The remoteness and topography, rocky terrain, and potential lack of cell phone service make challenging, high-quality recreation. Visitors need to be self-sufficient. **Other features of value:** Kuenzler's hedgehog cactus habitat **Manageability:** The shape is somewhat triangular, with two major cherry-stem roads dividing the area. The cherry stems could make management a bit more challenging if the area were not so remote or if the terrain were not rugged. There are no known mineral rights. **Suggested modification:** Remove the dirt tank on the south side by extending the cherry stem on the access road.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is Kuenzler's hedgehog cactus habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the area's remoteness and terrain. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD75 Recommended Wilderness Area

Factor	Description
Acres	12,773
Summarized description of the recommended boundary	This area is an irregular shape. It is surrounded by National Forest System roads on the west, north, and south sides. The east side is on the Lincoln NF boundary. There is some private land on the south and west sides.
Brief description of the general geography, topography, and vegetation	Located adjacent on the south side to Queen in Eddy County, the area is in the Guadalupe Ranger District. This area is characterized by ridges and deep canyons. Elevation in this area ranges from 4,400 to 5,824 feet. The vegetation cover in the area is composed of nearly equal portions of piñon-juniper grassland, piñon-juniper evergreen shrub, and mountain mahogany mixed shrubland. There are small components of juniper grassland, cottonwood/hackberry, desert willow, little walnut-chinkapin oak, and little walnut-desert willow.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, rural, and roaded natural **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** Central Guadalupe and East Guadalupe **Adjacent uses:** BLM, State, and some private land **Range allotment:** National, Montgomery, Board Tree Last Chance, and Sitting Bull

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been vegetation treatments north of Queen; these have since burned in wildfire and prescribed fire. Due to the treatment method and subsequent wildfire, the average visitor would think the vegetation looks natural. **Undeveloped quality:** Improvements include numerous range fences, water storage tanks, dirt tanks, a windmill, level 1 roads, two-track roads, cherry-stem roads, and some trails with signs. There are two distribution power lines on the boundary. The power lines are not very obtrusive since they are the 25-foot (or more), blond-colored poles. There is a hazard marker on the line across an arroyo, so aircraft does not hit it. On the ridgetops, the poles might be visible. Given the size and rugged terrain, the improvements are not very visible, providing for naturalness. **Solitude:** If visitors are near the community of Queen or next to Sitting Bull Falls Recreation Area, they might hear people or vehicle noise. The steep canyon terrain screens noise and sights. The vegetation also screens sights and sounds. Some of the canyons in this polygon are so steep that they are similar to slot canyons. **Unconfined and primitive recreation:** The area is very challenging due to the terrain. It is free of primitive recreation restrictions, once visitors are a short distance from Queen and Sitting Bull Falls. This area has the majority of search-and-rescue operations in the district, due to the terrain, the proximity of Sitting Bull Falls, and the access to hiking trails. There are lots of rattlesnakes in the area, especially near water. **Other features of value:** Kuenzler's hedgehog cactus habitat and habitat for species of conservation concern plants, fish, snails, and bats. The area includes NRHP-listed sites, other significant cultural resources, and a Mescalero Apache traditional site. The Last Chance Canyon, eligible as a wild and scenic river, is located in this polygon. In addition, there is a designated national recreation trail. **Manageability:** This is a fairly large area; the topography makes travel challenging and limits public access. Queen is on the south side with likely the most access and intrusion from private land, although this has been limited. Most people use the existing National Forest System roads. The land north of Queen is very rugged with limited access. The challenging topography helps with manageability. There are no known mineral rights. **Suggested modification:** Remove the dirt tank from the north side by extending the cherry stem.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is habitat for Kuenzler's hedgehog cactus. • It includes NRHP-listed sites. • There is a Mescalero Apache traditional site • The Last Chance Canyon eligible wild and scenic river is located in this polygon. • There is a designated national recreation trail. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the size of the area, rugged topography, and limits on access. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD76 Recommended Wilderness Area

Factor	Description
Acres	8,587
Summarized description of the recommended boundary	This area is fairly rectangular; it is surrounded by National Forest System roads.

Factor	Description
Brief description of the general geography, topography, and vegetation	Located about 6 miles from Queen in Otero and Eddy Counties, the area is in the Guadalupe Ranger District. This area is characterized by ridges and canyons. Elevation in this area ranges from 5,810 to 6,180 feet. The majority of the vegetation cover throughout the area is piñon-juniper grassland.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized and roaded natural **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** Central Guadalupe and East Guadalupe **Adjacent uses:** Forest Service **Range allotment:** National
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The area may have limited lop and scatter vegetation treatments, which are over 8 years old. They would not be noticeable. The average visitor would think the vegetation looks natural. **Undeveloped quality:** Improvements include range fences, working pens, water storage tanks, dirt tanks, level 1 roads, two-track roads, and four cherry-stem roads. There is some dispersed camping along the western margin during hunting season. A borrow pit is located on the southeast side. The scale and configuration of improvements would not affect naturalness once visitors are beyond them. **Solitude:** Intrusive sights and sounds would be minimal. The rim road to the southwest is not heavily traveled. The borrow pit is minimally used. There are no inholdings for noise or sounds. The area would support a feeling of solitude. **Unconfined and primitive recreation:** Restrictions on primitive recreation are minimal, given the remoteness of the area. Thus provides high-quality opportunities. The topography, terrain, and potential lack of cell phone service make the area fairly challenging. There are no recreation improvements in the area. **Other features of value:** The area may be used by golden eagles for hunting. **Manageability:** This is a fairly rectangular area, surrounded by roads. The roads on the west and south are well maintained. The four cherry-stem roads primarily access range improvements; two-track roads appear to cross the area and connect cherry stems, especially in the southern portion. There are no known mineral rights. The roads and access moderately affect manageability. **Suggested modification:** Remove livestock pens and the adjacent water tank from the east side.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • The area may be used by golden eagles for hunting. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the remote location of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD77 Recommended Wilderness Area

Factor	Description
Acres	6,137
Summarized description of the recommended boundary	This area is shaped like a boot; it is surrounded by National Forest System roads on the west, north, and south sides. The east side is on the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located about 2.5 miles from Queen in Eddy County, the area is in the Guadalupe Ranger District. This area is characterized by ridges and canyons. Elevation in this area ranges from 4,420 to 5,358 feet. The majority of the vegetation cover throughout the area is piñon-juniper evergreen shrub and juniper grassland. There are small components of desert willow, little walnut-chinkapin oak, little walnut-desert willow, and mountain mahogany mixed shrubland.

Factor	Description
Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, rural, and roaded natural **Scenic integrity objectives:** high, moderate, and low **1986 Forest Plan management area:** Central Guadalupe and East Guadalupe **Adjacent uses:** BLM, State, and some private land **Range allotment:** Sitting Bull
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been some small thinning activities around the Forest Service administrative site. The area burned in 2011. The average visitor would think the vegetation looks natural. **Undeveloped quality:** Improvements include a few range fences and water storage tanks. There is a trailhead, two-track roads, and a couple of cherry-stem roads. There is a communication tower toward the north end of the polygon; it is about 20 feet tall. The district administrative site is located on the southern side of the polygon. The topography and the vegetation screen the improvements. **Solitude:** There will be some vehicle noise that diminishes when visitors get away from the roads. Queens Highway and a paved road to Sitting Bull Falls are on the south and north sides of the polygon. Canyons and ridges, along with the topography, screen intrusive sights and sounds. There is a very low likelihood of encountering others once away from the roads. Solitude can be found in most of the area. **Unconfined and primitive recreation:** There are very few restrictions on primitive recreation, which provides for high-quality opportunities. The topography, terrain, and potential for the lack of cell service make the area challenging. Visitors need to be self-sufficient to recreate here. **Other features of value:** The area contains Kuenzler's hedgehog cactus habitat and species of conservation concern plants and fish. A very small amount of the Last Chance Canyon, which is an eligible wild and scenic river, is located in this polygon. **Manageability:** The topography limits access. Limited access helps with manageability.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • The area contains Kuenzler's hedgehog cactus habitat. • A very small amount of the Last Chance Canyon eligible wild and scenic river is located in this polygon. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the topography of the area. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD81 Recommended Wilderness Area

Factor	Description
Acres	11,592
Summarized description of the recommended boundary	This area is long and oval with a smaller rectangular area to the northeast. It is surrounded by National Forest System roads on the west and north. The south bounds a National Forest System road and a WSA. The east side is on the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located about 4.5 miles from Queen in Eddy County, the area is in the Guadalupe Ranger District. This area is characterized by ridges and deep canyons. Elevation in this area ranges from 4,870 to 6,900 feet. The vegetation cover in the area is mountain mahogany mixed shrubland, with lesser amounts of ponderosa pine-evergreen oak, semidesert grassland, and piñon-juniper evergreen shrub. There are small amounts of juniper grassland, little walnut-ponderosa pine, and mixed conifer-frequent fire.

Current uses and management	**Recreation opportunity spectrum:** semiprimitive nonmotorized, semiprimitive motorized, and roaded natural **Scenic integrity objectives:** high, moderate, and low **1986 Forest Plan management area:** Dark Canyon **Adjacent uses:** National Park Service, State, and some private land **Range allotment:** Dark Canyon and McCollaum
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** In 2011, the Hidden and Lookout Fire burned in the area. The 2012 Horse Canyon Fire also occurred here. There was a Dark Canyon thinning project along the road, but this is a very small percentage of the polygon. There also has been thinning in the Turkey Canyon; it is a very small percentage of the area. Methods used would not be visible for long. Overgrazing has occurred in the bottom lands. The average visitor would still believe the area looks natural. **Undeveloped quality:** Improvements include range fences, water storage tanks, windmills, hiking trails, two-track roads, three cherry-stem roads, and an inholding. Dispersed camping occurs along the margins. The fires have removed a number of fences and range improvements. Access is very difficult, so there are few improvements overall. The area would appear quite natural to the average visitor. **Solitude:** There are very few intrusions of both sights and sounds. In Horse and Turkey Canyons there may be some seasonal hunting, but access on the roads is difficult. The chance of seeing someone else off the road is very low. **Unconfined and primitive recreation:** The polygon is very large, and primitive recreation is unconfined. The Guadalupe Ridge trail provides hiking access. In addition, the caves in the area are challenging. Visitors need a permit, rappelling skills, and climbing equipment to visit the caves. **Other features of value:** There is Mexican spotted owl habitat. Pincushion cactus may occur here. The area contains the release site for Merriam's turkey. Several long reaches of the Dark Canyon, which is an eligible wild and scenic river, are located in this polygon. **Manageability:** The polygon is long and narrow with three relatively short cherry-stem roads. The area is adjacent to a WSA on the south side. The topography is rugged and hard to access. The roads are very rough. The lack of access and remoteness support manageability. There are no known mineral rights. **Suggested modification:** Consider buffering any trailheads on the boundary. Remove the dirt tank and stock pens from the boundary north of State Road 552.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is Mexican spotted owl habitat. Pincushion cactus may occur here. The area contains the release site for Merriam's turkey. • There are significant cultural and tribal cultural resources. • Several long reaches of the Dark Canyon eligible wild and scenic river are located in this polygon. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the rugged topography of the area and location adjacent to a WSA. • There are high-quality opportunities for primitive and unconfined recreation.

Polygon GRD82 Recommended Wilderness Area

Factor	Description
Acres	8
Summarized description of the recommended boundary	This area is small and rather narrow. It is located adjacent to the Guadalupe Escarpment Wilderness Study Area on the northeast side with a National Forest System road to the southwest.

Factor	Description
Brief description of the general geography, topography, and vegetation	Located approximately 11 air miles from Queen in Eddy County, the area is in the Guadalupe Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 7,200 to 7,268 feet. The vegetation cover in the area is ponderosa pine-evergreen oak with a very small component of mixed conifer-frequent fire, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** roaded natural **Scenic integrity objectives:** high **1986 Forest Plan management area:** South Guadalupe **Adjacent uses:** Guadalupe Escarpment WSA **Range allotment:** Soldier Spring
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There was a fire in 1990, but it is not noticeable today. There have been vegetation treatments over the past 10 years. There may have been some brush removal in the 1990s. The average person would consider the area natural in appearance. **Undeveloped quality:** Improvements nearby include range fences, a corral, and a storage tank. Forest Road 540 runs along the south side of the area. There are dispersed campsites in the area along the road. **Solitude:** The road is close by and gets some use. There is the storage tank and corral outside the northwest point. The WSA is adjacent on the northeast side, providing more opportunity for solitude as visitors go in that direction. Vegetation screens the tank and road once visitors move away from them. **Unconfined and primitive recreation:** There are no recreation improvements here, and the WSA is nearby. There would be varied opportunity for primitive and unconfined recreation here and available a short distance to the northeast in the WSA. **Other features of value:** There is habitat for pincushion cactus, forage for Mexican spotted owl, and a golden eagle nest nearby. **Manageability:** The shape is small, linear, and narrow. However, there is an adjacent WSA. The lack of inroads and the adjacent WSA support manageability. There are no known mineral rights. Range improvements exist outside the north corner. **Suggested modification:** Consider looking at the boundary and making sure range improvements on the north end are not included.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is habitat for pincushion cactus, forage for Mexican spotted owl, and a golden eagle nest nearby. • One hundred percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is moderately present due to adjacency to a road and the WSA. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent WSA opportunities.

Polygon GRD83 Recommended Wilderness Area

Factor	Description
Acres	36
Summarized description of the recommended boundary	This area is small and somewhat triangular. It is located adjacent to the Guadalupe Escarpment Wilderness Study Area on the north, east, and west sides with a National Forest System road to the south.

Factor	Description
Brief description of the general geography, topography, and vegetation	Located approximately 11 air miles from Queen in Eddy County, the area is in the Guadalupe Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 7,160 to 7,200 feet. Approximately half of the vegetation cover in the area is mixed conifer-frequent fire, with lesser amounts of mountain mahogany mixed shrubland and ponderosa pine-evergreen oak, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** Dark Canyon **Adjacent uses:** Guadalupe Escarpment WSA **Range allotment:** Soldier Springs
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There have been no vegetation management activities in this area. The average visitor would believe the area and vegetation look natural. **Undeveloped quality:** Improvements include a level 2 National Forest System road to the south outside of the area. An old mining prospect occurs in the area, but it is quite unnoticeable and may look like erosion to the average person. **Solitude:** Other than the road on the south side, the majority of the boundary is adjacent to the WSA. There is a high degree of solitude in this area. **Unconfined and primitive recreation:** There are no visible improvements and no fence lines. A person would feel that a variety of primitive recreation choices is available and the area is unconfined. **Other features of value:** This is Mexican spotted owl habitat, and there is a parliament in the area. It is also pincushion cactus habitat. There is potential for Davis Mountain cottontail. There is a golden eagle nest nearby. **Manageability:** This is a fairly small polygon, but the majority of the boundary is next to a WSA. There are no cherry-stem roads or other roads providing interior access. The lack of interior access and the proximity to the WSA promote manageability. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • This is Mexican spotted owl habitat; there is a parliament in the area. It is also pincushion cactus habitat. There is a golden eagle nest nearby. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to the WSA. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent WSA opportunities.

Polygon GRD85 Recommended Wilderness Area

Factor	Description
Acres	427
Summarized description of the recommended boundary	This area is square on the west and north sides and irregular on the east and southeast sides. It is located adjacent to the Devil's Canyon Wilderness Study Area on the west side with a National Forest System road to the east.
Brief description of the general geography, topography, and vegetation	Located approximately 11 air miles from Queen in Eddy County, the area is in the Guadalupe Ranger District. This area is characterized by steep and moderate slopes. Elevation in this area ranges from 6,200 to 7,240 feet. The majority of the vegetation cover in the area is mountain mahogany mixed shrubland, with lesser amounts of ponderosa pine-evergreen oak, and a much smaller component of mixed conifer-frequent fire and little walnut-ponderosa pine; all of these provide suitable habitat for a variety of wildlife.

Factor	Description
Current uses and management	**Recreation opportunity spectrum:** roaded natural and semiprimitive nonmotorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** Dark Canyon and West Guadalupe **Adjacent uses:** Devil's Den Canyon WSA on BLM land **Range allotment:** Soldier Springs
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the area is cliff and escarpment with no known vegetation treatments. The average visitor would think it looks natural. **Undeveloped quality:** Improvements include a short-range fence. Hiking trail 202, which is not maintained, may not exist now. The near lack of improvements and no vegetation treatments would make the area look quite natural. **Solitude:** Solitude would be high, other than Forest Road 540 on a small portion of the polygon's east side. In addition, the area overlooks a BLM WSA to the west. There is a very low chance of seeing someone else or encountering sights and sounds of civilization. **Unconfined and primitive recreation:** Due to the lack of improvement and the rugged country, the opportunities for unconfined and primitive recreation are very high. **Other features of value:** There is habitat for Mexican spotted owl, pincushion cactus, Davis Mountain cottontail, invertebrates, and snails. **Manageability:** The land to the west is a BLM WSA, and to the southeast across the dirt road is the Guadalupe Escarpment Wilderness Study Area. The majority of the boundary does not have roads, and it is very rugged country. There are no known mineral rights. The lack of interior road access and the location between WSAs make manageability high. **Suggested modification:** Consider a small boundary adjustment to remove the range corral and pens on the east side next to Forest Road 540.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There is habitat for Mexican spotted owl and pincushion cactus. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to a WSA. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent WSA opportunities.

Polygon Guadalupe Escarpment WSA

Factor	Description
Acres	21,000
Summarized description of the recommended boundary	This area is long and irregular. The south, west, and east sides of the polygon are on the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located approximately 8 air miles from Queen in Eddy County, the area is in the Guadalupe Ranger District. This area is characterized by steep canyons and ridges. Elevation in this area ranges from 5,360 to 7,420 feet. The majority of the vegetation cover in the area is mountain mahogany, ponderosa pine evergreen oak, and mixed conifer, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive motorized, and semiprimitive nonmotorized **Scenic integrity objectives:** very high **1986 Forest Plan management area:** South Guadalupe and Upper McKittrick **Adjacent uses:** National Park Service, BLM **Range allotments:** Soldier Springs, Dark Canyon, Black River, and McCollaum

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** Parts of the area burned in a wildfire. There have been no vegetation management activities. The average person would believe the vegetation looks natural. **Undeveloped quality:** Improvements include a couple of wildlife trick tanks; there are few fences because natural features like cliffs serve to manage livestock. The very low number of vegetation activities and improvements add to the high degree of naturalness. **Solitude:** The lack of roads, only a few pedestrian trails, and the lack of improvements—plus the extreme landscape—provide excellent solitude. In addition, there are two adjoining wilderness areas under National Park Service management. **Unconfined and primitive recreation:** Because of the lack of access and the extreme topography, primitive and unconfined recreation here is the highest in the district. **Other features of value:** There is habitat for Mexican spotted owl, Davis Mountain cottontail, invertebrates, and plants. There is cave habitat for bats. Peregrine falcon and golden eagle may use the area. It also contains the Guadalupe pine. There are significant cultural resources, and caves are present. It includes a research natural area, and significant water resources include several long reaches of the Big Canyon and North McKittrick Canyon eligible wild and scenic rivers. **Manageability:** The polygon is large, and access is very limited. It is bordered by a BLM WSA and wilderness areas within national parks. There are no known mineral rights. This makes manageability high.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped with no infrastructure. • There is habitat for Mexican spotted owl, Davis Mountain cottontail, invertebrates, and plants. There is cave habitat for bats. Peregrine falcon and golden eagle may use the area. It also contains the Guadalupe pine. • Ninety-nine percent of the area is scenery class 1. There are magnificent views of rugged canyons. • Significant cultural resources and caves are present. • A research natural area is present. • Significant water resources include several long reaches of the Big Canyon and North McKittrick Canyon eligible wild and scenic rivers. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the size, lack of access, rugged topography, and adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness and WSA opportunities.

Alternative D (Accelerated Conservation)

Alternative D was developed in response to commenters who expressed a desire for more active management to achieve the Lincoln NF's desired conditions for natural resources. The alternative's forest plan components focus on increased restoration of riparian areas, wildlife habitat, and aquatic areas.

Alternative D Criteria

The recommended wilderness criteria under alternative D are the same as those under alternative B. Therefore, the recommended wilderness polygons are the same and are listed under alternative B.

Alternative E (Treatment/Restoration)

Alternative E was developed to promote easier access and increased multiple-use opportunities on the Lincoln NF. It focuses on promoting more developed recreation opportunities with increased motorized access to developed recreation sites and having fewer restrictions on land uses, including limited

recommended wilderness and no special management areas. Alternative E emphasizes timber production for commercial sale, rather than just to restore historical fire regimes. It also promotes livestock grazing. Alternative E includes 16 recommended wilderness areas totaling 21,900 acres.

There would be limited recommended wilderness under this alternative. Although the wilderness evaluation map displays many areas and acres that possess wilderness characteristics, this alternative emphasizes restoration, access, and management that would use mechanical treatments and motorized access.

Alternative E Criteria

Alternative E will include areas in which:

- The management of current designated wilderness areas would be improved by incorporating evaluation polygons within existing wilderness boundaries.
- The area received support for recommendation through broad-based public comment (not completed).

These criteria were selected because they fit into the theme of the alternative, with an increase in access and multiple-use opportunities on the Lincoln NF.

Polygon SBD6 Recommended Wilderness Area

Factor	Description
Acres	40
Summarized description of the recommended boundary	This area is a long, narrow strip of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 10 air miles northeast from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 6,800 to 6,950 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** North Capitan **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation cover throughout the area is ponderosa pine forest. The vegetation is the same as that of the adjacent wilderness. The average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side and has additional short segments of user-created pullouts. Dispersed camping is popular in the central portion. **Solitude:** The road is visible; other than that, sounds and development are not present or visible. The road is rarely traveled. Encounters with other people occur mostly during hunting season. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, like in the adjacent wilderness. High-quality recreation opportunities may be present when combined with the adjacent wilderness. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This polygon is adjacent to the wilderness; it is long and narrow and could be managed similarly. To the north is multiple-use land management. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD7 Recommended Wilderness Area

Factor	Description
Acres	38
Summarized description of the recommended boundary	This area is a triangular strip of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 10 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 6,940 to 7,140 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality** The majority of the vegetation cover throughout the area is ponderosa pine forest. The vegetation is the same as that of the adjacent wilderness. The average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side and has additional short segments of user-created pullouts. **Solitude:** The road is visible; other than that, sounds and development are not present or visible. The chance to see other people is low. **Unconfined and primitive recreation:** Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. There are no developed recreation facilities. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This small polygon is adjacent to the wilderness and could be managed the same way. There are no known mineral rights. To the north is multiple-use land management.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD8 Recommended Wilderness Area

Factor	Description
Acres	113
Summarized description of the recommended boundary	This area is a small, triangular piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 13 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,020 to 7,170 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest, and there is a lesser amount of montane/subalpine grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high and moderate **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The majority of the vegetation cover throughout the area is ponderosa pine forest, and there is a lesser amount of montane/subalpine grassland. The vegetation is the same as that of the adjacent wilderness; the average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side, with wilderness to the south. **Solitude:** The road is visible; other than that, sounds and development are not present or visible. Only during hunting season is there a low chance to see another person. **Unconfined and primitive recreation:** Current primitive recreation use is dispersed camping and hunting, like in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This fairly small polygon is adjacent to the wilderness and could be managed in the same way. Management of adjacent land to the south is wilderness; to the north, it is multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD9 Recommended Wilderness Area

Factor	Description
Acres	58
Summarized description of the recommended boundary	This area is a small, narrow, linear piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 13.5 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,030 to 7,090 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest with mixed conifer-frequent fire and montane/subalpine grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Captain Mountains **Adjacent uses:** Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The area burned in a wildfire. The vegetation is the same as that of the adjacent wilderness; the average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side. **Solitude:** The adjacent road is visible; other than that, sounds and development are not present or visible. Only during hunting season is there a low chance to see another person. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, like in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This fairly small polygon is adjacent to the wilderness and could be managed in the same way. Management of adjacent land to the south is wilderness; to the north, it is multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD10 Recommended Wilderness Area

Factor	Description
Acres	41
Summarized description of the recommended boundary	This area is a small, narrow, linear piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 9 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep to moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 6,920 to 7,400 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest at higher elevations and piñon-juniper woodland at a lower elevation, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Capitan Mountains and South Capitan Mountains **Adjacent uses:** Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The have been no vegetation treatments in this area. The southern portion burned in a wildfire. The average visitor would think the vegetation is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the west side. Dispersed camping is popular on the northern end of the area. **Solitude:** The adjacent road is visible; other than that, sounds and development are not present or visible. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, which is the same as in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This fairly small polygon is adjacent to the wilderness to the east and could be managed in the same way. Management to the west is multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD11 Recommended Wilderness Area

Factor	Description
Acres	13
Summarized description of the recommended boundary	This area is a small, narrow, linear piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 14 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,050 to 7,120 feet. The majority of the vegetation cover throughout the area is ponderosa pine forest with lesser amounts of mixed conifer-frequent fire and a small amount of montane/subalpine grassland; these provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** North Capitan Mountains **Adjacent uses:** private land and Capitan Wilderness **Range allotment:** Block

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The area burned in a wildfire. The vegetation is the same as that of the adjacent wilderness; the average visitor would think it is natural. **Undeveloped quality:** The area is bounded by a National Forest System road on the north side. **Solitude:** The adjacent road is visible; other than that, sounds and development are not present or visible. Only during hunting season is there a low chance to see another person. **Unconfined and primitive recreation:** Primitive recreation is dispersed camping and hunting, which is the same as in the adjacent wilderness. There are no developed recreation facilities. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This polygon is small, long, and narrow. It is adjacent to the wilderness and could easily be managed the same. There are no known mineral rights. Management of adjacent land to the south is wilderness; to the north, it is multiple use.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD13 Recommended Wilderness Area

Factor	Description
Acres	24
Summarized description of the recommended boundary	This area is a small, fairly triangular piece of land adjacent to the Capitan Wilderness. The boundary follows a National Forest System road and the Capitan Wilderness boundary. This makes it fairly easy to locate on the map and on the ground, though it is oddly shaped due to these features.
Brief description of the general geography, topography, and vegetation	Located approximately 8 air miles from Capitan in Lincoln County, this area lies adjacent to the north boundary of the Capitan Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes on the northern side of the Captain Mountain range. Elevation in this area ranges from 7,740 to 8,080 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire, and there is a small component of ponderosa pine forest. These provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** South Capitan Mountains **Adjacent uses:** Capitan Wilderness **Range allotment:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** The average visitor would see the landscape as entirely natural and the same as the adjacent wilderness. The area has burned in a wildfire. **Undeveloped quality:** A National Forest System road bounds the polygon. It is the only visible improvement and is located adjacent to the area. **Solitude:** The adjacent road is the only visual intrusion, although it is not traveled at a high level. The vertical topography does not necessarily screen sights and sounds from a distance. Encounters with others would be on the adjacent road. There are no trails in this area. **Unconfined and primitive recreation:** The area is relatively free of restrictions; primitive recreation would be the same as it is in the adjacent wilderness. There are no facilities here. Because primitive recreation is like that in the adjacent wilderness, the opportunity is high. **Other features of value:** Mexican spotted owl critical habitat **Manageability:** This small polygon is next to designated wilderness, so the management could be the same without difficulty. The shape of the road does not appear to be an issue, as there is no known off-road use in this area. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The areas are undeveloped with no infrastructure. • There is Mexican spotted owl critical habitat. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD16 Recommended Wilderness Area

Factor	Description
Acres	39
Summarized description of the recommended boundary	This area is a small, square piece of land adjacent to the White Mountain Wilderness. The boundary follows the White Mountain Wilderness boundary on three sides and the Lincoln NF boundary to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 4 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 6,650 to 6,910 feet. The majority of the vegetation cover in the area is piñon-juniper woodland, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and private land **Range allotment:** Diamond Peak

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments, and the average visitor would think it is natural. **Undeveloped quality:** There are no improvements here; the area will look natural. **Solitude:** Although the polygon is small, there are no visuals or noise from civilization. Solitude is due to the remote location. There is a very low likelihood of encountering someone else. **Unconfined and primitive recreation:** Primitive recreation is hunting, hiking, and camping. There is no developed recreation. There is no restriction on primitive recreation, and uses are similar to those in the adjacent wilderness. Primitive recreation is like that in the adjacent wilderness, which makes the opportunity high. **Other features of value:** none **Manageability:** The small shape and configuration, with three sides on the wilderness boundary, make this area highly manageable. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD18 Recommended Wilderness Area

Factor	Description
Acres	44
Summarized description of the recommended boundary	This area is a small, fairly rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with private land to the northeast.
Brief description of the general geography, topography, and vegetation	Located approximately 3 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 7,270 to 7,700 feet. The majority of the vegetation cover throughout the area is piñon-juniper woodland, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** roaded natural and semiprimitive nonmotorized **Scenic integrity objectives:** no data **1986 Forest Plan management area:** White Mountain Wilderness and Carrizo Peak/Nogal Peak **Adjacent uses:** White Mountain Wilderness and private. **Range allotment:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments, and the average visitor would think it is natural. **Undeveloped quality:** The area is surrounded by wilderness on three sides and adjacent to private land. There are no improvements here; the area will look natural. **Solitude:** The topography is composed of valleys and ridges that screen the area. The surrounding area is mostly wilderness. Visitors cannot see or hear civilization, which provides solitude. **Unconfined and primitive recreation:** There are no developed recreation facilities, and there is a high opportunity for unconfined recreation. It is hard to get to the area. Primitive recreation is like that in the adjacent wilderness, making the opportunity high. **Other features of value:** The area has goshawk habitat. **Manageability:** The small shape and configuration, with the wilderness boundary, make this area highly manageable. The small area is mostly surrounded by wilderness. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped with no infrastructure. • The area has goshawk habitat and is 73 percent scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD19 Recommended Wilderness Area

Factor	Description
Acres	25
Summarized description of the recommended boundary	This area is a small, fairly rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with the Lincoln NF boundary to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 8.5 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 6,760 to 6,900 feet. The majority of the vegetation cover in the area is piñon-juniper grassland with a small amount of piñon-juniper woodland. The area has patches of grass cover; all of these provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and private land **Range allotment:** Finley

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. The average visitor would consider it natural, except for the trailhead parking lot. **Undeveloped quality:** There is a range fence on the south and east sides. On the north side, there is a trailhead with dispersed camping and no developed facilities. Other than the trailhead area, the vegetation would look natural and the same as that in the adjacent wilderness. **Solitude:** The average visitor can see people and vehicles at the trailhead. The vegetation is fairly open and does not screen the trailhead well. Once visitors leave the trailhead, they do not see other visitors. **Unconfined and primitive recreation:** There is no developed recreation at the trailhead; there is just a dirt road. Recreation is fairly unconfined at this popular trailhead, as this is the only trailhead in this area. Once away from the trailhead and road, opportunities are similar to those in the adjacent wilderness. **Other features of value:** none **Manageability:** The small shape and configuration, with the wilderness boundary, make this area highly manageable. This small area has wilderness on three sides, making management comparable. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • With the exception of a trailhead, the area is undeveloped. • Ninety-two percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are some opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD21 Recommended Wilderness Area

Factor	Description
Acres	20
Summarized description of the recommended boundary	This area is a small, somewhat triangular, irregular piece of land adjacent to the White Mountain Wilderness and a National Forest System road. The majority of the boundary follows the White Mountain Wilderness boundary with the Lincoln NF boundary to the north and south.
Brief description of the general geography, topography, and vegetation	Located approximately 6 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep mountain slopes. Elevation in this area ranges from 8,550 to 8,790 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire and oak, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** Rio Bonito **Adjacent uses:** White Mountain Wilderness **Range allotment:** Loma Grande

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think the vegetation is natural. **Undeveloped quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think the vegetation is natural. **Solitude:** The average visitor can see the road switchback. The road use is fairly high for a dirt road, so there will be some noise. The vegetation and topography do not screen the road. **Unconfined and primitive recreation:** The average visitor might feel confined by the road, but the White Mountain Wilderness is in close proximity. The area's topography provides an opportunity for varied primitive recreation, including activities that are challenging. People need to be self-sufficient here. There are no developed facilities. **Other features of value:** Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat **Manageability:** The management, based on shape, is affected by the road switchbacks. However, management would probably be fairly easy. This is because the area is adjacent to the wilderness and the topography is very difficult. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped. • There are Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat. • One hundred percent of the area is scenery class 1. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are some opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD22 Recommended Wilderness Area

Factor	Description
Acres	21
Summarized description of the recommended boundary	This area is a small, rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with State land to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 11 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by moderate slopes. Elevation in this area ranges from 6,610 to 6,760 feet. The majority of the vegetation cover in the area is piñon-juniper grassland and piñon-juniper woodland. The area is somewhat grass covered; all of these provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent Uses:** White Mountain Wilderness and State **Range allotment:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think it is natural. **Undeveloped quality:** There is a range fence on the north boundary. The northern boundary has a two-track road located on adjacent State land. The area would look natural. **Solitude:** The polygon is surrounded by wilderness on three sides. To the north is State land, and it is difficult to access. Due to the remoteness, there would be little evidence of civilization. There is a very low likelihood of seeing others. **Unconfined and primitive recreation:** There is a high amount of unconfined recreation once there. It is free of restrictions on primitive recreation. There are no developed recreation facilities. Once away from the trailhead and road, opportunities are similar to those in the adjacent wilderness. **Other features of value:** none **Manageability:** This remote, small area is surrounded by wilderness on three sides, which makes management easy. There are no known mineral rights. Adjacent land is wilderness or State.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD23 Recommended Wilderness Area

Factor	Description
Acres	6
Summarized description of the recommended boundary	This area is a small, somewhat rectangular, irregular piece of land adjacent to the White Mountain Wilderness and a National Forest System road. The majority of the boundary follows the White Mountain Wilderness boundary with the Lincoln NF boundary to the north.
Brief description of the general geography, topography, and vegetation	Located approximately 6 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep mountain slopes. Elevation in this area ranges from 8,215 to 8,370 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire and oak, which provides suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** Rio Bonito **Adjacent uses:** White Mountain Wilderness **Range allotment:** Loma Grande

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think the vegetation is natural. **Undeveloped quality:** There are no vegetation treatments. Vegetation is the same as it is in the adjacent wilderness. The average visitor would think the vegetation is natural. **Solitude:** The average visitor can see the road switchback. The road use is fairly high for a dirt road, so there will be some noise. The vegetation and topography do not screen the road. **Unconfined and primitive recreation:** The average visitor might feel confined by the road, but the White Mountain Wilderness is in close proximity and adjacent to the west. The topography of the area provides an opportunity for varied primitive recreation, including activities that are challenging. People need to be self-sufficient here. There are no developed facilities. **Other features of value:** Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat **Manageability:** The management, based on shape, is affected by the road switchbacks. However, management would probably be fairly easy. This is because the area is adjacent to the wilderness, and the topography is very difficult. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are Mexican spotted owl, Sacramento mountain salamander, goshawk, and Peñasco least chipmunk habitat. • One hundred percent of the area is scenery class 1. • There is a NRHP-listed cultural resource adjacent, and buried deposits may occur here. **The social characteristics that provide the basis for suitability are as follows:** • Some solitude may be present due to adjacency to wilderness. • There are some opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD24 Recommended Wilderness Area

Factor	Description
Acres	153
Summarized description of the recommended boundary	This area is a small, rectangular piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary with the Lincoln NF boundary to the west.
Brief description of the general geography, topography, and vegetation	Located approximately 12 air miles from Nogal in Lincoln County, this area lies adjacent to the north boundary of the White Mountain Wilderness in the Smokey Bear Ranger District. This small area is characterized by steep and moderate slopes. Elevation in this area ranges from 6,730 to 7,180 feet. The majority of the vegetation cover in the area is piñon-juniper woodland and piñon-juniper grassland, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** semiprimitive motorized **Scenic integrity objectives:** high **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness and private land **Range allotments:** none

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** There are no vegetation treatments; the average visitor would think the vegetation is natural. The vast majority of the area looks natural and the same as the adjacent wilderness. **Undeveloped quality:** On the western side there is a two-track road leading to a small corral, old windmill, stock water tank, and trough. This is a trailhead that has no outside access. Outside the boundary (west) are the remnants of a windmill and another storage tank. The vast majority of the area looks natural and the same as the adjacent wilderness. **Solitude:** The polygon is surrounded by wilderness on three sides. To the west is private land, which makes this area difficult to access. There would be very little evidence of civilization. There is a very low likelihood of seeing other people. **Unconfined and primitive recreation:** There is a high amount of unconfined primitive recreation once there. The landscape is similar to the adjacent wilderness. There are no developed recreation facilities. **Other features of value:** none **Manageability:** This small area is surrounded by wilderness on three sides. There are no known mineral rights. Adjacent land is wilderness or private. There is no legal access across private land.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon SBD39 Recommended Wilderness Area

Factor	Description
Acres	29
Summarized description of the recommended boundary	This area is a small, fairly narrow piece of land adjacent to the White Mountain Wilderness. The majority of the boundary follows the White Mountain Wilderness boundary on its west side with a National Forest System road to the southeast.
Brief description of the general geography, topography, and vegetation	Located approximately 4 air miles from Angus in Lincoln County, the area is in the Smokey Bear Ranger District. This small area is characterized by steep and moderate slopes. Elevation in this area ranges from 9,250 to 9,590 feet. The majority of the vegetation cover throughout the area is mixed conifer-frequent fire with a lesser amount of montane/subalpine grassland.
Current uses and management	**Recreation opportunity spectrum:** roaded natural **Scenic integrity objectives:** moderate **1986 Forest Plan management area:** White Mountain Wilderness **Adjacent uses:** White Mountain Wilderness **Range allotment:** Alto

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** It was burned in the 2012 Little Bear Fire. Most of the area looks natural and the same as the adjacent wilderness. There have been no vegetation treatments. The average visitor would think it is natural. **Undeveloped quality:** Adjacent improvements outside the polygon include a trailhead. There is a prefabricated concrete pit toilet that is screened by topography and vegetation. There is also a NRHP-listed lookout tower that is low in profile and constructed of native stone. The area would appear natural. **Solitude:** When in proximity, visitors can see the trailhead parking lot. Solitude would increase rapidly as a visitor approached the White Mountain Wilderness. The trail is not heavily used; visitors do not often see other people on it. **Unconfined and primitive recreation:** Recreation here would feel unconfined and primitive, as the area is located on steep mountain ridgetops and slopes. Due to its shape, it is a short distance to the adjacent wilderness. **Other features of value:** Mexican spotted owl, goshawk, Sacramento mountain salamander, and Peñasco least chipmunk habitat. Monjeau Lookout, a NRHP-listed site, is adjacent. **Manageability:** This is a small and narrow polygon adjacent to the wilderness; visually, it looks like the wilderness. Access is on a pedestrian trail, which facilitates management. Adjacent management is wilderness and multiple use. There are no known mineral rights.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is mostly undeveloped. • There are Mexican spotted owl, goshawk, Sacramento mountain salamander, and Peñasco least chipmunk habitat. • One hundred percent of the area is scenery class 1, with excellent views of Sierra Blanca and Nogal Peak. • Monjeau Lookout, a NRHP-listed site, is adjacent. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness opportunities.

Polygon Guadalupe Escarpment WSA

Factor	Description
Acres	21,000
Summarized description of the recommended boundary	This area is long and irregular. The south, west, and east sides of the polygon are on the Lincoln NF boundary.
Brief description of the general geography, topography, and vegetation	Located approximately 8 air miles from Queen in Eddy County, the area is in the Guadalupe Ranger District. This area is characterized by steep canyons and ridges. Elevation in this area ranges from 5,360 to 7,420 feet. The majority of the vegetation cover in the area is mountain mahogany, ponderosa pine evergreen oak, and mixed conifer, which provide suitable habitat for a variety of wildlife.
Current uses and management	**Recreation opportunity spectrum:** roaded natural, semiprimitive motorized, and semiprimitive nonmotorized **Scenic integrity objectives:** very high **1986 Forest Plan management area:** South Guadalupe and Upper McKittrick **Adjacent uses:** National Park Service, BLM **Range allotments:** Soldier Springs, Dark Canyon, Black River, and McCollaum

Factor	Description
Description of the wilderness characteristics and the Forest Service's ability to protect and manage the area to preserve its wilderness characteristics	**Natural quality:** Parts of the area burned in a wildfire. There have been no vegetation management activities. The average person would believe the vegetation looks natural. **Undeveloped quality:** Improvements include a couple of wildlife trick tanks; there are few fences because natural features like cliffs serve to manage livestock. The very low number of vegetation activities and improvements add to the high degree of naturalness. **Solitude:** The lack of roads, only a few pedestrian trails, and the lack of improvements—plus the extreme landscape—provide excellent solitude. In addition, there are two adjoining wilderness areas under National Park Service management. **Unconfined and primitive recreation:** Because of the lack of access and the extreme topography, primitive and unconfined recreation here is the highest in the district. **Other features of value:** There is habitat for Mexican spotted owl Davis Mountain cottontail, species of conservation concern invertebrates, and species of conservation concern plants. There is cave habitat for bats. Peregrine falcon and golden eagle may use the area. The area also contains the Guadalupe pine. There are significant cultural resources, and caves are present. It includes a research natural area; significant water resources include several long reaches of the Big Canyon and North McKittrick Canyon eligible wild and scenic rivers. **Manageability:** The polygon is large, and access is very limited. It is bordered by a BLM WSA and wilderness areas within national parks. There are no known mineral rights. This makes manageability high.
Brief summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the NWPS	**The ecological characteristics that provide the basis for suitability are as follows:** • The majority of the area appears natural. • The area is undeveloped with no infrastructure. • There are habitats for Mexican spotted owl, Davis Mountain cottontail, invertebrates, and plants. There is cave habitat for bats. Peregrine falcon and golden eagle may use the area. It also contains the Guadalupe pine. • Ninety-nine percent of the area is scenery class 1. There are magnificent views of rugged canyons. • Significant cultural resources and caves are present. • A research natural area is present. • Significant water resources include several long reaches of the Big Canyon and North McKittrick Canyon eligible wild and scenic rivers. **The social characteristics that provide the basis for suitability are as follows:** • Solitude is present due to the size, lack of access, rugged topography, and adjacency to wilderness. • There are high-quality opportunities for primitive and unconfined recreation, especially when combined with adjacent wilderness and WSA opportunities.

Areas Not Recommended in Any Alternative

Areas with low or moderate wilderness characteristics were not included in any alternative because they did not fit with any alternative themes. These areas include:

1. Polygons not recommended due to having "no" wilderness characteristics: none

2. Polygons not recommended due to having "low" wilderness characteristics:

    Smokey Bear Ranger District: SBD1 (11,181 acres), SBD34 (10,854 acres), and SBD38 (105 acres)

    Sacramento Ranger District: SRD45 (13,734 acres)

3. Polygons not recommended due to having "moderate" wilderness:

Smokey Bear Ranger District: SBD3 (8,492 acres), SBD5 (4,636 acres), SBD14 (4,261 acres), SBD15 (11,229 acres), SBD17 (1,721 acres), SBD20 (33 acres), SBD26 (10 acres), SBD27 (29 acres), SBD28 (100 acres), SBD30 (36 acres), SBD35 (10,410 acres), SBD36 (34 acres), SBD37 (34 acres), SBD40 (10,233 acres), and SBD41 (8,523 acres)

Sacramento Ranger District: SRD46 (13,553 acres), SRD49 (5,652 acres), SRD51 (18,447 acres), SRD53 (19,600 acres), SRD54 (6,073 acres), SRD55 (15,962 acres), SRD57 (6,560 acres), SRD59 (5,007 acres), SRD61 (5,032 acres), SRD62 (8,348 acres), SRD65 (20,990 acres), and SRD66 (6,377 acres)

Guadalupe Ranger District: GRD72 (14,570 acres), GRD78 (5,908 acres), GRD79 (8,188 acres), GRD80 (5,143 acres), and GRD84 (48 acres)

Management of Recommended Wilderness Areas

Recommended wilderness areas will have interim protection measures outlined in the proposed Lincoln NF Plan. Chapter 70 of Forest Service Handbook 1909.12 provides direction for the interim management of Forest Service-identified recommended wilderness areas. These interim protections include:

1. Plan components applicable to a recommended area must protect and maintain the social and ecological characteristics that provide the basis for wilderness recommendation.

2. The plan may include one or more plan components for a recommended wilderness area that:

    a. Enhance the ecological and social characteristics that provide the basis for wilderness designations;

    b. Continue existing uses, only if such uses do not prevent the protection and maintenance of the social and ecological characteristics that provide the basis for wilderness designation;

    c. Alter existing uses, subject to valid existing rights; or

    d. Eliminate existing uses, except those uses subject to valid existing rights.

These protection measures apply until a decision is made on the area's future use. Only Congress may make final decisions on wilderness designation.

Step 4: Recommendation

As part of the finalized forest plan, the release of the final EIS, and the signing of the record of decision (2019), the forest supervisor of the Lincoln NF may recommend suitable lands for NWPS designation to the Chief of the Forest Service (assuming the record of decision contains such suitable lands identified as recommended wilderness areas). That recommendation may then be forwarded to the Secretary of Agriculture, and ultimately to Congress, for their consideration and possible designation. Congress has reserved the authority to make final decisions on wilderness designation.

Appendix C

Proposed Research Natural Areas
Description and Evaluation

Appendix C. Proposed Research Natural Area Description and Evaluation

Introduction

RNAs are considered a type of special area. Special areas are places or areas in the National Forest System designated because of their unique or special characteristics (Forest Service Manual 1905. These designations may occur because of congressional action or through statute or separate administrative processes. Existing forest plans have administratively designated special areas, such as RNAs, botanical areas, or geologic areas.

Because they are types of special areas, RNAs must be supported by the desired conditions and other plan components developed in the revised forest plans. Any recommendations for designation of new or previously proposed RNAs may be made during revision. Formal RNA establishment, projects, or activities would have to be handled in a subsequent site-specific NEPA analysis. (Note: While the Forest Service must consider or analyze the need for new RNAs as it would for any special area [Forest Service Handbook 1909.12] during plan revision, the agency is not *required* to establish new RNAs if it is not found necessary or appropriate during the analysis.

RNAs are defined as "physical or biological units in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural physical and biological processes to prevail without human intervention. Research Natural Areas are principally for non-manipulative research, observation, and study (FSM 4063). They are designated to "maintain a wide spectrum of high quality representative areas that represent the major forms of variability found in forest, shrubland, grassland, alpine, and natural situations that have scientific interest and importance that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity" (Forest Service Manual 4063.02). How each responsible official chooses to handle these existing designations will be based on the need for change evaluations and on the desired conditions identified during the development of the revised plan.

RNAs on the Lincoln National Forest

The Lincoln NF has only one of three categories of RNAs, as follows:

- Established RNAs—There currently are no designated or formally established RNAs on the Lincoln NF.
- Previously proposed RNAs—In the 1986 Lincoln National Forest Land Management Plan (Forest Service 1986), three RNAs were proposed (recommended) in Forest Plan, with the intent of having them formally established after the Forest Plan was finalized. These previously proposed RNAs were never formally established as RNAs, but they have been managed, for the most part, as if they were formally designated.
- New potential RNAs—No new potential RNAs have been identified to help fulfill the regional need for RNAs in underrepresented ecosystems and vegetation types.

Ecological Representation of Established and Proposed RNAs in the Southwestern Region

The Forest Service conducted a region-wide coarse-filter assessment of RNA ecological representation. Its purpose is to help identify ecosystems and vegetation types that are underrepresented among the Southwestern Region's currently established RNAs. Previously proposed and new potential RNAs may be put forth as preliminary administrative recommendations during Forest Plan revision if they meet a current need identified in this regional process.

Under this analysis, the Forest Service assessed the representativeness of existing RNAs in the Southwestern Region and identified underrepresented ecosystems. The objective was to support an effective *ecological* distribution of RNAs across major climate gradients, across biophysical settings (ERUs), and, to some extent, across important vegetation types within life zones. Simultaneously, the agency considered the *geographic* distribution of RNAs across ecological sections and subsections of the region (Cleland et al. 2007).

For this assessment, the distribution of existing RNAs and other protected lands, inside and outside the LNF, were compared with the distribution of ERU classes (general ecosystem types), ecological sections, and terrestrial ecological unit inventory climate gradients (Winthers et al. 2005). This assessment was conducted under the assumption that future proposed RNAs would be designated for the purposes of research and establishing reference sites across all major ecosystem types.

This simple assessment is not meant to replace but to supplement assessments by others, including the Southwestern Region Research Natural Area Progress Report (Forest Service 1984), at a time when forest plans are being revised across the region. This report is not outdated, except as conditions have changed in the proposed RNAs since 1984.

Representativeness Findings

RNA representativeness rankings are provided in table C-1, below. RNA needs were ranked on a scale of 1 to 3: A rank of 1 reflects the least degree of need, according to those criteria of representativeness used for this assessment (the ERU, formally called potential natural vegetation types [PNVT], is well represented). A rank of 2 indicates that the ERU is represented, moderately, but more representation across the region may be warranted. A rank of 3 reflects very little to no representation of a particular ERU. In this assessment, ranks 2 and 3 are considered to be appropriate for RNA recommendations.

Proposing RNAs in Forest Plan Revision

This section describes the steps for including previously proposed RNAs and new proposed RNAs in the revision process. It includes steps for evaluating the current conditions of previously proposed RNAs in order to determine if they retain the ecological qualities necessary for RNAs. This evaluation of RNA conditions is guided by a set of RNA evaluation criteria listed in tables C-2 and C-3. These conditions and management direction criteria are based on guidance in FSM 4063.02 for RNA Objectives and FSM 4063.3 Protection and Management Direction. This series of steps for assessing the need for additional RNAs on forests are done during the revised plan development.

Table C-1. PNVT (ERU) Representation and Need (2015)

PNVT[1] in the Southwest Region Gap Analysis Project PNVT SUMMARY ALL LANDS IN REGION 3			Assessment—Rationale			
PNVT Name	Total Acres	Percent	RNA/Reserve Represent		Need for Additional RNA[2]	Comments
			Region 1	Climate Gradient[1]		
Alpine and Tundra	4,665	0.00	**1**	**N/A**	3	
Colorado Plateau/Great Basin Grassland (Cold)	8,708,922	6.07	**3**	**3**	1	
Colorado Plateau/Great Basin Grassland (Mild)	576,709	0.40	**3**	**3**	1	
Cottonwood Willow Riparian Forest	534,391	0.37	**2**	**N/A**	2	Consider section-scale distribution for unique plant associations
Desert Communities (High Sun)	15,441,940	10.77	**2**	**3**	1	
Desert Communities (Low Sun)	22,444,974	15.65	**3**	**3**	1	
Gallery Coniferous Riparian Forest	1,315	0.00	**2**	**N/A**	2	
Gambel Oak Shrubland	498,715	0.35	**2**	**N/A**	2	
Interior Chaparral	2,641,358	1.84	**3**	**N/A**	1	
Juniper Grassland	2,670,609	1.86	**1**	**N/A**	3	
Madrean Encinal Woodland	1,074,748	0.75	**2**	**N/A**	2	Consider section-scale distribution for unique plant associations, such as the Guadalupe Mountains)
Madrean Pine-Oak Woodland	1,423,304	0.99	**3**	**N/A**	1	
Mixed Broadleaf Deciduous Riparian Forest	194,534	0.14	**3**	**N/A**	1	
Mixed Conifer—Frequent Fire	963,611	0.67	**3**	**N/A**	1	
Mixed Conifer with Aspen (Cold)	997,999	0.70	**3**	**3**	1	
Mixed Conifer with Aspen (Mild)	29,796	0.02	**3**	**3**	1	
Montane/Subalpine Grassland	651,936	0.45	**3**	**N/A**	1	
Montane Willow Riparian Forest	225,843	0.16	**2**	**N/A**	2	
Mountain Mahogany Shrubland	66,387	0.05	**1**	**N/A**	3	
PJ Evergreen Shrub	5,438,977	3.79	**2**	**N/A**	2	
PJ Sagebrush	942,823	0.66	**3**	**N/A**	1	

PNVT[1] in the Southwest Region Gap Analysis Project PNVT SUMMARY ALL LANDS IN REGION 3			Assessment—Rationale			
PNVT Name	Total Acres	Percent	RNA/Reserve Represent		Need for Additional RNA[2]	Comments
			Region 1	Climate Gradient[1]		
PJ Woodland (persistent)	17,766,745	12.39	**2**	**N/A**	2	Consider section-scale distribution for unique plant associations
Ponderosa Pine—Evergreen Oak	1,414,481	0.99	**3**	**N/A**	1	
Ponderosa Pine Forest	7,857,154	5.48	**2**	**N/A**	2	
Sagebrush Shrubland	2,469,353	1.72	**2**	**N/A**	2	
Sandsage	1,298,459	0.91	**1**	**N/A**	3	
Semi-Desert Grassland	14,525,349	10.13	**2**	**N/A**	2	
Shortgrass Prairie	17,356,141	12.10	**1**	**N/A**	3	
Spruce Fir Forest	581,206	0.41	**3**	**N/A**	1	
Wetland/Cienega (Cold)	563,044	0.39	**2**	**2**	2	
Wetland/Cienega (Mild)	63,057	0.04	**2**	**2**	2	
Sparsely Vegetated	10,439,968	7.28				
Unclassified	502,631	0.35				
Blank	3,010,027	2.10				
Grand Total	**143,381,170**	**100.00**				

Source – Forest Service GIS 2020

[1]Representativeness rated on a scale of 1 to 3, where 1 reflects the least degree of representativeness at a given scale (less than 1% area) and 3 reflects the highest representativeness (greater than 10% area).

[2]Need for additional RNA lands ranked on a scale of 1 to 3, where 1 reflects the least degree of need according to those criteria of representativeness used for this assessment.

Proposed RNAs on the Lincoln NF

The Lincoln NF had three proposed RNAs in the 1986 forest plan. They were reevaluated according to the assessment process described in figure C-1 and shown in tables C-2 and C-3. They are described below, along with their respective evaluations. A description of the proposed RNAs with their ERUs and seral states is shown in table C-4.

William H. Telfer RNA (proposed)—The William H. Telfer proposed RNA is on Buck Mountain of the Smokey Bear Ranger District. It was proposed as an example of a Spruce-Fir Forest and Montane-Subalpine Grassland ERU. It also hosts some of the most southerly distributed cork bark fir forest in the region. Since its initial proposal and evaluation in 1984, a good portion of it burned in the Little Bear fire of 2012. It is primarily Spruce-Fir Forest with Mixed Conifer/Frequent Fire Forest and Montane-Subalpine Grassland. According to the PNVT needs assessment of 2015 (table C-1), all of those ERUs are in the lowest degree of need category 1. The Spruce-Fir component for which the RNA was proposed all burned at high to moderate severity in the Little Bear fire; the Montane-Subalpine Grassland is approximately 60 percent encroached with tree and shrub cover (table C-4). There is no aquatic habitat in the proposed RNA area (table C-3).

Haynes Canyon RNA (proposed)—The Haynes Canyon proposed RNA is near Cloudcroft, New Mexico, in what was formerly the Cloudcroft Experimental Forest in the Sacramento Ranger District. It lies between the Sunspot National Scenic Byway and the Haynes Canyon subdivision, near High Rolls, New Mexico. It was proposed as an example of Late Seral Mixed Conifer with Aspen, although ERU mapping for forest plan revision shows it as predominantly Mixed Conifer/Frequent Fire. There is very little real old growth on the site, and the aspen stands have been succeeded by conifers. There are areas of blowdown but no sign of recent fire. A highly used recreation trail, the Rim Trail, traverses the width of the area. Both the Mixed Conifer with Aspen and Mixed Conifer/Frequent Fire ERUs are in the lowest degree of need, category 1 (table C-1). In 2019, Forest Service biologists surveyed the area for aquatic habitat, and none was found (table C-3). The area is nearly coincident with a Mexican spotted owl protected activity center, so it enjoys protection from intensive management activities. Its proximity to the values at risk of the Sunspot Scenic Byway and the Haynes Canyon subdivision make it potentially important for management in the event of a wildfire. For those reasons, it is not considered advisable to further protect it as an RNA.

Upper McKittrick Canyon RNA (proposed)—The Upper McKittrick Canyon proposed RNA is in the southern portion of the Guadalupe Ranger District. It is composed primarily of Mountain Mahogany-Mixed Shrub ERU, with approximately 29 percent Ponderosa Pine-Evergreen Oak ERU. There is a small amount of Mixed Conifer/Frequent Fire ERU as well (table C-4). The Pine and Mixed Conifer ERUs have the lowest degree of need, but the Mountain Mahogany ERU has the highest degree of need, 3 (table C-3). With its location in the Guadalupe Mountains, it has a high potential for endemism and rarity in plant communities. The area has generally maintained its pristine nature, with little disturbance and light use, due to difficulty of access. It scores positively for most of the criteria in table C-2. There is aquatic habitat in the RNA, with the potential for riparian ecosystems that occur only in the Guadalupe Mountains. While all potential aquatic species have not been surveyed for, the Forest Service assumes that the aquatic habitat available could support aquatic species, including endemic and rare species (table C-3). Because it meets the need criteria and its character is relatively untouched, the Upper McKittrick Canyon proposed RNA is a good candidate for recommendation and establishment.

Figure C-1. Assessment Process for Identifying New and Evaluating Proposed RNAs

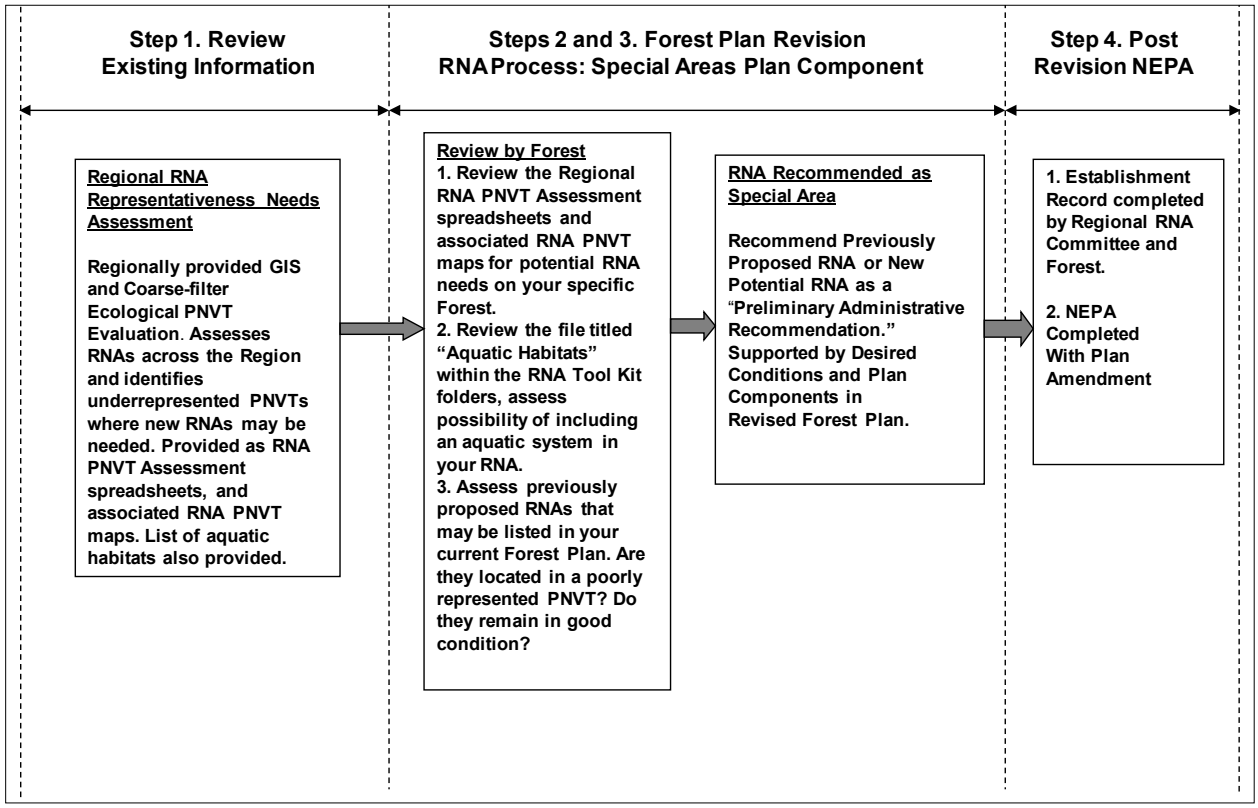


Table C-2. Review of Representative Ecological Conditions on the Lincoln NF

STEP	Criteria	Yes (with Justification)	No (with Justification)
1	**Review RNA Representative Assessment Spreadsheet**		
	• Are there areas on your forest that contain the ERU classes that fall into the 2 or 3 rankings for low representation for a particular ERU class? • Is there an outstanding example of an aquatic habitat that may be appropriate as a potential RNA? • If you have previously proposed RNAs in your current forest plan, do they fall within ERU classes with rankings of 2 or 3?	• Yes: MMS, JUG, GAMB, PJG, PJO, PPF, SDG • No • Yes: MMS	If no, document that no RNA-appropriate vegetation types, with the 2 or 3 ranking, appear on the forest
2	**Use the conditions listed below to determine if these low-representative ERU class areas or aquatic habitats are appropriate for RNA establishment**	**State reason why the area meets the criterion**	**State reason why the area does not meet the criterion**
	The area contributes to a wide spectrum of high quality representative areas that represent the major forms of variability found in forest, shrubland, grassland, alpine, aquatic habitats, and natural situations of scientific interest and importance that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity. RNA represents a specific vegetation type or ecosystem, as identified by the regional ecological RNA evaluation.	Proposed RNA Upper McKittrick of MMS meets criterion of need through regional RNA evaluation; little disturbance, still meets conditions from 1984 establishment	JUG, GAMB, PJG, PJO, PPF, and SDG do not have high quality representative areas, except possibly in small areas. Most are moderately to highly departed, and most are in use for grazing and recreational road use.
	The area contributes or continues to contribute to the preservation and maintenance of genetic diversity, including threatened, endangered, and aquatic systems and sensitive species.	Yes: MMS (proposed RNA)	
	The area serves as a baseline or reference area for the study of long-term ecological processes, such as disturbance, hydrologic processes, or climate change.	Not currently	None
	The area serves as a control area for comparing results from manipulative research.	No manipulative research going on in the MMS	None

STEP	Criteria	Yes (with Justification)	No (with Justification)
	The boundaries encompass an area large enough to provide essentially unmodified conditions within their interiors, which are necessary in accordance with the objectives stated in the establishment record (FSM 4063.02) and to protect the ecological processes, features, or qualities for which the RNA was established. Although not required, entire small drainages are ideal because they maintain interrelationships of terrestrial and aquatic systems.	Yes	JUG, GAMB, PJG, PJO, PPF, and SDG do not have high quality representative areas, except possibly in small areas. Most are moderately to highly departed and are in use for grazing and recreational road use.
	The area shows little or no evidence of major disturbances by humans. Activities, such as livestock grazing, have not affected the area beyond its ability to recover. No evidence of timber cutting in the past 50 years.	Yes	No
	The area reflects its original, near pristine condition *as closely as possible*.	Yes	No
	The best available, qualified area was chosen. In certain geographic regions and in certain community types, it may be impossible to find candidate areas that do not contain exotic plant or animal life.	Yes	None

MMS – Mixed Mahogany Mixed Shrubland; JUG – Juniper Grassland; GAMB – Gambel Oak Shrubland; PJG – Pinyon Juniper Grassland; PJO -Pinyon Juniper Woodland; PPF – Ponderosa Pine Forest; SDG – Semi-Desert Grassland

Table C-3. Review of proposed Lincoln NF RNAs for aquatic features or representative forms that may meet the objectives of RNAs

RNA Name, (Status), and Size	Forest and Elevation of RNA	Aquatic Habitat Type (Surface Water)	Major Vegetation (to Be Refined Later from GIS)	Notes on Aquatic Species
Guadalupe Mountain (McKittrick Canyon) or Upper McKittrick Canyon RNA (proposed)	Lincoln 6,600–7,400 feet	Water in North McKittrick Canyon (1st order stream) ceases to flow on the surface a few miles below the RNA.	Mountain mahogany, with riparian woodland, including bigtooth maple, chinkapin oak, and serviceberry	Plain-bellied water snake May need an aquatic species survey. This proposed RNA is going forward, regardless of aquatic surveys. The assumption is that outstanding aquatic habitat exists in this poorly represented ERU.
Haynes Canyon (proposed) Formerly part of the Cloudcroft Experimental Forest	Lincoln 7,900–9,000 feet	1st order intermittent (unnamed) streams drain into Haynes Canyon stream. Lower end of RNA has 2nd order stream perennial or semi-perennial flow (Haynes Canyon).	Mixed conifer forest *Abies concolor*/*Acer glabrum*	Surveyed in 2019; no aquatic habitat found. Any springs are ephemeral and seasonal and annually depend on snowfall, which has been low since 2015. This proposed RNA is not being put forward in the revised Forest Plan (2020) as it is not in a poorly represented vegetation type and no aquatic habitat was found.
William G. Teller (Buck Mountain) RNA (proposed)	Lincoln 9,600–10,600 feet	On ridge separating Rio Bonito and Rio Ruidoso watersheds. No aquatic habitat identified.	Spruce-fir forest (includes largest cork bark fir in Big Tree registry), subalpine habitat	None identified. This proposed RNA is likely not being put forward in the revised Forest Plan (2020) as it is not in a poorly represented vegetation type and no aquatic habitat was found. It also was burned in the 2012 Little Bear fire, changing its character from its original proposal description.

Table C-4. ERU composition of proposed RNAs

Proposed RNA	ERU	Seral Stage	Acres	Fire Mortality	Acres
Haynes Canyon	Mixed Conifer/Aspen	Early	48		
		Mid/late	6		
		Late	3		
	Mixed Conifer/Frequent Fire	Early	41		
		Mid/late	2450		
		Late	6		
William H. Telfer	Spruce-Fir Forest	Early	264	High	253
		Mid/late	2563	Moderate	153
	Mixed Conifer/Frequent Fire	Early	44	Low	72
		Mid/late	411		
	Montane Subalpine Grassland	Mid/late	107		
		Encroached	196		
Upper McKittrick	Mixed Conifer/Frequent Fire	Early	69	Low	56
	Mountain Mahogany-mixed Shrub	Mid	64		
		Late	848		
	Ponderosa Pine-Evergreen Oak	Early/mid	395		

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Appendix D

Timber Production Suitability, Estimated Vegetation Practices, and Projected Harvest Levels Analysis Methodology

Appendix D. Timber Production Suitability, Estimated Vegetation Practices, and Projected Harvest Levels Analysis Methodology

Introduction

This appendix adds detail to the timber production suitability process, the estimated vegetation practices, and the calculations involved in the sustained yield limit, projected timber sale quantity, and projected wood sale quantity. The basic process was outlined in the draft environmental impact statement.

Timber Production Suitability

Legal Criteria

Lands not suited for timber production due to legal factors are designated wilderness areas, wilderness study areas, research natural areas, eligible wild and scenic river segments, and inventoried roadless areas. The spatial data used are from the Lincoln NF corporate dataset and national corporate datasets. Commercial timber harvesting is prohibited on these lands. The ability to use timber harvest as a tool for management depends on the particular law that establishes each prohibition.

Designated Wilderness and Wilderness Study Areas

The wilderness areas on the Lincoln NF are the White Mountain and Capitan Mountain Wildernesses, which collectively cover 82,900 acres. The Guadalupe Escarpment Wilderness Study Area, covering 21,300 acres, is the only wilderness study area on the Lincoln NF.

Motorized equipment is specifically prohibited in congressionally designated wilderness areas by the Wilderness Act of 1964 (16 U.S. Code 1121). Similarly, the New Mexico Wilderness Act of 1980 requires that the wilderness study areas designated by that law must be managed to protect the wilderness characteristics that they possessed at the time of designation. This is subject to valid existing legally established rights and uses (16 U.S. Code 1131).

In its 1986 forest plan, the Lincoln NF did not recommend the wilderness study area to Congress for designation, and existing motorized and other uses at the time the act was passed are allowed to continue; nevertheless, timber production would not be consistent with the requirements of the law. Consistency with these mandates must be maintained until Congress provides updated management direction through legislation. This may include releasing these lands to uses other than wilderness, designating them as wilderness, or some other management guidance.

Designated Research Natural Areas

The Chief of the Forest Service, under the Code of Federal Regulations 251A, 251.23 (1966), designates research natural areas (RNAs). They provide the research necessary to serve as a basis for managing the forest and range land in each Forest Service region. Projects, activities, and uses not related to research or education are not permitted; moreover, the unmodified condition of these areas must be maintained, except where measures are required to maintain a plant community that the area is intended to represent. Neither timber production nor timber harvest are allowed under the regulations.

The Lincoln NF has no designated RNAs; the only proposed RNA is the Upper McKittrick Canyon. It is wholly contained within the Guadalupe Escarpment Wilderness Study Area, which, as stated above, is not suitable for timber production.

Eligible Wild and Scenic River Segments

Most eligible wild and scenic river segments identified on the Lincoln NF are in designated wilderness areas, which are removed from the suitable timber base by the Wilderness Act of 1964. Forest Service handbook direction (1909.12, Chapter 80) requires that Forest Service-identified eligible rivers must be protected to maintain their free flowing nature and outstandingly remarkable values, unless they are determined to be not suitable.

Forest Service decisionmakers may authorize site-specific projects and activities within Forest Service-identified eligible river corridors. They would make this determination when those projects and activities are consistent with maintaining free flow and the outstandingly remarkable values associated with the particular site. A suitability study may also be undertaken to resolve conflicts between mandates for managing eligible rivers and other resource management concerns. The width of the corridor receiving these protection measures is generally one-quarter mile on each side of the river, averaging no more than 320 acres per mile for the length of the segment. Congress has the authority to adjust these generalities.

There are three classifications of eligible wild and scenic rivers: wild, scenic, and recreational. The wild classification is the most restrictive, scenic is somewhat less, and recreational is comparatively permissive in the range of developments and management actions allowed. Cutting trees and other vegetation is not permitted along eligible rivers receiving a preliminary classification as wild, except as consistent with a primitive recreation experience. This is done either to accommodate valid, existing, legally established rights and uses or to protect identified outstandingly remarkable values. Such exceptions may include trail maintenance, wildfire suppression, or fire management. These activities are prohibited to restore or maintain habitat for threatened, endangered, or species of conservation concern or to restore the natural range of variability.

A range of additional vegetation management and timber harvest practices are allowed along eligible rivers with a preliminary classification of recreational or scenic. This is contingent on these practices being designed to protect users or outstandingly remarkable values or to protect, restore, or enhance the river environment, including its long-term scenic character.

Timber production is not compatible with the preliminary classification of wild; thus, these eligible stream corridors are not suited for timber production, based on the legal criteria, regardless of where they occur. There are 95 miles of eligible wild and scenic rivers with a preliminary classification of wild, representing approximately 30,400 acres, none of which are in otherwise suitable timberland.

Inventoried Roadless Areas

Inventoried roadless areas are generally unsuitable for timber production because of restrictions on timber harvest (production) put forth by the Roadless Rule (294.13(a)). Specifically, timber may not be cut, sold, or removed in inventoried roadless areas of the National Forest System unless it falls under an exception. Exceptions include areas that have been substantially altered by construction of a classified road and subsequent timber harvest. This would have to have happened between the time of designation under the Roadless Rule and January 12, 2001. There are no areas of substantial alteration in the inventoried roadless area, thus all are considered unsuitable for timber production for legal reasons.

Technical Criteria

The following subsections describe the Lincoln NF interdisciplinary team's rationale for designating the technical factors under which land is deemed not suited for timber production. These are areas where the technology does not exist to harvest timber without causing irreversible damage to soil, slope, or other watershed conditions, those where there is no reasonable assurance of adequate restocking, and lands that are not National Forest System lands.

Irreversible Damage to Watershed Soil, Slope, or Other Conditions

"Irreversible damage" is not defined in the Forest Service national directives. The interdisciplinary team interpreted irreversible to mean impairment of soil and watershed processes and functions that would take longer than a human lifetime to recover. The primary processes and functions of concern are soil stability, soil water-holding capacity, water infiltration and redistribution, and nutrient cycling.

Accelerated soil loss or compaction can alter all of these watershed functions; however, the extent and magnitude of accelerated soil loss or compaction due to vegetation management can usually be mitigated through selecting the appropriate harvesting system and equipment and implementing best management practices. Only lands in forested vegetation types (ponderosa pine and mixed conifer ecological response units [ERUs]) with slopes greater than 60 percent were considered unsuitable for technical consideration; therefore, 14,811 acres were removed from suitability under this criterion.

No Reasonable Assurance of Adequate Restocking

"Final regeneration harvest" describes any timber harvest designed to promote regeneration of desirable or commercial tree species, namely ponderosa pine, Douglas-fir, southwestern white pine, and white fir. "Adequate restocking" is defined for the Lincoln NF in the following table.

Table D-1. Minimum Restocking Criteria to Determine Adequacy of Lands for Timber Production

Management System	Final Regeneration Harvest Type	Forest Type (ERU)	Adequate Restocking Criteria* (Trees per Acre)
Even aged	Patch cut	Spruce-fir forest	Over 400 seedlings
Even aged	Final shelterwood removal	Ponderosa pine forest and ponderosa pine-evergreen oak	Over 100 seedlings
Even aged	Final shelterwood removal	Mixed conifer-frequent fire and mixed conifer with aspen	Over 150 seedlings
Uneven aged	Individual tree selection	Ponderosa pine forest and ponderosa pine-evergreen oak	Over 15 seedlings, 35–40 trees more than 10 inches dbh**
Uneven aged	Individual tree selection	Mixed conifer-frequent fire and mixed conifer with aspen	Over 35 seedlings 40–50 trees more than 10 inches dbh
Uneven aged	Last group selection entry	Ponderosa pine forest and ponderosa pine evergreen oak	Over 100 seedlings
Uneven aged	Last group selection entry	Mixed conifer frequent fire and mixed conifer with aspen	Over 150 seedlings

*Minimum stocking is based on sites capable of producing 50 ·merchantable cubic feet volume or greater per acre. Sites with lower productivity would likely have fewer seedlings per acre.
**Diameter at breast height

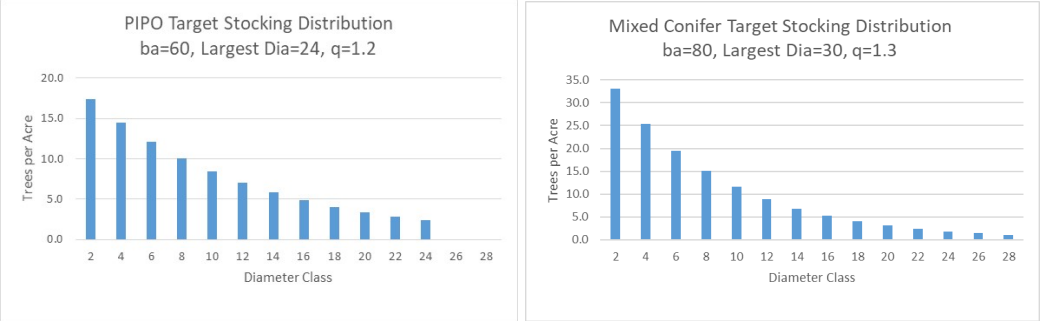

Figure D-1. Typical structural targets for individual tree selection

The desired density, max D (diameter) and q-slope is permitted to vary on a project-specific basis. Specific site-level targets should be based on site-level desired bDq, where b is the desired basal area, D is the largest tree diameter, and q is a multiplier for number of trees per acre in each next smaller size class.

Natural regeneration or restocking of stands depends on weather patterns that support a good cone crop and subsequent weather patterns that permit the germination and establishment of seedlings and saplings. Artificial regeneration, by way of planting trees, varies in its success, depending on such factors as climate and weather, soils, planting density, seedling protection, and topographic characteristics of the site, such as elevation, aspect, slope, and topographic position.

The Lincoln NF interdisciplinary team identified lands where there is "no reasonable assurance that lands could be adequately restocked within 5 years of final regeneration harvest." For this determination, the team used the terrestrial ecological unit inventory classification, which takes climate, topographic characteristics, and soils into consideration. Using this classification, nearly all terrestrial ecological unit inventory units would be restockable to their potential, with the exception of two terrestrial ecological unit inventory units that were formerly classified as Gambel oak and subsequently reclassified as dry mixed conifer (terrestrial ecological units 298a and 298b), for a total of 3,894 acres.

Non-Forested Lands

The Forest Service national directives define non-forested lands as those that are less than 10 percent occupied by trees of any size or that formerly had such tree cover and are currently developed for non-forest uses. Lands that were formerly tree covered should be identified as non-forest, unless the land would be naturally or artificially regenerated into forest cover in the near future.

Non-forested lands were identified using the forest's ERU geospatial layer, where shrublands, grasslands, woodlands, riparian, and naturally sparsely vegetated areas were removed.

Compatibility with Desired Conditions and Objectives in the Plan

Lands removed under this step of the suitability analysis were identified as those where cutting trees for timber production is not compatible with the desired conditions for vegetation, soil and watershed resources, or wildlife habitat objectives. This includes recommended wilderness and Mexican spotted owl protected activity centers, major campgrounds, and ski areas.

Table D-2. Timber Suitability Acres for All Alternatives, with Acres Removed from Suitability by Category

Land Classification Category	Acres				
A. Total National Forest System lands in the plan area	1,095,604				
B. Lands not suited for timber production due to legal or technical reasons	862,288				
C. Lands that *may* be suited for timber production (A–B)	233,316				
	Alt A	Alt B	Alt C1	Alt C2	Alt D
D. Total lands suited for timber production because timber production is compatible with the desired conditions and objectives established by the plan	166,312	179,226	145,402	179,226	179,557
E. Lands not suited for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C – D)	67,004	74,765	108,589	74,765	74,434
F. Total lands not suited for timber production (B+E)	929,292	916,378	950,202	916,378	916,047

National Forest Management Act (2012 Planning Rule) Required Calculations

This section provides more detail regarding the National Forest Management Act required calculations for sustained yield limit, projected timber sale quantity, and projected wood sale quantity.

Sustained Yield Limit

The Forest Service's Southwestern Regional Office staff calculated the sustained yield limit based on the regionally consistent desired conditions for vegetation. These are the desired conditions contained in the draft forest plan and its alternatives. This basis is sound only for the set of conditions as described; if desired conditions vary significantly from the regionally consistent desired conditions, a new sustained yield limit calculation would be required (Youtz and Vandendriesche 2015).

Using regionwide forest inventory and analysis plot data, the Southwestern Regional Office staff calibrated the forest vegetation simulator for the following variables by vegetation type and site index:

- Diameter growth
- Stand density mortality
- Tree mortality due to age
- Tree defect
- Merchantable cubic feet volumes
- Merchantable board feet volumes
- Natural tree regeneration

The staff ran the forest vegetation simulator model over periods long enough for volume projections to stabilize. They then used the annual average volume after projections stabilize, in conjunction with the number of suitable acres in each ERU, to calculate annual and decadal values for the sustained yield limit (Youtz and Vandendrieche 2015).

Table D-3. Sustained Yield Limit for the Lincoln NF

		UEA 30, Low/All SI*		UEA 30, Low/All SI*	
Ecological Response Unit (ERU)	Acres	Uneven-aged yield (per acre/year) Board feet (9"+ dbh)	Uneven-aged yield (per acre/year) Cubic feet (5"+ dbh)	MMBf (Million Board Feet)/year	CCf (Hundred Cubic Feet)/Year
Mixed Conifer-Frequent Fire	122,125	93.8	22.9	11.5	27,966.6
Mixed Conifer with Aspen	35,176	89.6	24.7	3.2	8,688.5
Ponderosa Pine Forest	84,535	75.4	15.5	6.4	13,102.9
All ERUs Uneven Aged				**21.0**	**49,758**
		Even-Aged Yield (9"+)	Even-Aged Yield (5"+)	Even-Aged MMBf	Even-Aged CCf
Spruce-Fir Pure CMAI Base**	3,597	14,517	3,890	52.2	564,711.3
Spruce-Fir Pure 230 year Base***	3,597	25,966	5,628	93.4	817,016.8

*Lincoln NF assumes a harvest schedule, based on a 30-year cutting cycle for uneven-aged management yield, at low site index for calculation of annual volumes.
** Culmination of mean annual increment (CMAI) occurs at age 110.
*** Maximum merchantable BF volume at age 230.

Estimated Vegetation Practices

The general prescribed cutting practices and acres of harvest are calculated based on the silvicultural input provided for the state-and-transition modeling. These are described under appendix E, the objectives in the draft plan and each of its alternatives, and the state-and-transition model outputs. (Interested readers can refer to appendix E before continuing to read this appendix.)

The number of prescribed cutting methods supported in models were optimized to lessen the workload and still provide a reasonably robust way to obtain the information necessary to fulfill important requirements of the National Forest Management Act (Boening 2014). Cutting methods are further grouped for reporting requirements to include regeneration harvest to promote establishment of additional age classes, uneven-aged intermediate thinning, and uneven-aged stand improvement/selection harvest.

Based on the expert opinion of the Lincoln NF silviculturist and vegetation and fuels program managers, state-and-transition model inputs were developed for each ERU, as follows:

- Which cutting methods are likely to be used
- How often particular vegetation conditions (state classes) would be targeted with a particular cutting method
- How vegetation conditions are likely to change as a result of each cutting method, immediately after harvest

This information was then related to the number of acres of each ERU proposed for treatment under each alternative to complete the state-and-transition model inputs.

Model outputs include the number of acres treated per year by state class and cutting method. The 100-year model output files were used to summarize each of the first two decades.

Projected Timber Sale Quantity and Projected Wood Sale Quantity

To calculate projected timber sale quantity and projected wood sale quantity, the Forest Service used the same state-and-transition model output files and summarization process described above. The number of acres of each prescribed cutting method by vegetation type and pre-treatment conditions were entered into

a Microsoft Excel calculator built by the Southwestern Regional Office staff (Weisz et al. 2011). This calculator tool contains volume coefficients from the forest vegetation simulator model outputs previously described.

Table D-4. Alternative A Projected Timber and Wood Sale Quantities through 20-Year Life of Forest Plan

Sustained Yield Limit (SYL)	**75 MMCF/10 Years**					
	First Decade			Second Decade		
	MMCF	MMBF	Tons	MMCF	MMBF	Tons
Timber Products	Volumes other than salvage or sanitation volumes that meet timber product utilization standards					
Lands suitable for timber production						
A1. Sawtimber (9"+ dbh)	5	23	75,597	5	25	79,019
A2. Other products (5-9" dbh)	1		19,451	1		16,323
Lands not suitable for timber production						
B1. Sawtimber (9"+ dbh)	2	9	30,995	2	10	32,398
B2. Other products (5-9" dbh)	1		7,975	0		6,692
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	**9**	**32**	**134,018**	**9**	**35**	**134,432**
Other Estimated Wood Products	Fuelwood, biomass, and other volumes that do not meet timber product utilization standards					
	MMCF	Tons		MMCF	Tons	
D1. Softwood fuelwood (5"+ dbh)	2.4	0.7		2.2	0.6	
D2. Hardwood fuelwood (5"+ dbh)	0.3	0.1		0.2	0.1	
D3. Aspen (5"+ dbh)	0.3	0.1		0.2	0.1	
E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)	**12**	**134,019**		**12**	**134,432**	

Table D-5. Alternative B Projected Timber and Wood Sale Quantities through 20-Year Life of Forest Plan

Sustained Yield Limit (SYL)	**75 MMCF/10 Years**					
	First Decade			Second Decade		
	MMCF	MMBF	Tons	MMCF	MMBF	Tons
Timber Products	Volumes other than salvage or sanitation volumes that meet timber product utilization standards					
Lands suitable for timber production						
A1. Sawtimber (9"+ dbh)	5	23	75,597	5	25	79,019
A2. Other products (5-9" dbh)	1		19,451	1		16,323
Lands not suitable for timber production						
B1. Sawtimber (9"+ dbh)	2	9	30,995	2	10	32,398
B2. Other products (5-9" dbh)	1		7,975	0		6,692
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	**9**	**32**	**134,018**	**9**	**35**	**134,432**
Other Estimated Wood Products	Fuelwood, biomass, and other volumes that do not meet timber product utilization standards					
	MMCF	Tons		MMCF	Tons	
D1. Softwood fuelwood (5"+ dbh)	2.4	0.7		2.2	0.6	
D2. Hardwood fuelwood (5"+ dbh)	0.3	0.1		0.2	0.1	
D3. Aspen (5"+ dbh)	0.3	0.1		0.2	0.1	
E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)	**12**	**134,019**		**12**	**134,432**	

Table D-6. Alternative C Projected Timber and Wood Sale Quantities through 20-Year Life of Forest Plan

Sustained Yield Limit (SYL)	**75 MMCF/10 Years**					
	First Decade			Second Decade		
	MMCF	MMBF	Tons	MMCF	MMBF	Tons
Timber Products	Volumes other than salvage or sanitation volumes that meet timber product utilization standards					
Lands suitable for timber production						
A1. Sawtimber (9"+ dbh)	5	22	74,054	6	26	83,191
A2. Other products (5-9" dbh)	1		21,449	1		18,633
Lands not suitable for timber production						
B1. Sawtimber (9"+ dbh)	2	9	28,881	2	10	32,445
B2. Other products (5-9" dbh)	1		8,365	0		7,267
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	**9**	**31**	**132,750**	**9**	**36**	**141,536**
Other Estimated Wood Products	Fuelwood, biomass, and other volumes that do not meet timber product utilization standards					
	MMCF	Tons		MMCF	Tons	
D1. Softwood fuelwood (5"+ dbh)	1.62	0.44		1.80	0.49	
D2. Hardwood fuelwood (5"+ dbh)	0.20	0.08		0.27	0.10	
D3. Aspen (5"+ dbh)	0.38	0.09		0.32	0.07	
E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)	**11**	**132,750**		**12**	**141,536**	

Table D-7. Alternative D Projected Timber and Wood Sale Quantities through 20-Year Life of Forest Plan

Sustained Yield Limit (SYL)	**75 MMCF/10 Years**					
	First Decade			Second Decade		
	MMCF	MMBF	Tons	MMCF	MMBF	Tons
Timber Products	Volumes other than salvage or sanitation volumes that meet timber product utilization standards					
Lands suitable for timber production						
A1. Sawtimber (9"+ dbh)	8	35	119,545	7	32	102,436
A2. Other products (5-9" dbh)	1		15,813	1		13,246
Lands not suitable for timber production						
B1. Sawtimber (9"+ dbh)	3	14	49,013	3	13	41,999
B2. Other products (5-9" dbh)	0		6,483	0		5,431
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	**13**	**49**	**190,854**	**11**	**45**	**163,111**
Other Estimated Wood Products	Fuelwood, biomass, and other volumes that do not meet timber product utilization standards					
	MMCF		Tons	MMCF		Tons
D1. Softwood fuelwood (5"+ dbh)	1.6		0.4	1.8		0.5
D2. Hardwood fuelwood (5"+ dbh)	0.4		0.1	0.3		0.1
D3. Aspen (5"+ dbh)	1.0		0.2	0.9		0.2
E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)	**16**		**190,855**	**14**		**163,112**

Table D-8. Alternative E Projected Timber and Wood Sale Quantities through 20-Year Life of Forest Plan

Sustained Yield Limit (SYL)	**75 MMCF/10 Years**					
	First Decade			Second Decade		
	MMCF	MMBF	Tons	MMCF	MMBF	Tons
Timber Products	Volumes other than salvage or sanitation volumes that meet timber product utilization standards					
Lands suitable for timber production						
A1. Sawtimber (9"+ dbh)	7	32	107,591	7	33	105,998
A2. Other products (5-9" dbh)	2		25,809	1		28,473
Lands not suitable for timber production						
B1. Sawtimber (9"+ dbh)	3	13	44,112	3	14	43,459
B2. Other products (5-9" dbh)	1		10,582	1		11,674
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	**12**	**46**	**188,095**	**12**	**47**	**189,603**
Other Estimated Wood Products	Fuelwood, biomass, and other volumes that do not meet timber product utilization standards					
	MMCF		Tons	MMCF		Tons
D1. Softwood fuelwood (5"+ dbh)	3.5		0.9	3.8		1.0
D2. Hardwood fuelwood (5"+ dbh)	0.4		0.2	0.5		0.2
D3. Aspen (5"+ dbh)	0.4		0.1	0.3		0.1
E. Projected Wood Sale Quantity (PWSQ)	**17**		**188,096**	**16**		**189,605**

Limitations

The forest vegetation simulator model is not directly sensitive to future fluctuations in the climatic variables that influence tree growth, such as temperature patterns, rainfall patterns, and atmospheric carbon dioxide levels. Instead, growth is estimated by relationships between the tree's size, crown ratio, and position in the stand. These relationships are based on equations developed from field-collected data (Crookston and Dixon 2005).

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Appendix E

State and Transition Modeling Process

Appendix E. State and Transition Modeling Process

Introduction

Projecting changes in vegetation structure and composition over time is an important part of landscape-level analyses. Vegetation can change for a variety of reasons, such as human activity, fire, insects, pathogens, mammals, weather, or growth and competition. The interaction of these factors can be complex, and it can be difficult to project the combined effects over long periods of time (ESSA Technologies Ltd. 2006).

In response to the United States Department of Agriculture Forest Service Southwestern Region's need for landscape-scale planning tools, broadscale state and transition models for ecological response units (ERUs) on the Lincoln National Forest (Lincoln NF) have been developed based on a comprehensive literature review. ERUs have been defined for most vegetation communities on the Lincoln NF. Published scientific information was used to define vegetation model states, identify parameter values for these models, and run a quantitative scenario analysis using Vegetation Dynamics Development Tool (VDDT) software (ESSA Technologies Ltd. 2006), in order to project relative proportions of model states on the landscape over time. Models were originally developed by LANDFIRE, a fire modeling software program, The Nature Conservancy, and the Integrated Landscape Assessment Project and have been further refined by the Forest Service Southwestern Regional Office staff, with input from forest specialists. Most state and transition destinations and probabilities for the base models are derived from Forest Vegetation Simulator modeling (Dixon 2002). Burn severity information was compiled from monitoring trends in burn severity records (Wildland Fire Leadership Council 2014). Other inputs came directly from forest records of management actions, insect and disease surveys, and wildfire data from the past 15 to 30 years.

VDDT software is a nonspatial model that allows the user to model vegetation change over time as a series of vegetation states that differ in size class, canopy cover, dominance type, and storiedness, and movement of vegetation among states (transitions) (ESSA Technologies Ltd. 2006). Various disturbance agents affecting the transitions are incorporated (e.g., surface fire, stand-replacing fire, and insect outbreaks). By varying the types and rates of disturbance in the model, the effects on vegetation of different disturbance regimes, such as current and historical fire regimes, or different management treatments, such as fire suppression, prescribed burning, and mechanical fuels treatments, can be tested. These models summarize and synthesize the current state of scientific knowledge for vegetation dynamics. Additionally, they provide forest planners and managers with powerful tools for understanding, investigating, and demonstrating the effects of alternative scenarios for the management of vegetation on the Lincoln NF.

State and transition models for each vegetation community were calibrated to reflect the anticipated management under each alternative. Initial seral state proportions were assigned according to actual measurements of current conditions on the Lincoln NF based on midscale vegetation mapping (Mellin et al. 2008). Existing vegetation was assigned to an ERU and then to the appropriate state class within that ERU, according to state class descriptions that the Forest Service Southwestern Region developed (USDA Forest Service 2011, 2014).

Model Structure

Each upland ecosystem type has its own model structure. The VDDT models use alphabet values to name the states. Each model will vary with the number of states, and while letter names are similar, the state

they represent may vary. Within that structure, states are defined by combinations of attributes from the Region 3 mid-scale existing vegetation mapping (table E-1). Those attributes include the dominant life form, tree size, canopy cover, storiedness, or ecological status. Storiedness is applied only to forest/timber type ERUs and describes the number of canopy layers. Single-storied conditions are indicative of even-aged dynamics, while multi-storied conditions are indicative of uneven-aged dynamics. Ecological status only applies in grassland ERUs. Ecological status is a measure of species composition. These combinations, or state classes, are a standardized part of the regional base models as described in the following tables (tables E2–E14).

Table E-1. Region 3 Mid-scale Vegetation Attributes and Classes

Size Class	Seedling/Sapling	Small	Medium–Large	Very Large
Diameter (inches)	0–5	5–10	10–20	20+
Canopy Cover	**Non-tree**	**Open**	**Closed**	-
Percent	<10	10–29.9	30+	-
Storiedness	**Single-storied**	**Multi-storied**	-	-
Number of layers	1–2	3+	-	-
Ecological Status	**High**	**Low-Moderate**	-	-
Percent Similarity to Site Potential	66+	<66	-	-

Inputs and Assumptions

Model inputs include the initial, or current, state class distribution (percentage of area) and transition pathways between states. The following narrative defines these parameters and describes their development. The parameters themselves are housed within the models, which are included in the project record.

Initial Conditions

Initial conditions are the existing state class distributions specific to each ERU, or vegetation type. In other words, initial conditions describe how much of a given vegetation type is in a particular state class.

For the environmental analysis, area was assigned to each state class using mid-scale existing vegetation geospatial mapping products (Mellin et al. 2008) that describe the dominant life-form, size class, canopy cover, storiedness, and the ecological status analysis conducted for the assessment phase of revision (Forest Service 2019). The first four datasets were processed in ArcMap using a series of "identity" and "dissolve" functions to create an end product of ERU polygons containing all the attributes necessary to define seral states by ERU. Selection of combinations of attributes from the ERU polygons were assigned seral states according to combinations of attributes shown in tables E2–E14. Polygon acreages were summed for each seral state of each ERU to provide the initial conditions to run the models.

Transition Pathways

In the model, area moves between state classes on transition pathways. Transition pathways represent a disturbance or natural growth in the absence of disturbance. The parameters required for transition pathways include a transition type or name; an annual probability for that transition type; a "from" state class; one or more "to" or destination state classes; and if more than one destination state class is appropriate, a proportion of the area in the "from" state class moving to each destination state class.

This section discusses all these parameters organized under subheadings for each transition type. Only the transition types with one or more parameters that were adjusted from the regional base models by Forest

Service staff during the assessment or environmental analysis, or otherwise populated by Forest Service staff, are included.

Wind and Weather Stress

Regional office staff developed parameters for wind and weather stress as part of the base models. These parameters are only included for Colorado Plateau/Great Basin Grassland, Mixed Conifer with Aspen, and Piñon-Juniper Woodland. However, wind and weather stress is an important and active process in every ERU. In consultation with the Regional Analyst, who determined these could be ignored without significantly influencing outcomes, these transitions were turned off for all alternatives.

Insect and Disease Mortality

Regional office staff provides all insect and disease mortality parameters for revision efforts in the region. For the assessment, survey data were obtained from the regional office for 1996–2014. The number of acres of mortality per survey year for each ERU was extracted, and an annualized probability value was then calculated.

Invasive Species

Parameters for invasive plant species are only included in the regional base model for Semi-Desert Grassland. Regional office staff developed these working with staff at the Coronado National Forest. Invasive species are a large issue in this ERU on the Coronado National Forest, which necessitated building in both invasion and treatment transition pathways between states. Such is not the case on the Lincoln NF. While nonnative and invasive species are present in some locations, they are not driving the trajectory of upland ecosystems, and there is no information or data to suggest that any one grassland type on the Lincoln NF is at more or less risk of invasion than the other. These transition pathways were turned off for all alternatives.

Wildfire

Wildfire transitions in the regional base models are parameterized with ERU-specific low-, moderate-, or mixed- and high-severity wildfire probabilities from a regional data summary that includes all national forests in the Southwestern Region. In order to characterize current fire regimes, the data summary included an ERU map, monitoring trends in burn severity (1996–2014), and rapid assessment of vegetation condition after wildfire (2015) datasets. Also, as part of the regional base models, work by Weisz et al. (2009) provides information to guide parameterization of destination states and proportions. This data summary describes the relationship between fire severity classes (low, moderate/mixed, or high) and canopy cover classes.

Destination states and proportions were developed using on-the-ground knowledge and expert opinion guided by the cover-severity relationships established in the data summary provided by Weisz et al. (2009). Given that state classes are defined by both cover and size class, expert knowledge is necessary to determine destination states in terms of size class changes. Field experience in the forest also facilitates developing these inputs where there is more than one potential outcome. For example, some area in a seedling/sapling or small, closed canopy state class may move to a seedling/sapling or small, open state class or a medium-large, open state class as a result of a mixed-severity fire. This depends on whether the larger trees were present in the stand. This was not fully considered as part of the interdisciplinary team parameterization of the assessment model and was revisited in development of the environmental analysis.

Additional assumptions related to parameterizing wildfire transitions for all alternatives included in this analysis include the following:

- In the grassland models, which describe early seral states as recently burned/sparsely vegetated, fire does not occur in these states due to a lack of fuels.
- In early seral states dominated by grass/forb/shrub cover, fire of any severity maintains grass/forb/shrub cover dominance.
- In all ERUs except Mixed Conifer with Aspen and Spruce-Fir Forest,
    - ♦ High-severity fire only occurs in closed canopy states.
    - ♦ Low-severity fire does not occur in seedling/sapling or small, closed canopy states. Low-severity fire does not occur in medium to very large, closed canopy states in ecosystems dominated by woodland tree species. This is because canopy heights are typically lower than in ecosystems dominated by timber tree species.
    - ♦ Low-severity fire can occur in single-story (even-aged), medium to very large, closed canopy states in forest/timber type ecosystems due to the relative density and continuity of ladder fuels. Low-severity fire in multi-storied, closed canopy states does not occur due to higher density and continuity of ladder fuels, which tends to favor mixed- and high-severity fire.
    - ♦ In frequent fire ERUs, mixed-severity fire occurs in seedling/sapling and small, open or closed canopy state classes and in medium-large and very large, closed canopy state classes; but, it does not occur in medium-large and very large, open canopy state classes. This is due to differences in fuel characteristics and the relative susceptibility of different age classes to experience mortality.
- In Mixed Conifer with Aspen and Spruce-Fir Forest ERUs, low-severity fire does not occur in closed canopy states or in aspen-dominated states, as dominant species are fire intolerant. Mixed-/moderate- and high-severity fire occurs in all tree-dominated state classes.

Prescribed Fire

The assumptions developed for wildfire transition pathways and the data-driven cover-severity relationships are relevant and applied to prescribed fire transitions.

Area limits are used to determine the total number of acres for a given prescribed fire severity class for the ERU as a whole. They cannot express that prescribed fire is not equally likely in every state class. To address this, probabilities were developed for use in conjunction with area limits, which allows for these differences to be expressed in the model. In addition to the assumptions applied to wildfire transitions, a blanket assumption applied to all alternatives for prescribed fire. Prescribed fire is limited to low- and mixed-severity prescribed fire. There is no transition for high-severity prescribed fire in any alternative.

Alternative A area limits are defined by average annual actual accomplishments by ERU between 1995 and 2015.

Alternative B reflects a restoration theme that strives to balance the use of treatment tools in consideration of providing products to people and market conditions; human health, life, and property; and the number of acres that can be treated with a particular tool given the cost. Alternatives C and D reflect restoration themes that emphasize either passive or active restoration that provide various levels of products to people, and reflect differences in stakeholder concerns for particular resources and the benefits they provide to people. Alternative D reflects a theme that emphasizes economic opportunity from timber, grazing, recreation, and energy development.

Prescribed Cutting Methods

Prescribed cutting methods are commonly referred to as mechanical treatments, although not all prescribed cutting methods require the use of heavy equipment, such as skidders and haulers. The number of transition types supported in the regional base models was developed to provide a robust way to obtain the information necessary to fulfill requirements of the National Forest Management Act related to forest product and biomass volume calculations. These state-and-transition pathways are supported by Forest Vegetation Simulator model runs conducted by regional office staff. These Forest Vegetation Simulator model runs and associated tools for processing VDDT model outputs facilitate the calculations necessary to fulfill National Forest Management Act requirements (Boening 2014; Youtz and Vandendriesche 2012). This is discussed in further detail in appendix D: Timber Production Suitability, Estimated Vegetation Practices, and Projected Harvest Levels Analysis Methodology. Actual prescribed cutting methods have and will continue to vary to fit site-specific management goals under all alternatives.

The regional silviculturist and regional analysts developed the transition type (prescribed cutting method), destination state, proportions, and probabilities (Weisz et al 2009; Weisz et al. 2010; Weisz and Vandendriesche 2013). All mechanical treatment transition pathway parameters in the assessment models were reviewed and updated, where necessary, for the environmental analysis based on specialist input. These inputs included prescribed cutting methods, the percentage of the time they are used in each ERU and state class, and the state classes targeted. Where local Forest Activity Tracking System data activities did not conform to the transition types used in the models, local expertise was used to determine which transition type best matched the recorded activity.

Area limits were also calculated for each prescribed cutting method based on silvicultural input in conjunction with the number of acres to be treated under each alternative. As with prescribed fire, the number of acres used to calculate area limits reflects the estimated amount of treated acres per alternative based on funding and workforce capacity, as well as plan objectives.

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Table E-2. ERU Model Structures and State Class Descriptions: Spruce-Fir Forest; No Aspen Regen

Spruce-Fir Forest (SFF); No Aspen Regen CURRENT TRENDS MODEL	STATE	A	B	C	G	D	H	E	F	I	J
	DESCRIPTION	Grass, Forb, Shrub (GFB-SHR)	Aspen / Mixed Deciduous (All)	Seed/Sap-Closed (SSC) Small-Closed (SMC)	Seed/Sap-Open (SSO) Small-Open (SMO)	Medium-Large-Closed (MC)	Medium-Large-Open (MO)	Very Large-Closed, Single Story (VCS)	Very Large-Closed, Multi Story (VCM)	Very Large-Open, Single Story (VOS)	Very Large-Open, Multi-Story (VOM)
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	NON-TREE: All sparsely vegetated, recently burned, grass-forb, and shrub types	All aspen and deciduous tree dominance types, including mixed deciduous types (e.g., POTR5_PSME)	All evergreen tree dominance types	All evergreen tree dominance types	All evergreen tree dominance types	All evergreen tree dominance types	All evergreen tree dominance types.	All evergreen tree dominance types.	All evergreen tree dominance types.	All evergreen tree dominance types.
	STRUCTURE		All size classes, all cover classes, all storiedness	0-9.9" diam, 30%+ tree cover, all storiedness	0-9.9" diam, 10-29.9% tree cover, all storiedness	10-19.9" diam, 30%+ tree cover, all storiedness	10-19.9" diam, 10-29.9% tree cover, all storiedness	≥20" diam, 30%+ tree cover, 1-2 stories	≥20" diam, 30%+ tree cover, 3+ stories	≥20" diam, 10-29.9% tree cover, 1-2 story	≥20" diam, 10-29.9% tree cover, 3+ stories

Table E-3. ERU Model Structures and State Class Descriptions: Mixed Conifer with Aspen (MCW, Wet Mixed Conifer); No Aspen Regen

Mixed Conifer with Aspen (MCW, Wet Mixed Conifer); No Aspen Regen CURRENT TRENDS MODEL	STATE	K	T	L	P	M	Q	N	O	R	S
	DESCRIPTION	Grass, Forb, Shrub (GFB-SHR)	Aspen / Mixed Deciduous	Seed/Sap-Closed (SSC) Small-Closed (SMC)	Seed/Sap-Open (SSO) Small-Open (SMO)	Medium-Large-Closed (MC)	Medium-Large-Open (MO)	Very Large-Closed, Single Story (VCS)	Very Large-Closed, Multi Story (VCM)	Very Large-Open, Single Story (VOS)	Very Large-Open, Multi-Story (VOM)
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	NON-TREE: All sparsely vegetated, recently burned, grass-forb, and shrub types	All aspen and deciduous tree dominance types, including mixed deciduous types (e.g., POTR5_PSME)	All evergreen tree dominance types	All evergreen tree dominance types	All evergreen tree dominance types	All evergreen tree dominance types	All evergreen tree dominance types.	All evergreen tree dominance types.	All evergreen tree dominance types.	All evergreen tree dominance types.
	STRUCTURE		All size classes, all cover classes, all storiedness	0-9.9" diam, 30%+ tree cover, all storiedness	0-9.9" diam, 10-29.9% tree cover, all storiedness	10-19.9" diam, 30%+ tree cover, all storiedness	10-19.9" diam, 10-29.9% tree cover, all storiedness	≥20" diam, 30%+ tree cover, 1-2 stories	≥20" diam, 30%+ tree cover, 3+ stories	≥20" diam, 10-29.9% tree cover, 1-2 story	≥20" diam, 10-29.9% tree cover, 3+ stories

Table E-4. ERU Model Structures and State Class Descriptions: Mixed Conifer-Frequent Fire (MCD, Dry Mixed Conifer)

Mixed Conifer-Frequent Fire (MCD, Dry Mixed Conifer) CURRENT TRENDS MODEL	STATE	A N	B F	C	G	J	K	H L	I M	D E
	DESCRIPTION	GFB-SHR-Characteristic GFB-SHR-Uncharacteristic	Seed/Sap-Open (SSO) Seed/Sap-Closed (SSC)	Small-Open (SMO)	Small-Closed (SMC)	Medium-Large-Open, Multi (MOM)	Very Large-Open, Multi (VOM)	Medium-Large-Closed, Single (MCS) Medium-Large-Closed, Multi (MCM)	Very-Large-Closed, Single (VCS) Very-Large-Closed, Multi (VCM)	Medium-Large-Open, Single (MOS) Very Large-Open, Single (VOS)
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	NON-TREE: All sparsely vegetated, recently burned, grass-forb, and shrub types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types
	STRUCTURE		0-4.9" diam, all cover classes, all storiedness	5-9.9" diam, 10-29.9% tree cover, all storiedness	5-9.9" diam, 30%+ tree cover, all storiedness	10-19.9" diam, 10-29.9% tree cover, 3+ stories	≥20" diam, 10-29.9% tree cover, 3+ stories	10-19.9" diam, 30%+ tree cover, all storiedness	≥20" diam, 30%+ tree cover, all storiedness	10-19.9" diam, >20" diam, 10-29.9% tree cover, 1-2 stories

Table E-5. ERU Model Structures and State Class Descriptions: Ponderosa Pine Forest

Ponderosa Pine Forest CURRENT TRENDS MODEL	STATE	J	K	A N	B F	C	D E	G	H L	I M
	DESCRIPTION	Medium-Large-Open, Multi (MOM)	Very Large-Open, Multi (VOM)	GFB-SHR-Characteristic GFB-SHR-Uncharacteristic	Seed/Sap-Open (SSO) Seed/Sap-Closed (SSC)	Small-Open (SMO)	Medium-Large-Open, Single (MOS) Very Large-Open, Single (VOS)	Small-Closed (SMC)	Medium-Large-Closed, Single (MCS) Medium-Large-Closed, Multi (MCM)	Very Large-Closed, Single (VCS) Very Large-Closed, Multi (VCM)
EXISTING VEG MAPPING	COMPOSITION	All tree dominance types	All tree dominance types	NON-TREE: All sparsely vegetated, recently burned, grass-forb, and shrub types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types
	STRUCTURE	10-19.9" diam, 10-29.9% tree cover, 3+ stories	≥20" diam, 10-29.9% tree cover, 3+ stories		0-4.9" diam, all cover classes, all storiedness	5-9.9" diam, 10-29.9% tree cover, all storiedness	10-19.9" diam, ≥20" diam, 10-29.9% tree cover, 1-2 stories	5-9.9" diam, 30%+ tree cover, all storiedness	10-19.9" diam, 30%+ tree cover, all storiedness	≥20" diam, 30%+ tree cover, all storiedness

Table E-6. ERU Model Structures and State Class Descriptions: Ponderosa Pine/Evergreen Shrub Forest

Ponderosa Pine/Evergreen Shrub Forest CURRENT TRENDS MODEL	STATE	A	F	B	C	D	E
	DESCRIPTION	Grass, Forb, Shrub (GFB-SHR)	Seed/Sap-All (SSA)	Small-Closed (SMC)	Small-Open (SMO)	Medium to Very Large-Open (MVO)	Medium to Very Large-Closed (MVC)
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	NON-TREE: All sparsely vegetated, recently burned, grass-forb, and shrub types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types	All tree dominance types
	STRUCTURE		0-4.9" diam, ≥10% tree cover	5-9.9" diam, 30%+ tree cover	5-9.9" diam, 10-29.9% tree cover	≥10" diam, 10-29.9% tree cover	≥10" diam, 30%+ tree cover

Table E-7. ERU Model Structures and State Class Descriptions: Pinon-Juniper/Evergreen Shrub Woodland

Pinon-Juniper/Evergreen Shrub Woodland CURRENT TRENDS MODEL	STATE	A	B	E	C	D	F	G
	DESCRIPTION	Grass, Forb, Shrub (GFB-SHR)	Seed/Sap-Open (SSO)	Seed/Sap-Closed (SSC)	Small-Open (SMO)	Medium to Very Large-Open (MVO)	Small-Closed (SMC)	Medium to Very Large-Closed (MVC)
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	NON-TREE: All sparsely vegetated, recently burned, grass-forb, and shrub types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types
	STRUCTURE		0-4.9" diam, 10-29.9% tree cover	0-4.9" diam, 30%+ tree cover	5-9.9" diam, 10-29.9% tree cover	≥10" diam, 10-29.9% tree cover	5-9.9" diam, 30%+ tree cover	≥10" diam, 30%+ tree cover

Table E-8. ERU Model Structures and State Class Descriptions: Pinon-Juniper Woodland (Persistent)

Pinon-Juniper Woodland (Persistent) CURRENT TRENDS MODEL	STATE	A	B	E	C	D	F	G
	DESCRIPTION	Grass, Forb, Shrub (GFB-SHR)	Seed/Sap-Open (SSO)	Seed/Sap-Closed (SSC)	Small-Open (SMO)	Medium to Very Large-Open	Small-Closed (SMC)	Medium to Very Large-Closed
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	NON-TREE: All sparsely vegetated, recently burned, grass-forb, and shrub types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types
	STRUCTURE		0-4.9" diam, 10-29.9% tree cover	0-4.9" diam, 30%+ tree cover	5-9.9" diam, 10-29.9% tree cover	≥10" diam, 10-29.9% tree cover	5-9.9" diam, 30%+ tree cover	≥10" diam, 30%+ tree cover

Table E-9. ERU Model Structures and State Class Descriptions: Pinon- Juniper Grass Woodland

Pinon- Juniper Grass Woodland CURRENT TRENDS MODEL	STATE	A	B	E	C	D	F	G
	DESCRIPTION	Grass, Forb, Shrub (GFB-SHR)	Seed/Sap-Open (SSO)	Seed/Sap-Closed (SSC)	Small-Open (SMO)	Medium to Very Large-Open (MVO)	Small-Closed (SMC)	Medium to Very Large-Closed (MVC)
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	NON-TREE: All sparsely vegetated, recently burned, grass-forb, and shrub types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types
	STRUCTURE		0-4.9" diam, 10-29.9% tree cover	0-4.9" diam, 30%+ tree cover	5-9.9" diam, 10-29.9% tree cover	≥10" diam, 10-29.9% tree cover	5-9.9" diam, 30%+ tree cover	≥10" diam, 30%+ tree cover

Table E-10. ERU Model Structures and State Class Descriptions: Juniper Grass Woodland

Juniper Grass Woodland CURRENT TRENDS MODEL	STATE	A	B	E	C	D	F	G
	DESCRIPTION	Grass, Forb, Shrub (GFB-SHR)	Seed/Sap-Open (SSO)	Seed/Sap-Closed (SSC)	Small-Open (SMO)	Medium to Very Large-Open (MVO)	Small-Closed (SMC)	Medium to Very Large-Closed (MVC)
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	NON-TREE: All sparsely vegetated, recently burned, grass-forb, and shrub types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types	All woodland tree dominance types
	STRUCTURE		0-4.9" diam, 10-29.9% tree cover	0-4.9" diam, 30%+ tree cover	5-9.9" diam, 10-29.9% tree cover	≥10" diam, 10-29.9% tree cover	5-9.9" diam, 30%+ tree cover	≥10" diam, 30%+ tree cover

Table E-11. ERU Model Structures and State Class Descriptions: Gamble Oak / Mountain Mahogany-Mixed Shrublands

Gamble Oak / Mountain Mahogany-Mixed Shrublands CURRENT TRENDS MODEL	STATE	A	B	C	D
	DESCRIPTION	Early Development	Mid Development	Late Development	Late Development - Closed
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	NON-TREE: All sparsely vegetated, recently burned, and grass-forb types	All shrub dominance types	All shrub dominance types	All tree dominance types
	STRUCTURE	(<10% tree cover, <10% shrub cover)	10-29.9% shrub cover (all height classes)	>30% shrub cover (all height classes)	All tree size and cover classes

Table E-12. ERU Model Structures and State Class Descriptions: Chihuahuan Desert Scrub

Chihuahuan Desert Scrub CURRENT TRENDS MODEL	STATE	A	B	C	D	G	J	F	E	H	I
	DESCRIPTION - COMPOSITION	AnnualGrass/ Forbs	Cacti	Cacti	Cacti	Perennial Grass	Exotic Perennial Grass/ Juvenile	Exotic Perennial Grass	Exotic Perennial Grass/Cacti	Exotic Annual Grass/Cacti	Exotic Annual Grass
	DESCRIPTION - STRUCTURE	Gr-Sparse, Sh-Sparse, Tr-Sparse	Gr-Low, Sh-Low, Tr-Low	Gr-Low, Sh-Low, Tr-Low	Gr-Low, Sh-Sparse, Tr-Sparse	Gr-Mod-High, Sh-Low, Tr-Sparse	Gr-Low-Mod, Sh-Low, Tr-Low	Gr-Mod-High, Sh-Sparse, Tr-Sparse	Gr-Low, Sh-Sparse, Tr-Sparse	Gr-Low, Sh-Low, Tr-Low	Gr-Mod-High, Sh-Sparse, Tr-Sparse
R3 MID-SCALE EXISTING VEG MAPPING	COMPOSITION	SPARSELY VEGETATED: All sparsely vegetated and recently burned	SHRUB TYPES: All shrub dominance types (herb stratum is native)	SHRUB TYPES: All shrub dominance types (herb stratum is native)	TREE TYPES: All tree dominance types (herb stratum is native)	NATIVE HERB TYPES: All native herb dominance types	EXOTIC PERENNIAL HERB TYPES: All exotic perennial herb dominance types		SHRUB-TREE TYPES WITH EXOTIC PERENNIALS: All tree* and shrub dominance types with exotic perennial herb layer	SHRUB-TREE TYPES WITH EXOTIC ANNUALS: All tree* and shrub dominance types with exotic annual herb layer	EXOTIC ANNUAL HERB TYPES: All exotic herb dominance types
	STRUCTURE		≥10% shrub cover, <2m height	≥10% shrub cover, ≥2m height	10-29.9% tree cover*				≥10% shrub cover, 10-29.9% tree cover*, all size classes	≥10% shrub cover, 10-29.9% tree cover*, all size classes	

Table E-13. ERU Model Structures and State Class Descriptions: Montane-Subalpine Grassland

Montane-Subalpine Grassland CURRENT TRENDS MODEL	STATE	A	C	B	D	E		F	G	
	STATE CLASS DESCRIPTION	PRF - HighES	PRF - LowModES	Grassland - HighES	Grassland-LowModES	Tree - LowModES		Grassland-Ruderal	Tree- Ruderal	
R3 MID-SCALE EXISTING VEG MAPPING	DOMINANCE	Short termRecently burned, sparsely vegetated- high ecological status, primary edaphic type	Short termRecently burned, sparsely vegetated-low-mod ecological status, Disclimax types	All herb dominance types of high condition (high ecological status, primary edaphic types)	All herb dominance types of low-mod condition (low-mod ecological status, disclimax types)	All shrub dominance typesof low-mod seral condition, non-ruderal (low-mod ecological status, disclimax vegetation)	All tree dominance typesof low-mod seral condition, non-ruderal (low-mod ecological status, disclimax vegetation)	All herb dominance types with majority ruderal species cover (low ecological status, disclimax vegetation)	All shrub dominance types where majority of understory/herb cover is ruderal (low ecological status, disclimax vegetation)	All tree dominance types where majority of understory/herb cover is ruderal (low ecological status, disclimax vegetation)
	TREE AND SHRUB STRUCTURE	(<10% tree cover, <10% shrub cover)	(<10% tree cover, <10% shrub cover)	(<10% tree cover, <10% shrub cover)	(<10% tree cover, <10% shrub cover)	≥10% shrub cover, (<10% tree cover)	≥10% shrub cover, (<10% tree cover)	(<10% tree cover, <10% shrub cover)	≥10% shrub cover, all height classes (<10% tree cover)	≥10% tree cover, all size classes

Table E-14. ERU Model Structures and State Class Descriptions: Semi-Desert Grassland

Semi-Desert Grassland CURRENT TRENDS MODEL	STATE	A	B	D	C		E		F	G	
	STATE CLASS DESCRIPTION	PRF - Low-ModES	Grassland - HighES	Grassland-LowModES	Encroached- 10-29% Woody Cover		Encroached- >=30% Woody Cover		Exotic Grass	ExoticWoody- 10-29.9% Woody Cover	
R3 MID-SCALE EXISTING VEG MAPPING	DOMINANCE	Short termRecently burned, sparsely vegetated- high ecological status, primary edaphic type	Short termRecently burned, sparsely vegetated- low-mod ecological status, Disclimax types	All herb dominance types of high condition (high ecological status, primary edaphic types)	Shrub dominance typesof low-mod seral condition (low-mod ecological status, disclimax vegetation)	Tree dominance types of low-mod seral condition (low-mod ecological status, disclimax vegetation)	Shrub dominance typesof low-mod seral condition (low-mod ecological status, disclimax vegetation)	Tree dominance types of low-mod seral condition (low-mod ecological status, disclimax vegetation)	All exotic herb dominance types, low seral (low ecological status, disclimax types)	Shrub dominance types with exotic understory vegetation, low-mod seral condition (low ecological status, disclimax vegetation)	Tree dominance types with exotic understory vegetation, low-mod seral condition (low ecological status, disclimax vegetation)
	TREE AND SHRUB STRUCTURE	(<10% tree cover, <10% shrub cover)	(<10% tree cover, <10% shrub cover)	(<10% tree cover, <10% shrub cover)	10-29% shrub cover (<10% tree cover)	10-29% tree cover	≥30% shrub cover, (<10% tree cover)	≥30% tree cover	(<10% tree cover, <10% shrub cover)	≥10% shrub cover, all height classes (<10% tree cover)	≥10% tree cover, all size classes

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Appendix F
USFWS IPaC List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
Phone: (505) 346-2525 Fax: (505) 346-2542
http://www.fws.gov/southwest/es/NewMexico/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: March 05, 2020
Consultation Code: 02ENNM00-2020-SLI-0657
Event Code: 02ENNM00-2020-E-01396
Project Name: LincolnNF_AE

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq.), the Migratory Bird Treaty Act (MBTA) as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act (BGEPA) as amended (16 USC 668-668c). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area and to recommend some conservation measures that can be included in your project design.

FEDERALLY-LISTED SPECIES AND DESIGNATED CRITICAL HABITAT

Attached is a list of endangered, threatened, and proposed species that may occur in your project area. Your project area may not necessarily include all or any of these species. Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

If you determine that your proposed action may affect federally-listed species, consultation with the Service will be necessary. Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take "after-the-fact." For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at www.fws.gov/endangered/esa-library/index.html#consultations.

The scope of federally listed species compliance not only includes direct effects, but also any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect or cumulative effects that may occur in the action area. The action area includes all areas to be affected, not merely the immediate area involved in the action. Large projects may have effects outside the immediate area to species not listed here that should be addressed. If your action area has suitable habitat for any of the attached species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts.

Candidate Species and Other Sensitive Species

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species be included in your surveys and considered for planning purposes. The Service monitors the status of these species. If significant declines occur, these species could potentially be listed. Therefore, actions that may contribute to their decline should be avoided.

Lists of sensitive species including State-listed endangered and threatened species are compiled by New Mexico state agencies. These lists, along with species information, can be found at the following websites:

Biota Information System of New Mexico (BISON-M): www.bison-m.org

New Mexico State Forestry. The New Mexico Endangered Plant Program: www.emnrd.state.nm.us/SFD/ForestMgt/Endangered.html

New Mexico Rare Plant Technical Council, New Mexico Rare Plants: nmrareplants.unm.edu

Natural Heritage New Mexico, online species database: nhnm.unm.edu

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value.

We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website, www.fws.gov/wetlands/Data/Mapper.html integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

The MBTA prohibits the taking of migratory birds, nests, and eggs, except as permitted by the Service's Migratory Bird Office. To minimize the likelihood of adverse impacts to migratory birds, we recommend construction activities occur outside the general bird nesting season from March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until the young have fledged.

We recommend review of Birds of Conservation Concern at website www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BCC.html to fully evaluate the effects to the birds at your site. This list identifies birds that are potentially threatened by disturbance and construction.

BALD AND GOLDEN EAGLES

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the ESA on August 9, 2007. Both the bald eagle and golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For information on bald and golden eagle management guidelines, we recommend you review information provided at www.fws.gov/midwest/eagle/guidelines/bgepa.html.

On our web site www.fws.gov/southwest/es/NewMexico/SBC_intro.cfm, we have included conservation measures that can minimize impacts to federally listed and other sensitive species. These include measures for communication towers, power line safety for raptors, road and highway improvements, spring developments and livestock watering facilities, wastewater facilities, and trenching operations.

We also suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding State fish, wildlife, and plants.

Thank you for your concern for endangered and threatened species and New Mexico's wildlife habitats. We appreciate your efforts to identify and avoid impacts to listed and sensitive species in your project area. For further consultation on your proposed activity, please call 505-346-2525 or email nmesfo@fws.gov and reference your Service Consultation Tracking Number.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
(505) 346-2525

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Austin Ecological Services Field Office
10711 Burnet Road, Suite 200
Austin, TX 78758-4460
(512) 490-0057

Project Summary

Consultation Code: 02ENNM00-2020-SLI-0657

Event Code: 02ENNM00-2020-E-01396

Project Name: LincolnNF_AE

Project Type: LAND - PRESERVATION

Project Description: Affected environment of Lincoln National Forest forest plan

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/32.86897072418583N105.61173678477684W

Counties: Chaves, NM | Eddy, NM | Lincoln, NM | Otero, NM | Culberson, TX

Endangered Species Act Species

There is a total of 24 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
New Mexico Meadow Jumping Mouse *Zapus hudsonius luteus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7965	Endangered
Penasco Least Chipmunk *Tamias minimus atristriatus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5126	Candidate

Birds

NAME	STATUS
Least Tern *Sterna antillarum* Population: interior pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8505	Endangered
Mexican Spotted Owl *Strix occidentalis lucida* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Northern Aplomado Falcon *Falco femoralis septentrionalis* Population: U.S.A (AZ, NM) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1923	Experimental Population, Non-Essential
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Pecos Bluntnose Shiner *Notropis simus pecosensis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4362	Threatened
Pecos Gambusia *Gambusia nobilis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/460	Endangered

Clams

NAME	STATUS
Texas Hornshell *Popenaias popeii*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/919

Snails

NAME	STATUS
Koster's Springsnail *Juturnia kosteri*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3126

Pecos Assiminea Snail *Assiminea pecos*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4519

Roswell Springsnail *Pyrgulopsis roswellensis*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/923

Crustaceans

NAME	STATUS
Noel's Amphipod *Gammarus desperatus*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8042

Flowering Plants

NAME	STATUS
Gypsum Wild-buckwheat *Eriogonum gypsophilum* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7770	Threatened
Kuenzler Hedgehog Cactus *Echinocereus fendleri var. kuenzleri* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2859	Threatened
Lee Pincushion Cactus *Coryphantha sneedii var. leei* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2504	Threatened
Pecos (=puzzle, =paradox) Sunflower *Helianthus paradoxus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7211	Threatened
Sacramento Mountains Thistle *Cirsium vinaceum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7486	Threatened
Sacramento Prickly Poppy *Argemone pleiacantha ssp. pinnatisecta* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3332	Endangered
Sneed Pincushion Cactus *Coryphantha sneedii var. sneedii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4706	Endangered
Todsen's Pennyroyal *Hedeoma todsenii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1081	Endangered
Wright's Marsh Thistle *Cirsium wrightii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8963	Candidate

Critical habitats

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Mexican Spotted Owl *Strix occidentalis lucida* https://ecos.fws.gov/ecp/species/8196#crithab	Final

NAME	STATUS
New Mexico Meadow Jumping Mouse *Zapus hudsonius luteus* https://ecos.fws.gov/ecp/species/7965#crithab	Final

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black Throated Sparrow *Amphispiza bilineata* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Sep 5

NAME	BREEDING SEASON
Black-chinned Sparrow *Spizella atrogularis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Brewer's Sparrow *Spizella breweri* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10
Burrowing Owl *Athene cunicularia* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
Chestnut-collared Longspur *Calcarius ornatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Common Black-hawk *Buteogallus anthracinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 1 to Sep 20
Golden Eagle *Aquila chrysaetos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Grace's Warbler *Dendroica graciae* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 20 to Jul 20
Gray Vireo *Vireo vicinior* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8680	Breeds May 10 to Aug 20
Lark Bunting *Calamospiza melanocorys* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere

NAME	BREEDING SEASON
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Mccown's Longspur *Calcarius mccownii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9292	Breeds elsewhere
Mexican Whip-poor-will *Antrostomus arizonae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Red-faced Warbler *Cardellina rubrifrons* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 10 to Jul 15
Rufous Hummingbird *selasphorus rufus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

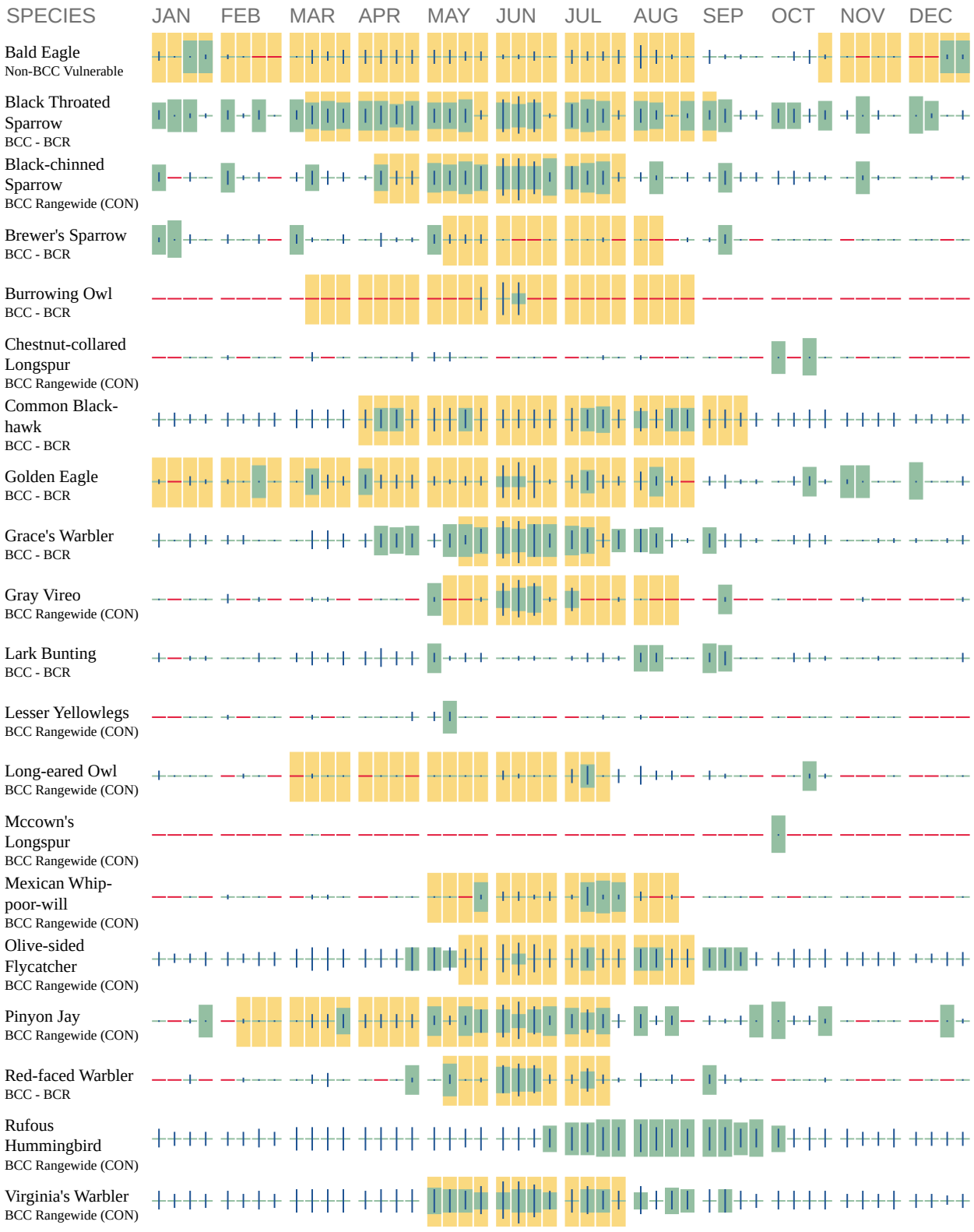
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.


SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Bald Eagle
Non-BCC Vulnerable
Black Throated Sparrow
BCC - BCR
Black-chinned Sparrow
BCC Rangewide (CON)
Brewer's Sparrow
BCC - BCR
Burrowing Owl
BCC - BCR
Chestnut-collared Longspur
BCC Rangewide (CON)
Common Black-hawk
BCC - BCR
Golden Eagle
BCC - BCR
Grace's Warbler
BCC - BCR
Gray Vireo
BCC Rangewide (CON)
Lark Bunting
BCC - BCR
Lesser Yellowlegs
BCC Rangewide (CON)
Long-eared Owl
BCC Rangewide (CON)
Mccown's Longspur
BCC Rangewide (CON)
Mexican Whip-poor-will
BCC Rangewide (CON)
Olive-sided Flycatcher
BCC Rangewide (CON)
Pinyon Jay
BCC Rangewide (CON)
Red-faced Warbler
BCC - BCR
Rufous Hummingbird
BCC Rangewide (CON)
Virginia's Warbler
BCC Rangewide (CON)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.
Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?
The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical

Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Appendix G

Wild and Scenic River Evaluation Process

Appendix G. Wild and Scenic River Evaluation Process

Wild and Scenic Rivers Act Background

The authority, the Wild and Scenic Rivers Act of October 2, 1968, as amended (16 United States Code 1271–1287) requires that Federal agencies identify and evaluate additional potential rivers for inclusion as Wild and Scenic Rivers during land management planning 5(d)(1). This is consistent with the 2012 Planning Rule final directives (Forest Service Handbook 1909.12, Chapter 82.2), which state that when developing a plan or plan revision, the Responsible Official shall:

> "Identify the eligibility of rivers for inclusion in the National Wild and Scenic Rivers System, unless a systematic inventory has been previously completed and documented, and there are no changed circumstances that warrant additional review" (36 Code of Federal Regulations 219.7(c)(2)(vi)).

Section 82.4 of the current Forest Service handbook indicates that ". . . if a river segment has been studied in the past and a determination was made of its eligibility, it does not need to be studied again for eligibility during any subsequent land management planning, unless changed circumstances warrant additional review of eligibility.

Changed circumstances are changes that have occurred to the river or the river corridor that have affected the outstandingly remarkable values (sec. 82.73). Such changes indicating a stronger presence of outstandingly remarkable values may include the listing of a species within the river, broad recognition of the river for certain recreational opportunities, and changes that now make the river's values more unique. Changes that indicate weaker outstandingly remarkable values may include recovery and delisting of a species, floods, or other events that have adversely affected the river's recreational opportunities, or changes that now make the values of the river more common. Changed circumstances may also include, but are not limited to, commitments made through settlement agreement or appeal decisions.

When there are river segments affected by changed circumstances, the Interdisciplinary Team shall reevaluate the segments for eligibility during plan development and revision and may reevaluate the segments during plan amendments. The results of the reevaluation could, based on changed circumstances, verify whether legislatively mandated study rivers are still eligible for further study."

Outstandingly Remarkable Value Determination

According to the Wild and Scenic Rivers Act, for a river to be eligible the river and its adjacent land area must have one or more outstandingly remarkable value in the following categories:

A. Scenery
B. Recreation
C. Geology
D. Fish
E. Wildlife
F. Historic and cultural values

G. Other similar river-related value

To be identified as outstandingly remarkable, a river-related value must be a unique, rare, or exemplary feature that is significant when compared with similar values from other rivers at a regional or national scale. Unique, rare, or exemplary features are those that are conspicuous examples of these values, among the best representatives of these features, within a region or the nation.

While the spectrum of resources that may be considered is broad, all features considered should be directly river-related [and] should meet at least one of the following criteria (Forest Service Handbook 1909.12, Section 82.73):

1. Be located in the river or its corridor
2. Contribute substantially to the functioning of the river ecosystem
3. Be river dependent and owe their location and existence to the presence of the river

The determination that a river area does or does not contain one or more outstandingly remarkable value is a professional judgment on the part of the Responsible Official, as informed by the interdisciplinary team, best available scientific information, and public participation (Forest Service Handbook 1909.12, Section 82.73).

Because a feature is rare or unique does not alone make it outstandingly remarkable. It must also be conspicuously dissimilar from the class of feature to which it belongs. That is, just being an example of a type of feature that is remarkable is insufficient; the feature must be an outstandingly remarkable example of the type. For example, river-based recreational opportunities are rare in the arid southwest. To be outstandingly remarkable, the recreational opportunity must be an unusual exemplar among arid rivers.

Every archeological site is inherently unique and irreplaceable. To be outstandingly remarkable, an archeological site must be of a quality or extent such that it is among the best examples of a historic resource.

Region of Comparison

Region of comparison is defined in the 2015 guidance as the geographic area of consideration for each outstandingly remarkable value that will serve as the basis for meaningful competitive analysis. The 2015 Forest Service Handbook 1909.12.80 (page 10) provides the following direction:

> "The Interdisciplinary Team shall identify the 'region of comparison,' for each outstandingly remarkable value. The region of comparison may vary for different rivers or categories of outstandingly remarkable values and thus, multiple regions of comparison may be used to evaluate one river. A region of comparison should be scaled at an appropriate level for the type of river value being evaluated.
>
> For example, for one river, the appropriate region of comparison for scenic values may be an entire National Forest or Grassland, while for cultural values it may be the portion of the State in which the river is located. For geological or hydrologic values, an appropriately scaled physiographic or hydrologic unit (such as an ecoregion or multi-state area) may provide the most meaningful comparative reference point. Alternatively, the Responsible Official may conclude that a single region of comparison can encompass the evaluation of outstanding remarkable values."

The 1992 guidance Forest Service Handbook 1909.12.80, page9 states, “Although several rivers on a National Forest may possess values which are similar to each other, each river’s values may be outstandingly remarkable when considered in the context of the State or Nation.”

In the original study conducted in 1992, the region of comparison for all outstandingly remarkable values is described as local or regional (state). For example, remarkable scenic value would be comparable with the upper Pecos River, New Mexico. Remarkable recreational value is defined as unique enough to attract visitors from outside the geographic region. The upper Pecos River, New Mexico, is held as an equivalent example. Remarkable wildlife value contains the criteria of regionally important populations (federally or state-listed or candidate threatened, endangered, or sensitive species), along with contextual examples like the East Fork of the Jemez River or the Rio Chama, New Mexico. Cultural value is defined as being listed on or eligible for inclusion in the National Register of Historic Places; the Rio Chama, New Mexico, is a contextual example. Geologic/hydrologic remarkable value is described as a rare or unusual feature; the East Fork of the Jemez River, New Mexico, is offered as an example. For water quality, the area of comparison in the original analysis was the basin.

The 2002 review adopted the region of comparisons defined in 1992 as local or regional. For example, when reviewing the outstandingly remarkable values, the team noted if any new federally or state-listed or candidate threatened, endangered, or sensitive species were documented to be associated with the river segments. The team also noted newly listed National Register of Historic Places sites.

Classification

Similar to designated Wild and Scenic Rivers, an eligible Wild and Scenic River must be assigned a preliminary classification of wild, scenic, or recreational (Forest Service Handbook 1909.12, Section 87.73). The preliminary classification of eligible rivers is based on the condition of the river and the existing level of development in the river and surrounding area at the time of study.

Rivers with wild or scenic classifications are free of impoundments. Roads are absent in wild river corridors, rare in scenic river corridors, and acceptable in recreational river corridors. Wild rivers have a primitive character. Scenic rivers are undeveloped. Recreational rivers may have some development. Water quality in wild rivers must be high, but may be poor under the other two classifications.

The intent of the act, to protect a river’s free-flowing condition and to protect and enhance the river’s outstandingly remarkable values, applies equally to all wild and scenic rivers regardless of classification. Management of an eligible river must maintain the river’s classification as evaluated, unless a suitability study recommends management at a less restrictive classification. Otherwise, all eligible rivers are managed with the same intent, regardless of classification.

Between the 1992 and 2015 Forest Service handbooks, there are differences in the criteria for classification to wild, scenic, or recreational rivers. The 1992 guidance is less restrictive on timber harvest in wild segments, while the 2015 guidance does not allow harvest. The 1992 guidance provided direction on development and uses adjacent to rivers, including dams and diversions associated with water supply, hydroelectric development, flood control features, mining, and utilities. The current 2015 guidance addresses these developments under the free-flowing, primitiveness, and development criteria. The 1992 and 2015 guidance are comparable for agricultural development and the built structure criteria for wild, scenic, and recreational rivers. Allowable motorized travel is defined in the 1992 criteria. In the 2015 criteria, motorized travel is covered by accessibility. The 1992 and 2015 handbooks are similar in language with one exception. The 1992 criteria allowed motorized travel by water on recreational rivers.

Public Involvement

The original river inventory and eligibility assessment was scoped for public comment from May 28, 2002, to July 1, 2002, for a period of 34 days. A forest plan amendment was then completed in September 2002.

Review of Current Analysis

Using the existing analysis, the Forest Service's geographic information systems staff reviewed all the named river segments within the Lincoln National Forest boundaries found on the 7.5-minute topographic map (Forest Service Handbook 1909.12, Section 82.2). These named rivers corresponded to all the rivers previously analyzed.

Next, the Land Management Handbook on Wild and Scenic Rivers (Forest Service Handbook 1909.12.80) from 1992 was compared with the revised 2015 handbook to determine were if significant changes had been made. The forms used in the original evaluation circa 1999, located in the associated project record, were reviewed for compliance with the current 2015 Forest Service Handbook 1909.12.80. The forms were found to follow 2015 guidance and direction and were used for this review. The interdisciplinary team discussed each river segment found eligible in the current analysis for a change in circumstance.

The team started with review of a change in circumstance for the free-flowing criteria, followed by discussion on accessibility, primitiveness, development, and water pollution. The review team did not look at changing classification unless the river segment in review was known to have changed in circumstance. If there was a known change in circumstance, the form was used to determine if the change was significant enough to remove the river segment from the eligible list or to change the classification.

The outstandingly remarkable values were also reviewed and information updated with newly listed federally or state-listed, or candidate threatened, endangered, or sensitive species. Newly listed National Register of Historic Places cultural resources were added as well. No previously determined outstandingly remarkable values were removed from eligible rivers (table G-1).

Smokey Bear Ranger District

Segment 109—North Fork Rio Ruidoso, a report written by Mike McConnell, Forest Hydrologist (2009), was reviewed. In this report, segment 109 was determined to be no longer free flowing. The team verified this information. However, a line officer review of this report is not documented, nor is concurrence on removing the segment; so, the team included it in the change in circumstance review. The report states that in 2009, there was a ¾-mile segment that was still free flowing. Therefore, a form was completed to document the analysis. The ¾-mile segment of 109 is also modified and channelized. This area is accessible by roads, off-highway vehicles, and chairlifts. It is modified to the extent that the area is readily accessible by vehicles, such as cement trucks. The area is developed with pipelines, a restaurant at the top, pit toilets, chairlifts, snowmaking equipment, and a paved area at the bottom with an impoundment, maintenance area, and fuel tanks. This segment has had numerous timber sales post-Little Bear fire. Recently, it is known to have had a bug infestation treated by pesticides. It was also noted that in this area, the Ski Apache managers have removed hazard trees and propose to remove more hazard trees. Segment 109 does have a change in circumstance; the segment does not meet the criteria for an eligible classification of recreational.

Segment 110 Three Rivers—This segment has had no change in circumstance for impoundment, accessibility, primitiveness, development, or water quality. Since the original analysis, there is an

outstandingly remarkable value addition of a golden eagle nest, peregrine falcon, and Mexican spotted owl. Segment 110 retains the eligible classification of recreational.

Segment 120 South Fork of Bonito Creek—This segment is located within the Little Bear burn scar. Although there have been permanent changes from the fire to include the hydraulics of the South Fork Bonito Creek, there have been no human-made impoundments or diversions. There are no human-made changes in the free-flowing nature of the creek. The team reviewed segment 120 through the criteria form. There is no change in accessibility, and no new trails or roads have been constructed. In the burned area, there is an existing trail adjacent to the segment that has had some clearing of hazard trees. Primitiveness and the degree of development have not changed, as the area around the segment is wilderness. Water quality was discussed and considered to have changed from an A rating to a B, with the addition of some turbidity and sedimentation. This turbidity is expected to continue through the next 10 years with improvement over time as the burned area stabilizes. After completing the criteria form, segment 120 was found to meet the original eligibility and classification. Segment 120 retains the recreational eligible classification.

Segments 339 (Duran Canyon), **343** (Hale Canyon), and **354** (Pancho Canyon) did have some low to moderate visual impacts from wildfire but no change in the free-flowing or classification criteria used for evaluation, including water quality. Segments 339 and 343 retain the wild eligible classification. Segment 354 retains the scenic eligible classification. Segment 354 also has a peregrine falcon nest documented since the original analysis and has a new outstandingly remarkable value.

Sacramento Ranger District

Segment 10 Fresnal Canyon—The team determined this segment needs additional input. A former district ranger staff member was contacted for his expertise on this segment. He had participated in the original analysis. The team ran the segment through the criteria form. The free-flowing characteristic was discussed. The stream is diverted on private land by the City of Alamogordo, above and below the segment on the Lincoln National Forest. The stream still flows in the canyon but at a reduced rate when the diversion is in use. Therefore, the stream was rated as having some diversion. The remaining criteria were found to have no change in circumstance. Segment 10 retains eligibility and an eligible classification of recreational.

Segment 18 Dog Canyon—This segment did not have any change in free-flowing status. There is no change in the other criteria used, including water quality. A golden eagle nest has been reported in the area and is an additional outstandingly remarkable value. Segment 18 retains the eligible classification of recreational.

Segment 29 Sacramento River—The team reviewed this segment because the existing road along the river has been changed from gravel to pavement. The criteria were reviewed, and segment 29 was found to retain eligibility and the recreational classification. In addition, Mexican spotted owl is added as an outstandingly remarkable value.

Segment 31 Monument Canyon—This segment did not have any change in free-flowing status. This segment did have some low to moderate visual impacts from wildfire, but there are no changes in the other criteria used, including water quality. In addition to being classified as a bald eagle wintering area, the location has the addition of Mexican spotted owl as an outstandingly remarkable value. Segment 31 retains eligibility and the eligible classification of recreational.

Segments 82–84, 86–90—The team reviewed these segments of the Upper Rio Peñasco. There are no known changes in circumstance for the segments on the free-flowing criteria, accessibility, development,

and water quality. However, the team felt that primitiveness should be revisited, as the area is popular for dispersed camping and other uses. The team reviewed segment 87, as it was considered to have the most potential for a change in circumstance. All the criteria on the form were scored to get the overall rating. Concerning primitiveness, the shoreline does have evidence of grazing and camping and, therefore, scored a B. In reviewing the entire score, segment 87 retains eligibility and the eligible classification of recreational. In addition, the New Mexico meadow jumping mouse and Mexican spotted owl are added as outstandingly remarkable values.

Guadalupe Ranger District

Segments 8, 19, 20, 21 Sitting Bull Falls—These segments were found to have no change in free-flowing or other characteristics. The area was burned in 2011, but the effects are low or moderate. There is willow and hardwood regrowth along the stream. Additional outstandingly remarkable values include rare plants, such as the sparsely-flowered jewelflower, Guadalupe mescal bean, and Chapline's columbine; significant cultural resources; and caves. The segments were found to retain eligibility and the eligible classification of wild.

Segments 26, 28, 31, 36–41 Last Chance Canyon—These segments were found to have no change in free-flowing or other characteristics. The area was burned in 2011, but the effects are low or moderate. There is willow and hardwood regrowth along the stream. Additional outstandingly remarkable values include rare plants, such as the sparsely-flowered jewelflower and royal red penstemon; significant cultural resources; and caves. The segments were found to retain eligibility and the eligible classification of wild.

Segment 52 Turkey Canyon—This segment was found to have no change in free-flowing or other characteristics. The area was burned in 2013, but the effects are low or moderate. Additional outstandingly remarkable values include rare plants, such as the sparsely-flowered jewelflower and royal red penstemon, and significant cultural resources. The segment was found to retain eligibility and the eligible classification of wild.

Segments 69, 70, 73, 74, 76, 77, 81, 85, 92, 96, 97 Upper Dark Canyon—These segments were found to have no change in free-flowing or other characteristics. Additional outstandingly remarkable values include Mexican spotted owl; rare plants, such as the sparsely-flowered jewelflower and royal red penstemon; significant cultural resources; and caves. The segments were found to retain eligibility and the eligible classification of wild.

Segments 133, 134, 137, 138, 141, 142, 144, 145, 149 Big Canyon—These segments were found to have no change in free-flowing or other characteristics. Additional outstandingly remarkable values include historically reported native fish; rare plants, such as the sparsely-flowered jewelflower and Chapline's columbine; and caves. The segments were found to retain eligibility and the eligible classification of wild.

Segments 151–155 North McKittrick—These segments were found to have no change in free-flowing or other characteristics. Additional outstandingly remarkable values include historically reported native fish; rare plants, such as the sparsely-flowered jewelflower and Chapline's columbine; and caves. The segments were found to retain eligibility and the eligible classification of wild.

Table G-1. Eligible River Segments on the Lincoln National Forest, Including their Location by Ranger District, Outstandingly Remarkable Values, and Length of the River Segment

District	Named Streams from United States Geological Survey Quadrangle Topographic Maps	Segment	Potential Outstandingly Remarkable Value*	Free Flowing	Classification
Smokey Bear	North Fork Rio Ruidoso	109	A – Scenery, Sierra Blanc B – Recreation	Y	Not eligible Change in circumstance
Smokey Bear	Three Rivers	110	A – Scenery, waterfalls in Fall Creek B – Wilderness area, trail C – Rock formations, cliffs, steep gradients E – Golden eagle nest, Mexican spotted owl, peregrine falcon	Y	Recreational
Smokey Bear	South Fork Bonito Creek	120	A – Scenery, stream B – Wilderness area, high trail use	Y	Recreational
Smokey Bear	Duran Canyon	339	A – Scenery, stream, and rock formations C – Spire rock formations	Y	Wild
Smokey Bear	Hale Canyon	343	A – Scenery, stream, and rock formations C – Spire rock formations	Y	Wild
Smokey Bear	Pancho Canyon	354	A – Scenery, rock formations C – Spire rock formations E – Peregrine falcon nest	Y	Scenic
Sacramento	Monument Canyon	31	C – Travertine dams E – Bald eagle wintering area, Mexican spotted owl	Y	Recreational
Sacramento	Fresnal Canyon	10	A – Scenery, Tunnel Vista C – Box canyon/travertine F– Tunnel and Fresnal Shelter site E – Sacramento prickly poppy	Y	Recreational

District	Named Streams from United States Geological Survey Quadrangle Topographic Maps	Segment	Potential Outstandingly Remarkable Value*	Free Flowing	Classification
Sacramento	Dog Canyon	18	A – Cliffs B – State park, geologic interpretation F – Mescalero Apache travel route, Mescalero stronghold E – Sacramento penstemon, Sacramento prickly poppy, Chapline's columbine, Golden eagle nest	Y	Recreational
Sacramento	Rio Peñasco	82–84, 86–90	E – Purled thistle, Mexican spotted owl, New Mexico meadow jumping mouse	Y	Recreational
Sacramento	Sacramento	29	A – Travertine deposits, waterfall, and wetlands E – Mexican spotted owl	Y	Recreational
Guadalupe	Sitting Bull Falls	8, 19, 20, 21	A – Scenery B – Wading, picnic shelters C – Water fall, pools D – Native fish E – Sparsely-flowered jewelflower, Guadalupe mescal bean, Chapline's columbine	Y	Wild
Guadalupe	Last Chance Canyon	26, 28, 31, 36–41	A – Scenery C – Rock formations, cliffs, steep gradient D – Native fish E – Sparsely-flowered jewelflower, royal red penstemon F – National Register of Historic Places-listed site, Mescalero Apache site	Y	Wild
Guadalupe	Turkey Canyon	52	A – Scenery C – Rock formations, cliffs, steep gradient E – Sparsely-flowered jewelflower, royal red penstemon F – National Register-listed site	Y	Wild

District	Named Streams from United States Geological Survey Quadrangle Topographic Maps	Segment	Potential Outstandingly Remarkable Value*	Free Flowing	Classification
Guadalupe	Upper Dark Canyon	69, 70, 73, 74, 76, 77, 81, 85, 92, 96, 97	A – Scenery C – Rock formations, cliffs, steep gradient E – Sparsely-flowered jewelflower, royal red penstemon F – Cultural resource sites G – Caves	Y	Wild
Guadalupe	Big Canyon	133, 134, 137, 138, 141, 142, 144, 145, 149	A – Scenery C – Rock formations, cliffs, steep gradient D – Native fish E – Mexican spotted owl, sparsely-flowered jewelflower, Chapline's columbine G – Pools, caves	Y	Wild
Guadalupe	North McKittrick	151–155	A – Scenery C – Rock formations, cliffs, steep gradient D – Native fish E – Mexican spotted owl, sparsely-flowered jewelflower, Chapline's columbine G – Pools, caves	Y	Wild

Source: Forest Service GIS 2020

*Values:
A. Free Flowing (all segments above are free flowing)
B. Scenic
C. Recreational
D. Geologic
E. Wildlife
F. Historic
G. Cultural
H. Riparian
I. Ecological/Botanical

References

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