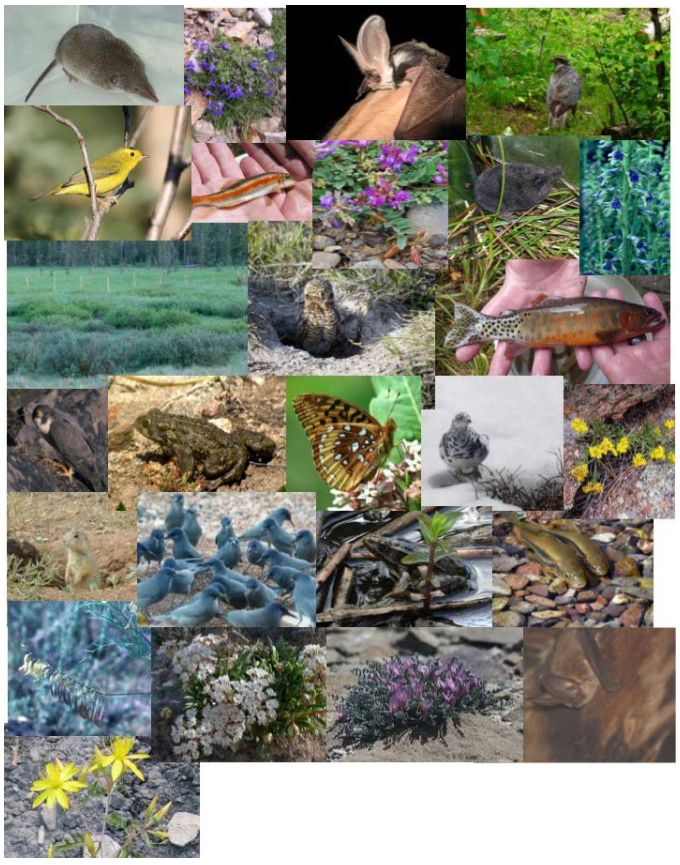
United States Department of Agriculture

Draft Species and Habitat Connectivity Crosswalks

Carson National Forest

New Mexico



Forest Service Carson National Forest July 2019

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Plan Codes

Plan components are represented using their alphanumeric identifiers (plan codes) as brief way to reference the plan. The plan codes are made up of 4 parts:

- The level of direction: FW (forestwide), DA (designated area), or MA (management area);
- The resource (e.g. VEG for All Vegetation or WFP for Wildlife, Fish, and Plants);
- The type of direction (DC = desired condition, O = objective, S = standard, and G = guideline); and
- A unique number (i.e. numerical order starting with 1). Abbreviations used for plan codes

Code	Resource or Term	Code	Resource or Term
AIR	Air Resources	NTRL	National Scenic, Historic, and Recreational Trails
ALP	Alpine and Tundra	O	Objective
ASP	Aspen	PART	Partnerships
BOT	Botanical Areas	PJO	Piñon-Juniper Woodland
BP	Bristlecone Pine	PJS	Piñon-Juniper Sagebrush
CAM	Caves and Abandoned Mines	PPF	Ponderosa Pine Forest
CDNST	Continental Divide National Scenic Trail	REC	Recreation
CR	Cultural Resources	RHC	Rural Historic Communities
CRF	Cliffs and Rocky Features	RMZ	Riparian Management Zones
DA	Designated Areas	RWMA	Recommended Wilderness Management Area
DC	Desired Condition	S	Standard
DEVRES	Developed Winter and Summer Resorts	SAGE	Sagebrush
EWSR	Eligible Wild and Scenic Rivers	SAMA	San Antonio Management Area
FAC	Facilities Infrastructure	SCEN	Scenery
FFP	Forestry and Forest Products	SFF	Spruce-Fir Forest
FIRE	Wildland Fire Management	SL	Soil Resources
FRT	Federally Recognized Tribes	SNS	Springs and Seeps

Code	Resource or Term	Code	Resource or Term
FSR	Forest and Shrub Riparian	STM	Streams
FW	Forestwide	SU	Special Uses
G	Guideline	TFA	Transportation and Forest Access
GMMA	Grassland Maintenance Management Area	VEG	Vegetation
GRZ	Livestock Grazing	VFSYU	Vallecitos Federal Sustained Yield Unit
IRA	Inventoried Roadless Area	VVMA	Valle Vidal Management Area
JICMA	Jicarilla Natural Gas Management Area	WB	Waterbodies
LAND	Lands	WFP	Wildlife, Fish, and Plants
MA	Management Area	WHT	Wild Horse Territories
MCD	Mixed Conifer, with Frequent Fire	WILD	Existing Wilderness
MCW	Mixed Conifer, with Aspen	WR	Wetland Riparian
MM	Minerals and Mining	WSW	Watersheds and Water
MSG	Montane Subalpine Grassland	WSR	Existing Wild and Scenic Rivers
NIS	Nonnative Invasive Species	ZOO	Zoological Areas
NSBW	National Scenic Byway		

Species and Habitat Connectivity Crosswalks

These crosswalks are an excerpt of the Draft Environmental Impact State Volume 2: Appendix H. These crosswalks compile forest plan guidance intended to increase persistence of at-risk species and other wildlife species, as well as a crosswalk of all plan guidance related to habitat connectivity. Plan components consist of coarse-filter and fine-filter approaches and demonstrate the widespread but detailed attention the forest plan provides for managing ecosystems for the persistence of each at-risk species (Section 1). Plan components that address the issues and threats that are impacting at-risk species are also compiled (Section 2). Several comments and requests from the public were made concerning how lynx is covered in the Carson National Forest's draft proposed plan and that the Southern Rockies Management Direction be included in the Carson's draft proposed plan. The Southern Rockies Management Direction crosswalk (Section 3) demonstrates Carson National Forest's draft proposed plan components that correspond to this direction. Finally, wildlife habitat connectivity is addressed through a variety of coarse- and fine-filter plan components in multiple resource areas (Section 4).

The Carson National Forest has identified 32 at-risk species, six of these species are federally listed threatened or endangered while 26 species have been identified at Species of Conservation Concern (SCC) (Section 1). Through analysis of known data and scientific literature, eight (8) issues and six (6) threats have been identified as negatively impacting the persistence of at-risk species on the forest (Section 2).

If someone is interested in what the forest is doing for any particular at-risk species, it would be difficult to find that individual species in one place in the forest plan. Rather, the forest is managing the ecological conditions that may negatively be impacting each at-risk species. This, in turn, improves conditions not just for at-risk species, but for a myriad of other species dependent upon those same ecological conditions. In addition, since wildlife can be impacted by numerous resources and activities (ex. vegetation, water, roads, recreation, range, etc.) wildlife plan components are integrated throughout multiple resource sections within the forest plan and the full scope of plan components for any species is not evident in only the wildlife section. These crosswalks pull together all the plan components and management approaches in one location to better demonstrate how the forest will manage for the persistence of each at-risk species.

Section 1. At-Risk Species Crosswalk by Species

The Carson National Forest has identified 32 at-risk species, six of these species are federally listed threatened or endangered while 26 species have been identified as species of conservation concern (SCC).

Federally Listed Species

Mexican Spotted Owl

Strix occidentalis lucida is federally threatened species and has designated critical habitat (22,954 acres) on the Jicarilla Ranger District. Numerous surveys throughout the forest have not confirmed breeding of this species on the Carson National Forest since the critical habitat designation. This species is non-migratory 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 typically rocky outcrops. Timber management activities negatively affected habitat before the Mexican spotted owl was listed as threatened in 1995. Timber harvest, prescribed burning, and other management activities are designed following the Mexican Spotted Owl Recovery Plan 2012 along with consultation with the USFWS. These management activities can still have disturbance affects to the Mexican spotted owl and its habitat. The plan components (coarse and fine filter) that address ecological condition and threats for the Mexican spotted owl are listed in table 1.

Table 1. Plan Components (coarse and fine filter) that address ecological condition 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, and Management Approaches (Fine Filter)
Mixed-conifer with frequent fire Mixed-conifer with Aspen Ponderosa pine forests Riparian areas	Seral state departure Snag density departure Catastrophic fire Specific ecological features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-12, FW-VEG-VEG-DC 19-20, FW-VEG-MCW-DC 1-9, FW-MCW-DC 12, FW-VEG-MCD-DC 1-6, FW-VEG-MCD-DC 8-11, FW-VEG-MCD-DC 19-20, FW-VEG-PPF-DC 1-4, FW-VEG-PPF-DC 6-8, FW-VEG-PPF-DC 10, FW-VEG-PPF-DC 12, FW-VEG-PPF-DC 15-18, FW-WSW-DC 1-3, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7, FW-WSW-RMZ-DC 9, FW-WSW-RMZ-WR-DC 1,FW-WSW-RMZ-WR-DC 3, FW-WSW-RMZ-FSR-DC1-3, FW-WSW-RMZ-FSR-DC 5-6, FW-CRF-DC 1-2, FW-WFP-DC 1-2, FW-WFP-DC 6, FW-FIRE-DC 1-2 FW-FIRE-DC 4-5, FW-FPP-DC 1, FW-FPP-DC 4, FW-FPP-DC 5,FW-TFA-DC 5, FW-MM-DC 1, DA-WILD-DC 2-4, MA-JICMA-DC 1, MA-RWMA-DC 1-4 MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-G 2,FW-CRF-G 1, FW-WFP-O 1-2, FW-FFP-S 1-2, FW-FFP-S 5, FW-FFP-G 1, FW-TFA-O 1, FW-TFA-S 3, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-2, FW-VEG-PPF-G 1, FW-WSW-DC 5, FW-WSW-RMZ-FSR-G 3, FW-WFP-DC 1-3, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6,

Southwestern Willow Flycatcher and Western Yellow-billed Cuckoo

Southwestern willow flycatcher has designated critical habitat (148 acres) on the Camino Real Ranger District where it is federally listed as endangered. This species relies on dense riparian areas, usually dominated by willow species (forest and shrub riparian vegetation communities). Threats include degradation of riparian habitat through the loss willow and cottonwoods density and recruitment, reduction in in-stream flow, invasive species encroachment, and nest parasitism by the brown-headed cowbird.

Western yellow-billed cuckoo is federally listed as threatened west of the Rio Grande (distinct population segment), and no critical habitat has been designated on the Carson National Forest for this species. Western yellow-billed cuckoo inhabits dense riparian habitat greater than 200 acres (81 hectares) in size (Poole 2018) and below 7,000 elevational feet (Howe & Hanberg 2000) in the western U.S. Western yellow-billed cuckoo has not been documented on the Carson, and the dense riparian habitat it inhabits is extremely rare on the Carson National Forest. Ecosystems that could support western yellow-billed cuckoo is forest, shrub, and scrub riparian below 7,000 elevational feet, and include narrowleaf cottonwood-shrub and Rio Grande cottonwood-shrub habitat. It is possible that the species uses the Carson National Forest as migratory habitat. The major threat faced is degradation of riparian habitat through the loss of cottonwoods density and recruitment, reduction in in-stream flow, and invasive species encroachment. They are also susceptible to collisions with tower and turbine.

Table 2. Plan Components (coarse and fine-filter) that address ecological condition and threats for southwestern willow flycatcher and western yellow-billed cuckoo

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Riparian areas Forest and Shrub Riparian	Seral state departure Catastrophic fire Invasive vegetative encroachment Disconnected floodplains Specific ecological features Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-FSR-DC 1-5, FW-WSW-RMZ-FSR-DC 8, FW-WFP-DC 4-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-FSR-DC 12, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Black-footed Ferret

Black-footed ferret is a federally listed as endangered, and no critical habitat has been designated on the Carson National Forest. This species relies on montane subalpine grassland and sagebrush shrubland vegetation communities, and is highly dependent on the presence of prairie dog colonies of at least 80 to 100 acres in size depending upon the prairie dog species (USDI FWS 2013). Currently, there are no prairie dog colonies of this magnitude on the Carson National Forest, and black-footed ferret are not currently known to occur on the Carson. Black-footed ferrets spend about 90 percent of their time underground, where they eat, sleep and raise their young in prairie dog burrows. Prairie dogs make up the majority of the black-footed ferret's diet. Threats include loss of habitat as prey base (prairie dogs) and are affected by sylvatic plague.

Table 3. Plan Components (coarse and fine filter) that address ecological condition and threats for black-footed ferret

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, Guidelines and Management Approaches (Fine Filter)
Montane Subalpine Grassland Sagebrush shrubland	Intrusive human disturbance Unnatural disease spread Human-made features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-MSG-DC 1-4,FW-VEG-MSG-DC 10, FW-VEG-MSG-DC 14, FW-VEG-SAGE-DC 1-4, FW-NIS-DC 1, FW-GRZ-DC 4, FW-TFA-DC5, FW-SU-DC 7, MA-GMMA-DC 1-3	FW-VEG-G 1-3, FW-WFP-O 1, FW-WFP-O 4, FW-WFP-G 1-2, FW-WFP-G 6, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ-S 3, FW-REC-G 3, FW-FAC-G 2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 10

Canada Lynx

On March 24, 2000, the USFWS published the final rule listing the contiguous United States distinct population segment of Canada lynx as a threatened species (65 FR 16052). Lynx habitat was not ranked for core, secondary, or even peripheral for the Carson National Forest (USDI FWS 2005), critical habitat has not been designated on the Carson (USDI FWS 2018), and is currently not known to den or breed on the national forest. Occasionally an individual lynx may roam out of Colorado onto the national forest. In New Mexico, this species is a habitat specialist confined largely to mid- to high elevation boreal and subalpine spruce-fir forests at 9,800 to 12,000 feet in elevation (Koehler & Brittell 1990; Ruggiero et al. 1999) that can maintain the presence of deep snow. Lynx do not typically reside on the Carson National Forest because the forest lacks the aforementioned physical and biological features necessary to sustain a population (USDI FWS 2014a). Management threats include departure of seral state condition through loss of dense spruce-fir forest, loss of coarse woody debris per acre, and loss of snow depth and retention. Disturbance from motorized road construction, over-snow motorized travel, recreation are also threats. Section C of this appendix demonstrates how the Carson National Forest's draft proposed plan components correspond to the Southern Rockies Management Direction. Also section D of this appendix demonstrates how habitat connectivity for wildlife is addressed through Carson National Forest's draft proposed plan components.

Table 4. Plan Components (coarse and fine filter) that address ecological condition and threats for Canada lynx

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Spruce fir forests Riparian areas Coarse woody debris	Seral State Departure Coarse woody debris departure Catastrophic fire Intrusive human disturbance	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-12, FW-VEG-DC 20, FW-VEG-SFF-DC 1-4, FW-VEG-SFF-DC 7-10, FW-VEG-SFF-DC 12, FW-VEG-SFF-DC 15, FW-VEG-ASP-DC 2, FW-VEG-ASP-DC 4,FW-WSW-DC 1-3, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7, FW-WSW-RMZ-DC 9, FW-WFP-DC 5, FW-WFP-DC 9, FW-FIRE-DC 1-2 FW-FIRE-DC 4-5, FW-FPP-DC 1, FW-FPP-DC 4, FW-FPP-DC 5,FW-TFA-DC 4-5, FW-SU-DC 7, FW-MM-DC 1, DA-WILD-DC 2-4, MA-RWMA-DC 1-4, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WFP-O 1-2, FW-VEG-ASP-G 1, FW-WFP-O 4, FW-WFP-O 5, FW-WFP-G 6, FW-WFP-G 8, FW-REC-S 1-2, FW-REC-G 2-3, FW-FFP-S 1-2, FW-FFP-S 5, FW-FFP-G 1, FW-TFA-O 1, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-FIRE-S 1, FW-FIRE-G 1, FW-FIRE-G 7-8, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-2, FW-FW-WSW-DC 5, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1-6

New Mexico Meadow Jumping Mouse

New Mexico meadow jumping mouse is federally listed as endangered, and no critical habitat has been designated on the Carson National Forest. This species occurs in dense mid-elevation riparian areas (Wetland and Forest and Shrub Riparian) with dense and tall grass key ecosystem characteristics in the Western U.S. It was historically documented on the Carson, but surveys on the forest were unable to detect this species (Frey 2006). The Carson National Forest currently has potential habitat for this species, but it is limited and highly fragmented. The major threats faced are the degradation of riparian habitat caused by actions such as legacy grazing, post-wildfire flooding events, and unmanaged recreation. Off the forest, agricultural uses and development of land have permanently changed historic locations.

Table 5. Plan Components (coarse and fine filter) that address ecological condition 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, and Management Approaches (Fine Filter)
Riparian areas Wetland Riparian Forest and Shrub Riparian	Seral state departure Catastrophic fire Invasive vegetative encroachment Disconnected floodplains Specific ecological features Intrusive human activity	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1, FW-WSW-DC 1-2, FW-WSW-DC 5, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-DC 7-8, FW-WSW-RMZ-STM-DC 1, FW-WSW-RMZ-STM-DC 4, FW-WSW-RMZ-STM-DC 6, FW-WSW-RMZ-STM-DC 9, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-SNS-DC 1, FW-WSW-RMZ-WR-DC 1, FW-WSW-RMZ-WR-DC 3, FW-WSW-RMZ-FSR-DC 1-5, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12, FW-WFP-DC 3- 10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1, FW-WSW-RMZ-STM-S 1, FW-WSW-RMZ-STM-G 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-SNS-G 1, FW-WSW-RMZ-FSSR-G 2 FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Species of Conservation Concern

American Peregrine Falcon

American peregrine falcons (*Falco peregrinus anatum*) are breeding or permanent residents within the Carson National Forest. This species nests in cliffs and rock outcrops, a key ecosystem characteristic found within all vegetation communities of the national forest. Nesting habitat is created by geologic factors and has not changed significantly. Threats include disturbance from recreational rock climbing (Poole 2018), collection of young for falconry, eggshell thinning from accumulated pesticides, and illegal shooting. Disturbance near active nests can displace individuals and cause nest abandonment (Poole 2018) when reasonable precautions are not taken. Many of the activities that may be threats to peregrine falcons are not under the authority of the Forest Service or occur on other land ownerships.

Table 6. Plan components (coarse and fine filter) that address ecological condition and threats for American peregrine falcon

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Mixed-conifer with frequent fire Mixed-conifer with Aspen Ponderosa pine forest Cliff faces	Specific ecological features Intrusive human activity Human-made features Chemical applications	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-ALP-DC 1-3, FW-VEG-MSG-DC 1-2, FW-VEG-MSG-DC 10, FW-VEG-MCW-DC1-2, FW-VEG-MCW-DC 5, FW-VEG-MCD-DC 1-2, FW-VEG-PPF-DC 1-2, FW-VEG-PJO-DC 1-2, FW-VEG-PJS-DC 1-2, FW-SL-DC 6, FW-WSW-DC 1, FW-WSW-DC 5, FW-WSW-RMZ-DC 1-5, FW-CRF-DC 1-3, FW-WFP-DC 9, FW-AIR-DC 4, FW-TFA-DC 4-5, FW-SU-DC 7, FW-MM-DC 1	FW-VEG-G 3, FW-VEG-ALP-G 1, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WFP-O 1, FW-WFP-G 6, FW-REC-S 2, FW-REC-G 3-5, FW-TFA-O 1 FW-TFA-G 9, FW-SU-S 2, FW-SU-G 1, FW-SU-G 4-5, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 18, FW-VEG-DC 21, FW-VEG-G 1-2, FW- FW-WSW-DC 5, FW-CRF-G 1-3, CRF MA 1-3, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-3, WFP MANAGEMENT APPROACH 1- 2, WFP MANAGEMENT APPROACH 7

Northern Goshawk

The northern goshawk (*Accipiter gentilis*) is a forest habitat generalist that uses a wide variety of forest ages, structural conditions and successional stages, most of which are departed from reference because of fire suppression activities and, in some cases, stand-replacing fire (Reynolds et al. 1992). Although the departure from reference in Ponderosa pine forests has created closed canopy conditions beneficial to Northern goshawks they remain extremely vulnerable to catastrophic fire which can greatly alter/reduce optimal habitat. This species can be found within every district of the Carson National Forest, where post-fledgling family areas are identified and managed. Several of these post-fledgling family areas have been abandoned for unknown reasons, but several new post-fledgling family areas have been established on the Carson National Forest (Cortez 2018). This species is primarily associated with mixed conifer with aspen, mixed conifer frequent fire, and ponderosa pine vegetation communities and aquatic ecosystems.

Table 7. Plan components (coarse and fine filter) that address ecological condition and threats for northern goshawk

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Mixed-conifer with frequent fire Mixed-conifer with Aspen Ponderosa pine forests Riparian areas	Seral state departure Catastrophic fire Specific ecological features	FW-VEG-DC 1-5, FW-VEG-DC 10-12, FW-VEG-DC 20, FW-VEG-SFF-DC 1-3, FW-VEG-SFF-DC 7-12, FW-VEG-MCW-DC 1-5, FW-MCW-DC 8-9, FW-MCW-DC 12, FW-VEG-MCD-DC 1-5, FW-VEG-MCD-DC 8-11, FW-VEG-MCD-DC 19-20, FW-VEG-PPF-DC 1-6, FW-VEG-PPF-DC 8, FW-VEG-PPF-DC 10, FW-VEG-PPF-DC 12, FW-VEG-PPF-DC 15-18, FW-WSW-DC 1-3, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7, FW-WSW-RMZ-DC 9, FW-WSW-RMZ-WR-DC 1,FW-WSW-RMZ-WR-DC 3, FW-WSW-RMZ-FSR-DC1-3, FW-WSW-RMZ-FSR-DC 5-6, FW-WFP-DC 1-2, FW-WFP-DC 6, FW-FIRE-DC 1-2 FW-FIRE-DC 4-5, FW-FPP-DC 1, FW-FPP-DC 4, FW-FPP-DC 5,FW-TFA-DC 5, FW-MM-DC 1, DA-WILD-DC 2-4, MA-JICMA-DC 1, MA-RWMA-DC 1-4 MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-G 2, FW-WFP-O 1-2, FW-FFP-S 1-2, FW-FFP-S 5, FW-FFP-G 1, FW-TFA-O 1, FW-TFA-S 3, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-2, FW-VEG-SFF- DC 13, FW-VEG-SFF-G 2-5, FW-VEG-ASP-G 2-4, FW-VEG-MCW-DC 10, FW-VEG-MCW-G 3-6, FW-VEG-MCD-DC 12, FW-VEG-MCD-G 3-5, FW-VEG-PPF-DC 13, FW-VEG-PPF-G 1, FW-VEG-PPF-G 5-8, FW-WSW-DC 5, FW-WSW-RMZ-FSR-G 3, FW-WFP-DC 1-3, FW-WFP-DC 9, FW-WFP-G 1-3, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Pinyon Jay

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

Table 8. Plan components (coarse and fine filter) that address ecological condition and threats for pinyon jay

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Piñon-Juniper Woodlands Piñon-Juniper Sagebrush	Seral state departure Catastrophic fire	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-12, FW-VEG-DC 20, FW-VEG-PJO-DC 1, FW-VEG-PJO-DC 3, FW-VEG-PJO-DC 6-7, FW-VEG-PJO-DC 9-10, FW-VEG-PJO-DC 12-13, FW-VEG-PJS-DC 1, FW-VEG-PJS-DC 6-7, FW-VEG-PJS-DC 15, FW-WFP-DC 1-2, FW-WFP-DC 6, FW-FIRE-DC 1-2 FW-FIRE-DC 4-5, FW-FPP-DC 1, FW-FPP-DC 4, FW-FPP-DC 5,FW-TFA-DC 5, FW-MM-DC 1, DA-WILD-DC 2-4, MA-JICMA-DC 1, MA-RWMA-DC 1-4 MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-WFP-O 1-2, FW-FFP-S 1-2, FW-FFP-S 5, FW-FFP-G 1, FW-TFA-O 1, FW-TFA-S 3, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-2, FW-VEG-PJO-G 1-2, FW-WFP-DC 1-2, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1-2, WFP MANAGEMENT APPROACH 6,

Western Burrowing Owl and Gunnison Prairie Dog

Burrowing owls (*Athene cunicularia hypugaea*) are known to use all lower elevation grassland ecological conditions of the Carson National Forest. They nest and roost in recently abandoned burrows dug by mammals, including ground squirrels, prairie dogs, and badgers (Green and Anthony 1989). For this reason, persistence of burrowing owls is inextricably linked to that of burrowing mammals, including prairie dogs. Threats to this species on the Carson National Forest include threats to burrowing mammals, such as Gunnison's prairie dogs, from sylvatic plague (Finch 1992).

Gunnison prairie dogs (*Cynomys gunnisoni*) are associated with meadow and grassland habitats where fine soil material is deep enough to allow for construction of burrows. Despite the extensive grasslands on Carson National Forest, prairie dogs were very uncommon (Frey 2003a). Threats include recreational shooting and sylvatic plague (Finch 1992, USFS 2013). Due to its decreased range on the Carson National Forest, sylvatic plague can be a limiting factor and eliminate colonies in one season preventing them from reaching a sustainable population and colonizing areas formerly occupied.

Table 9. Plan components (coarse and fine filter) that address ecological condition and threats for western burrowing owl and Gunnison prairie dog

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, Guidelines and Management Approaches (Fine Filter)
Montane Subalpine Grassland Sagebrush shrubland	Intrusive human disturbance Unnatural disease spread Human-made features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-MSG-DC 1-4,FW-VEG-MSG-DC 10, FW-VEG-MSG-DC 14, FW-VEG-SAGE-DC 1-4, FW-WFP-DC 5, FW-WFP-DC 9, FW-NIS-DC 1, FW-GRZ-DC 4, FW-TFA-DC5, FW-SU-DC 7, MA-GMMA-DC 1-3	FW-VEG-G 1-3, FW-WFP-O 1, FW-WFP-O 4, FW-WFP-G 6, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ-S 3, FW-REC-G 3, FW-FAC-G 2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 20, FW-VEG-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 10

White-tailed Ptarmigan

White-tailed ptarmigan (*Lagopus leucura*) inhabits moist vegetation near snowfields, streams, and willow-dominated (*Salix* spp.) plant communities within alpine and tundra habitat. Buds and twigs of various species of *Salix* provide the bulk of the food eaten by white-tailed ptarmigan. Rocky areas near late-lying snowfields or other moist sites become important from mid-summer to early fall. Rocks provide protection from the weather and hiding cover from avian predators (Hoffman 2006). In winter, according to work by Choate (1963), ptarmigan occupy rocky areas and patches of krummholz. According to Wolfe and others (2012), there are an estimated 100 to 200 individual white-tailed ptarmigan found within the alpine and tundra habitat of the Carson National Forest. Major threats to this species include departure of herbaceous understory vegetation through loss of willow and willow recruitment and human disturbance during breeding (NMDGF 2017).

Table 10. Plan components (coarse and fine-filter) that address ecological condition and threats for white-tailed ptarmigan

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, Guidelines and Management Approaches (Fine Filter)
Alpine and Tundra	Seral state departure Intrusive human disturbance Human-made features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-ALP-DC4, FW-CRF-DC 1, FW-CRF-DC 3, FW-WFP-DC 5-6, FW-WFP-DC 9, FW-NIS-DC 1, FW-GRZ-DC 3-4, FW-TFA-DC 4-5, FW-SU-DC 7, DA-WILD-DC 2-4, MA-RWMA-DC 1-4 MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WFP-O 1, FW-WFP-O 4, FW-WFP-G 6, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ-S 1, FW-GRZ-G 1, FW-REC-G 1, FW-REC-G 5, FW-TFA-G 9-10, FW-FAC-G 2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-VEG-ALP-DC 6-7, FW-VEG-ALP-G 1-2, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 10

Wilson's Warbler

Wilson's warbler (*Cardellina pusilla*) inhabit Rocky Mountain mesic shrub thickets consisting of willow, bog birch, and shrubby cinquefoil (Poole 2018). The Carson National Forest is the most southern distribution for this species (NMPIF 2018). They are associated with forest, shrub, and scrub riparian vegetation communities. Threats include degradation of riparian habitat through the loss willow density and recruitment, reduction of in-stream flow, and invasive species encroachment (Johnson & Anderson 2003).

Table 11. Plan components (coarse and fine-filter) that address ecological condition and threats for Wilson's warbler

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Riparian areas Forest and Shrub Riparian	Seral state departure Catastrophic fire Invasive vegetative encroachment Disconnected floodplains Specific ecological features Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-FSR-DC 1-5, FW-WSW-RMZ-FSR-DC 8, FW-WFP-DC 4-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-FSR-DC 12, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Northern Leopard Frog and Western Boreal Toad

Northern leopard frogs (*Lithobates pipiens*) are generally associated with slow-moving, permanent, or semi-permanent bodies of water (Christman 2010; Smith & Keinath 2007). However, this species is also dependent upon a multitude of ecological conditions and habitat connectivity to meet the requirements for all life stages, including wet, upland habitats during the summer (Christman 2010; Merrell 1970; Smith & Keinath 2007). This species is associated with montane and subalpine grasslands, riparian vegetation communities, and aquatic ecosystems.

Western boreal toads (*Anaxyrus boreas*), within the Carson National Forest, is only confirmed at Lagunitas, Canjilon, and Trout lakes (NMDGF 2006). Boreal toads breed in a wide variety of aquatic habitats, ranging from low-elevation beaver ponds, reservoirs, streams, marshes, lakeshores, potholes, wet meadows, and ditches to high-elevation ponds, fens, and tarns (high mountain lakes) at or near treeline (Livo & Lambert 2001; NMDGF 2006). This species is associated with riparian vegetation communities and aquatic ecosystems.

Threats for these species include degradation of habitat caused by grazing, chytrid fungus, depredation by bull frogs (NMDGF 2006; Smith & Keinath 2007), or siltation due to uncharacteristic wildlife and poor road management. Beneficial management includes the development of stock ponds, as northern leopard frogs use these sites for breeding ponds.

Table 12. Plan components (coarse and fine filter) that address ecological condition and threats for northern leopard frog and western boreal toad

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Montane Subalpine Grassland Riparian areas Wetland Riparian Forest and Shrub Riparian	Seral state departure Catastrophic fire Specific ecological features Non-native predation Unnatural disease spread Human-made features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1, FW-WSW-DC 1-2, FW-WSW-DC 4-5, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-STM-DC 1, FW-WSW-RMZ-STM-DC 4, FW-WSW-RMZ-STM-DC 6, FW-WSW-RMZ-STM-DC 9, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-SNS-DC 1, FW-WSW-RMZ-WB-DC 2-3, FW-WSW-RMZ-WB-DC 5, FW-WSW-RMZ-WR-DC 1, FW-WSW-RMZ-WR-DC 3, FW-WSW-RMZ-FSR-DC 1-5, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12, FW-WFP-DC 4, FW-WFP-DC 6-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1, FW-WSW-RMZ-STM-S 1, FW-WSW-RMZ-STM-G 1, FW-WSW-RMZ-WB-S 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-SNS-G 1, FW-WSW-RMZ-FSSR-G 2 FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1-2, FW-NIS-G 1-3, FW-NIS-G 6, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-FIRE-G 8, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 5, FW-WFP-G 1-2, FW-WFP-G 6, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1-4, WFP MANAGEMENT APPROACH 6

Rio Grande Chub, Rio Grande Cutthroat, and Rio Grande Sucker

Gila pandora have declined in range and abundance over the last 100 years and has been extirpated from the mainstem of the Rio Grande River. Populations can be threatened by habitat degradation that includes habitat loss, modification, and fragmentation as well as from interactions with nonnative species. Rio Grande chub impacts on the Carson National Forest include degraded stream and riparian habitat as well as water quality and quantity as a result of inadequately maintained roads and trails, water diversions, livestock grazing, and recreational use. Catastrophic fire and other extreme events such as drought and floods can also impact the species. Competition and predation with nonnative species can be extensive threats to Rio Grande chub populations through predation from brown trout and by competition for food resources with white sucker. Rio Grande chub have been petitioned for listing under the Endangered Species Act.

Oncorhynchus clarkii virginalis currently occur in approximately 10 percent of their presumed historic range. These population declines combined with losses in suitable habitat have led to considerable concern over the species' ability to persist over the long term in the plan area. Conservation populations of Rio Grande cutthroat on the Santa Fe National Forest are isolated in high elevation streams above natural and manmade barriers that prevent the upstream movement of nonnative trout that hybridize with, compete with, and prey upon native cutthroat trout. Populations of this species are currently restricted to just 19-34 percent of their historic range within Carson National Forest (USDA Forest Service 2015). Rio Grande cutthroat trout are further threatened by degraded stream and riparian habitat as well as water quality and quantity as a result of inadequately maintained roads and trails, water diversions, livestock grazing, and recreational use. Catastrophic fire and other extreme events such as drought and floods also threaten the persistence of small, isolated populations which, because they occur above migratory barriers, cannot be recolonized naturally.

Catostomus plebius are endemic to the Rio Grande drainage and have been extirpated from most of its historic range. Populations can be threatened by habitat degradation that includes habitat loss, modification, and fragmentation as well as from interactions with nonnative species. Rio Grande sucker impacts on the Santa Fe National Forest include degraded stream and riparian habitat as well as water quality and quantity as a result of inadequately maintained roads and trails, water diversions, livestock grazing, and recreational use. Catastrophic fire and other extreme events such as drought and floods can also impact the species. Competition and predation with nonnative species can be extensive threats to Rio Grande Sucker populations through predation from brown trout and by hybridizing and competing for food resources with the white sucker.

Table 13. Plan components (coarse and fine filter) that address ecological condition and threats for Rio Grande chub, Rio Grande cutthroat trout, and Rio Grande sucker

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Aquatic Systems	Seral state departure	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1-3, FW-WSW-DC 1-5, FW-WSW-DC 7, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-STM-DC 1-8, FW-	FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-SL-G 1-2, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-4, FW-WSW-RMZ-STM-O 1-2, FW-WSW-RMZ-	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-STM-DC 9-11, FW-WSW-RMZ-STM-G 3, FW-WSW-RMZ-WB-DC 6, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3,

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
	Coarse woody debris departure Catastrophic fire Invasive vegetation encroachment Disconnected floodplains Specific ecological features Non-native predation Ground or soil disturbance Intrusive human activity Chemical applications	WSW-RMZ-WB-DC 1-5, FW-WSW-RMZ-SNS-DC 1, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-6, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12-13, FW-WFP-DC 4, FW-WFP-DC 6, FW-WFP-DC 9-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-SU-DC 7, FW-FIRE-DC 1-6, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	STM-S 1-2, FW-WSW-RMZ-STM-G 1-2, FW-WSW-RMZ-STM-G 4, FW-WSW-RMZ-WB-S 1-2, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-SNS-G 1, FW-WSW-RMZ-FSSR-G 1-2, FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1-2, FW-NIS-G 1-4, FW-NIS-G 6, FW-GRZ- S 1, FW-GRZ-G 2-3, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-FIRE-G 8, FW-MM-G 1, DA-WSR-S 2, DA-WILD-S 1, DA-ZOO-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-WFP-DC 5, FW-WFP-O 3, FW-WFP-G 1-2, FW-WFP-G 6, FW-TFA-O 1-3, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1-4, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 11-12, VVMA MA 1-2, SAMA MA 1-7

Nokomis fritillary butterfly

Nokomis fritillary butterfly (*Speyeria nokomis nokomis*) inhabits streamside meadows and bogs within arid ponderosa pine, piñon-juniper woodland, and sagebrush ecosystems (Selby 2007). The presence of bog violet is a critical ecological component, as this is the primary larval food plant (Selby 2007). Microhabitat conditions for the bog violet is wet alkaline soils and shade, often under willows (Selby 2007). It is also important to have plenty of nectar sources such as thistles, horsemint (*Agastache spp.*), and Joe pye weed (*Eupatorium maculatum*) nearby (NatureServe 2018). This species distribution within the Carson National Forest is limited, as wetland habitat found in arid ecosystems are rare, small, and isolated (Cary and Holland 1992). This species is primarily associated Wetland Riparian vegetation community. Threats include loss of bog violet component, loss of nectar sources, and loss of microhabitat condition through invasive plant species encroachment, stand replacing fire, decreased ground water retention, and increased soil compaction by livestock grazing and recreational use.

Table 14. Plan components (coarse and fine-filter) that address ecological condition and threats for Nokomis fritillary butterfly

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Riparian areas Forest and Shrub Riparian	Seral state departure Catastrophic fire Invasive vegetative encroachment Disconnected floodplains Specific ecological features Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-VEG-PPF-DC 1, FW-VEG-PPF-DC 3-4, FW-VEG-PJO-DC 1, FW-VEG-PJO-DC 5, FW-VEG-PJO-DC 13, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7-9, FW-WSW-RMZ-SNS-DC 1-3, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-3 FW-WSW-RMZ-FSR-DC 5-8, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-VEG-PPF-O 1-2, FW-SL-G 2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-G 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-SNS-O 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-WR-S 3, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 16, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-SNS-DC 8-9, FW-WSW-RMZ-WR-DC 4-5, FW-WSW-RMZ-FSR-DC 9-10, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Masked shrew

Masked shrew (*Sorex cinereus*) hunts insects and other small mammals along banks of cold streams, in wet meadows, and under logs within spruce-fir and bristlecone pine forest (Frey and Yates 1996) throughout the Carson National Forest. Ecological condition is associated with moist sites with deep enough soil or duff to burrow (Whitaker 2005). Threats to this species include climate change, as it prefers wet areas in upper elevations that may be altered due to rising temperatures (BISON-M 2017l) include sedimentation caused by grazing, fuelwood gathering, wildfire, recreation, motorized travel, and changes in hydrology.

Table 15. Plan components (coarse and fine-filter) that address ecological condition and threats for masked shrew

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Bristlecone Pine Forest Spruce-fir Forest Riparian areas Forest and Shrub Riparian	Seral state departure Catastrophic fire Invasive vegetative encroachment Disconnected floodplains Specific ecological features Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-BP-DC 1, FW-VEG-BP-DC 4-5, FW-VEG-SFF-DC 1-2, FW-VEG-SFF-DC 7, FW-SL-DC 1-3, FW-WSW-DC 1-2, FW-WSW-DC 5-6, FW-WSW-RMZ-DC 1-9, FW-WSW-RMZ-STM-DC 1-2, FW-WSW-RMZ-STM-DC 4-5, FW-WSW-RMZ-STM-DC 8, FW-WSW-RMZ-SNS-DC 1-3, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-3, FW-WSW-RMZ-FSR-DC 5-8, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-FFP-DC 4, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-VEG-SFF-G 1, FW-VEG-SFF-G 5, FW-SL-G 1-2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-G 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1-2, FW-WSW-RMZ-SNS-O 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-WR-2-3, FW-WSW-RMZ-FSR-G 3, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1-2, FW-NIS-G 1-5, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-FFP-G 1-3, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-O 1-3, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 16, FW-VEG-DC 21, FW-VEG-G 1-3, FW-VEG-BP-DC 8, FW-VEG-SFF-DC 16, FW-WSW-DC 5, FW-WSW-RMZ-FSR-DC 11-12, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-GRZ-S 3, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Pale Townsend's big-eared bat

The Townsend's big-eared bat (Corynorhinus townsendii pallescens) has not been documented on the Carson National Forest since 1998. They hibernate and roost in caves and abandoned mine features, which are rare on the Carson National Forest. Ongoing activities known to impact habitats used by the bats include recreational caving or mine exploring, vandalism, renewed mining (Finch 1992, Kunz and Martin 1982, USFS 2013, WBWG 2005b), and potentially white-nose syndrome, a lethal fungal infection in some species of hibernating bats in the eastern and Midwestern U.S. (USDI Bureau of Land Management et al. 2010, Cryan 2014). Past activities, such as improper cave and mine closures, have led to a reduction in the number of available hibernacula for this species.

Table 16. Plan components (coarse and fine-filter) that address ecological condition and threats for Pale Townsend's big-eared bat

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Caves and Abandoned Mines	Catastrophic fire Unnatural disease spread Specific ecological features Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 19-20, FW-CAM-DC 2-4, FW-WFP-DC 9, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-RMZ-STM-O 1-2, FW-WSW-RMZ-SNS-O 1, FW-WFP-O 1, FW-REC-G 3, FW-TFA-G 5, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17, FW-VEG-DC 21, FW-VEG-G 1-3, FW-CAM-DC 1, FW-CAM-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, FW-WFP-G 7, FW-FIRE-G 3, FW-FIRE-G 7-8, CAM MANAGEMENT APPROACH 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Spotted bat

In New Mexico, spotted bat (*Euderma maculatum*) has been recorded in 20 locations throughout very diverse habitats up to 10,000 feet elevation (NatureServe, 2010, BISON-M, 2010, Gannon, Kendall, Campball, DeCarvalho, & Burt, 1998 and Geluso, 2006) including on the Carson National Forest. This species is more dependent on roost availability and water than on vegetation types. The ideal roost sites for this species is cliffs, rocky outcrops, or caves that are near water (streams, pond, and tanks) and open areas for foraging of insects within mixed conifer and ponderosa pine vegetation communities. Ongoing activities known to impact ecological conditions used by the bats include recreational mine adit exploring, recreational rock climbing, vandalism, renewed mining (Finch 1992, Kunz and Martin 1982, USFS 2013, WBWG 2005b), and potentially white-nose syndrome, a lethal fungal infection in some species of hibernating bats in the eastern and Midwestern U.S. (USDI Bureau of Land Management et al. 2010, Cryan 2014). Past activities, such as improper mine closures, have led to a reduction in the number of available hibernacula for this species.

Table 17. Plan Components (coarse and fine filter) that address ecological condition and threats for American Peregrine Falcon

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Mixed-conifer with frequent fire Mixed-conifer with Aspen Ponderosa pine forest Cliff and Rocky Features	Seral state departure Catastrophic fire Unnatural disease spread Specific ecological features Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-MCW-DC 1-3, FW-VEG-MCW-DC 12, FW-VEG-MCD-DC 1-2, FW-VEG-PPF-DC 1-2, FW-WSW-DC 1, FW-WSW-DC 5, FW-WSW-RMZ-DC 1-5, FW-CRF-DC 1-3, FW-WFP-DC 9, FW-FFP-DC 4, FW-FIRE-DC 1-5, FW-TFA-DC 4-5, FW-SU-DC 7, FW-MM-DC 1, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WFP-O 1, FW-WFP-G 6, FW-FFP-S 2, FW-FFP-G 1-3, FW-REC-S 2, FW-REC-G 3-5, FW-TFA-O 1 FW-TFA-G 9, FW-SU-S 2, FW-SU-G 1, FW-SU-G 4-5, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17, FW-VEG-DC 21, FW-VEG-G 1-2, FW-VEG-PPF-DC 19, FW- FW-WSW-DC 5, FW-CRF-G 1-3, FW-CAM-G 1-3, CRF MANAGEMENT APPROACH 1-3, FW-WFP-DC 1-3, FW-WFP-G 7, FW-WFP-DC 7, FW-WFP-G 1-3, WFP MANAGEMENT APPROACH 1- 2, WFP MANAGEMENT APPROACH 7

Water shrew

Water shrew (*Sorex palustris*) are strongly associated with riparian habitats in the vicinity of permanent streams above 8,000 feet in elevation (Conway 1952; Frey and Yates 1996; BISON M 2017m). This species typically utilizes areas with abundant cover, such as rocks, logs, or overhanging streambank vegetation (Conway 1952, NatureServe 2018) and will create burrows within these ecological conditions. High elevation forest riparian habitats on the Carson National Forest are limited (less than 3 percent of the forest). Threats from changes in ecological condition include reduction of in-stream flow, increased sedimentation levels, loss of riparian coarse woody debris, loss of overhanging banks, and loss of woody and herbaceous riparian vegetation (BISON M 2018).

Table 18. Plan components (coarse and fine filter) that address ecological condition and threats for water shrew

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Riparian areas	Seral state departure Catastrophic fire Invasive vegetation encroachment Disconnected floodplains Specific ecological features Ground disturbing activities Intrusive human activity	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1-3, FW-WSW-DC 1-3, FW-WSW-DC 5, FW-WSW-DC 7, FW-WSW-RMZ-DC 1-9, FW-WSW-RMZ-STM-DC 1-3, FW-WSW-RMZ-STM-DC4-8, FW-WSW-RMZ-SNS-DC 1, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-6, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12-13, FW-WFP-DC 4, FW-WFP-DC 6, FW-WFP-DC 9-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-SU-DC 7, FW-FIRE-DC 1-6, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-SL-G 1-2, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-4, FW-WSW-RMZ-STM-O 1-2, FW-WSW-RMZ-STM-S 1-2, FW-WSW-RMZ-STM-G 1-2, FW-WSW-RMZ-STM-G 4, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-SNS-G 1, FW-WSW-RMZ-WR-S 1-3, FW-WSW-RMZ-FSSR-G 1-2, FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1-2, FW-NIS-G 1-4, FW-NIS-G 6, FW-GRZ- S 1, FW-GRZ-G 2-3, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-FIRE-G 8, FW-MM-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-FSR-DC 11-12, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 5, FW-WFP-O 3, FW-WFP-G 1-2, FW-WFP-G 6, FW-TFA-O 1-3, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1-4, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 11-12, VVMA MANAGEMENT APPROACH 1-2, SAMA MANAGEMENT APPROACH 1-7

Alpine Larkspur

Alpine larkspur (*Delphinium alpestre*) are found within the rocky outcrops of the alpine tundra. (NMRPTC 2018). Within New Mexico, populations of alpine larkspur are restricted to the alpine tundra of the Carson National Forest, and therefore have limited distribution. The remote and relatively inaccessible habitats of this species provide it with a large degree of protection from land use impacts, however, this species can be targeted for weed control and seed collection (NMRPTC 2018).

Table 19. Plan Components (coarse and fine-filter) that address ecological condition and threats for alpine larkspur

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Alpine and Tundra Cliffs and Rocky Feature	Seral state departure Invasive vegetative encroachment Specific ecological features Limited or Specific Soil Conditions Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19, FW-VEG-ALP-DC 1-3, FW-VEG-ALP-DC 8, FW-SL-DC 1-6, FW-CRF-DC 1, FW-CRF-DC 3, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3	FW-VEG-G 1-3, FW-SL-G 2, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-MM-G 1, DA-WILD-S 1, MA-VVMA-G 1-2,	FW-VEG-DC 14, FW-VEG-DC 17-19, FW-VEG-DC 21, FW-VEG-S 1, FW-VEG-ALP-DC 7, FW-VEG-ALP-G 1, FW-VEG-G 1-3, FW-CRF-G 1-4, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6, CRF MANAGEMENT APPROACH 1-3,

Arizona Willow

Arizona willow (*Salix arizonica*) is only found in high elevation areas within open meadows and along streams (montane subalpine grassland and forest, shrub, and scrub riparian vegetation communities). Thirteen populations occupy approximately 50 acres in the Cabresto Creek, Sawmill Creek, and Bitter Creek headwaters, and Lagunitas Creek on the Questa, Tres Piedras, and Camino Real ranger districts of the Carson National Forest. Threats to Arizona willow include decrease in ground water retention, increase in soil compaction, invasive species encroachment, stand replacing fire, and livestock grazing which could impact growth and vigor of willow.

Table 20. Plan Components (coarse and fine-filter) that address ecological condition and threats for Arizona willow

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Montane and Subalpine Grassland Riparian areas Forest and Shrub Riparian	Seral state departure Catastrophic fire Invasive vegetative encroachment Disconnected floodplains Specific ecological features Ground disturbance activities Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-MSG-DC 1-6, FW-VEG-MSG-DC 8-11, FW-SL-DC 1-6, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7-9, FW-WSW-RMZ-STM-DC 1-2, FW-WSW-RMZ-STM-DC 8-9, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-SNS-DC 1-3, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-3, FW-WSW-RMZ-FSR-DC 5-8, FW-WSW-RMZ-FSR-DC 8, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-VEG-MSG-G, FW-SL-G 2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-G 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1, FW-WSW-RMZ-STM-G 1, FW-WSW-RMZ-SNS-O 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-WR-S 3, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17-19, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-WR-DC 4, FW-WSW-RMZ-FSR-DC 8-9, FW-WSW-RMZ-FSR-DC 12, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Chaco Milkvetch, Chama Blazing Star, Pagosa Milkvetch, Small-headed Goldenweed, and Tufted Sand Verbena

Chaco milkvetch (*Astragalus micromerius*) and Tufted sand verbena (Abronia bigelovii) are restricted to Todilto gypsum or limy sandstone in piñon-juniper woodlands on the Canjilon Ranger District. Due to its dependence on sandstone that is blended with Todilto gypsum or limestone, populations of this plant are isolated on the Carson National Forest.

Chama blazing star (*Mentzelia conspicua*) is only found on the Carson National Forest in small and isolated populations on the Canjilon Ranger District. It is restricted to gray to red shales of Mancos and Chinle soil formations in the piñon-juniper woodland (NMRPTC 1999).

Pagosa milkvetch (*Astragalus missouriensis var. humistratus*) is found in one small and isolated population on the Jicarilla Ranger District. It is restricted to Mancos and Lewis soil formations within ponderosa pine forest and piñon-juniper woodland vegetation communities (Decker 2006).

Small-headed goldenweed (*Ericameria microcephala*) is restricted to granite rock crevices and outcrops within ponderosa pine forest (NMRPTC 1999) on the Tres Piedras Ranger District.

Threats for these plant species include loss of specific soil or rock formation from ground disturbing activities, direct harm to the plant itself, and invasive species encroachment.

Table 21. Plan components (coarse and fine-filter) that address ecological condition and threats for Chaco milkvetch, Chama blazing star, Pagosa milkvetch, small-headed goldenweed, and tufted sand verbena

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Ponderosa Pine Forest Piñon-Juniper Woodlands Cliffs and Rocky Feature	Seral state departure Invasive vegetative encroachment Specific ecological features Limited or Specific Soil Conditions Ground disturbing activities Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-SL-DC 1-6, FW-VEG-PPF-DC 1-4, FW-VEG-PJO-DC 1, FW-VEG-PJO-DC 5-6, FW-CRF-DC 1, FW-CRF-DC 3, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, MA-RWMA-DC 1	FW-VEG-G 1-3, FW-SL-G 2, FW-VEG-PPF-O 1-2, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-MM-G 1	FW-VEG-DC 14, FW-VEG-DC 17-19, FW-VEG-DC 21, FW-VEG-S 1, FW-VEG-G 1-3, FW-VEG-PPF-DC 19, FW-VEG-PJO-DC 14, FW-CRF-G 1-4, CRF MANAGEMENT APPROACH 1-3, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Ripley's Milkvetch

Ripley's milkvetch (*Astragalus ripleyii*) on the Carson National Forest is exclusively associated with volcanic substrates within ponderosa pine forest and piñon-juniper woodland vegetation communities on the Tres Piedras, Questa, and Camino Real ranger districts (Ladyman 2003). Currently, it has been identified at 44 locations in New Mexico, of which 10 are on the Carson National Forest (NHNM 2014). This is one of the few New Mexico milkvetches that is a desirable forage plant. It is relished by deer, elk, and all classes of livestock, without toxic effects common to other Astragalus species (NMRPTC 2018). This species is vulnerable to invasive species encroachment and direct harm to the plant itself.

Table 22. Plan Components (coarse and fine-filter) that address ecological condition and threats for Ripley's milkvetch

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Ponderosa Pine Forest Piñon-Juniper Woodlands	Seral state departure Invasive vegetative encroachment Specific ecological features Limited or Specific Soil Conditions Ground disturbance activities Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1-6, FW-VEG-PPF-DC 1-4, FW-VEG-PJO-DC 1, FW-VEG-PJO-DC 5-6, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-SL-G 2, FW-VEG-PPF-O 1-2, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17-19, FW-VEG-DC 21, FW-VEG-S 1, FW-VEG-G 1-3, FW-VEG-PPF-DC 19, FW-VEG-PJO-DC 14, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Robust Larkspur

Robust larkspur (*Delphinium robustum*) occurs in valley bottoms, riparian woodlands, subalpine meadows, and aspen groves in lower and upper montane coniferous forests of the Carson National Forest from 7,000 to 11,200 feet (spruce-fir forest and mixed conifer with aspen vegetation communities). Six occurrences have been reported in New Mexico, three of which were found on the Carson National Forest (SEINet 2014). This species is occasionally targeted for weed control, as some species of larkspur are poisonous to livestock. Additional threats include direct harm to the species itself.

Table 23. Plan components (coarse and fine-filter) that address ecological condition and threats for robust larkspur

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Spruce Fir Forest Aspen Mixed Conifer with Aspen Riparian areas	Seral state departure Invasive vegetative encroachment Specific ecological features Ground disturbance activities Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-SFF-DC 1, FW-VEG-SFF-DC 5-8, FW-VEG-ASP-DC 1, FW-VEG-MCW-DC 1, FW-VEG-MCW-DC 7-8, FW-VEG-MCW-DC 11-12, FW-VEG-MCW-DC 15, FW-SL-DC 1-6, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7-9, FW-WSW-RMZ-STM-DC 1-2, FW-WSW-RMZ-STM-DC 8-9, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-SNS-DC 1-3, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-3, FW-WSW-RMZ-FSR-DC 5-8, FW-WSW-RMZ-FSR-DC 8, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-VEG-SFF-G 1, FW-SL-G 2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-G 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1, FW-WSW-RMZ-STM-G 1, FW-WSW-RMZ-SNS-O 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-WR-S 3, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-WR-DC 4, FW-WSW-RMZ-FSR-DC 8-9, FW-WSW-RMZ-FSR-DC 12, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

Section 2. At-Risk Species Crosswalk – Issues and Threats

These crosswalks reference all plan components within the Carson National Forest Plan that address issues and threats for at-risk species (for an analysis of these issues and threats, please refer to chapter 3 of volume 1 of this DEIS). Issues have been identified as habitat that is out-of-reference and in need of restoration (coarse filter approaches) while threats have been identified as anthropomorphic (human-based) activities that are negatively impacting at-risk species. These are usually addressed through fine filter approaches and may be very species specific. Managing for at-risk species is often a combination of coarse and fine filter plan components.

Issues

Seral State Departure

Over 84 percent of all at-risk species on the Carson National Forest are impacted by highly-departed seral state. Seral state is a complex issue that deals with the ecological succession of vegetation as it progresses towards a climax community. It looks at how vegetative systems age over time and what the average range of age classes of vegetation exist within the system. For example, a healthy and productive (in-reference condition) forest will consist of a mix of young, middle-aged, and old trees as well as the herbaceous understory. A complete description of vegetation types and their seral state composition is found in the Assessment (USDA Forest Service 2015). The variability in vegetative structure also contributes to other ecological conditions necessary for some species such as snag density (amount of standing dead trees) or the amount of coarse woody debris (amount of dead tree material on the ground). These components may be critical for the persistence of some species and are indirectly tied to seral state condition since seral state impacts the recruitment, retention, and size classes of these features. Departure from reference conditions can negatively impact 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. This can negatively impact the wildlife species dependent upon the seral states within healthy spruce-fir forests.

Another issue caused by out-of-reference seral state is the potential for stand replacing fires. In both forested and non-forested ecosystems, fuel loads can build to levels that increase the potential for stand replacing fires. Besides devastating the vegetative conditions within and vegetation types, uncharacteristic fires can also potentially wipe out at-risk species that reside in those systems, especially if they are rare or endemic. The cause of seral state departure can usually be traced back to long-term man-made actions such as fire-suppression. Vegetative conditions, including how they naturally transition over time and with disturbances, are the foundation of most wildlife habitat. Therefore, vegetation that closely mirrors appropriate distributions of these natural vegetative transitional states, or seral states, makes better wildlife habitat than vegetation that is departed from the appropriate seral state distributions (as defined by historic or reference conditions). Some at-risk species depend upon in-reference seral state condition in one, or multiple, vegetation types for persistence on the forest.

Plan components related to seral state are listed in table 24.

Table 24. Seral state plan components

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-9	FW-VEG-MCW-DC 14-15	FW-WSW-O 1
FW-VEG-DC 11-12	FW-VEG-MCD-DC 1-5	FW-WSW-G 1
FW-VEG-DC 14-17	FW-VEG-MCD-DC 8-12	FW-WSW-RMZ-DC 1-4
FW-VEG-DC 20-21	FW-VEG-MCD-DC 16-20	FW-WSW-RMZ-O 1
FW-VEG-G 1-2	FW-VEG-MCD-O 1-2	FW-WSW-RMZ-WR-DC 1-3
FW-VEG-G 3-4	FW-VEG-PPF-DC 1-6	FW-WSW-RMZ-FSR-DC 1-3
FW-VEG-ALP-DC 1-5	FW-VEG-PPF-DC 8-10	FW-WSW-RMZ-FSR-DC 5-7
FW-VEG-MSG-DC 1-4	FW-VEG-PPF-DC 12	FW-WSW-RMZ-FSR-G 3
FW-VEG-MSG-DC 6-9	FW-VEG-PPF-DC 15-18	FW-WFP-DC 1-6
FW-VEG-MSG-DC 11-14	FW-VEG-PPF-O 1-2	FW-WFP-DC 8-10
FW-VEG-BP-DC 1	FW-VEG-PPF-G 1-2	FW-WFP-O 1
FW-VEG-BP-DC 3-7	FW-VEG-PJO-DC 1-10	FW-WFP-G 1-2
FW-VEG-BP-G 1	FW-VEG-PJO-G 1-3	FW-NIS-DC 1
FW-VEG-SFF-DC 1-10	FW-VEG-PJS-DC 1-10	FW-NIS-O 1
FW-VEG-SFF-DC 12	FW-VEG-PJS-DC 13-15	FW-GRZ-DC 4-6
FW-VEG-SFF-DC 15	FW-VEG-PJS-G 1	FW-GRZ-S 1
FW-VEG-ASP-DC 1-8	FW-VEG-SAGE-DC 1-9	FW-FFP-S 1-2
FW-VEG-MCW-DC 1-5	FW-SL-DC 3	FW-FIRE-DC 1-2
FW-VEG-MCW-DC 7-13	FW-WSW-DC 2	FW-MM-DC 1

Snag Density Departure

When a tree dies but remains standing it becomes a snag and provides habitat for and 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 below desired conditions identified as snags per acre, it may result in lack of nesting locations or foraging areas 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, therefore, departed snag densities may result in significant negative impacts to at-risk species. Currently, 3 percent of at-risk species are impacted by departed snag densities on the forest, these occur in three terrestrial forested vegetation types:(piñon-juniper woodland (PJW), piñon-juniper sagebrush (PJS), and ponderosa pine forest (PPF). Plan components related to snag density departure are listed in table 25.

Table 25. Snag density departure

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-5	FW-VEG-MCD-DC 11	FW-VEG-PJS-G 4
FW-VEG-DC 20-21	FW-VEG-MCD-O 1-2	FW-WSW-RMZ-O 1
FW-VEG-G 1-4	FW-VEG-PPF-DC 1	FW-WSW-RMZ-FSR-DC 1-3
FW-VEG-BP-DC 1	FW-VEG-PPF-DC 5-6	FW-WSW-RMZ-FSR-G 2
FW-VEG-SFF-DC 1	FW-VEG-PPF-DC 10	FW-WFP-DC 1-6
FW-VEG-SFF-DC 3-4	FW-VEG-PPF-O 1-2	FW-WFP-DC 8-10
FW-VEG-ASP-DC 4	FW-VEG-PPF-G 1-2	FW-WFP-O 1

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-ASP-G 1	FW-VEG-PJO-DC 1	FW-WFP-G 1-2
FW-VEG-MCW-DC 1	FW-VEG-PJO-DC 7-8	FW-FFP-DC 4
FW-VEG-MCW-DC 4-5	FW-VEG-PJO-G 1	FW-FFP-S 1-2
FW-VEG-MCD-DC 1	FW-VEG-PJS-DC 1	FW-FFP-G 1-2
FW-VEG-MCD-DC 4-5	FW-VEG-PJS-DC 7-9	FW-FIRE-DC 1-2

Coarse Woody Debris Departure

When a large tree falls it becomes coarse woody debris and provides habitat for small animals and insects. When these logs 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 down water and contributing to pool development. Out of reference conditions of coarse woody debris may result in significant negative impacts to at-risk species. If coarse woody debris is not in adequate supply or below desired conditions identified as tons per acre (coarse woody debris load), 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 above desired conditions it may create unfavorable soil conditions, especially for at-risk plant species by prohibiting growth or germination or resulting in more intense fires that negatively impact soil conditions. This is also a key factor in proper functioning aquatic habitats. Thus, coarse woody debris loads in reference condition should provide optimum habitat for terrestrial and aquatic animal species as well as soil conditions for plant species. Currently, 13 percent of at-risk species may be impacted by improper coarse woody debris loads on the forest, these occur in three terrestrial forested vegetation types: ponderosa pine forest (PPF), mixed conifer with frequent fire (MCD), and piñon-juniper sagebrush (PJS). Five species also utilize riparian areas (riparian management zones) where coarse woody debris is a key component not only for creating habitat but for maintaining stream function as well by trapping sediment and influencing channel formation.

The cause of departed coarse woody debris loads can usually be traced back to long-term human-caused actions such as fire suppression resulting 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, cattle, and wildlife often results in the suppression of woody recruitment because of increased trampling or grazing. In-reference coarse woody debris loads in both upland and riparian areas would provide the ecological conditions required for some at-risk species.

Table 26. Coarse woody debris plan components

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-VEG-MCD-O 1-2	FW-WSW-RMZ-STM-O 1
FW-VEG-DC 5	FW-VEG-PPF-DC 1	FW-WSW-RMZ-STM-G 2
FW-VEG-DC 20-21	FW-VEG-PPF-DC 6	FW-WSW-RMZ-FSR-DC 1-3
FW-VEG-G 1-3	FW-VEG-PPF-DC 10	FW-WSW-RMZ-FSR-DC 6
FW-VEG-BP-DC 1	FW-VEG-PPF-O 1-2	FW-WSW-RMZ-FSR-G 2
FW-VEG-SFF-DC 1	FW-VEG-PJO-DC 1	FW-WFP-DC 1-6

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-SFF-DC 4	FW-VEG-PJO-DC 8	FW-WFP-DC 8-10
FW-VEG-ASP-DC 4	FW-VEG-PJO-G 1	FW-WFP-O 1
FW-VEG-MCW-DC 1	FW-VEG-PJS-DC 1	FW-WFP-G 1-2
FW-VEG-MCW-DC 5	FW-VEG-PJS-DC 8-9	FW-FFP-DC 4
FW-VEG-MCD-DC 1	FW-VEG-PJS-G 4	FW-FFP-S 1-2
FW-VEG-MCD-DC 5	FW-WSW-RMZ-O 1	FW-FFP-G 1-2
FW-VEG-MCD-DC 11	FW-WSW-RMZ-STM-DC 9-10	FW-FIRE-DC 1-2

Risk of Catastrophic Fire

Fire plays a critical role in maintaining the health of an ecosystem. Many vegetation types within the Carson National Forest are classified as frequent-fire systems and depend on certain fire-return intervals to maintain reference conditions for numerous vegetative characteristics (examples are seral state, coarse woody debris, etc.). Long-term, historic fire suppression policies on the forest has resulted in an excess of fuel in many frequent fire systems (see vegetation analysis). This excess fuel load often creates conditions for uncharacteristic fire which is usually defined as fire that burns at higher-intensity or longer duration than what would typically occur under reference conditions.

Uncharacteristic fire often creates unfavorable forest conditions for at-risk species. It also can potentially wipe out isolated or small populations of at-risk species. Currently, 59 percent of at-risk species may be impacted by uncharacteristic fire but are impacted in different ways. Table 27 lists catastrophic fire plan components.

Table 27. Catastrophic fire plan components

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-VEG-MCD-DC 1	FW-WSW-DC 1-2
FW-VEG-DC 5	FW-VEG-MCD-DC 3	FW-WSW-RMZ-DC 1
FW-VEG-DC 15-16	FW-VEG-MCD-DC 7	FW-WSW-RMZ-DC 7
FW-VEG-DC 20-21	FW-VEG-MCD-DC 20	FW-WSW-RMZ-O 1
FW-VEG-G 1-3	FW-VEG-MCD-O 1-2	FW-WSW-RMZ-WR-DC 1
FW-VEG-G 5	FW-VEG-PPF-DC 1-4	FW-WSW-RMZ-FSR-DC 1-3
FW-VEG-MSG-DC 1	FW-VEG-PPF-DC 18	FW-WSW-RMZ-FSR-DC 6
FW-VEG-MSG-DC 6	FW-VEG-PPF-O 1-2	FW-WFP-DC 1-4
FW-VEG-BP-DC 1	FW-VEG-PJO-DC 1	FW-WFP-O 1
FW-VEG-BP-DC 5	FW-VEG-PJO-DC 6	FW-WFP-G 1-2
FW-VEG-SFF-DC 1	FW-VEG-PJO-DC 13	FW-GRZ-DC 3-4
FW-VEG-SFF-DC 7	FW-VEG-PJS-DC 1	FW-FIRE-DC 1-6
FW-VEG-ASP-DC 1-2	FW-VEG-PJS-DC 6	FW-FIRE-S 1-6
FW-VEG-MCW-DC 1	FW-VEG-PJS-DC 15	FW-FIRE-G 1
FW-VEG-MCW-DC 3	FW-VEG-SAGE-DC 1	FW-FFP-DC 4
FW-VEG-MCW-DC 12	FW-VEG-SAGE-DC 8	MA-DEVRES-DC 2

Invasive Vegetation Encroachment

When non-native plant species appear on the landscape native species must compete for available resources. A naturally aggressive plant may be especially invasive when it is introduced to a new habitat. Increased resource availability and altered disturbance regimes associated with human activities often differentially increase the performance of invaders over that of natives, this places undue stressors on native populations, especially at-risk plant species. Invasive vegetative encroachment can also impact animal species as well. Small mammals and even fish are dependent upon certain vegetation types and can be impacted if invasive plants alter the composition of their native habitats.

Currently, 56 percent of at-risk species may be impacted by invasive vegetation encroachment on the forest, these occur in all vegetation types including riparian areas. Plan components related to invasive vegetation encroachment are in table 28.

Table 28. Invasive vegetation encroachment plan components

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-VEG-PPF-O 1-2	FW-WFP-DC 8
FW-VEG-DC 5	FW-VEG-PJO-DC 1	FW-WFP-O 1
FW-VEG-DC 17	FW-VEG-PJO-DC 5	FW-WFP-G 1-2
FW-VEG-DC 20-21	FW-VEG-PJS-DC 1	FW-WFP-G 5
FW-VEG-G 1-3	FW-VEG-PJS-DC 3	FW-NIS-DC 1
FW-VEG-ALP-DC 1-2	FW-VEG-PJS-DC 5	FW-NIS-O 1
FW-VEG-MSG-DC 1-3	FW-VEG-SAGE-DC 1-2	FW-NIS-S 1-2
FW-VEG-MSG-DC 8	FW-VEG-SAGE-DC 4	FW-NIS-G 1-7
FW-VEG-BP-DC 1	FW-WSW-DC 1-2	FW-GRZ-DC 5-6
FW-VEG-BP-DC 4	FW-WSW-O 1	FW-TFA-O 1
FW-VEG-SFF-DC 1	FW-WSW-G 1	FW-TFA-S 1
FW-VEG-ASP-DC 1	FW-WSW-RMZ-DC 1-3	FW-FIRE-G 3
FW-VEG-ASP-DC 7	FW-WSW-RMZ-DC 9	FW-FIRE-G 8
FW-VEG-MCW-DC 1-2	FW-WSW-RMZ-STM-S 1	FW-MM-G 1
FW-VEG-MCW-DC 7	FW-WSW-RMZ-WB-DC 1-2	DA-WILD-DC 1
FW-VEG-MCD-DC 1-2	FW-WSW-RMZ-WB-S 1	DA-WILD-S 4
FW-VEG-MCD-DC 7	FW-WSW-RMZ-SNS-DC 1-2	DA-IRA-DC 1
FW-VEG-MCD-DC 17	FW-WSW-RMZ-SNS-S 1	MA-RWMA-DC 2
FW-VEG-MCD-O 1-2	FW-WSW-RMZ-WR-DC 3	MA-GMMA-S 2
FW-VEG-PPF-DC 1-3	FW-WSW-RMZ-FSR-DC 1-3	MA-VVMA-DC 1
FW-VEG-PPF-DC 17	FW-WFP-DC 1-4	MA-SAMA-DC 1

Disconnected Floodplains

Floodplains are a key component in riparian areas that are adjacent to river and stream systems. They are generally characterized by gradual slopes which results in the water spreading out over large areas (floodplains), thus, dispersing its energy minimizing it erosive nature. The conditions created by these events have resulted in vegetative communities specifically designed for wet-soil conditions. Due to changing vegetative conditions in riparian areas from excessive human uses (e.g. recreation and grazing) native vegetation is often diminished causing more severe erosion problems during high water events. This oftentimes causes the stream channel to downcut and directs more water through the channel resulting in even greater erosion. This results in streams and rivers with deep incised channels and steep banks where water cannot escape and disconnects the floodplains from the existing stream. This often causes impacts to terrestrial species dependent upon wet soil conditions and vegetation, as well as aquatic species within the stream and river systems. Currently, 34 percent of at-risk species may be impacted by disconnected floodplains on the forest, these occur in all vegetation types with riparian areas. Plan components related to disconnected floodplains can be found in table 29.

Table 29. Disconnected floodplains plan components

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-SL-G 1-3	FW-WFP-DC 1-6	FW-FIRE-G 7-8
FW-VEG-DC 5-9	FW-WSW-DC 1-3	FW-WFP-DC 8-10	FW-MM-DC 1
FW-VEG-DC 14	FW-WSW-DC 7	FW-WFP-O 1	FW-MM-S 1-2
FW-VEG-DC 20	FW-WSW-O 1	FW-WFP-O 5	FW-MM-G 1-2
FW-VEG-G 1-3	FW-WSW-G 1-4	FW-WFP-G 1-2	DA-WILD-DC 1-3
FW-VEG-ALP-DC 6	FW-WSW-RMZ-DC 1-9	FW-WFP-G 5-6	DA-WILD-S 4
FW-VEG-MSG-DC 1-5	FW-WSW-RMZ-O 1	FW-NIS-DC 1	DA-WSR-DC 1
FW-VEG-MSG-DC 9	FW-WSW-RMZ-G 1-4	FW-NIS-O 1	DA-WSR-S 1-3
FW-VEG-SFF-DC 1-2	FW-WSW-RMZ-STM-DC 1-2	FW-GRZ-DC 4-6	DA-IRA-DC 1
FW-VEG-SFF-G 1	FW-WSW-RMZ-STM-DC 4-11	FW-GRZ-S 1	DA-IRA-S 1-2
FW-VEG-MCW-DC 1-2	FW-WSW-RMZ-STM-O 1-2	FW-GRZ-G 2-5	DA-IRA-G 1-2
FW-VEG-MCD-DC 1-2	FW-WSW-RMZ-STM-S 1	FW-FPP-DC 1	MA-RWMA-DC 1-2
FW-VEG-MCD-O 1-2	FW-WSW-RMZ-STM-G 1-4	FW-FFP-S 1-2	MA-EWSR-DC 1-3
FW-VEG-PPF-DC 1-3	FW-WSW-RMZ-WB-DC 1-6	FW-FFP-G 1-3	MA-EWSR-S 1-8
FW-VEG-PPF-O 1-2	FW-WSW-RMZ-WB-S 1	FW-REC-S 1-2	MA-EWSR-G 1
FW-VEG-PJO-DC 1	FW-WSW-RMZ-SNS-DC 1-7	FW-REC-G 1	MA-GMMA-DC 3
FW-VEG-PJO-DC 5	FW-WSW-RMZ-SNS-O 1	FW-REC-G 5	MA-GMMA-S 1-3
FW-VEG-PJO-G 3	FW-WSW-RMZ-SNS-S 1	FW-TFA-DC 4-5	MA-JICMA-DC 1-2
FW-VEG-PJS-DC 1	FW-WSW-RMZ-SNS-G 1	FW-TFA-O 1-3	MA-JICMA-S 3-11
FW-VEG-PJS-DC 3	FW-WSW-RMZ-WR-DC 1-3	FW-TFA-S 1	MA-JICMA-G 1-2
FW-VEG-PJS-DC 5	FW-WSW-RMZ-WR-S 1-3	FW-TFA-G 1-4	MA-JICAMA-G 5
FW-VEG-SAGE-DC 1-2	FW-WSW-RMZ-FSR-DC 1-3	FW-TFA-G 9	MA-VVMA-DC 1
FW-VEG-SAGE-DC 4	FW-WSW-RMZ-FSR-DC 5-8	FW-FIRE-DC 1-3	MA-VVMA-G 1-2
FW-VEG-SAGE-DC 9	FW-WSW-RMZ-FSR-DC 12-13	FW-FIRE-S 1-7	MA-SAMA-DC 1
FW-SL-DC 1-3	FW-WSW-RMZ-FSR-G 1-3	FW-FIRE-G 1-4	MA-SAMA-S 1-3

Limited or Specific Soil Conditions

Soils are complex and dynamic system that consists of a mineral component, organic matter, air, water, and various soil organisms resulting from 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. Soils also provide habitat for a diverse number of invertebrates and belowground organisms. Due to their slow rate of formation, soils are essentially a non-renewable resource. Unfavorable soil conditions often decrease viability of at-risk species dependent upon specific soil type or condition. Most at-risk species reliant upon soil conditions are plants, however, some invertebrates also have an affinity for certain soil types.

Soil condition is based on three soil functions: (1) the ability of the soil to resist erosion, (2) the ability of the soil to infiltrate water, and (3) the ability of the soil to recycle nutrients. The loss of soil productivity through a reduction in soil function is due to a lack of effective vegetative ground cover and organic matter. This has resulted in unstable soils with reduced nutrient cycling. Soils in reference condition (satisfactory rating) provide the necessary ecological conditions for species dependent upon them. Soils that are out of reference are classified as impaired, unsatisfactory, or unsuited depending upon the degree in which they are impacted. Currently, 19 percent of at-risk species may be impacted by impaired, unsatisfactory, or unsuited soil conditions, or may need very specific soil type to grow on the forest. Limited or specific soil conditions plan components are found in table 30.

Table 30. Limited or specific soil conditions plan components

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-VEG-PPF-DC 1-3	FW-WSW-RMZ-WR-DC 1-4	FW-TFA-O 1
FW-VEG-DC 5	FW-VEG-PPF-DC 19	FW-WSW-RMZ-FSR-DC 1-3	FW-TFA-S 1
FW-VEG-DC 9	FW-VEG-PPF-O 1-2	FW-WSW-RMZ-FSR-DC 9	FW-TFA-G 1-4
FW-VEG-DC 14	FW-VEG-PJO-DC 1	FW-WSW-RMZ-FSR-DC 11	FW-SU-S 1-2
FW-VEG-DC 18-20	FW-VEG-PJO-DC 4-5	FW-CRF-DC 3	FW-SU-G 1-2
FW-VEG-G 1-3	FW-VEG-PJO-DC 14	FW-WFP-DC 1-3	FW-FIRE-DC 1-3
FW-VEG-MSG-DC 1-4	FW-VEG-PJS-DC 1	FW-WFP-DC 10	FW-FIRE-G 1
FW-VEG-MSG-DC 7	FW-VEG-PJS-DC 4-5	FW-WFP-O 1	FW-FIRE-G 7-8
FW-VEG-BP-DC 1	FW-VEG-PJS-DC 16	FW-WFP-O 4	FW-MM-DC 1
FW-VEG-BP-DC 8	FW-VEG-SAGE-DC 1-2	FW-WFP-G 1-2	FW-MM-G 1-2
FW-VEG-SFF-DC 1	FW-VEG-SAGE-DC 4-5	FW-WFP-G 5	DA-WILD-DC 1
FW-VEG-SFF-DC 16	FW-VEG-SAGE-DC 9	FW-NIS-DC 1	DA-WILD-S 4
FW-VEG-SFF-G 1	FW-SL-DC 1-7	FW-NIS-O 1	DA-IRA-DC 1
FW-VEG-ASP-DC 1	FW-SL-G 1-3	FW-NIS-S 1-2	MA-RWMA-DC 1
FW-VEG-ASP-DC 9	FW-WSW-DC 1-3	FW-NIS-G 1-7	MA-JICMA-DC 1
FW-VEG-MCW-DC 1-2	FW-WSW-O 1	FW-GRZ-DC 4-6	MA-JICMA-S 3-11
FW-VEG-MCW-DC 17	FW-WSW-G 1	FW-FFP-S 1	MA-JICMA-G 1-2
FW-VEG-MCD-DC 1-2	FW-WSW-RMZ-DC 1-3	FW-REC-S 1-2	MA-GMMA-DC 3
FW-VEG-MCD-DC 21	FW-WSW-RMZ-DC 9	FW-REC-G 1	MA-GMMA-S 2-3
FW-VEG-MCD-O 1-2	FW-WSW-RMZ-O 1	FW-REC-G 5	MA-VVMA-DC 1
FW-CAM-DC 1	FW-CRF-DC 1	FW-TFA-DC 4-5	MA-SAMA-DC 1

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 (e.g., rock formations). For example, some bird species require specific rock or cliff formations for nesting, some plants require certain soil characteristics from specific geologic formations, and some fish and amphibians require specific water conditions (e.g. temperature, flow, etc.). Currently, 69 percent of at-risk species require specific ecological conditions that are not otherwise addressed by general habitat conditions related to vegetation. Specific ecological features plan components are fond in table 31.

Table 31. Specific ecological features plan components

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 5	FW-SL-DC 7	FW-GRZ-DC 4-6
FW-VEG-DC 14	FW-SL-G 1-3	FW-GRZ-S 1-4
FW-VEG-DC 18-20	FW-WSW-DC 1-2	FW-GRZ-G 2-5
FW-VEG-S 1	FW-WSW-DC 4-5	FW-GRZ-G 8
FW-VEG-G 1-3	FW-WSW-O 1	FW-FFP-DC 1
FW-VEG-ALP-DC 6-7	FW-WSW-G 1	FW-FFP-S 1
FW-VEG-ALP-G 1-2	FW-WSW-RMZ-DC 1-3	FW-REC-G 3
FW-VEG-MSG-DC 1	FW-WSW-RMZ-O 1	FW-REC-G 5
FW-VEG-MSG-DC 10	FW-WSW-RMZ-STM-DC 1-3	FW-TFA-DC 5
FW-VEG-MSG-DC 12	FW-WSW-RMZ-STM-DC 6-11	FW-TFA-O 1
FW-VEG-MSG-DC 10	FW-WSW-RMZ-STM-O 1-2	FW-TFA-S 1-3
FW-VEG-BP-DC 1	FW-WSW-RMZ-STM-G 1-4	FW-TFA-G 1-10
FW-VEG-BP-DC 8	FW-WSW-RMZ-WB-DC 1-3	FW-FAC-G 2
FW-VEG-SFF-DC 1	FW-WSW-RMZ-SNS-DC 1-3	FW-SU-S 1-2
FW-VEG-SFF-DC 16	FW-WSW-RMZ-SNS-DC 8-9	FW-SU-G 1-6
FW-VEG-SFF-G 2-5	FW-WSW-RMZ-SNS-O 1	FW-FIRE-DC 1-3
FW-VEG-ASP-DC 1	FW-WSW-RMZ-WR-DC 1-4	FW-FIRE-S 6-7
FW-VEG-ASP-DC 9	FW-WSW-RMZ-FSR-DC 1-3	FW-FIRE-G 1-4
FW-VEG-ASP-G 1-4	FW-WSW-RMZ-FSR-DC 9	FW-FIRE-G 7-8
FW-VEG-MCW-DC 1-2	FW-WSW-RMZ-FSR-DC 11	FW-MM-DC 1
FW-VEG-MCW-DC 17	FW-WSW-RMZ-WR-DC 1	FW-MM-G 1-2
FW-VEG-MCW-G 2-6	FW-WSW-RMZ-WR-DC 4-5	DA-WILD-DC 1
FW-VEG-MCD-DC 1-2	FW-WSW-RMZ-FSR-DC 1-3	DA-WILD-S 4
FW-VEG-MCD-DC 21	FW-WSW-RMZ-FSR-DC 8-13	DA-IRA-DC 1
FW-VEG-MCD-G 3-6	FW-WSW-RMZ-FSR-G 3	DA-WHT-DC 1
FW-VEG-PPF-DC 1-2	FW-CAM-DC 1-4	DA-ZOO-DC 1-2
FW-VEG-PPF-DC 19	FW-CAM-G 1-3	DA-ZOO-S 1
FW-VEG-PPF-G 1-2	FW-CRF-DC 1-3	DA-BOT-DC 1-2
FW-VEG-PPF-G 5-8	FW-CRF-G 1-4	DA-BOT-G 1-2
FW-VEG-PJO-DC 1	FW-WFP-DC 1-3	MA-RWMA-DC 1
FW-VEG-PJO-G 1-2	FW-WFP-DC 10-11	MA-JICMA-DC 1
FW-VEG-PJO-DC 14	FW-WFP-O 1-3	MA-JICMA-S 3-11
FW-VEG-PJS-DC 1	FW-WFP-G 1-8	MA-JICMA-G 1-2

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-PJS-DC 16	FW-WFP-G 5	MA-GMMA-DC 3
FW-VEG-PJS-G 3-4	FW-NIS-DC 1	MA-GMMA-S 2-3
FW-VEG-SAGE-DC 1-2	FW-NIS-O 1	MA-VVMA-DC 1
FW-VEG-SAGE-DC 9	FW-NIS-S 1-2	MA-SAMA-DC 1

Threats

Invasive Predation (Aquatic):

Negative impacts to at-risk species may occur when nonnative invasive species are introduced, intentionally or unintentionally, into aquatic systems where at-risk species exist and competition and prey behavior results in population declines of the native populations. Non-native invasive species on the Carson National Forest include but are not limited to American bullfrogs, white sucker, German brown trout and rainbow trout. It is well known that rainbow and German brown trout often out-compete native Rio Grande cutthroat trout in areas where they were introduced but there is also the risk of predation on the at-risk Rio Grande sucker and chub. These non-native fish, in particular the German brown and rainbow trout, were introduced in waters of the Carson National Forest for socioeconomic benefit. Similarly, non-native American bullfrog were known to out-compete Northern leopard frogs and Western boreal toad. These are just examples of the types of negative consequences associated with invasive species that were introduced into aquatic systems. Invasive predation plan components are listed in table 32.

Table 32. Invasive predation plan components

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-WSW-RMZ-STM-O 1	FW-NIS-DC 1
FW-VEG-DC 5	FW-WSW-RMZ-STM-S 1	FW-NIS-O 1
FW-VEG-DC 11	FW-WSW-RMZ-WB-DC 1-2	FW-NIS-S 1-2
FW-VEG-DC 14	FW-WSW-RMZ-WB-S 1	FW-NIS-G 1-7
FW-VEG-DC 20	FW-WSW-RMZ-SNS-DC 1-3	FW-GRZ-DC 4-6
FW-VEG-G 1-3	FW-WSW-RMZ-SNS-S 1	FW-FIRE-G 2-3
FW-VEG-MSG-DC 10	FW-WSW-RMZ-WR-DC 1	FW-FIRE-G 8
FW-SL-DC 5	FW-WSW-RMZ-WR-DC 3	DA-WILD-DC 1
FW-WSW-DC 4	FW-WSW-RMZ-FSR-DC 1-3	DA-WILD-S 4
FW-WSW-O 1	FW-WFP-DC 1-3	DA-IRA-DC 1
FW-WSW-G 1	FW-WFP-DC 5-6	MA-RWMA-DC 2
FW-WSW-RMZ-DC 1-3	FW-WFP-O 1	MA-RWMA-S 8
FW-WSW-RMZ-DC 9	FW-WFP-O 3	MA-VVMA-DC 1
FW-WSW-RMZ-O 1	FW-WFP-G 1-2	MA-VVMA-DC 3
FW-WSW-RMZ-STM-DC 1-3	FW-WFP-G 5	MA-SAMA-DC 1

Ground and Soil Disturbance (Roads and Trails):

Ground or soil disturbance can impact at-risk species in a multitude of ways. Soil compaction can crush plant species or alter soil characteristic necessary for at-risk plants, thus inhibiting there potential for spread. Invertebrates and amphibians can also be impacted by this issue when soil characteristics are

altered or soil is compacted. Compaction mostly occurs when roads or trails are created, especially non-system roads or trails that may enter into areas where at-risk species exist. Other activities that increase ground and soil disturbance may include log landings for Forestry activities as well as recreational and range improvements (e.g. campgrounds, picnic areas, mineral and feed sites for livestock). Since some at-risk populations may be isolated and small, even the smallest of footprints may impact their viability if it occurs in a highly sensitive area.

Another means by which ground and soil disturbance can impact at-risk species is through erosion and subsequent siltation of waterways. When soil is disturbed the likelihood of erosion increases, especially if there is uncharacteristic weather events such as high wind or excessive rains. If ground disturbance occurs near a waterway, this can ultimately lead to excessive siltation when the exposed soils are carried into the water. This increased siltation reduces the amount of available oxygen and may impair the ability of aquatic species to forage, ultimately leading to direct mortality.

Table 33. Ground and soil disturbance plan components

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-SL-DC 1	FW-NIS-O 1	DA-IRA-DC 1
FW-VEG-DC 5	FW-SL-G 1-2	FW-NIS-G 5-6	MA-RWMA-DC 2
FW-VEG-DC 14	FW-WSW-DC 1-3	FW-GRZ-DC 4-6	MA-EWSR-S 5
FW-VEG-DC 20	FW-WSW-O 1	FW-GRZ-S 1	MA-EWSR-G 1
FW-VEG-G 1-3	FW-WSW-G 1-4	FW-GRZ-G 2-5	MA-JICMA-DC 1-2
FW-VEG-ALP-DC 7	FW-WSW-RMZ-G 2-3	FW-FFP-S 2	MA-JICMA-S 7-8
FW-VEG-ALP-G 1	FW-WSW-RMZ-STM-DC 4-5	FW-FFP-G 1-3	MA-JICMA-S 10-11
FW-VEG-MSG-DC 3	FW-WSW-RMZ-STM-DC 11	FW-REC-S 1-2	MA-JICMA-G 4
FW-VEG-MSG-DC 5	FW-WSW-RMZ-STM-G 4	FW-REC-G 1	MA-GMMA-DC 3
FW-VEG-MSG-DC 10	FW-WSW-RMZ-WB-DC 6	FW-TFA-DC 4-5	MA-VVMA-DC 1-2
FW-VEG-MSG-G 1	FW-CAM-DC 2-3	FW-TFA-S 1-3	MA-VVMA-S 3-20
FW-VEG-BP-DC 3	FW-CAM-G 3	FW-TFA-G 6	MA-VVMA-G 2
FW-VEG-SFF-G 1	FW-CRF-G 1	FW-SU-G 1-3	MA-SAMA-DC 1-2
FW-VEG-PJO-DC 4-5	FW-WFP-DC 1-3	FW-FIRE-G 7-8	MA-SAMA-S 1
FW-VEG-PJS-DC 4-5	FW-WFP-O 1	FW-MM-DC 1	MA-SAMA-S 5
FW-VEG-SAGE-DC 5	FW-WFP-G 1-7	FW-MM-G 1-2	MA-SAMA-S 7
FW-VEG-SAGE-DC 9	FW-NIS-DC 1	DA-WILD-DC 1	MA-SAMA-G 1

Intrusive Human Activity (Recreational Disturbance):

Intrusive human activity often creates issues for at-risk species where recreational activities impact biological function. It consists primarily of anthropomorphic activities that disrupt critical life stages of at-risk species such as reproduction, nesting/calving, or even feeding, especially during times of high-stress (e.g., breeding season, winter). Harassing activities include but are not limited to human presence, indiscriminate shooting, harassment from people and domestic dogs, and picking or digging of plants. At-risk species on the Carson National Forest are known to be negatively impacted by these activities. See table 34 for plan components that address intrusive human activity.

Table 34. Intrusive human activity plan components

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 2	FW-VEG-MCD-G 6	FW-WFP-G 1-4	DA-BOT-G 1-2
FW-VEG-DC 14	FW-VEG-PPF-G 8	FW-WFP-G 7	MA-RWMA-DC 2
FW-VEG-DC 20	FW-WSW-DC 2	FW-REC-G 1	MA-VVMA-DC 1-2
FW-VEG-G 1-3	FW-CAM-G 1	FW-TFA-S 3	MA-VVMA-S 1-3
FW-VEG-ALP-G 2	FW-CRF-DC 1	FW-TFA-G 9	MA-VVMA-G 2
FW-VEG-SFF-G 5	FW-CRF-G 2-3	FW-SU-DC 8	MA-SAMA-DC 1-2
FW-VEG-ASP-G 4	FW-WFP-DC 1-3	FW-FIRE-G 7	MA-SAMA-S 1-2
FW-VEG-MCW-G 6	FW-WFP-DC 7	DA-WILD-DC 1	MA-SAMA-G 1

Pesticides or Chemical Retardant:

Some chemical applications pose a concern to at-risk species populations. It is well known that many bird species are highly susceptible to pesticides. Pesticides were shown to cause reproductive failure in peregrine falcons as well as many other species. Pesticides can also have beneficially impacts to at-risk species, when pesticides are used to manage non-native species population. Excessive non-native species population can have detrimental effect to native at-risk species populations. Pesticide use is highly regulated on the forest, impacts from off the forest may still be an issue.

A greater risk from direct chemical impact on the forest may come from the use of chemical fire retardant used to fight forest fires. Impacts from chemical fire retardant application have been analyzed in a separate analysis for all national forests within region 3. At-risk species on the Carson National Forest are known to be impacted by certain chemical applications. Plan components related to pesticides or chemical application can be found in table 35.

Table 35. Pesticides or chemical application plan components

Plan Component Code	Plan Component Code	Plan Component Code
FW-SL-DC 6	FW-WSW-RMZ-STM-DC 5	FW-NIS-G 3-4
FW-WSW-RMZ-G 3-4	FW-WSW-RMZ-STM-S 2	FW-AIR-DC 4
FW-WSW-DC 2	FW-WSW-RMZ-SNS-DC 7	FW-FIRE-S 2
FW-WSW-DC 7	FW-WSW-RMZ-WB-S 2	FW-FIRE-S 6
FW-WSW-G 2	FW-WFP-DC 1-3	FW-FIRE-G 4
FW-WSW-RMZ-G 4	FW-WFP-G 1-2	DA-ZOO-S 1

Introduced Disease or Unnatural Spread:

Unnatural mortality in wildlife may occur when pathogens are introduced and resultant disease causes population declines of native populations, especially at-risk species. Disease creates a characteristic set of signs and symptoms that may affect the whole body or any part of a plant or animal. It usually results in mortality or decreased vigor in species that are impacted by disease outbreaks. Historically, many populations were widespread and redundant (many scattered small populations) which made them more resilient to disease. If a disease event 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.

Another factor associated with disease is unnatural spread. This can occur when human activities move pathogens faster and over greater distances than what naturally occurs. For example, pathogens found in one water body, may take a long time to, or may never, impact another water body that is a significant distance away. Currently, with increased human travels from one location to another, the likelihood of infecting other areas increases significantly. It is well documented that many pathogens were introduced into new areas through human activities such as boating, spelunking, and other recreational activities. Some of the diseases that were known to occur on the Carson National Forest include but are not limited to chytrid fungus, sylvatic plague, whirling disease, and West Nile virus. Introduced disease or unnatural spread plan components are found in table 36.

Table 36. Introduced disease or unnatural spread plan components

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-WFP-DC 11	FW-FIRE-G 8
FW-VEG-ALP-DC 5	FW-WFP-G 1-2	FW-SU-S 3
FW-VEG-BP-G 1	FW-NIS-DC 1	DA-WILD-DC 1
FW-WSW-DC 2	FW-NIS-S 1-3	DA-WILD-S 5
FW-WSW-RMZ-STM-S 1	FW-NIS-G 1	DA-WSR-S 4
FW-WSW-RMZ-WB-DC 1-2	FW-NIS-G 3	DA-IRA-DC 1
FW-WSW-RMZ-WB-S 1	FW-GRZ-DC 4	MA-RWMA-DC 2
FW-WSW-RMZ-SNS-DC 1-2	FW-GRZ-S 4	MA-GMMA-S 2
FW-CAM-G 2	FW-GRZ-G 8	MA-VVMA-DC 1
FW-WFP-DC 1-4	FW-FIRE-G 2-3	MA-SAMA-DC 1

Human-made Features (Mortality/Altered Behavior):

Impacts to at-risk species may occur when manmade structures result in direct mortality of at-risk species either by entrapment or collision. Obstructions may consist of obstacles or barriers that may prevent animals from moving from one place to another to fulfill basic life cycle needs or may actually cause direct mortality due to collision and forceful striking (e.g., wind turbines, cell towers, facilities, or fences), prolonged entanglement (e.g. barbed wire), or entrapment (e.g. water troughs). Species that are known to be at-risk on the Carson National Forest are occasionally known to be impacted by manmade features that cause direct mortality. Plan components that address human-made features (mortality/altered behavior) are listed in table 37.

Table 37. Human-made features plan components

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 5	FW-WFP-G 6	FW-SU-G 1-5
FW-VEG-DC 14	FW-WFP-G 8	FW-LAND-G 1
FW-VEG-DC 20	FW-GRZ-DC 7	DA-WILD-DC 3
FW-VEG-G 1-3	FW-GRZ-G 3-4	DA-IRA-S 1
FW-WSW-DC 4	FW-GRZ-S 2-3	DA-NTRL-G 10
FW-WSW-G 2	FW-REC-S 1-2	MA-RWMA-DC 3
FW-WSW-G 4	FW-REC-G 1	MA-RWMA-S 3
FW-WSW-RMZ-DC 5	FW-REC-G 3-5	MA-RWMA-S 6
FW-WSW-RMZ-G 2	FW-TFA-DC 4-5	MA-RWMA-G 5

Plan Component Code	Plan Component Code	Plan Component Code
FW-WSW-RMZ-STM-DC 2-3	FW-TFA-O1	MA-EWSR-G 1
FW-WSW-RMZ-SNS-DC 6	FW-TFA-S 1-3	MA-DEVRES-G 3
FW-WSW-RMZ-WR-S 2	FW-TFA-G 1-9	MA-JICMA-S 7
FW-WFP-DC 2-5	FW-FAC-G 1-2	MA-VVMA-S 4-6
FW-WFP-O 4-5	FW-SCEN-G 1	MA-VVMA-G 1-2
FW-WFP-G 1-2	FW-SU-DC 5	MA-SAMA-S 1-6

Section 3. Canada Lynx Southern Rockies Management Direction Cross-walk

Canada lynx (*Lynx canadensis*) is not typically found on the Carson National Forest, since the forest naturally lacks the physical and biological features necessary to sustain a population (USDI FWS 2014a). Historically, the Carson National Forest did not support naturally resident lynx populations (USDI FWS 2014a). In 1999, Canada lynx were reintroduced into southern Colorado, and on occasion an individual lynx may roam out of Colorado onto the Carson National Forest in New Mexico. As Canada lynx is not known to den or breed on the forest, Lynx Analysis Units have not been established on the Carson National Forest, and the US Fish and Wildlife Service has not recommended the Forest Service to do so. When this species does roam into New Mexico (potential linkages), it is usually confined to mostly the mid- to high-elevation spruce fir and aspen forests at 9,800 to 12,000 feet elevation (Spruce Fir Forest and Aspen vegetation communities) (Koehler and Brittell 1990; Ruggiero et al. 1999). As such, Carson National Forest plan components for benefitting lynx will be confined to spruce fir and aspen ecosystems.

Since this species is a federally listed species, the Endangered Species Act requires consultation with the US Fish and Wildlife Service (USFWS) during the NEPA process on any management activities that may affect lynx or its habitat. Since a revised forest plan will provide management direction in potential lynx habitat on the Carson National Forest, consultation with the USFWS will take place. A draft proposed plan was posted on the forest's website for public review in July 2017. Several comments and requests from the public were made concerning how lynx is covered in the Carson National Forest's draft proposed plan and that the Southern Rockies Management Direction be included in the Carson's draft proposed plan. The text below displays the Southern Rockies Management Direction and the corresponding Carson National Forest's draft proposed plan components that correspond to this direction.

Southern Rockies Management Direction Objective All O1: Maintain or restore lynx habitat connectivity in and between Lynx Analysis Units, and in linkage areas.

Plan Component	Plan Component	Plan Component
See Section 4	FW-WFP-O 4	FW-WFP-O 5

Southern Rockies Management Direction Standard All S1: New or expanded permanent development and vegetation management projects must maintain habitat connectivity in an Lynx Analysis Unit and/or linkage are.

Corresponding Carson National Forest Plan Component(s): Habitat Connectivity Plan Components

Southern Rockies Management Direction Guideline ALL G1: Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways or forest highways across federal land. Methods could include fencing, underpasses or overpasses.

Corresponding Carson National Forest Plan Component: **FW-TFA-G 7**

Southern Rockies Management Direction Standard Lynx Analysis Unit S1: Changes in Lynx Analysis Unit boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.

Corresponding Carson National Forest Plan Component: *Not applicable as do not have Lynx Analysis Units, or denning/ breeding lynx*

Southern Rockies Management Direction Objective VEG O1: Manage vegetation to mimic or approximate natural succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx.

Table 38. Corresponding Carson plan components for SRM VEG O1

Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-SFF-G 1
FW-VEG-DC 3-7	FW-VEG-ASP-DC 1
FW-VEG-DC 14	FW-VEG-ASP-DC 4-7
FW-VEG-DC 20-21	FW-VEG-ASP-G 1
FW-VEG-G 1-3	FW-WFP-DC 2-3
FW-VEG-SFF-DC 2-4	FW-FFP-DC 4-5
FW-VEG-SFF-DC 9-13	FW-FFP-S 8
FW-VEG-SFF-DC 16	FW-FIRE-DC 2

Southern Rockies Management Direction Objective VEG O2: Provide a mosaic of habitat conditions through time that support dense horizontal cover, and high densities of snowshoe hare. Provide winter snowshoe hare habitat in both the stand initiation structural stage and in mature, multi-story conifer vegetation.

Table 39. Corresponding Carson plan components for SRM VEG O2

Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-ASP-DC 4-5
FW-VEG-DC 3-7	FW-VEG-ASP-DC 8
FW-VEG-DC 14	FW-VEG-ASP-G 1
FW-VEG-DC 20-21	FW-WFP-DC 2-3
FW-VEG-G 1-3	FW-WFP-O 1
FW-VEG-SFF-DC 2-4	FW-FFP-DC 4-5
FW-VEG-SFF-DC 9-13	FW-FFP-S 8
FW-VEG-SFF-DC 16	FW-FIRE-DC 2
FW-VEG-ASP-DC 1	FW-FIRE-G1

Southern Rockies Management Direction Objective VEG O3: Conduct fire use activities to restore ecological processes and maintain or improve lynx habitat.

Corresponding Carson National Forest Plan Component(s): FW-FIRE-DC 2 and FW-FIRE-G1

Southern Rockies Management Direction Objective VEG O4: Focus vegetation management in areas that have potential to improve winter snowshoe hare habitat, but presently have poorly developed understories that lack dense horizontal cover.

Corresponding Carson National Forest Plan Component(s): FW-WFP-O 11

Southern Rockies Management Direction Standard VEG S1: Where and to what this applies: Standard VEG S1 applies to all vegetation management projects that regenerate forested stands, except for fuel treatment projects within the wildland-urban interface as defined by HFRA17, subject to the following limitation:

Fuel treatment projects within the wildland-urban interface that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 shall occur on no more than 3 percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests). In addition, fuel treatment projects may not result in more than three adjacent Lynx Analysis Units exceeding the standard. For fuel treatment projects within the wildland-urban interface see guideline VEG G10.

The standard: Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages limit disturbance in each Lynx Analysis Unit as follows: If more than 30 percent of the lynx habitat in an Lynx Analysis Unit is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects.

Table 40. Corresponding Carson plan components for SRM VEG S1

Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-ASP-DC 4-6
FW-VEG-DC 1	FW-VEG-ASP-DC 8
FW-VEG-DC 3-7	FW-VEG-ASP-G 1
FW-VEG-DC 14	FW-WFP-DC 2-3
FW-VEG-DC 20-21	FW-WFP-G 1-2
FW-VEG-G 1-3	FW-FFP-S 6
FW-VEG-SFF-DC 2-4	FW-FFP-S 8
FW-VEG-SFF-DC 9-13	FW-FFP-G 1-2
FW-VEG-SFF-DC 16	FW-FIRE-DC 2
FW-VEG-ASP-DC 1	FW-FIRE-G1

[1] Objectives are to improve highly departed ecosystems for all wildlife. Where this objective is implemented is a project level decision as district personnel know what habitat is in most need of restoration. Objectives do not give prioritization.

Southern Rockies Management Direction Standard VEG S2: Where and to what this applies: Standard VEG S2 applies to all timber management projects that regenerate forests, except for fuel treatment projects within the wildland-urban interface as defined by HFRA17, subject to the following limitation:

> Fuel treatment projects within the wildland-urban interface that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 shall occur on no more than 3 percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests). For fuel treatment projects within the wildland-urban interface see guideline VEG G10.

The standard: Timber management projects shall not regenerate more than 15 percent of lynx habitat on National Forest System lands within a Lynx Analysis Unit in a ten-year period. This 15 percent includes the entire stand within an even-age regeneration area, and only the patch opening areas within group selections. Salvage harvest within stands killed by insect epidemics, wildfire, etc. does not add to the 15 percent, unless the harvest treatment would cause the lynx habitat to change to an unsuitable condition.

Table 41. Corresponding Carson plan components for SRM VEG S2

Plan Component Code	Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-SFF-DC 6	FW-WFP-DC 2-3
FW-VEG-DC 1-6	FW-VEG-SFF-DC 9-13	FW-WFP-G 1-2
FW-VEG-DC 8	FW-VEG-SFF-DC 16	FW-FFP-S 6
FW-VEG-DC 14	FW-VEG-ASP-DC 1	FW-FFP-S 8
FW-VEG-DC 20-21	FW-VEG-ASP-DC 4-6	FW-FFP-G 1-2
FW-VEG-G 1-3	FW-VEG-ASP-DC 8	FW-FIRE-DC 2
FW-VEG-SFF-DC 2-4	FW-VEG-ASP-G 1	FW-FIRE-G1

Southern Rockies Management Direction Standard VEG S5: The Standard: Precommercial thinning practices and similar activities intended to reduce seedling/sapling density are subject to the following limitations from the stand initiation structural stage until the stands no longer provide winter snowshoe hare habitat.

Precommercial thinning may occur only:

1) Within 200 feet of administrative sites, dwellings, or outbuildings; or

2) For research studies or genetic tree tests evaluating genetically improved reforestation stock; or

3) For conifer removal in aspen, or daylight thinning around individual aspen trees, where aspen is in decline; or

4) Based on new information that is peer reviewed and accepted by the regional/state levels of the Forest Service and FWS, where a written determination states:

    a) That a project is not likely to adversely affect lynx; or

    b) That a project is likely to have short term adverse effects on lynx or its habitat but would result in long-term benefits to lynx and its habitat.

5) In addition to the above exceptions (and above and beyond the three percent limitation for fuels projects within the wildland-urban interface), precommercial thinning may occur provided that:

   a) The additional precommercial thinning does not exceed one percent of the lynx habitat in any Lynx Analysis Unit for the life of this amendment, and the amount and distribution of winter snowshoe hare habitat within the Lynx Analysis Unit must be provided through appropriate site-specific analysis and consultation; and

   b) Precommercial thinning in Lynx Analysis Units with more than 30 percent of the lynx habitat currently in the stand initiation structural stage is limited to areas that do not yet provide winter snowshoe hare habitat; and

   c) Projects are designed to maintain lynx habitat connectivity and provide snowshoe hare habitat over the long term; and

   d) Monitoring is used to determine snowshoe hare response.

Exceptions 2 and 3 may not occur in any Lynx Analysis Unit in which VEG S1 is exceeded (i.e., more than 30 percent of Lynx Analysis Unit in stand initiation structural stage). Note: This standard is intended to provide snowshoe hare habitat while permitting some thinning, to explore methods to sustain snowshoe hare habitat over time, reduce hazardous fuels, improve forest health, and increase timber production. Project design must ensure any precommercial thinning provides an appropriate amount and distribution of snowshoe hare habitat with each Lynx Analysis Unit over time, and maintains lynx habitat connectivity within and between Lynx Analysis Units. Project design should focus on creating irregular shapes for the thinning units, creating mosaics of thinned and unthinned areas, and using variable density thinning, etc.

Table 42. Corresponding Carson plan components for SRM VEG S5

Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	See Section 4
FW-VEG-DC 1	FW-VEG-ASP-DC 8
FW-VEG-DC 3-7	FW-VEG-ASP-G 1
FW-VEG-DC 14	FW-WFP-DC 2-3
FW-VEG-DC 20-21	FW-WFP-G 1-2
FW-VEG-G 1-3	FW-FFP-S 6
FW-VEG-SFF-DC 2-4	FW-FFP-S 8
FW-VEG-SFF-DC 6	FW-FFP-G 1-2
FW-VEG-SFF-DC 9-13	FW-FIRE-DC 2
FW-VEG-SFF-DC 16	FW-FIRE-G1
FW-VEG-ASP-DC 1	FW-WFP-DC 2-3

Southern Rockies Management Direction Standard VEG S6: Where and to what this applies: Standard VEG S6 applies to all vegetation management practices within multi-story mature or late successional conifer forest, except for fuel treatment projects within the wildland-urban interface as defined by HFRA17, subject to the following limitation:

> Fuel treatment projects within the wildland-urban interface that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 shall occur on no more than 3 percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests). For fuel treatment projects within the wildland-urban interface see guideline VEG G10.

The Standard: Vegetation management projects36 that reduce winter snowshoe hare habitat in multi-story mature or late successional conifer forests may occur only:

1) Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or

2) For research studies or genetic tree tests evaluating genetically improved reforestation stock; or

3) For incidental removal during salvage harvest41 (e.g., removal due to location of skid trails); or

4) Where uneven-aged management (single tree and small group selection) practices are employed to maintain and encourage multi-story attributes as part of gap dynamics. Project design must be consistent with VEG O1, O2 and O4, except where impacts to areas of dense horizontal cover are incidental to activities under this exception (e.g., construction of skid trails). Exceptions 2 and 4 may not occur in any Lynx Analysis Unit in which VEG S1 is exceeded.

Table 43. Corresponding Carson plan components for SRM VEG S6

Plan Component Code	Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-SFF-DC 6	FW-WFP-DC 2-3
FW-VEG-DC 1	FW-VEG-SFF-DC 9-13	FW-WFP-G 1-2
FW-VEG-DC 3-7	FW-VEG-SFF-DC 16	FW-FFP-S 6
FW-VEG-DC 14	FW-VEG-ASP-DC 1	FW-FFP-S 8
FW-VEG-DC 20-21	FW-VEG-ASP-DC 4-6	FW-FFP-G 1-2
FW-VEG-G 1-3	FW-VEG-ASP-DC 8	FW-FIRE-DC 2
FW-VEG-SFF-DC 2-4	FW-VEG-ASP-G 1	FW-FIRE-G1

Southern Rockies Management Direction Guideline VEG G1: Vegetation management projects should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. Priority for treatment should be given to stem-exclusion, closed-canopy structural stage stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands). Winter snowshoe hare habitat should be near denning habitat.

Table 44. Corresponding Carson plan components for SRM VEG G1

Plan Component Code	Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-DC 20-21	FW-VEG-ASP-DC 1
FW-VEG-DC 1	FW-VEG-G 1-3	FW-VEG-ASP-DC 5
FW-VEG-DC 3	FW-VEG-SFF-DC 11	FW-WFP-DC 2-3
FW-VEG-DC 7	FW-VEG-SFF-DC 9-13	FW-WFP-O 1
FW-VEG-DC 14	FW-VEG-SFF-DC 16	FW-WFP-G 1-2

Southern Rockies Management Direction Guideline VEG G4: Prescribed fire activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.

Table 45. Corresponding Carson plan components for SRM VEG G4

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-TFA-DC 5	FW-TFA-G 6
FW-WFP-DC 3	FW-TFA-S 2	FW-TFA-G 8
FW-WFP-G 1-2	FW-TFA-G 2-3	FW-FIRE-DC 2

Southern Rockies Management Direction Guideline VEG G5: Habitat for alternate prey species, primarily red squirrel, should be provided in each Lynx Analysis Unit.

Table 46. Corresponding Carson plan components for SRM VEG G5

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-VEG-ASP-DC 1-9
FW-VEG-G 1-3	FW-WFP-DC 1-3
FW-VEG-SFF-DC 1-17	FW-WFP-G 1-2

Southern Rockies Management Direction Guideline VEG G10: Fuel treatment projects within the wildland-urban interface as defined by HFRA17 should be designed considering Standards VEG S1, S2, S5, and S6 to promote lynx conservation.

Table 47. Corresponding Carson plan components for SRM VEG G10

Plan Component Code	Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-SFF-DC 2-11	See Section 4
FW-VEG-DC 1	FW-VEG-SFF-DC 13	FW-WFP-G 1-2
FW-VEG-DC 3-7	FW-VEG-SFF-DC 16	FW-FFP-S 6
FW-VEG-DC 7	FW-VEG-ASP-DC 1	FW-FFP-S 8

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-VEG-ASP-DC 4-8	FW-FFP-G 1-2
FW-VEG-DC 20-21	FW-VEG-ASP-G 1	FW-FIRE-DC 2
FW-VEG-G 1-3	FW-WFP-DC 2-3	FW-FIRE-G 1

Southern Rockies Management Direction Guideline VEG G11: Denning habitat should be distributed in each Lynx Analysis Unit in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees ("jack-strawed" piles). If denning habitat appears to be lacking in the Lynx Analysis Unit, then projects should be designed to retain some coarse woody debris, piles, or residual trees to provide denning habitat in the future.

Table 48. Corresponding Carson plan components for SRM VEG G11

Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-SFF-DC 16
FW-VEG-DC 3-7	FW-VEG-ASP-DC 1
FW-VEG-DC 14	FW-VEG-ASP-DC 4-6
FW-VEG-DC 20-21	FW-VEG-ASP-DC 8
FW-VEG-G 1-3	FW-VEG-ASP-G 1
FW-VEG-SFF-DC 2-4	FW-WFP-DC 2-3
FW-VEG-SFF-DC 9-13	FW-WFP-G 1-2

Southern Rockies Management Direction Objective GRAZ O1*:* Manage livestock grazing to be compatible with improving or maintaining lynx habitat.

Table 49. Corresponding Carson plan components for SRM GRAZ 01

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-WFP-DC 2-3	FW-GRZ-DC 7
FW-VEG-DC 20-21	FW-WFP-G 1-2	FW-GRZ-S 1
FW-VEG-G 1-3	FW-GRZ-DC 4-5	FW-GRZ-G 1

Southern Rockies Management Direction Guideline GRAZ G1: In fire- and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.

Table 50. Corresponding Carson plan components for SRM GRAZ G1

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-GRZ-DC 4-5
FW-VEG-DC 20-21	FW-GRZ-DC 7
FW-VEG-G 1-3	FW-GRZ-S 1
FW-WFP-DC 2-3	FW-GRZ-G 1
FW-WFP-G 1-2	FW-GRZ-G 6-7

Southern Rockies Management Direction Guideline GRAZ G2: In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.

Table 51. Corresponding Carson plan components for SRM GRAZ G2

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-WFP-G 1-2
FW-VEG-DC 20-21	FW-GRZ-DC 4-5
FW-VEG-G 1-3	FW-GRZ-S 1
FW-VEG-ASP-DC 1-9	FW-GRZ-G 1
FW-WFP-DC 2-3	FW-GRZ-G 6-7

Southern Rockies Management Direction Guideline GRAZ G3: In riparian areas and willow carrs, livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

Table 52. Corresponding Carson plan components for SRM GRAZ G3

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-WSW-RMZ-FSSR-DC 5-6
FW-VEG-DC 20-21	FW-WSW-RMZ-FSSR-DC 8
FW-VEG-G 1-3	FW-WSW-RMZ-FSSR-DC 12
FW-WSW-DC 2	FW-WSW-RMZ-FSSR-G 1
FW-WSW-DC 6	FW-WFP-DC 2-3
FW-WSW-G 1	FW-WFP-G 1-2
FW-WSW-RMZ-DC 1-4	FW-GRZ-DC 4-5
FW-WSW-RMZ-G 2	FW-GRZ-S 1
FW-WSW-RMZ-FSSR-DC 1-3	FW-GRZ-G 1-2

Southern Rockies Management Direction Guideline GRAZ G4: In shrub-steppe habitats, livestock grazing should be managed in the elevation ranges of forested lynx habitat in Lynx Analysis Units, to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

Table 53. Corresponding Carson plan components for SRM GRAZ G4

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-SFF-DC 2-4	FW-VEG-ASP-DC 1	FW-WFP-G 1-2
FW-VEG-DC 3-7	FW-VEG-SFF-DC 9-11	FW-VEG-ASP-DC 4-6	FW-GRZ-DC 4-5
FW-VEG-DC 14	FW-VEG-SFF-DC 13	FW-VEG-ASP-DC 8	FW-GRZ-DC 7
FW-VEG-DC 20-21	FW-VEG-SFF-DC 16	FW-VEG-ASP-G 1	FW-GRZ-S 1
FW-VEG-G 1-3	FW-VEG-SFF-G 1	FW-WFP-DC 2-3	FW-GRZ-G 1-2

Southern Rockies Management Direction Objective HU O1: Maintain the lynx's natural competitive advantage over other predators in deep snow, by discouraging the expansion of snow-compacting activities in lynx habitat.

Table 54. Corresponding Carson plan components for SRM HU 01

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-WFP-DC 2-3
FW-VEG-DC 20-21	FW-WFP-G 1-2
FW-VEG-G 1-3	FW-TFA-S 1-2

Southern Rockies Management Direction Objective HU O2: Manage recreational activities to maintain lynx habitat and connectivity.

Table 55. Corresponding Carson plan components for SRM HU 02

Plan Component Code	Plan Component Code
See Section 4	FW-WFP-O 4-5
FW-WFP-DC 3	FW-WFP-G 1-2
FW-WFP-DC 7	FW-REC-G 1

Southern Rockies Management Direction Objective HU O3: Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat.

Table 56. Corresponding Carson plan components for SRM HU 03

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-WFP-G 1-2
FW-WFP-DC 7	FW-LAND-G 1

Southern Rockies Management Direction Objective HU O4: Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation sites or ski areas.

Table 57. Corresponding Carson plan components for SRM HU 04

Plan Component Code	Plan Component Code
See Section 4	FW-VEG-ASP-DC 4-6
FW-VEG-DC 1	FW-VEG-ASP-DC 8
FW-VEG-DC 3-7	FW-VEG-ASP-G 1
FW-VEG-DC 14	FW-WFP-DC 3
FW-VEG-DC 20-21	FW-WFP-DC 7
FW-VEG-G 1-3	FW-WFP-O 4-5
FW-VEG-SFF-DC 2-4	FW-WFP-G 1-2
FW-VEG-ASP-DC 1	FW-REC-G 1

Southern Rockies Management Direction Objective HU O5: Manage human activities, such as special uses, mineral and oil and gas exploration and development, and placement of utility transmission corridors, to reduce impacts on lynx and lynx habitat.

Table 58. Corresponding Carson plan components for SRM HU 05

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-SU-S 2
FW-WFP-DC 3	FW-SU-G 1-3
FW-WFP-DC 7	FW-LAND-G 1
FW-WFP-G 1-2	FW-MM-DC 1-2
FW-SU-DC 3-4	FW-MM-S 4-5

Southern Rockies Management Direction Objective HU O6: Reduce adverse highway effects on lynx by working cooperatively with other agencies to provide for lynx movement and habitat connectivity, and to reduce the potential for lynx mortality.

Table 59. Corresponding Carson plan components for SRM HU 06

Plan Component Code	Plan Component Code
See Section 4	FW-TFA-G 1-3
FW-TFA-DC 4-5	FW-TFA-G 7-8

Southern Rockies Management Direction Guideline HU G1: When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris, so winter snowshoe hare habitat is maintained.

Table 60. Corresponding Carson plan components for SRM HU G1

Plan Component Code
FW-VEG-G 1-3
FW-WFP-DC 3
FW-WFP-DC 7
FW-WFP-G 1-2
MA-DEVRES-DC 1

Southern Rockies Management Direction Guideline HU G2: When developing or expanding ski areas, lynx foraging habitat should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.

Table 61. Corresponding Carson plan components for SRM HU G2

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-WFP-G 1-2
FW-WFP-DC 7	MA-DEVRES-DC 1

Southern Rockies Management Direction Guideline HU G3: Recreation development and recreational operational uses should be planned to provide for lynx movement and to maintain the effectiveness of lynx habitat.

Table 62. Corresponding Carson plan components for SRM HU G3

Plan Component Code
See Section 4
FW-WFP-DC 3
FW-WFP-DC 7
FW-WFP-G 1-2
FW-REC-G 1

Southern Rockies Management Direction Guideline HU G4: Remote monitoring of mineral and energy development sites and facilities should be encouraged to reduce snow compaction.

Table 63. Corresponding Carson plan components for SRM HU G4

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-TFA-S 2
FW-WFP-DC 7	FW-MM-DC 1
FW-WFP-G 1-2	FW-MM-S 5

Southern Rockies Management Direction Guideline HU G5: A reclamation plan should be developed (e.g., road reclamation and vegetation rehabilitation) for closed mineral and energy development sites and facilities that promote the restoration of lynx habitat.

Corresponding Carson National Forest Plan Component: FW-MM- S3

Southern Rockies Management Direction Guideline HU G6: Methods to avoid or reduce effects to lynx habitat connectivity should be used when upgrading unpaved roads to maintenance levels 4 or 5, where the result would be increased traffic speeds and volumes or contribute to development or increases in human activity.

Table 64. Corresponding Carson plan components for SRM HU G6

Plan Component Code	Plan Component Code
See Section 4	FW-WFP-G 1-2
FW-VEG-G 1-3	FW-TFA-G 2
FW-WFP-DC 3	FW-TFA-G 6
FW-WFP-DC 7	FW-TFA-G 8

Southern Rockies Management Direction Guideline HU G7: New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity. New permanent roads and trails should be situated away from forested stringers.

Table 65. Corresponding Carson plan components for SRM HU G7

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-TFA-G 1-2
FW-WFP-DC 7	FW-TFA-G 6
FW-WFP-G 1-2	FW-TFA-G 8

Southern Rockies Management Direction Guideline HU G8: Cutting brush along low-speed, low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.

Table 66. Corresponding Carson plan components for SRM HU G8

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-TFA-G 6
FW-WFP-G 1-2	FW-TFA-G 8

Southern Rockies Management Direction Guideline HU G9: If project level analysis determines that new roads adversely affect lynx, then public motorized use should be restricted. Upon project completion, these roads should be reclaimed or decommissioned, if not needed for other management objectives.

Table 67. Corresponding Carson plan components for SRM HU G9

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-TFA-DC 5
FW-WFP-DC 3	FW-TFA-G 1-3
FW-WFP-G 1-2	FW-TFA-G 6-8
FW-TFA-DC 1	FW-TFA-G 8

Southern Rockies Management Direction Guideline HU G10: Designated over-the-snow routes or designated play areas should not expand outside baseline areas of consistent snow compaction, unless designation serves to consolidate use and improve lynx habitat. This may be calculated on an Lynx Analysis Unit basis, or on a combination of immediately adjacent Lynx Analysis Units.

This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12. Use the same analysis boundaries for all actions subject to this guideline.

Table 68. Corresponding Carson plan components for SRM HU G10

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-WFP-G 1-2
FW-WFP-DC 3	FW-TFA-S 1-2

Southern Rockies Management Direction Guideline HU G11: When developing or expanding ski areas and trails, consider locating access roads and lift termini to maintain and provide lynx security habitat.

Table 69. Corresponding Carson plan components for SRM HU G11

Plan Component Code	Plan Component Code
FW-WFP-DC 3	MA-DEVRES-DC 1
FW-WFP-DC 7	MA-DEVRES-DC 4
FW-WFP-G 1-2	MA-DEVRES-DC 1-3

Southern Rockies Management Direction Guideline HU G12: Winter access for non-recreation special uses and mineral and energy exploration and development should be limited to designated routes or designated over-the snow routes7.

Table 70. Corresponding Carson plan components for SRM HU G12

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-WFP-G 1-2
FW-WFP-DC 3	FW-TFA-S 1-2

Southern Rockies Management Direction Objective LINK O1: In areas of intermingled land ownership, work with landowners to pursue conservation easements, habitat conservation plans, land exchanges, or other solutions to reduce the potential of adverse impacts on lynx and lynx habitat.

Corresponding Carson National Forest Plan Management Approaches:

- **Management Approaches for Wildlife, Fish, and Plants 2-4**
- **Management Approaches for Wildlife, Fish, and Plants 8**
- **Management Approaches for Land 1**

Southern Rockies Management Direction Standard LINK S1: When highway or forest highway construction or reconstruction is proposed in linkage areas, identify potential highway crossings.

Table 71. Corresponding Carson plan components for SRM LINK S1

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-WFP-G 1-2
FW-WFP-DC 3	FW-TFA-G 6-7

Southern Rockies Management Direction Guideline LINK G1: National Forest System lands should be retained in public ownership.

Corresponding Carson National Forest Plan Component(s): **FW-LAND-DC 1**

Southern Rockies Management Direction Guideline LINK G2: Livestock grazing in shrub-steppe habitats should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

Table 72. Corresponding Carson plan components for SRM LINK G2

Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-ASP-DC 1
FW-VEG-DC 3-8	FW-VEG-ASP-DC 4-6
FW-VEG-DC 14	FW-VEG-ASP-DC 8
FW-VEG-DC 20-21	FW-VEG-ASP-G 1
FW-VEG-G 1-3	FW-WFP-DC 2-3
FW-VEG-SFF-DC 2-4	FW-WFP-G 1-2
FW-VEG-SFF-DC 6	FW-GRZ-DC 4-5
FW-VEG-SFF-DC 9-13	FW-GRZ-DC 7
FW-VEG-SFF-DC 16	FW-GRZ-S 1
FW-VEG-SFF-G 1	FW-GRZ-G 1

Section 4. Habitat Connectivity Plan Components

Habitat connectivity for wildlife is the premise that terrestrial and aquatic animals are able to move freely about their environment in order to access necessary resources or seek other individuals within their species for the purpose of fulfilling basic life-cycle needs. Connectivity may be negatively impacted by two primary issues: impaired ecological conditions and physical obstructions.

Below is a list of the plan components and management approaches related to Habitat Connectivity found within the Draft Proposed Forest Plan.

Table 73. Habitat connectivity plan components

Plan Component Code	Plan Component Code	Plan Component Code and Management Approaches
FW-VEG-DC 1-6	FW-VEG-PJO-DC 2-3	FW-WFP-O 4-5
FW-VEG-DC 9	FW-VEG-PJO-DC 9	FW-WFP-G 3-4
FW-VEG-DC 12	FW-VEG-PJO-G 1-5	FW-WFP-G 6-8
FW-VEG-MSG-DC 2-3	FW-VEG-PJS-DC 2-3	WFP Management Approach 3-4
FW-VEG-MSG-DC 5	FW-VEG-PJS-G 1-4	WFP Management Approach 6
FW-VEG-MSG-DC 8	FW-WSW-DC 1-4	FW-NIS-DC 1
FW-VEG-MSG-DC 10-11	FW-WSW-O 1	FW-NIS-O 1
FW-VEG-MSG-DC 14	FW-WSW-G 1	FW-GRZ-S 2-3
FW-VEG-MSG-G 1	FW-WSW-RMZ-DC 1-6	FW-GRZ-G 2
FW-VEG-SFF-DC 2	FW-WSW-RMZ-O 1	FW-REC-S 1-2
FW-VEG-SFF-DC 6	FW-WSW-RMZ-G 2-3	FW-REC-G 3
FW-VEG-SFF-DC 9	FW-WSW-RMZ-STM-DC 1-2	FW-TFA-DC 5
FW-VEG-SFF-DC 16	FW-WSW-RMZ-STM-DC 4	FW-TFA-O 1
FW-VEG-ASP-DC 1	FW-WSW-RMZ-STM-DC 6-9	FW-TFA-S 1-2
FW-VEG-ASP-DC 4	FW-WSW-RMZ-STM-O 1-2	FW-TFA-G 1-3
FW-VEG-ASP-DC 8	FW-WSW-RMZ-STM-G 1	FW-TFA-G 5
FW-VEG-ASP-G 1	FW-WSW-RMZ-WB-DC 1-3	FW-TFA-G 7
FW-VEG-MCW-DC 2	FW-WSW-RMZ-SNS-DC 1-2	FW-FAC-G 2
FW-VEG-MCW-DC 8	FW-WSW-RMZ-SNS-DC 6	FW-SU-S 2
FW-VEG-MCW-DC 15-16	FW-WSW-RMZ-SNS-O 1	FW-SU-G 1-5
FW-VEG-MCW-G 1-2	FW-WSW-RMZ-WR-DC 1	FW-LAND-DC 1
FW-VEG-MCD-DC 2	FW-WSW-RMZ-WR-DC 3	FW-LAND-G 1
FW-VEG-MCD-DC 10	FW-WSW-RMZ-FSSR-DC 5	MA-VVMA-DC 2
FW-VEG-MCD-G 1-2	FW-WSW-RMZ-FSSR-DC 7	MA-SAMA-DC 1-2
FW-VEG-PPF-DC 2	FW-WSW-RMZ-FSSR-G 1-3	MA-SAMA-DC 4
FW-VEG-PPF-DC 9	FW-WFP-DC 1-7	MA-SAMA-S 1-7
FW-VEG-PPF-G 1-4	FW-WFP-DC 9-10	MA-SAMA-G 1

The final environmental impact statement will include **Appendix I – Crosswalk of Previous Plan Components to Revised Plan Components**.