Appendix E: USDA Forest Service Desired Conditions

Tables are copied from forest management plans and include desired conditions directly related to Rio Chama CFLRP project goals. For complete list of desired conditions for the San Juan, Carson, Santa Fe, and Rio Grande National Forests, refer to appropriate forest management plan (citations included in each section below).

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Ea. San Juan National Forest

Jiron, D. 2021. *Volume II: Final San Juan National Forest Land and Resource Management Plan.* USDA Forest Service, Region 2.

Table 11. Desired Conditions for the San Juan National Forest.
Table includes all desired conditions listed in the San Juan National Forest Land and Resource Management Plan that are related to Rio Chama CFLRP project goals and associated treatments. Identification (ID) system is taken directly from Land and Resource Management Plan.

ID	Desired Condition	SJNF Indicator	Reporting Frequency
2.2.2	Non-climate ecosystem stresses (e.g., high road densities, water depletions, air and water pollution) are reduced to improve the resilience and resistance of ecosystems to the future dynamics of a changing climate.	Forest road density Species composition reports Stand exams	2-4 Years
2.2.6	All development stages of the forested terrestrial ecosystems are well represented at the landscape scale and occur within the ranges identified in Table 2.2.1.	Trends in fire and insect and disease mortality Acres of natural regeneration Trends in habitat structural stages	2 Years (aerial detection surveys) 5 Years (habitat structural stage)
2.2.7	Old growth ponderosa pine, old growth pinyon-juniper and old growth warm-dry mixed conifer forests are more abundant, occupy more acreage, and are well distributed on SJNF lands.		
2.2.9	Terrestrial ecosystems, including habitat for special status plant species, are productive, sustainable, and resilient, and provide goods and services over the long-term.		
2.2.15	Forested terrestrial ecosystems have stand structures and tree species compositions that offer resistance and resilience to changes in climate, including extreme	Extent of insect and disease outbreaks	Annually

	weather events or epidemic insect and disease outbreaks.		
2.2.16	Non-forested terrestrial ecosystems have community structure and species composition that offer resistance and resilience to changes in climate, including extreme weather events or epidemic insect and disease outbreaks.	Vegetation monitoring Tree line monitoring	3 Years 10 Years
2.2.35	Soil productivity is maintained at site potential, or is trending towards site potential.	Soil penetrometer readings Soil chemistry Soil carbon	5 Years
2.2.36	Long-term levels of soil organic matter and soil nutrients (including soil carbon) are maintained at sustainable levels.		
2.2.38	Management-induced soil erosion, soil compaction, soil displacement, puddling, and/or severely burned soils are rare on terrestrial ecosystems of the SJNF lands.		
2.2.39	Upland soils exhibit infiltration and permeability rates that minimize surface run-off and allow for the accumulation of the soil moisture necessary for plant growth and ecosystem function.		
2.3.1	Wildlife populations are viable on SJNF lands. Wildlife populations are self-sustaining, connected, and genetically diverse across SJNF lands.	Number of conservation actions or recovery actions completed for TES Number of projects implemented with overall beneficial effect to TES Number of TES species occurring and trends Number of AML projects implemented to reduce heavy metals Number of mine closure projects that implement effective bat access Number of lynx screens used for project analysis Reporting as required by Southern Rockies Lynx Amendment	Annually and 2 Years
2.3.5	Large predator species contribute to ecological diversity and ecosystem functioning.		
2.3.12	Populations are conserved by maintaining or improving habitat availability and quality through the incorporation of conservation strategies and species' habitat needs during project development and implementation.		
2.3.14	Disturbances from management activities occur at levels that support critical life functions and sustain key habitat characteristics for wildlife special status species.		
2.3.15	Areas identified as critical habitat or proposed critical habitat for special status wildlife species have the characteristics to support sustainable populations, promoting recovery of the species.		
2.3.16	The alpine and subalpine willow (*Salix sp*.) dominated riparian areas, providing crucial winter habitat for white-tailed ptarmigan (*Lagopus leucura*) and snowshoe hare (*Lepus americanus*), do not bioaccumulate heavy metals above historically occurring background levels which enter the food chain. Areas of contamination do not become limiting factors for wildlife population sustainability.		
2.3.17	Management actions maintain or improve habitat conditions for special status species, contributing to the stability and/or recovery of these species.		
2.3.20	Abert's squirrel (*Sciurus aberti*) - Ponderosa pine habitats provide interconnected structure in mature conifer stands that produce abundant foraging (cone	Status of focal species	2 Years

	crops and above- and belowground fungi) and reproductive habitat.	Acres of live ponderosa pine treated Acres of live mature spruce-fir and cool-moist mixed conifer treated	
2.3.21	American marten (*Martes americana*) - Habitat connectivity for spruce-fir and cool-moist mixed conifer forests is maintained at broad spatial scales. These forests contain a diverse array of structural stages (including mature and old growth) and habitat attributes (snags and downed logs) to provide effective foraging, breeding and dispersal habitat for marten.		
2.3.22	Hairy Woodpecker (*Picoides villosus*) - Snags occur in numbers, size, and quality in and adjacent to aspen, ponderosa pine, and mixed conifer forests to provide effective habitat for foraging and reproduction.		
2.4.9	Soil productivity is intact on all riparian area and wetland ecosystems.	BMPs implemented and effective	5 Years
2.4.12	Management-induced soil erosion, soil compaction, soil displacement, puddling, and/or severely burned soils are rare on all riparian and wetland ecosystems of the SJNF. Long term impacts to soils (e.g. soil erosion, soil compaction, soil displacement, puddling and/or severely burned soils) from management actions are rare on all riparian area and wetland ecosystems of the SJNF.		
2.5.5	An adequate range of stream flow provides for the long-term maintenance of physical habitat features. Channel features, including bank stability, width-to-depth ratio, pool/riffle ratio, pool depth, slope, sinuosity, cover and substrate composition, are commensurate with those expected to occur under natural ranges of stream flow.	Number of regulated or flow-impacted streams evaluated for consistency with standard 2.5.18	2-3- Streams per Year
2.5.6	Water flow conditions in streams, lakes, springs, seeps, wetlands, fens, and aquifers support functioning habitats for a variety of aquatic and semi-aquatic species and communities.		
2.5.12	Threats to Colorado River cutthroat trout and its habitat are eliminated or reduced to the greatest extent possible.	Miles of stream habitat enhanced Number of self-sustaining metapopulations established Number of threats reduced or eliminated	2 Years
2.5.13	The distribution of Colorado River cutthroat trout is increased where ecologically, sociologically, and economically feasible.		
2.6.1	State water quality standards and anti-degradation rules are met and State-classified water uses are supported for all water bodies	Acres restored. TMDLs completed. BMPs implemented and effective. WRAP essential projects completed.	5 Years
2.6.2	Water quality for impaired water bodies on the State's 303(d) list move toward fully supporting State-classified uses.		
2.6.3	State "Outstanding Waters" within the planning area maintain the high levels of water quality necessary for this status.		

2.6.5	Water from SJNF lands will meet applicable drinking water standards when given adequate and appropriate treatment. Management activities throughout the planning area protect and/or enhance the water quality of municipal supply watersheds (as defined in FSM 2542). Enhancement may be achieved by watershed restoration or by other activities.	Number of streams removed from 303D list.	
2.8.3	Invasive species, both terrestrial and aquatic, are absent or rare within the planning area, and are not influencing native populations or ecosystem function	Acres of noxious weeds inventoried, treated, and monitored Acres treated for Class A and Class B species Distribution and spread of quagga mussel	Annually
2.9.1	Forest vegetation management supports, at least, the current level of economic activity in the local timber industry; provides economic or social support to local communities; ensures current and future needs for Native American tribal use, including that associated with special forest products (e.g., teepee poles)	Sales data for timber products	Annually
2.11.3	Wildland fire management maintains a balance between fire suppression and use of wildland fire (including both prescribed fire and natural ignitions) to regulate fuels and maintain forest ecosystems in desired conditions.	Number of naturally ignited wildfires managed for resource benefit Number of acres of prescribed fire	Annually
2.11.7	Planned and unplanned fire ignitions are used to increase resiliency and diversity across all forest and rangeland vegetation types.		
2.13.8	Roads and trails within the SJNF that are identified for closure are decommissioned and reestablished with native vegetation cover.	Miles of roads decommissioned	Annually
3.17.24	Tribal traditions are valued by the Forest Service and the public. When appropriate, these traditions are incorporated into the interpretation of the monument to help provide visitor experiences that foster cultural understanding. Tribes are encouraged to participate in the development of interpretive materials and to assist in the training of tour guides/interpreters.		Annual consultation meetings
3.17.25	Tribal consultation regarding management, interpretation, traditional uses and other issues of tribal concern within the monument is an on-going process and is fostered to maintain open communications with tribes.		
3.17.63	Vegetative communities within the Monument from which traditional cultural materials are gathered are resilient and self-perpetuating.	Presence and extent of unique vegetative features	10 Years
3.17.64	Ground cover within the Monument is maintained at levels necessary to prevent accelerated rates of erosion, and provide protection to archaeological sites and soils	Riparian health and stream channel stability	5 Years

3.17.72	Wildlife habitat across the monument continues to support the terrestrial wildlife species considered objects of the Monument.	Big game use (ground counts)	Annually
3.17.73	Peregrine falcons continue to occupy breeding habitat on Companion Rock or Chimney Rock	Peregrine falcon presence	5 Years
3.17.74	Migrating mule deer and elk continue utilizing winter concentration areas and severe winter range habitat across the monument.	Big game use (ground counts)	Annually
3.28.22	Natural and manmade barriers to upstream fish migration adequately protect CRCT populations while allowing for stream reaches large enough to support long term population viability.	Number of CRCT stream segments with no non-native trout	3-5 Years
3.28.23	Manmade barriers to upstream fish migration within CRCT habitat are maintained to ensure effectiveness.		

Eb. Carson National Forest

Duran, J. 2021. *Land Management Plan.* USDA Forest Service, Southwestern Region, Carson National Forest, MB-R3-02-11.

Table 22. Desired Conditions for the Carson National Forest.
Table includes all desired conditions listed in the Carson National Forest Land Management Plan that are related to Rio Chama CFLRP project goals and associated treatments. Identification (ID) system is taken directly from Management Plan.

ID	Desired Condition	CANF Indicator	Reporting Frequency
VEG-DC-1	Ecosystems comprise a mosaic of vegetation conditions, densities, and structures. This mosaic occurs at a variety of scales across landscapes and watersheds, reflecting the disturbance regimes that naturally affect the area. Natural ecological cycles (i.e., hydrologic, energy, nutrient) facilitate the shifting of plant communities, structure, and ages across the landscape over time.		
VEG-DC-2	Ecosystems are resilient or adaptive to the frequency, extent, and severity of disturbances (e.g., human impacts, fire in fire-adapted systems, flooding in riparian systems, insects, pathogens, and climate variability). Natural disturbance regimes, including fire, predominate where practical and are allowed to function in their natural ecological role. Wildfire maintains and enhances resources, including wildlife habitat for species associated with fire-adapted systems. Uncharacteristic wildland fire behavior is minimal or absent on the landscape.	Proportion of surveyed habitat in which species is detected Veg. composition, size class, and canopy cover Acres of Mixed-Con with Frequent Fire treated Acres of Ponderosa Pine treated Acres and locations of insect and disease infestations and tree mortality Departure	As necessary (habitat) 10 years (veg. characteristics) Annually (acres; climate trends; soil trends) 5-10 Years (departure)
VEG-DC-3	Ecosystems maintain or recover all of their essential components (i.e., plant density, species composition, structure, coarse woody debris, and snags), processes (i.e., disturbance and regeneration), and functions (i.e., nutrient cycling, water infiltration, and carbon		

	sequestration) despite changing and uncertain future environmental conditions.	NOAA Climate trends Soil moisture trends	
VEG-DC-4	Old growth is well distributed, dynamic in nature, and shifts on the landscape over time, as a result of succession and disturbance. Old growth attributes (e.g., multistory structure, large old trees, large trees with sloughing and exfoliating bark, snags, large downed logs, and other indicators of decadence) are present in all forest and woodland vegetation communities and provide habitat for associated species.		
VEG-DC-5	Ecological conditions affecting habitat quality, distribution, and abundance contribute to self-sustaining populations of native and desirable nonnative plants and animals that are healthy, well distributed, genetically diverse, and connected (on NFS lands and to adjacent public and privately conserved lands), enabling species to adapt to changing environmental and climatic conditions. Conditions provide for the life history, distribution, and natural population fluctuations of the species within the capability of the ecosystem.	Proportion of surveyed habitat in which species is detected	As necessary
VEG-DC-6	Vegetation conditions allow for gradual transitions between vegetation communities. Transition zones shift in time and space, due to ecological processes affecting site conditions (i.e., fire and climate).		
VEG-DC-7	Vegetation characteristics (e.g., tree density, litter depth) support favorable water flow and quality.		
VEG-DC-8	All age classes of deciduous trees (e.g., aspen, cottonwood, and Gambel oak) are well represented on appropriate ecological settings and provide habitat for wildlife and rare plants.	Ground cover Soil condition rating	5 Years
VEG-DC-9	Organic ground cover and herbaceous vegetation protect soils, facilitate moisture infiltration, and contribute to plant and animal diversity and ecosystem function.		
VEG-DC-10	Vegetation connectivity and abundance provide for genetic exchange, daily and seasonal movements of animals, and predator-prey interactions across multiple spatial scales, consistent with existing landforms and topography. Habitat configuration and availability and species genetic diversity allow long distance range shifts of plant and wildlife populations, in response to changing environmental and climatic conditions.		
VEG-DC-11	Native plant communities dominate the landscape, while invasive species are nonexistent or low in abundance and do not disrupt ecological function.		
VEG-DC-12	Native insect and disease populations are generally at endemic levels with occasional outbreaks. The scale of		

	insect and disease outbreaks is usually restricted by variation of vegetation structure and composition.		
VEG-DC-13	The transition from NFS lands to adjacent lands where similar desired conditions are being met is seamless and does not exhibit abrupt changes in visual or ecological integrity.		
VEG-DC-14	Habitats and refugia for rare, endemic, and culturally important species are intact, functioning, and adequate for species' persistence and recovery of self-sustaining populations.		
VEG-DC-15	Overall plant composition similarity to site potential averages more than 66% but can vary considerably at fine- and mid-scales owing to a diversity of seral conditions.		
VEG-DC-16	Diverse cool and warm season grasses, forb species, and litter are abundant and contiguous enough to support natural fire regimes, consistent with site potential. Herbaceous vegetation amount and structure (e.g., plant density, height, litter, and seed heads) provide habitat to support wildlife and prey species.		
VEG-DC-17	The composition, density, structure, and mosaic of vegetation conditions reduce the threat of uncharacteristic wildfires to ecosystems and local communities.		
VEG-DC-18	Native plants provide nectar, floral diversity, and pollen throughout the seasons when pollinator species are active.		
VEG-DC-20	The structure and function of the vegetation and associated microclimate and special features (e.g., snags, logs, large trees, interlocking canopy, cliffs, cavities, talus slopes, bogs, fens, rock piles, specific soil types, and wet areas) exist in adequate quantities within the capability of the Carson, to provide habitat and refugia for at-risk species or species with restricted distributions.	#, distribution, and recruitment of snags	5 Years
VEG-DC-21	Ecological conditions, as described in these desired conditions, provide habitat to support, sustain, and recover rare, endemic, or at-risk species.	#, distribution, and recruitment of snags	5 Years
VEG-MCW-DC-1	Desired seral stage proportions for the mixed conifer with aspen vegetation community at the landscape scale: see pg. 44 of CANF LMP.		
VEG-MCW-DC-2	The mixed conifer with aspen vegetation community comprises variable species of differing ages in a mosaic of seral stages and structures. Its arrangement on the landscape is similar to historic patterns, with groups and patches of variably sized and aged trees and other vegetation. A range of seral states, each characterized by distinct dominant species composition and biophysical conditions, are distributed across the landscape, such that each state adequately supplies the subsequent states progressively through time.	Proportion of surveyed habitat in which hermit thrush is detected	As Necessary

	Canopies in older seral stages are generally more closed than in dry mixed conifer.		
VEG-MCW-DC-3	Mixed severity fire (fire regime III) is characteristic at the lower elevations of this type (every 50 to 100 years). High-severity fires (fire regimes IV & V) occur less frequently and are more likely to occur at higher elevations.		
VEG-MCW-DC-4	Old growth structure generally occurs over large areas as stands or patches.		
VEG-MCW-DC-5	Vigorous trees dominate, but older, declining, top-killed, lightning-scarred, and fire-scarred trees are a component. Declining trees are well-distributed throughout the landscape and provide for snags, and coarse woody debris. Generally, there are an average of 20 snags greater than 8 inches in diameter per acre and 1 to 5 of those snags are 18 i nches or greater in diameter. Lower snag densities are associated with early seral stages and higher densities are associated with late seral stages. Coarse woody debris, including downed logs, ranges from 5 to 20 tons per acre for early-seral stages; 20 to 40 tons per acre for mid-seral stages; and 35 tons per acre or greater for late-seral stages.	Proportion of surveyed habitat in which hermit thrush is detected	As Necessary
VEG-MCW-DC-6	Dwarf mistletoe occurrences may be present in stands with a Douglas-fir or spruce component, but rarely in other tree species. Occurrence size, severity, and amount of mortality varies among infected stands. Witches' brooms may be scattered throughout the infection, providing structural diversity in the stand and improved foraging and nesting habitat for wildlife species, such as small mammals (e.g., tree squirrels) and raptors (e.g., goshawks and red-tailed hawks).		
VEG-MCW-DC-7	An understory consisting of native grass, forbs, and shrubs is present. Mosses and lichens are prevalent and function to recycle soil nutrients.		
VEG-MCW-DC-8	At the mid-scale, the distribution of groups and patches varies in the mixed conifer with aspen vegetation community, depending on disturbance, elevation, soil type, aspect, and site productivity. Patch sizes vary, but are frequently in the hundreds of acres, with rare disturbances in the thousands of acres. Groups and patches of tens of acres or less are relatively common. A mosaic of groups and patches of trees, primarily even-aged, and variable in size, species composition, and age is present. Disturbance-created grass, forb, shrub openings may compose 10 to 100 percent of the mid-scale area, depending on the local disturbance history.		
VEG-MCW-DC-9	Tree density ranges from 20 to 180 square feet of basal area per acre, depending on disturbance history and site productivity.		

VEG-MCW-DC-10	In certain places basal area is 10 to 20 percent higher than in the general forest. Examples include mid- to old-age tree groups in goshawk post-fledging family areas and north-facing slopes. Goshawk nest areas have forest conditions that are multi-aged, but are dominated by large trees with relatively denser canopies than other areas in the wet mixed conifer type.		
VEG-MCW-DC-11	The prevalence of aspen is dependent on seral stage, but it is occasionally present in large patches, providing habitat for organisms (e.g., cavity-nesting birds, fungi, and microorganisms) that depend on it. Where they naturally occur, all age classes of aspen are present in even-aged groups or patches and are regenerating and vigorous. A diverse understory of native herbaceous and shrub species has a variety of seral and age classes and is vigorous and regenerating.		
VEG-MCW-DC-12	Fire behavior is often characterized by smoldering low-intensity surface fire, with single tree and isolated group torching. Due to the presence of ladder fuels, when environmental conditions align fires transition rapidly into the canopy as passive or active crown fire behavior with conifer tree mortality up to 100 percent across mid-scale patches (10 to 1,000 acres). High-severity fires generally do not result in areas of mortality exceeding 1,000 acres. Other more frequent disturbances affect smaller areas.		
VEG-MCW-DC-13	Uneven-aged groups and patches, comprising about 20 percent of the mixed conifer with aspen vegetation community, provide habitat for species (e.g., black bear and bobcat) that need multi-storied canopies with dense low- to mid-canopy layers.		
VEG-MCW-DC-14	The wildland-urban interface is dominated by early-seral fire-adapted species growing in a more open condition than in the surrounding general forest. These conditions result in fires that burn primarily on the forest floor and rarely spread as crown fire.		
VEG-MCW-DC-15	In mid-aged and older forests, trees are typically variably spaced with crowns interlocking (grouped and clumped trees) or nearly interlocking. Trees within groups can be of similar or variable species and ages.	Proportion of surveyed habitat in which hermit thrush is detected	As Necessary
VEG-MCW-DC-16	Small openings (gaps) are present as a result of disturbances and provide wildlife and plant species habitat.		
VEG-MCW-DC-17	Moist soil conditions (e.g., thick litter layers, wet areas, coarse woody debris, and decaying debris) are maintained and well distributed, commensurate with the capacity of the vegetation community for at-risk species.		
VEG-MCD-DC-1	Desired seral stage proportions for the mixed conifer with frequent fire vegetation community at the landscape scale: see page 48 of CANF LMP.		

VEG-MCD-DC-2	The mixed conifer with frequent fire vegetation community comprises multiple species of varying ages in a mosaic of seral stages and structures. Its arrangement on the landscape is similar to historic patterns, with groups and patches of variably sized and aged trees and other vegetation. Portions of the forest may be in various stages of development (including temporary openings or groups of very young trees) providing a source of future old growth structure on the landscape. Even-aged structure may be present on up to 10 percent of the landscape to provide structural diversity.		
VEG-MCD-DC-3	Frequent, low-severity fires (fire regime I) occur across the entire landscape, including throughout goshawk home ranges, with a return interval of 14 to 24 years. Fires burn primarily on the forest floor and typically do not spread between tree groups as crown fire.		
VEG-MCD-DC-4	Old-growth structure occurs throughout the landscape, generally in small areas as individual old growth components or as clumps of old growth. Old growth may be intermixed with groups of younger trees or discrete groups of mostly old trees.		
VEG-MCD-DC-5	Vigorous trees dominate, but older, declining, top-killed, lightning-scarred, and fire-scarred trees are a component that provide for snags and coarse woody debris and are well-distributed throughout the landscape.		
VEG-MCD-DC-6	Dwarf mistletoe occurrences may be present on ponderosa pine and Douglas-fir, but rarely in other tree species. Dwarf mistletoe occurs in less than 15 percent of host trees in uneven-aged forest structures and less than 25 percent in even-aged forest structures. Infection size, severity, and amount of mortality varies among infected trees. Witches' brooms may be scattered throughout the infections, providing structural diversity in the stand and improved foraging and nesting habitat for wildlife species, such as small mammals (e.g., tree squirrels) and raptors (e.g., goshawks).		
VEG-MCD-DC-7	The majority of soil cover comprises native grasses and forbs, as opposed to needles and leaves, but all contribute to the fine fuels that maintain a natural fire regime.		
VEG-MCD-DC-8	At the mid-scale, appearance is variable, but generally uneven-aged and open. Openness typically ranges from 50 percent in more productive sites to 90 percent in less productive sites. Depending on past disturbance events and subsequent regeneration establishment small patches (generally less than 60 acres) of even-aged forest structure are occasionally present. A small percentage of the landscape may be predisposed to larger even-aged patches, based on physical site		

	conditions that favor mixed-severity and stand-replacement fire and other disturbances. Disturbances sustain the overall variation in age and structural distribution.		
VEG-MCD-DC-9	Tree density ranges from 30 to 125 square feet of basal area per acre, with the majority coming from larger trees.		
VEG-MCD-DC-10	Trees are arranged in small clumps and groups interspersed within variably sized openings of grass/forb/shrub vegetation associations similar to historic patterns. Size, shape, number of trees per group, and number of groups per area are variable across the landscape, depending on elevation, soil type, aspect, and site productivity. More biologically productive forested sites contain more trees per group and more groups per area.		
VEG-MCD-DC-11	Snags are typically 18 inches diameter (DBH) or larger, and average 3 per acre. Smaller snags, 8 inches and larger at DBH, average 8 snags per acre. Downed logs (over 12 inches diameter at mid-point, over 8 feet long) average 3 per acre in forested areas. Coarse woody debris, including downed logs, ranges from 5 to 15 tons per acre.		
VEG-MCD-DC-12	In certain places basal area is 10 to 20 percent higher than in the general forest. Examples include mid- to old-age tree groups in goshawk post-fledging family areas, north-facing slopes, and canyon bottoms. Goshawk nest areas have forest conditions that are multi-aged but are dominated by large trees with relatively denser canopies than other areas in the dry mixed conifer type.		
VEG-MCD-DC-13	Groups of aspen are present in the mixed conifer with frequent fire vegetation community where they naturally occur.		
VEG-MCD-DC-14	Where the potential exists, Gambel oak thickets with various diameter stems and low-growing, shrubby oak are present. These thickets provide forage, cover, and nesting habitat for wildlife species(e.g., small mammals, birds, deer, and elk). Gambel oak mast (acorns) provides food for wildlife species (e.g., black bear). The distribution and abundance of oak balances wildfire hazard fuels reduction and tree regeneration with wildlife habitat, grazing conditions, age class diversity, and soil condition.		
VEG-MCD-DC-15	The wildland-urban interface comprises smaller and more widely spaced groups of trees and lower numbers of snags and coarse woody debris than surrounding general forest. Crown base heights may be higher than in areas outside the wildland-urban interface. Within the wildland-urban interface, fires burn primarily on the forest floor and rarely spread as crown fire.		

VEG-MCD-DC-16	Tree groups are typically less than 1 acre and consist of 2 to 50 trees per group, but are sometimes larger, such as on north-facing slopes. Regeneration openings occur as a mosaic and are similar in size to nearby groups.		
VEG-MCD-DC-17	Interspaces between groups are variably shaped, comprised of a native grass-forb-shrub mix and may contain individual trees or snags.		
VEG-MCD-DC-18	Trees typically occur in irregularly shaped groups and are variably spaced with some tight clumps. Trees within groups are of similar or variable ages, often containing more than one species. Crowns of trees within mid-aged and old groups are interlocking or nearly interlocking.		
VEG-MCD-DC-19	Density is variable, with canopy cover ranging from very open to closed.		
VEG-MCD-DC-20	Groundcover consists primarily of perennial grasses and forbs capable of carrying surface fire. Fires generally burn as surface fires, but single-tree torching and isolated group torching is not uncommon.		
VEG-MCD-DC-21	Moist soil conditions (e.g., thick litter layers, wet areas, coarse woody debris, and decaying debris) are maintained and well distributed, commensurate with the capacity of the vegetation community for at-risk species.		
VEG-PPF-DC-1	Desired seral stage proportions for the ponderosa pine forest vegetation community at the landscape scale: see table on page 53 of CANF LMP.		
VEG-PPF-DC-2	The ponderosa pine forest vegetation community comprises trees of varying ages in a mosaic of seral stages and structures. Its arrangement on the landscape is similar to historic patterns, with groups and patches of variably sized and -aged trees. Forest appearance is generally uneven-aged and open; occasional areas of even-aged structure may be present. Denser stand conditions exist in some locations, such as north-facing slopes and canyon bottoms.		
VEG-PPF-DC-3	The majority of soil cover is comprised of native grasses and forbs, rather than needles and leaves, but all vegetative cover contributes to the fine fuels that maintain a natural fire regime.		
VEG-PPF-DC-4	Frequent, low-severity fires (fire regime I) occur across the entire landscape, including throughout the range of northern goshawks, with a return interval of 4 to 18 years. Fires burn primarily on the forest floor and typically do not spread between tree groups as crown fire.		
VEG-PPF-DC-5	Old growth structure (large, old ponderosa pine trees with reddish-yellow, wide platy bark; flattened tops; moderate to full crowns; and large drooping or gnarled		

	limbs) occurs throughout the landscape, generally in small areas as individual old growth components or as clumps of old growth. Old growth is generally intermixed with groups of uneven-aged trees, but may occasionally occur in larger even-aged patches.		
VEG-PPF-DC-6	Vigorous trees dominate, but older, declining, top-killed, lightning-scarred, and fire-scarred trees are a component that provide for snags and coarse woody debris that are irregularly distributed across the landscape and may not exist in some patches.		
VEG-PPF-DC-7	Isolated dwarf mistletoe occurrences may be present. Dwarf mistletoe occurs in less than 15 percent of host trees in uneven-aged forest structures and less than 25 percent of host trees in even-aged forest structures. Infection size, severity, and amount of mortality varies among infected trees. Witches' brooms may be scattered throughout the infections providing structural diversity in the stand and improved foraging and nesting habitat for wildlife species, including small mammals (e.g., tree squirrels), raptors (e.g., goshawks and owls), and invertebrate species.		
VEG-PPF-DC-8	At the mid-scale, forest appearance is variable but generally uneven-aged and open. In general, all age classes are represented and evenly distributed. Seedlings and saplings are maintained at sufficient levels to provide a reliable source of replacement. Occasionally patches of even-aged forest structure are present, based upon disturbance events and regeneration establishment. A small percentage of the landscape may be predisposed to larger even-aged patches, based on physical site conditions that favor mixed-severity and stand-replacement fire and other disturbances. Disturbances sustain the overall variation in age and structural distribution.		
VEG-PPF-DC-9	Tree species composition is relatively homogeneous. Trees may be isolated individuals or arranged in small clumps and groups interspersed within variably sized openings of grass/forb/shrub vegetation associations similar to historic patterns. Size, shape, number of trees per group, and number of groups per area are variable across the landscape, depending on elevation, soil type, aspect, and site productivity. More biologically productive forested sites contain more trees per group and more groups per area.		
VEG-PPF-DC-10	Snags are typically 18 inches diameter (DBH) or larger and average 1 to 2 per acre. Downed logs (greater than 12 inches diameter at mid-point, greater than 8 feet long) average 3 per acre. Coarse woody debris, including downed logs, ranges from 3 to 10 tons per acre.		

VEG-PPF-DC-11	Where the potential exists, Gambel oak thickets with various diameter stems and low-growing, shrubby oak are present. These thickets provide forage, cover, and nesting habitat for species (e.g., small mammals, birds, deer, and elk). Gambel oak mast (acorns) provides food for wildlife species (e.g., black bear). The distribution and abundance of oak balances wildfire hazard fuels reduction and tree regeneration with wildlife habitat, grazing conditions, age class diversity, and soil condition.		
VEG-PPF-DC-12	Interspaces typically range from 52 percent in more productive sites to 90 percent in less productive sites. In areas with high fine-scale aggregation of trees into groups, mid-scale openness ranges from 78 to 90 percent. Tree density within forested areas generally ranges from 22 to 89 square-foot basal area per acre.		
VEG-PPF-DC-13	In certain places, basal area is 10 to 20 percent higher in mid-aged to old tree groups compared to the rest of the forest (i.e., goshawk post-fledging areas). Goshawk nest areas have forest conditions that are multi-aged but dominated by large trees with interlocking crowns and a canopy that is denser relative to other ponderosa pine areas.		
VEG-PPF-DC-14	In the wildland-urban interface, the density of snags, downed logs, coarse woody debris, live trees, and Gambel oak may be at the low range of desired conditions, to reduce fire intensity and assist the control of fire. Groups of trees may be smaller, more widely spaced, or may have fewer trees per group (but still within desired condition) compared to areas outside the wildland-urban interface. Crown base heights may be higher than in areas outside the wildland-urban interface to reduce the potential for fire spreading to the tree canopy.		
VEG-PPF-DC-15	Trees typically occur in irregularly shaped small groups of less than one acre—though they may be larger, such as on north-facing slopes. Some groups form tight clumps or trees may occur as isolated individuals, depending on soils, plant associations, climate, and disturbance.	Proportion of surveyed habitat in which Grace's warbler is detected	As necessary
VEG-PPF-DC-16	Groups range in size from 2 to approximately 40 trees and may contain species other than ponderosa pine. Trees within groups may be of similar or variable ages. Crowns of trees are interlocking or nearly interlocking in groups that are mid-aged to old.	Proportion of surveyed habitat in which Grace's warbler is detected	As necessary
VEG-PPF-DC-17	The interspaces between groups are variably shaped, comprised of a native grass/forb/shrub mix, and may contain individual trees or snags. Regeneration openings occur as a mosaic and are similar in size to nearby groups.		

VEG-PPF-DC-18	Groundcover consists primarily of perennial grasses, forbs, shrubs, and needle cast capable of carrying surface fire. Generally, fires burn as surface fires, but single-tree torching and isolated group torching are not uncommon and contribute to a mosaic across the landscape.		
SL-DC-1	Soil productivity, function, and inherent physical, chemical, and biological processes remain intact or are enhanced. Soils can readily absorb, store, and transmit water vertically and horizontally; accept, hold, and release nutrients; and resist erosion.	Monitor BMPs # acres treated to improve watershed condition	5 Years
SL-DC-2	Logs and other woody materials are distributed across the soil surface to maintain soil productivity and key habitat features.		
SL-DC-3	Vegetation, woody debris, and litter are distributed across the soil surface in adequate amounts to limit accelerated erosion and contribute to soil deposition and development.		
SL-DC-4	Relatively undisturbed biological soil crusts (i.e., soil consisting of cyanobacteria, lichens, mosses, microfungi, and algae) are present or reestablished where the potential exists.		
SL-DC-5	Soil productivity is not inhibited by nonnative invasive plant species.		
WSW-DC-1	Watersheds are functioning properly or trending toward proper functioning condition and resilient in that they exhibit high geomorphic, hydrologic, and biotic integrity relative to their potential condition.	% of watersheds in proper functioning condition # acres treated to improve watershed condition Miles of road decommissioned	Annually
WSW-DC-2	Ecological components (e.g., soil, vegetation, and fauna) are resilient or adaptive to disturbances, including human activities, changes in climate patterns, and natural ecological disturbances (e.g., fire, drought, flooding, wind, grazing, insects, disease, and pathogens) and maintain or improve water quality and riparian and aquatic species habitat.		
WSW-DC-3	Soils, riparian areas, and watersheds sustain groundwater quantity and quality and recharge in aquifers. The water table is maintained at a level that sustains native riparian and aquatic vegetation, high productivity, and soil moisture characteristics.		
WSW-DC-4	Aquatic habitats are connected and free from alterations (e.g., temperature regime changes, lack of adequate streamflow, and constructed barriers to aquatic organism passage) to allow for species migration, connectivity of fragmented populations, and genetic exchange. A constructed barrier to movement exists only to protect native aquatic species from nonnative aquatic species or for agricultural benefit (e.g., headgates).	# fish passage barriers removed or created # roads decommissioned within riparian zone #culverts removed or upgraded	Annually

		# activities with stream miles of habitat improve. Stream miles treated for nonnative invasive species	
WSW-DC-5	Aquatic and riparian habitats support self-sustaining populations of native fish, as well as other aquatic and riparian species. Ecosystems provide the quantity and quality of aquatic and riparian habitat commensurate with reference conditions.		
WSW-DC-6	Watersheds support multiple uses (e.g., timber, recreation, grazing, and traditional uses by tribal communities and acequia associations) with no long-term decline in ecological conditions. Short-term impacts occur only when they serve to improve conditions over the life of the plan.		
WSW-DC-7	Surface water and groundwater quality meet State water quality standards for designated uses.		
WSW-RMZ-DC-1	Riparian ecosystems are not fragmented or constrained, and are properly functioning, commensurate with their type and capability, riparian ecosystems have vegetation, landform, large coarse woody debris, litter, and root masses to capture sediment, filter contaminants, dissipate stream energy and overland flow from uplands to protect and enrich soils and stabilize banks and shorelines.	Acres of impaired riparian restored Stream miles treated for nonnative invasive species Miles of aquatic habitat restored # beneficial barriers created/# barriers removed to reduce undesired frag. Amount of large woody debris in streams 303d turbidity exceedance 303d temp. exceedance	Annually
WSW-RMZ-DC-2	Riparian vegetation, particularly native species, support a wide range of vertebrate and invertebrate animal species. There is adequate recruitment and reproduction to maintain diverse native plant species composition indicative of the soil moisture conditions for the site and desired conditions for the vegetation community.		
WSW-RMZ-DC-3	Native obligate wetland species dominate herbaceous bank cover.		
WSW-RMZ-DC-4	Riparian vegetation (density and structure) provides site-appropriate shade to regulate water temperature in streams.		
WSW-RMZ-DC-5	Riparian ecosystems exhibit connectivity between and within aquatic, riparian, and upland components that reflect their natural linkages and range of variability. Stream courses and other links provide habitat and movement that maintain and disperse populations of riparian-dependent species, including beaver. Riparian areas are connected vertically between surface and subsurface flows.	Miles of aquatic habitat restored # beneficial barriers created/# barriers removed to reduce undesired frag. Amount of large woody debris in streams	

WSW-RMZ-DC-6	Floodplains and adjacent upland areas provide diverse habitat components (e.g., vegetation, debris, logs) necessary for migration, hibernation, and brumation (extended inactivity) specific to the needs of riparian-obligate species.		
WSW-RMZ-DC-7	Compared to surrounding uplands, riparian corridors have characteristics (e.g., surface water and saturated soils) that reduce the frequency and severity of fire. Fire is limited or absent. Fire that occurs is typically smoldering and of low intensity. High to mixed severity fire occurs very infrequently.		
WSW-RMZ-DC-8	Natural disturbances (e.g., flooding and scouring) promote a diverse vegetation structure necessary for the recruitment of riparian-dependent species. The ecological function of riparian areas is resilient to other disturbance, including animal and human use, drought, and changes in climate patterns.		
WSW-RMZ-DC-9	Commensurate with the capability of individual riparian types and consistent with the hydrologic cycle, riparian vegetation provides life-cycle habitat needs for native and desirable nonnative, obligate riparian, and aquatic species and supports other wildlife.		
WSW-RMZ-STM-DC-1	Stream ecosystems, riparian zones, and associated stream courses are functioning properly and are resilient to human and natural disturbances (e.g., flooding) and changes in climate patterns. Fluctuations in flow promote movement of water, sediment, and woody debris that is within the natural range of variability. Flooding creates a mix of stream substrates for fish habitat, including clean gravels for fish spawning and sites for germination and establishment of riparian vegetation.		
WSW-RMZ-STM-DC-2	Stream ecosystems, including ephemeral watercourses, provide connectivity that is important to at-risk species—for dispersal, access to new habitats, perpetuation of genetic diversity, seasonal movement, as well as nesting and foraging.		
WSW-RMZ-STM-DC-3	Aquatic species are able to move throughout their historic habitat, including opportunities for seasonal and opportunistic movements. Barriers to movement only exist to protect native aquatic species from nonnative aquatic species or for agricultural benefit (e.g., headgates).		
WSW-RMZ-STM-DC-4	Streams and their adjacent floodplains are connected and capable of filtering, processing, and storing sediment; aiding floodplain development; facilitating floodwater retention; withstanding high flow events; and increasing groundwater recharge.		
WSW-RMZ-STM-DC-5	Water quality meets or surpasses State of New Mexico water quality standards for designated uses.	Monitoring of BMPs # new waterbodies listed by NM as impaired for designated uses	5 Years

WSW-RMZ-STM-DC-6	The quantity and timing of stream flows are sustained at levels that maintain or enhance essential ecological functions, including channel and floodplain morphology, groundwater recharge, water quality, and stream temperature regulation.		
WSW-RMZ-STM-DC-7	Channel type (width/depth ratio, sinuosity, gradient, etc.) is appropriate for the landscape setting (i.e., landform, geology, bioclimatic region). Stream channels are vertically stable.		
WSW-RMZ-STM-DC-8	Woody and herbaceous overstory and understory regulate stream temperatures and maintain soil moisture in the riparian zone.		
WSW-RMZ-STM-DC-9	Habitat conditions, as described in stream desired conditions, are capable of supporting self-sustaining native aquatic species populations. These habitat conditions include stream characteristics (i.e., riffles, runs, pools, and channel meandering) that allow for natural processes to occur (e.g., floodplain connectivity and organic matter and sediment transport). Quality aquatic habitat is provided by overhanging banks, woody and herbaceous overstory, and instream large woody debris, which regulate stream temperatures; maintain soil moisture; create structural and compositional diversity; and provide cover, food, and water for riparian species along streams.		
WSW-RMZ-STM-DC-10	In forested streams, large woody debris consists of more than 30 pieces per mile; pieces are greater than 12 inches in diameter, and greater than 35 feet in length.		
WSW-RMZ-STM-DC-11	Ungulate trampling does not significantly increase soil bulk density between years, change the structure of the plant community, or impede geomorphological development of streambank-channel geometry.		
WSW-RMZ-WR-DC-1	Necessary soil, hydrologic regime, vegetation, and water characteristics of wetland riparian vegetation communities sustain the system's ability to support unique physical and biological attributes and the diversity of associated species (e.g., shrews and voles). Soils' ability to infiltrate water, recycle nutrients, and resist erosion is maintained and allows for burrowing by at-risk species.		
WSW-RMZ-WR-DC-2	Upland vegetation is not encroaching, and the extent of wetlands is widening or has achieved its maximum potential and is within the natural range of variability. Development of fens continues.		
WSW-RMZ-WR-DC-3	Wetlands have groundcover and species composition (richness and diversity) indicative of site potential with vegetation comprised mostly of sedges, rushes, perennial grasses, and forbs. Meadows with the potential for hardwood shrubs contain a diversity of		

	age classes (at least 2) along the banks of perennial streams.		
WSW-RMZ-WR-DC-4	To maintain the persistence of at-risk species, microhabitat conditions supporting bog violet (soggy soils under shrubs and willows) are present, commensurate with site potential .		
WSW-RMZ-WR-DC-5	Nectar sources (e.g., thistle, horsemint, and Joe-pye weed) are available for at-risk species.		
WSW-RMZ-FSR-DC-1	Desired seral stage proportions for forest and shrub riparian–cottonwood group at landscape scale: see table on page 86 of CANF LMP.		
WSW-RMZ-FSR-DC-2	Desired seral stage proportions for forest and shrub riparian–montane-conifer willow group at landscape scale: see table on page 87 of CANF LMP.		
WSW-RMZ-FSR-DC-3	Desired seral stage proportions for forest and shrub riparian–cottonwood evergreen group at landscape scale: see table on page 87 of CANF LMP.		
WSW-RMZ-FSR-DC-4	Riparian forest vegetation provides nesting and foraging habitat for neotropical migrant birds, raptors, and cavity-dependent wildlife.		
WSW-RMZ-FSR-DC-5	Woody riparian species are reproducing and are structurally diverse with all age classes present at the landscape scale. Diverse vegetation structure, including mature trees, snags, logs, and coarse woody debris, is present to provide habitat for riparian-dependent species.		
WSW-RMZ-FSR-DC-6	Coarse woody debris provides habitat and is being adequately recruited to provide a reliable source of replacement.		
WSW-RMZ-FSR-DC-7	Upland, dry-site vegetation is not encroaching, and the extent of riparian communities is widening or has achieved it potential and is within the natural range of variability.		
WSW-RMZ-FSR-DC-8	Bebb, coyote, red and Arizona willows are reproducing with a range of age classes present where the potential for these species exists.		
WSW-RMZ-FSR-DC-9	To maintain the persistence of at-risk species, microhabitat conditions supporting bog violet (soggy soils under shrubs and willows) are present, commensurate with site potential.		
WSW-RMZ-FSR-DC-10	Nectar sources (e.g., thistle, horsemint, and Joe-pye weed) are available for at-risk species.		

WSW-RMZ-FSR-DC-11	Moist soil conditions (e.g., thick litter layers, wet areas, coarse woody debris, and decaying debris) are maintained and well distributed, commensurate with the capacity of the vegetation communityfor at-risk species.		
WSW-RMZ-FSR-DC-12	Dense willow conditions (70 percent cover or greater) are retained for at-risk species habitat.		
WSW-RMZ-FSR-DC-13	Beaver are present and play a role in wetland development and riparian dynamics.		
WFP-DC-1	Sustainable populations of terrestrial and aquatic plant and animal species, including at-risk species,are supported by healthy ecosystems, as described by vegetation and watersheds and water desired conditions.		
WFP-DC-2	Ecological conditions (vegetation and watersheds and water desired conditions) affecting habitat quality, distribution, and abundance contribute to self-sustaining populations of terrestrial and aquatic plant and animal species, including at-risk species, that are healthy, well distributed, genetically diverse, and connected (on NFS lands and to adjacent public and privately conserved lands), enabling species to adapt to changing environmental and climatic conditions. Conditions as described in vegetation and watersheds and water desired conditions provide for the life history, distribution, and natural population fluctuations of the species within the capability of the ecosystem.	# water features maintained, improved, or installed Acres of terrestrial habitat restored or enhanced Focal Species presence	Annually
WFP-DC-3	Ecological conditions (vegetation and watersheds and water desired conditions) provide habitat that contribute to the survival, recovery, and delisting of species under the Endangered Species Act; preclude the need for listing new species; improve conditions for species of conservation concern; and sustain both common and uncommon native species.		
WFP-DC-4	Habitat conditions (vegetation and watersheds and water desired conditions) provide the resiliency and redundancy necessary to maintain species diversity and metapopulations.		
WFP-DC-5	Habitat connectivity and distribution provide for genetic exchange, daily and seasonal movements of animals, and predator-prey interactions across multiple spatial scales, consistent with existing landforms and topography.		
WFP-DC-6	Habitat configuration and availability and species genetic diversity allow long-distance range shifts of plant and wildlife populations, in response to changing environmental and climatic conditions. Barriers to		

	movement may exist to protect native species and prevent movement of nonnative species (e.g., a fish structure to protect Rio Grande cutthroat trout from nonnative invasion).		
WFP-DC-7	To the extent possible, wildlife and fish are free from harassment and human disturbance at a scale that impacts vital functions (e.g., seasonal and daily movements, breeding, feeding, and rearing young) and could affect persistence of the species.		
WFP-DC-8	To provide foraging habitat for native pollinator species, plant communities are a mix of native grass, wildflowers, forb, shrub, and tree species, with diverse structure (including snags and large down woody material) and multiple seral stages and pattern as described in vegetation and watersheds and water desired conditions.		
WFP-DC-9	Habitats in the forest allow for the maintenance and promotion of interspecific relationships (e.g., predator-prey relationships and keystone species relationships).		
WFP-DC-10	All aquatic and riparian habitats are hydrologically functioning and have sufficient emergent vegetation (as described in watersheds and water desired conditions or by site potential), as well as macroinvertebrate populations that support resident and migratory species.		
NIS-DC-1	Nonnative invasive plant and animal species are absent or exist at levels where they do not disrupt ecological function or affect the sustainability of native and desirable nonnative species.	Acres of nonnative invasive inventoried Acres of nonnative invasive treated	Annually
FRT-DC-1	The uniqueness and values of the tribal cultures in the Southwest and the traditional uses important for maintaining these cultures are recognized and valued as important.		
FRT-DC-2	The long history of tribal communities and uses (e.g., livestock grazing, fuelwood gathering, traditional water use, and hunting) on NFS lands and resources is understood and appreciated.		
FRT-DC-3	Forest resources important for cultural and traditional needs (e.g., osha, piñon nuts, okote [pitch wood], and micaceous clay), as well as for subsistence practices and economic support of tribal communities, are available and sustainable.		
FRT-DC-7	The Carson National Forest provides a setting for educating tribal youth in culture, history, and land stewardship, and for exchanging information between tribal elders and youth.		
RHC-DC-1	The uniqueness and values of rural historic communities and the traditional uses important for maintaining these cultures are recognized and valued as important.	# and type of educational programs, events, activities, and employment # of youth participating in programs	2 Years
RHC-DC-2	The long history and ties of rural historic communities and traditional uses (e.g., livestock grazing, fuelwood		

	gathering, acequias, and hunting) to NFS lands and resources is understood and appreciated.		
RHC-DC-3	Forest resources important for cultural and traditional needs (e.g., osha, piñon nuts, okote [pitch wood], medicinal herbs, and micaceous clay), as well as for subsistence practices and economic support of rural historic communities (e.g., livestock grazing, acequias, firewood, vigas, latillas, gravel, soils, and other forest products) are available and sustainable.		
RHC-DC-6	The national forest provides a setting for educating youth in culture, history, and land stewardship and for exchanging information between elders and youth.	# and type of educational programs, events, activities, and employment # of youth participating in programs	2 Years
FFP-DC-1	Forest products (e.g., fuelwood, latillas, vigas, Christmas trees, herbs, medicinal plants, and piñon nuts) are available to businesses and individuals in a sustainable manner (e.g., forest products recover between collections) that also effectively contributes to watershed health and the restoration and maintenance of desired vegetation conditions.	Amount of timber harvested relative to annual amount allowed for sustainable yield	Annualy
FFP-DC-2	Forest products are available for traditional communities and culturally important activities and contribute to the long-term socioeconomic diversity and stability of local communities.		
FFP-DC-3	Forest products that are a byproduct of management activities are available for personal use (e.g., fuelwood) by the public.		
FFP-DC-4	Private and commercial timber harvest supplements other restoration and maintenance treatments at a scale that moves toward landscape desired conditions and contributes to watershed restoration, function, and resilience; enhances wildlife habitat; creates opportunities for small and large businesses and employment; and provides wood products.	Amount of timber harvested relative to annual amount allowed for sustainable yield	Annualy
FFP-DC-5	Harvest of dead and dying trees for economic value is consistent with the desired conditions of wildlife habitat, soil productivity, and ecosystem functions.		
FFP-DC-7	Native seed stock is available to supply reforestation needs.		
FIRE-DC-1	Wildland fires burn within the range of severity and frequency of historic fire regimes for the affected vegetation communities. High-severity fires rarely occur where they were not historically part of the fire regime.	Acres burned, by ecological response unit Range of fires by ecological response unit	5-10 years
FIRE-DC-2	Naturally ignited and planned wildland fires protect, maintain, and enhance resources and move ecosystems toward desired conditions. Fire functions in its natural ecological role on a landscape scale and across administrative boundaries, under conditions where safety and values at risk can be protected. In frequent fire systems, regular fire mitigates high-	% of acres burned by severity class, by ecological response unit Burned acres managed for resource objectives	

	severity disturbances and protects social, economic, and ecological values at risk.	# of multijurisdictional fires	
FIRE-DC-3	Planned and natural ignitions predominate. Unplanned human-caused ignitions are rare.		
FIRE-DC-4	Wildland fires do not result in the loss of life, investments, infrastructure, property, or cultural resources, or create irreparable harm to ecological resources.		
FIRE-DC-5	Wildland fires in the wildland-urban interface are predominantly low to moderate intensity. Residents living within and adjacent to the national forest are knowledgeable about wildfire protection of their homes and property, including providing for defensible space.		
FIRE-DC-6	Wildland fire is understood, both internally and by the public, as a necessary disturbance process integral to the function and sustainability of ecosystems.		

Ec. Santa Fe National Forest

Cress, D. 2021. *Santa Fe National Forest Land Management Plan.* USDA Forest Service, Southwestern Region, MB-R3-10-30.

Table 33. Desired Conditions for the Santa Fe National Forest.
Table includes all desired conditions listed in the Santa Fe National Forest Land Management Plan that are related to Rio Chama CFLRP project goals and associated treatments. Identification (ID) system is taken directly from Land and Resource Management Plan.

ID	Desired Condition	SFNF Indicator	Reporting Frequency
Watersheds	Watersheds are functioning properly. Water quality across the forest meets or exceeds the State's water quality standards and provides for the attainment of designated uses.	% of forest watersheds in proper functioning condition # of acres treated that improve watershed condition and ecological function (e.g., watershed health in WCC Framework) # of fully implemented and fully effective bmp evaluations versus unimplemented and ineffective bmp evaluations Miles of decommissioned or improved roads.	5 Years
Soils	Soil productivity, function, and inherent physical, chemical, and biological processes remain intact or are enhanced. Soils can readily absorb, store, and	Soil Condition Rating	3-5 Years

	transmit water vertically and horizontally; accept, hold, and release nutrients; and resist erosion. Vegetative cover and litter are distributed across the soil surface in adequate amounts to limit erosion and contribute to soil deposition and development. Soil cover and herbaceous vegetation protect soil, facilitate infiltration, and contribute to plant and animal diversity and ecosystem function.	Ground cover % and plant species composition Watershed condition framework soil indicator – % improving	
Riparian Areas	Vegetation composition and structure within riparian areas consists of appropriate plant species and seral state proportions.	WCF: condition class, biota, and habitat. Plant species composition and structure Acres of impaired riparian vegetation restored Residual vegetation	Annually
Riparian Habitat	Aquatic habitats and water bodies (e.g., lakes, ponds, reservoirs) support a complete assemblage of native aquatic species and are resilient to natural and human disturbances including projected warmer and drier climatic conditions.	Management activity impacts on abundance and distribution of riparian obligate focal species: cutthroat trout, northern leopard frog, plumbeous vireo (below 7,500 feet) and Cordilleran flycatcher (above 7,500 feet).	2-3 Years
Aquatic Habitat	Aquatic habitats are distributed across the forest in sufficient quantity and with appropriate habitat components to support self-sustaining populations of native fish and other aquatic species.	Miles of aquatic habitat restored Stream temperature # of beneficial barriers created and # of harmful barriers removed Large woody debris Presence of endemic, at-risk, or appropriate indicator species	2-3 Years
Terrestrial Habitat	Terrestrial ecosystems are composed of appropriate assemblages of sustainable populations of plant and animal species that are supported by healthy ecosystems. Habitat configuration, connectivity, and availability allow wildlife populations to adjust their movements in response to major disturbances (e.g., climate change or uncharacteristic fire) and promote genetic flow between wildlife populations.	Vegetation species structure, density, and composition Acres of terrestrial habitat restored or enhanced; range vegetation improved # of water features maintained, improved, or installed for wildlife benefit Presence of endemic, at-risk, or appropriate indicator species	2-3 Years

Wildlife Connectivity	Aquatic habitats are connected and free from alterations (e.g., temperature regime changes, lack of adequate streamflow, or barriers to aquatic organism passage) to allow for species migration, connectivity of fragmented populations and genetic exchange. Barriers to movement are located where necessary to protect native fish from nonnative species. Habitat configuration, connectivity, and availability allow wildlife populations to adjust their movements in response to major disturbances (e.g., climate change or uncharacteristic fire) and promote genetic flow between wildlife populations.	Distribution of American beaver	2-3 Years
Forested Ecosystems	Vegetative conditions (composition, structure, and function) are broadly resilient to disturbances of varying frequency, extent, and severity. The forest landscape is a functioning ecosystem that contains all its components, processes, and conditions that result from endemic levels of disturbances (e.g., insects, diseases, fire, and wind), including old trees, downed logs, and snags. Fire and other disturbances are sufficient to maintain desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling.	Vegetation species structure, density, and composition Acres of Insect and Disease Infestations Acres of fuel and restoration treatments	2-5 Years
	Ecosystems are productive, sustainable, resilient, and adaptive to disturbances and provide goods and services over the long term, despite changing and uncertain future environmental conditions.		
	Restoration and fuel treatments result in ecological resources that are adaptable to changing climate conditions.		
Ponderosa Pine	The PPF vegetation community is composed of trees of varying ages in a mosaic of seral stages and structures. The forest arrangement on the landscape is similar to historic patterns, with groups and patches generally of variably-sized and aged trees (uneven-aged) and occasional patches of even-aged structure, interspersed within variably-sized openings of grass/forb/shrub vegetation associations. Denser stand conditions exist in some locations, such as north-facing slopes and canyon bottoms. (See FW-PPF-DC-1a for detailed seral states)	Management activity impacts on abundance and distribution of focal species northern goshawks in upland forests.	2-3 Years

Piñon-juniper woodlands	Persistent piñon-juniper woodlands consist of even-aged patches of piñons and junipers that at the landscape level form multi-aged woodlands. Very old trees (more than 300 years old) are present. (Table with detailed seral state included.)	Management activity impacts on abundance and distribution of focal species juniper titmouse in piñon-juniper.	2-3 Years
Invasive Species	Invasive species are nonexistent or exist at population levels that do not disrupt ecological functioning, affect the sustainability of native species, cause economic harm, or negatively impact human health.	Acres of invasives treated Acres of invasives inventoried BAER report findings	Annually
Fire and Fuels	Wildland fire protects, maintains, and enhances resources and moves ecosystems toward desired conditions on a landscape scale. It is allowed to function in its natural ecological role on a landscape scale and across administrative boundaries, under conditions where safety and values at risk can be protected. Wildland fires burn within the range of severity and frequency of historic fire regimes for the affected vegetation communities. High-severity fires rarely occur where they were not historically part of the fire regime.	# and acres of fires managed for multiple objectives by vegetation community and severity Acres of mixed conifer-frequent fire treated Acres of ponderosa pine forest treated Burn severity mapping following fires (prescribed and natural starts)	1-2 Years
Species Conservation	Ecological conditions contribute to the survival and recovery of federally listed, proposed, and candidate species; preclude the need for listing new species; and allow for the recovery and persistence of species of conservation concern.	Endangered species-specific habitat requirements Management actions completed to improve habitat (acres improved)	2-3 Years
Cultural Resources and Traditional Uses	Forest resources important for cultural and traditional needs as well as for subsistence practices and economic support of rural historic communities are available and sustainable.	# of permits sold for: Fuelwood Vigas Collection of plants Latillas Christmas trees Trends in satisfaction Consultations with tribes	Annually
Forest Products	Forest products are available to businesses and individuals in a sustainable manner that also effectively contributes to watershed health and restoration or maintenance of desired vegetation conditions. Private and commercial timber harvest supplement restoration and maintenance treatments at a scale that achieves landscape desired conditions and contribute to watershed restoration function and resilience, wildlife habitat enhancement, small and	CCF provided for industry CCF for fuelwood Sales to be offered % of regeneration harvests restocked in 5 years Amount of timber harvested relative to annual amount allowed	5 Years

	large business and employment opportunities, and provide wood products.	for sustainable-yield, and according to PTSQ/ PWSQ.	

Ed. Rio Grande National Forest

Dallas, D. 2020. *Rio Grande National Forest Land Management Plan.* USDA Forest Service, MB-R3-10-30.

Table 44. Desired Conditions for the Rio Grande National Forest.
Table includes all desired conditions listed in the Rio Grande National Forest Land Management Plan that are related to Rio Chama CFLRP project goals and associated treatments. Identification (ID) system is taken directly from Land and Resource Management Plan.

ID	Desired Condition	RGNF Indicator	Reporting Frequency
DC-NNIS-1	Populations of aquatic and terrestrial nonnative invasive species do not occur or are low in abundance. Those that do occur do not disrupt ecosystem function. (Forestwide)	Presence/distribution of nonnative aquatic invasive species and pathogens	2 Years
DC-NNIS-2	Native ecosystems are resilient to invasion by nonnative invasive species. (Forestwide)	Presence and extent of nonnative species and noxious weeds Acres noxious weeds treated	2 Years
DC-FIRE-1	Wildland fire and fuels reduction treatments are used to create vegetation conditions that reduce threats to real property and infrastructure from wildfire. Fuel loads on lands adjacent to developed areas and communities are reduced. Lands adjacent to private property and infrastructure have defensible space and dispersed patterns of fuel conditions that would favorably modify wildfire behavior and reduce the rate of spread in and around communities at risk. (Forestwide)	Acres and location of fuel management and restoration treatments	2 Years
DC-FIRE-2	Natural ignitions play a natural role in ecosystem dynamics when and where there is no threat to human life or property. (Forestwide)		
DC-SOIL-1	Occasional, intermittent, small-scale soil disturbance occurs, allowing propagation of plant species including some species of conservation concern. (Forestwide)	Type, degree, and extent of soil disturbance and risk rating to determine the effect of soil disturbance on soil productivity and hydrologic function	4 Years
DC-SCC-2	Structure, composition, and function of coniferous forests, including late seral forests, meet the needs of associated species, including species of conservation concern. (Forestwide)	% cover of different forest ecosystems % of different structural classes in major forest ecosystems	5-10 Years

		Mortality - # snags per acre; net volume live vs. dead Regen - # saplings per acre; species composition of saplings in all ecosystems CWD Change in fire regime condition class Size and severity of fires >1000 acres # and acres of all fires	
DC-SCC-3	Structure, composition, and function of riparian areas, including streams, willow thickets, and cottonwood galleries, meet the needs of associated species, including species of conservation concern. (Forestwide)	Status of Rio Grande cutthroat trout, Rio Grande sucker, and Rio Grande chub conservation populations	5 Years
DC-SCC-4	Structure, composition, and function of aspen-dominated forests meet the needs of associated species, including species of conservation concern. (Forestwide)	% cover of different forest ecosystems % of different structural classes in major forest ecosystems Mortality - # snags per acre; net volume live vs. dead Regen - # saplings per acre; species composition of saplings in all ecosystems CWD Change in fire regime condition class Size and severity of fires >1000 acres # and acres of all fires	5-10 Years
DC-SCC-6	Snags and decaying wood processes meet the needs of associated species, including species of conservation concern. (Forestwide)	# live and dead trees per acre % live crown cover # snags per acres # of CWD Tree mortality – net volume and % of dead vs. live	2 Years

DC-SCC-8	Improve or maintain habitat for bighorn sheep. (Forestwide)	Elk, Pronghorn, Mule deer, and bighorn sheep populations Acres/location impacted by disturbance and management actions Distribution of old-forest/late-successional conditions Acres and extent of Gunnison prairie dog colonies # live and dead trees per acre % live crown cover # snags per acres # of CWD Tree mortality – net volume and % of dead vs. live	2 Years
DC-TEPC-1	Maintain or improve habitat conditions that contribute to either stability or recovery, or both, for threatened, endangered, proposed, and candidate species. (Forestwide)	Acres/location impacted by disturbance and management actions Distribution of old-forest/late-successional conditions Acres and extent of Gunnison prairie dog colonies	2 Years
DC-VEG-2	Habitat structure in Gambel oak communities provides for the needs of associated species. (Forestwide)	Acres and location of fuel management and restoration treatments	2 Years
DC-VEG-3	All development stages of the forested terrestrial ecosystems are well represented at the landscape scale and occur forestwide within the ranges identified in Table 6. (Forestwide)	Elk, Pronghorn, Mule deer, and bighorn sheep populations # live and dead trees per acre % live crown cover # snags per acres # of CWD Tree mortality – net volume and % of dead vs. live	2 Years

		Employment, income, and contribution to GDP Board feet of timber sold or harvested Acres treated	
DC-WLDF-1	Habitat conditions are suitable for resident and migratory birds and accommodate key life history requirements. (Forestwide)	Acres/location impacted by disturbance and management actions Distribution of old-forest/late-successional conditions Acres and extent of Gunnison prairie dog colonies # live and dead trees per acre % live crown cover # snags per acres # of CWD Tree mortality – net volume and % of dead vs. live Bird guilds (BCR)	2 Years
DC-WLDF-2	Habitat conditions for bats are suitable for reproduction and roosting. (Forestwide)		
DC-WLDF-3	Habitat connectivity is provided to facilitate species movement within and between daily home ranges, for seasonal movements, for genetic interchange, and for long-distance movements across boundaries. (Forestwide)	Elk, Pronghorn, Mule deer, and bighorn sheep populations Forage availability Acres of habitat maintained or improved Acres of cover and security habitat in mapped winter range affected by disturbance/mortality Changes in crown cover in mapped winter range Acres/location impacted by disturbance and management actions Distribution of old-forest/late-successional conditions	2 Years (populations, old-forest conditions, prairie dogs) 4 Years (forage, habitat maintenance) As necessary (cover)
DC-WLDF-4	Winter range habitat conditions provide the quantity, quality, and spatial arrangement of forage, cover, and security needed to support population objectives for mule deer, pronghorn, Rocky Mountain bighorn sheep, and Rocky Mountain elk. (Forestwide)		

		Acres and extent of Gunnison prairie dog colonies	
		# live and dead trees per acre % live crown cover # snags per acres # of CWD Tree mortality – net volume and % of dead vs. live	2 Years
DC-WLDF-6	Suitable nesting habitat for ground-nesting or low-level shrub-nesting birds is provided by dense, interior riparian willow habitat. (Forestwide)		
DC-FISH-1	Connectivity of habitat for native and desired nonnative fish and aquatic species is maintained or enhanced by the design and implementation of management actions. Populations are expanding into previously occupied habitat, and interconnectivity is maintained within metapopulations. To maintain sustainable populations, critical life stages are distributed and abundant. Habitat conditions are not a primary factor in species being proposed or listed under the Endangered Species Act or for adding species as a species of conservation concern.	Stream temp. # of fish barriers removed/improved Macrobenthic invertebrates Beaver presence/absence Presence/distribution of nonnative aquatic invasive species and pathogens Acres/miles treated Trends in streamflow # of impaired streams (303d)	2-4 Years
DC-FISH-2	Habitat and water quality in lakes and streams allow fish populations to thrive, and habitat is not fragmented by management activities.		
DC-RMZ-1	Riparian areas and wetlands are healthy, fully functioning ecosystems that are resilient and able to withstand natural and human disturbances that include flood, fire, drought, changes in frequency and timing of weather events, recreation, and herbivory. Aquatic ecosystems, riparian ecosystems, and watersheds exhibit high ecological integrity. The vegetation consists of desirable native species and age classes and meets the needs of resident amphibians, fish, and migratory birds. Populations of riparian vegetation are diverse, vigorous, and self-perpetuating. Invasive species, including plants and animals, in riparian and wetland ecosystems are rare. There is sufficient vegetative cover to provide bank stability, trap and retain sediment, regulate temperature, and contribute to floodplain function. Riparian ecosystem	Acres restored Beaver	2 Years

	composition, structure, and function can generally be restored and enhanced by beaver habitat. (Forestwide)		
DC-RMZ-2	Hydrologic regimes of riparian and wetland ecosystems contribute to appropriate channel and floodplain development, maintenance, and function. (Forestwide)	Stream temp. \# of fish barriers removed/improved Macrobenthic invertebrates Beaver presence/absence Presence/distribution of nonnative aquatic invasive species and pathogens Acres/miles treated Trends in streamflow # of impaired streams (303d)	2-4 Years
DC-WA-1	Physical channel characteristics are in dynamic equilibrium and are commensurate with the natural ranges of discharge and sediment load provided to a stream. Streams have the most probable form and the expected native riparian vegetation composition within the valley landforms that they occupy; they function correctly without management intervention. Historically disturbed and degraded stream channels recover through floodplain development and establishment of riparian vegetation, and demonstrate stable channel geomorphic characteristics. Beaver reintroduction, and the persistence of beaver habitat, can contribute to channel recovery and floodplain function. Upland areas function properly and do not contribute to stream-channel degradation. Roads, trails, and impervious surfaces minimally affect hydrologic processes within watersheds. The sediment regime within water bodies is within the natural range of variation. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport. (Forestwide)	# of projects completed in priority watersheds BMP monitoring	2 Years
		Stream temp. \# of fish barriers removed/improved Macrobenthic invertebrates Beaver presence/absence Presence/distribution of nonnative aquatic invasive species and pathogens Acres/miles treated Trends in streamflow # of impaired streams (303d)	2-4 Years
DC-WA-2	Within the constraints of existing water rights decrees, the timing and magnitude of flood events is within the natural range of variation. Floodplains are accessible to water flow and sediment deposits. Overbank floods allow floodplain development and support healthy riparian and aquatic habitats. Floods also allow the propagation of flood-associated riparian plant and animal species. (Forestwide)		

DC-WA-3	State water quality standards are met, and State-classified water uses are supported for all federal water bodies. Water quality for those water bodies listed as impaired on the Stateof Colorado 303(d) list move toward fully supporting State-classified uses. (Forestwide)		