

Appendix C. Potential Management Approaches and Possible Actions

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Introduction

The 2012 Planning Rule requires land management plans to “...contain information reflecting proposed and possible actions that may occur on the plan area during the life of the plan, including, but not limited to: the planned timber sale program; timber harvesting levels; and the proportion of probable methods of forest vegetation management practices expected to be used” (16 United State Code (U.S.C.) 1604(e) (2) and (f)(2)). Such information is not a commitment to take any action and is not a ‘proposal’ as defined by the Council on Environmental Quality regulations for implementing the National Environmental Policy Act (40 CFR 1508.23, 42 U.S.C. 4322(2)(C)) (36 CFR 219.7(f)(1)). Management approaches and strategies presented may include suggestions for on-the-ground implementation, analysis, assessment, inventory or monitoring, and partnership and coordination opportunities the forest is proposing as helpful to make progress in achieving its desired conditions. The potential approaches and strategies are not all-inclusive, nor commitments to perform particular actions.

The 2020 Forest Plan employs a strategy of adaptive management in its decision-making and achievement of forest plan desired conditions and objectives. An adaptive management strategy emphasizes the learning process. It involves using the best current knowledge to design and implement management actions, followed by monitoring and evaluating results and adjusting future actions on the basis of what has been learned. This is a reasonable and proactive approach to decision making considering the degree of uncertainty in future ecological, social and economic factors.

This appendix describes possible actions, potential management approaches, and strategies the HLC NF may undertake to make progress in achieving desired conditions and objectives.

This appendix does not serve as a “to do” list of projects. The potential management approaches may be used to inform future proposed and possible actions. These strategies and actions provide guidance for plan implementation, and represent possibilities, preferences, or opportunities, rather than obligatory actions. Under an adaptive management approach, proposed strategies and actions are dynamic. They are changeable, augmentable, or replaceable to be responsive to results of new research, practical experience, and other information and observations.

This appendix also provides information intended to clarify and provide additional information that may help managers interpret and implement plan components. Not all plan components are addressed, but only those for which additional information is warranted. This approach recognizes the highly variable site conditions and management situations that are best addressed at the level of project analysis.

This appendix does not commit the HLC NF to perform or permit activities. Information included does not direct or compel processes such as analysis, assessment, consultation, planning, inventory, or monitoring.

Possible Forest Management Actions and Timber Harvest

As required by the 2012 Planning Rule, this section identifies the possible actions and proportion of probable methods of forest vegetation management practices expected to be used to achieve desired timber harvesting levels and outputs. The identification of possible actions includes an estimate of timber harvesting levels anticipated over the next 1 to 2 decades, as well as the probable methods of vegetation management practices, but does not include speculation about the specific amount, frequency, location, magnitude, or numbers of actions during the plan period. Estimated acres of treatment and associated timber product outputs [reported in million cubic feet (mmcf) and million board feet (mmbf)] were

determined through use of the PRISM model. This model is an analytical tool used to evaluate vegetation management scenarios that achieve resource objectives. Among other things, the model provides an estimate of the level of timber products expected and the management practices applied to achieve that level, given a set of inputs that includes existing and desired vegetation conditions, budget and resource constraints, and expected vegetation change.

Table 1 displays the acres of harvest expected for the first and second decades of the plan period. Production of sawtimber and other wood products is expected through commercial timber harvest, which includes even-aged regeneration harvests (e.g., clearcut, seedtree, shelterwood) and other harvests (e.g., thinning and uneven-aged harvests). The appropriate harvest methods would be based upon site-specific determinations made during project planning and documented in a silvicultural prescription. Expected harvest levels are shown with and without a constraint based on reasonably foreseeable budget levels.

Table 1. Vegetation management practices for timber harvest (annual average acres for the first and second decades of the plan period)

Type of harvest	Decade	With budget constraint	Without budget constraint
Even-aged Regeneration	1	2,300	3,300
	2	1,800	1,500
Other Harvest	1	<500	1,700
	2	1000	2,000
Total Harvest	1	2,300	5,000
	2	2,700	3,400

Table 2 displays the projected timber sale quantity (PTSQ), for products meeting utilization standards and the projected wood sale quantity (PWSQ), for all wood products including fuelwood or biomass that do not meet timber product utilization standards. Volumes include harvest that occurs on lands suitable for timber production as well as lands that are not suitable. As required by the 2012 Planning Rule, the estimates take into account the fiscal capability of the planning unit and are consistent with all plan components. Timber outputs may be larger or smaller on an annual basis, or over the life of the plan, if budget or other constraining factors change in the future. To provide context for the levels that may be possible if budgets increase in the future, Table 3 displays the potential timber quantities that may be possible without a reasonably foreseeable budget constraint, but still consistent with all plan components.

FW-TIM-OBJ-01 and FW-TIM-OBJ-02 are based on a reasonable range around these projected values, to encompass the variability across decades and potential fluctuations in a reasonably foreseeable budget. A footnote to each OBJ displays the unconstrained volume projection.

All projected timber outputs are below the sustained yield limit (SYL), which is the volume that can be produced in perpetuity on lands that may be suitable for timber production. The calculation of the sustained yield limit is not limited by land management plan desired conditions, other plan components, or the planning units fiscal capability and organizational capacity. A sustained yield limit of 5.75 mmcf (31.21 mmbf) was calculated for the proclaimed Helena NF; and 4.95 mmcf (26.36 mmbf) for the proclaimed Lewis & Clark NF, totaling 10.7 mmcf (57.57 mmbf) for the combined HLC NF.

Table 2. Projected timber sale program, annual average volume outputs for the first and second decades of the plan period, constrained by reasonably foreseeable budget

Category and decade	Decade 1 (mmcf)	Decade 1 (mmbf)	Decade 2 (mmcf)	Decade 2 (mmbf)
Timber Products (A1). Lands suitable for timber production	3.9	19.0	4.2	19.9
Timber Products (A2) Lands not suitable for timber production	1.7	8.3	1.5	7.0
Projected Timber Sale Quantity¹ (A1 + A2)	5.7	27.3	5.7	27.0
Other Wood Products (B). All lands	2.2	4.1	2.2	4.1
Projected Wood Sale Quantity² (A1 + A2 + B)	7.9	31.4	7.9	31.1

1. Potential Timber Sale Quantity (PTSQ) – Volume, other than from salvage or sanitation treatments, that meet timber product utilization standards, from lands suitable and not suitable for timber production.

2. Volume of all Other Wood Products - Fuelwood, biomass, and other volumes that do not meet timber product utilization standards (small diameter 3 -7 inches).

Table 3. Projected timber sale program, annual average volume outputs for the first and second decades of the plan period, unconstrained by reasonably foreseeable budget

Category and decade	Decade 1 (mmcf)	Decade 1 (mmbf)	Decade 2 (mmcf)	Decade 2 (mmbf)
Timber Products (A1). Lands suitable for timber production	5.7	26.8	5.3	25.4
Timber Products (A2) Lands not suitable for timber production	2.3	10.8	2.7	12.6
Projected Timber Sale Quantity¹ (A1 + A2)	7.9	37.6	7.9	37.9
Other Wood Products (B). All lands	2.5	5.6	2.5	5.7
Projected Wood Sale Quantity² (A1 + A2 + B)	10.5	43.2	10.5	43.7

1. Potential Timber Sale Quantity (PTSQ) – Volume, other than from salvage or sanitation treatments, that meet timber product utilization standards, from lands suitable and not suitable for timber production.

2. Volume of all Other Wood Products - Fuelwood, biomass, and other volumes that do not meet timber product utilization standards (small diameter 3 -7 inches).

Possible Management Strategies and Approaches

Aquatic Ecosystems

Watershed

Strategies and possible management options that could be employed to help achieve the desired conditions in the 2020 Forest Plan for watershed resources include the following:

- Restoring riparian habitats to aid in the reestablishment of beavers into stream segments where they historically occurred.
- Restoring water quality and stream habitats by improving watershed scale processes and through direct riparian and in-channel treatments.
- Working toward the delisting of impaired water bodies in cooperation with Montana Department of Environmental Quality and Environmental Protection Agency through water quality assessment, total maximum daily loads, restoration plans, implementation of best management practices, and monitoring.
- Cooperating with private landowners and other agencies to improve water quality and restore aquatic ecosystems across multiple ownerships.
- Removing, reconstructing, or improving maintenance of roads located in riparian areas to improve watershed health and reduce sediment delivery to the aquatic ecosystem.

- Treating upland roads to reduce water interception and reduce landslide risk.
- Completing the development of watershed restoration action plans for all identified priority watersheds and its implementation. Identify essential projects in the watershed improvement tracking database.
- Considering the use of remote sensing surveys to provide more information about high priority watersheds.
- Evaluating condition of groundwater dependent ecosystems, especially within project areas and priority watersheds.

Fisheries and aquatic habitat/conservation watershed network

The desired condition to work cooperatively to recover bull trout and westslope cutthroat trout sets the stage for management. Strategies and possible management options that could be employed to help achieve the desired conditions in the 2020 Forest Plan for aquatic habitat and Conservation Watershed Network include the following:

- Cooperating with USFWS, tribes, state agencies, other federal agencies, and interested groups to assist in bull and westslope cutthroat trout through the Bull Trout Conservation Strategy and the Bull Trout Recovery Plan.
- Following direction within the *U.S. Forest Service Bull Trout Conservation Strategy* that would move the current baseline condition to an upward trend for each local bull trout population for indicators (temperature, barriers, pools, and sediment). Restoration activities such as barrier removal and road decommissioning are listed for each local population.
- Consulting the *Recovery Plan for the Coterminous United States Population of Bull Trout (Salvelinus confluentus)* (also known as the Bull Trout Recovery Plan), which includes recovery goals, objectives and criteria that the Forest would cooperate with partners to achieve. By doing this, threats can be managed, and a sufficient distribution and abundance of bull trout would be ensured across the forest.
- Referring to the *Columbia Headwaters Recovery Unit Implementation Plan for bull trout (Salvelinus confluentus)* (also known as the Recovery Unit Implementation Plan), which is a subset of the recovery plan that identifies threats and actions within each core area.
- Considering existing conditions, factors limiting aquatic species populations, resource risks, restoration options, and available recovery planning information when planning management activities.
- Considering basin, subbasin, watershed, and reach scale conditions including habitat conditions from the PACFISH/INFISH biological opinion and other stream surveys, factors limiting aquatic species (including non-native species), resource risks, management requirements, restoration opportunities, and interagency coordination with Montana Fish, Wildlife and Parks and the USFWS. For more information, please see Appendix E, Conservation Watershed Network section.
- Prioritizing road maintenance and obliteration to travel routes that directly affect streams verses roads that are ecologically disconnected from streams.
- Reducing aquatic habitat fragmentation through removal of man-made, native fish migration barriers. Where appropriate, create barriers to prevent invasion of non-native species.

Riparian management zones

Strategies and possible management options that could be employed to help achieve the desired conditions in the 2020 Forest Plan for RMZs include the following:

- Considering habitat conditions and the function and processes of riparian areas when proposing activities in order to provide shade, minimize nutrients and sediment and the potential impacts that may occur. Consider which species occur within the stream and the strength of that population.

- Mapping and characterization of priority RMZs, based on the watershed restoration plans (or their equivalent).

Soil and geology

Strategies and possible management options that could be employed to help achieve the desired conditions in the 2020 Forest Plan for soils and geology include the following:

- Improving soil quality by implementing “National Best Management Practices for Water Quality Management on National Forest System Lands”, “Montana Best Management Practices” and “Soil and Water Conservation Practices.” In geologically hazardous areas, consider limiting ground disturbances to sensitive soils and geologically hazardous landscapes.
- Completing the development of watershed restoration action plans for all identified priority watersheds and continue Watershed Restoration Action Plan implementation and identification of essential projects in the Watershed Improvement Tracking database.
- Collaborating with Natural Resources Conservation Service to complete soil inventory and ecological site descriptions.

Fire and Fuels

Fire management approaches are designed to maintain and restore fire-adapted landscapes and reduce risk to people, communities, and values. These approaches would also support the three objectives of the National Cohesive Wildland Fire Management Strategy; restore resilient landscapes, maintain fire adapted communities, and provide for effective, safe fire response.

Wildland fire and vegetation management strategies within the wildland-urban interface take a strategic approach for achievement of desired fuel conditions integrating, where feasible, desired conditions for wildlife habitat and other ecological values. Hazardous fuels reduction to mitigate the risk of wildfire to communities and important social values is emphasized in the wildland-urban interface.

Wildland fire objectives are based on factors such as maintaining or moving vegetation types toward desired conditions, resource availability, and values to be protected. Social and economic considerations (e.g., smoke) may also affect objectives, as well as adjoining jurisdictions having similar or differing missions and directives. Fuels specialists and silviculturists, along with other resource specialists, could work to ensure land management objectives are met.

Potential strategies for fire management (unplanned ignitions, wildfire) could include risk assessments that can occur at multiple scales, both spatial and temporal. These assessments would be grounded in experience and analyzed with data and models appropriate to the scale of analysis. A possible approach would be to look at risk in three tiers:

- Long-term - analyzing existing conditions that change typically in the 5–10 year time frame, informing broad questions and decisions for programmatic risk assessments. Items may include Highly Values Resources and Assets (HVRA) such as structures, infrastructure, commercial timber, and wildlife habitat.
- Annual - analyzing factors such as seasonal weather, fuels condition, and drought impacts to inform decisions pre-season to identify areas that with reduced large fire/long-duration risk may have the opportunity for short-term fire management.
- Incident – when an ignition occurs utilizing now known specific condition, location, etc., to specifically analyze the situation for incident risk assessments.

Utilization of this three-tiered risk analysis would allow managers to make informed decisions that respond to our various desired conditions.

Wildland fire is one tool for restoring and maintaining the forests' fire-adapted ecosystems. Management of wildland fire is often most effective when combined with mechanical treatments that further restore forest structure. Mechanical treatments are costly, so the capacity to implement such treatments across the landscape is limited. Strategic placement and design of mechanical treatments increases their effectiveness in protecting values.

Wildland fire may be the only viable tool in areas such as steep rugged terrain or remote areas where mechanical treatments are not feasible. Objectives in these areas may include higher fire intensities and higher levels of mortality to achieve vegetation structural changes that would not occur through other means to move toward desired conditions.

Wildfires may be concurrently managed for one or more objectives (e.g., protection, resource enhancement) that can change as fire spreads across the landscape. Strategies chosen for wildfires include interdisciplinary input to assess site-specific values to be protected. These strategies may be used to develop incident objectives and courses of action to enhance or protect values, and to minimize costs and resource damage.

Management of wildland fire may be coordinated across jurisdictional boundaries whenever there is potential for managing a wildfire or a prescribed fire on more than one jurisdiction (e.g., other national forests, tribal lands, State lands). This is done with the understanding that fire-adapted ecosystems transcend jurisdictional boundaries.

The following strategies related to air quality and fire management could be considered for application at a programmatic or project-level stage to support the maintenance or achievement of desired conditions, standards and guidelines.

- Completing effectiveness evaluations of fuel treatments to help understand how hazardous fuel treatments affect wildfire behavior, fire severity, and fire suppression effectiveness.
- Utilizing minimum impact suppression tactics (MIST) in sensitive areas, such as designated wilderness areas, designated wild and scenic river corridors, research natural areas, botanical areas, riparian management areas, cultural and historic sites, developed recreation areas, special use permit areas that have structures, and historic and recreational trails. MIST techniques could also be used for post fire restoration activities.
- Integrating terrestrial ecosystem desired conditions into spatial patterns for fuel reduction treatments. Heterogeneity could be addressed by increasing variation in tree spacing, enhancing tree clumps, creating canopy gaps, promoting fire resilient tree species, increasing the ratio of large to small trees, and using topographic variation (e.g., slope, aspect, and position) to guide treatment prescriptions.

Terrestrial Vegetation

Applying desired conditions

The desired conditions for vegetation describe, to the best of our ability, conditions that would provide for ecosystem integrity, while contributing to social and economic sustainability (as required by the 2012 Planning Rule). Analysis of natural range of variation is the underpinning for the desired conditions, with integration of additional factors and best available scientific information.

The Forest Inventory and Analysis (FIA) data is the source for most of the quantified existing conditions for vegetation components. The exception is forest density. Here, we relied on R1 Vegetation Map (VMAP – see appendix H of the FEIS for more information) as it is a more direct and accurate measurement of canopy cover. For all attributes, field verification of vegetation conditions is expected to occur at the project level using a variety of methods.

The narrative component of some desired conditions includes words such as “maintain, increase, or decrease”. This language was used to clarify the vision for the forest by indicating the desired trajectory relative to the existing condition at the time of Plan development. The desired condition would be met if and when the component moves within the range, as measured through the monitoring plan. The existing condition would change through time, and therefore the direction (or magnitude) of change needed relative to the desired condition would also change.

The table below describes considerations and factors for applying desired conditions at the project level.

Table 4. Considerations for applying vegetation desired conditions at the project level

Consideration	Description and examples
<p>Desired conditions help shape the purpose and need of projects. The 2020 Forest Plan does not prioritize desired conditions.</p>	<p>The 2012 Planning Rule requires that projects do not preclude the achievement of any desired condition. Individual projects may focus on contributing to one or more vegetation desired conditions, but a project is not expected to simultaneously move towards all desired conditions – some are mutually exclusive in time and/or space. Given the nature of forest ecosystem dynamics, progress towards one desired condition may result in a short-term or localized movement away from another. However, implementation of treatments that achieve one or more desired conditions at the project level would not necessarily foreclose the opportunity to maintain or achieve any other desired condition over the long term. The particular vegetation desired conditions that might be a focus for a project could be determined based on the unique ecological opportunities and capabilities of each project area as well as other resource considerations and direction provided by the deciding official.</p>
<p>Most vegetation desired conditions are expressed as ranges.</p>	<p>Desired conditions are presented as ranges to allow that variation is natural and flexibility is needed to incorporate other resource needs. Managing vegetation characteristics at any level within the range would be consistent with the 220 Forest Plan. Fluctuations in vegetation conditions over time are expected. Managing a particular vegetation characteristic at the upper, lower or mid-point of the desired range may be appropriate, as influenced by other ecological, social or economic objectives. Monitoring assists in evaluation of vegetation change over time and supports an adaptive management approach to forest management. For example, in a GA where the WUI is prevalent, it may be appropriate to target the high end of the desired range for nonforested communities and low-density forests.</p>
<p>Temporal and spatial scale are important factors when interpreting and applying desired conditions at the project level.</p>	<p>It may take substantially longer than one forest plan period to achieve desired conditions for some components. Vegetation change can be rapid (such as with fire) or slow and gradual (such as with succession). Direction and degree of change in vegetation can vary substantially over the short term (for example, a few decades), but over the long term may be trending in the right direction. This is due not only to the nature of vegetation change, but also because of the discrete classifications used to enumerate desired conditions, when in reality vegetation conditions change over time on a continuum. Vegetation desired conditions apply at the forestwide or Geographic Area scale, not at the scale of the individual project, and are not necessarily appropriate to apply at smaller scales. Stand level decisions and treatments are made at the site-specific level and would be designed to contribute to desired conditions at the broader scales. At the forestwide level, desired conditions are provided by broad PVT. The forestwide PVT breakdowns provide context as to where certain components should be emphasized in GAs as well.</p>
<p>Natural disturbance processes are the primary drivers of vegetation change on the HLC NF.</p>	<p>Desired conditions can be achieved through management actions and natural disturbances. Natural disturbances will likely cause more substantial movement towards or away from desired conditions than management. The FS is not in control of these events to a large degree; however, they must be taken into account when planning activities within FS control. For example, if a wildfire were to burn most of the ponderosa pine stands in a GA, a treatment that converted remaining ponderosa pine stands to a different type would not be consistent with the 2020 Forest Plan. There are portions of the forest (such as the wildland urban interface or suitable timber base) where the effects of management actions have a greater opportunity to influence vegetation conditions.</p>

Consideration	Description and examples
<p>Focusing on a particular desired vegetation condition for a project may appear to conflict with another desired condition.</p>	<p>Projects would need to place all desired conditions into context to ascertain whether achieving movement towards one would preclude achievement of another. For example, large diameter shade tolerant trees may be harvested from a high-density forest and the site planted to a desired, shade intolerant species to meet desired conditions for increasing early seral species, reducing high density forests, and providing timber outputs. The removal of large trees to meet these desired conditions might appear to conflict with FW-VEGF-DC-04. However, forestwide, tree growth through vegetation succession is the primary means by which large trees develop. Management actions that promote forest densities, species and structures that are resilient to disturbances and that facilitate more rapid growth rates may ensure that large trees can be developed over the long term. Harvest of larger trees achieves other desired conditions but does not preclude the attainment of desired conditions related to large tree sizes and may even facilitate or improve the probability of their persistence over the long term. In another example, a GA may have a desired condition that indicates increases in limber pine distribution is needed, as well one calling for more nonforested communities. On a given acre, these two goals may conflict. When developing a project, selecting which desired conditions are appropriate to target in a given area can remove that conflict either in time or space. Promoting nonforested communities in a hot, dry forested ecotone by cutting limber pine would not necessarily preclude the achievement of the limber pine desired condition, provided suitable sites for limber pine are present elsewhere at the GA scale.</p>
<p>Forestwide and GA-level desired conditions may indicate different desired ranges and contradictory trends.</p>	<p>When a vegetation project utilizes a GA-level desired condition that may differ from a forestwide desired condition, the resultant movement towards the desired condition at the GA scale would not necessarily preclude achievement of the Forestwide desired condition. For example, a project that contributes toward a GA-level desired condition by decreasing lodgepole pine would likely not preclude the achievement of a forestwide desired condition that calls for broader distribution, provided that lodgepole is abundant or increasing on other GAs.</p>
<p>An existing condition that indicates too little of a given component exists does not mean that management actions cannot influence it.</p>	<p>Some conditions are below the desired condition; however, this does not necessarily indicate that management should never impact that specific attribute. For example, the extent of ponderosa pine tree presence is below the desired range. Harvesting a ponderosa pine/Douglas-fir mixed stand and replacing it with vigorous ponderosa pine seedlings or thinning an existing ponderosa pine stand to promote resilience, could be consistent with moving toward a desired condition to increase ponderosa pine, even though individual ponderosa pine trees would be cut.</p>
<p>The tree species presence attribute warrants special considerations.</p>	<p>Shifts in tree species presence would not always reflect tradeoffs with the presence of other species, because multiple species can occur in the same area. For example, thinning a mixed lodgepole/Douglas-fir stand to contain only Douglas-fir would result in a decrease in the presence of lodgepole pine, but would not cause a change to the presence of Douglas-fir. Tree species presence is determined based on the presence of 1 tree; the density or size class of these trees is not reflected. For example, in the NRV, there may be areas with only 1 or 2 trees per acre of a given species (such as juniper in a savanna). Today, that same area may contain a high density of trees. The tree species presence would be accounted for the same for both scenarios. Therefore, tree species presence should be considered along with other desired conditions such as cover type and density class to inform implementation of the 2020 Forest Plan.</p>

General strategies for vegetation and climate change

To meet terrestrial vegetation desired conditions over time, consider referencing documents produced by the Northern Rockies Adaptation Partnership, the Reforestation-Revegetation Climate Change Primer for the Northern Region, and other publications as they become available, to help design vegetation treatments and strategies. Relevant strategies (Halofsky et al., 2018a, 2018b) may include the following:

- Vegetation adaptation strategies could focus on conserving native tree, shrub, and grassland systems. This may include managing landscapes to reduce the severity and size of disturbances, encouraging

fire to play a natural role, and protecting refugia where fire-sensitive species can persist. Consider increasing species, genetic, and landscape diversity. Consider reducing fuel continuity and populations of non-native species; and using multiple genotypes in reforestation. Rare and disjunct species (such as whitebark pine and aspen) may require strategies focused on regeneration, preventing damage, and establishing refugia.

- Nonforested vegetation adaptation strategies may focus on increasing resilience through non-native species control and prevention. Consider using ecologically based non-native plant management to repair damaged ecological processes and seeding of desired natives. Preventing the establishment of non-native species could be addressed through weed-free policies, education, and collaboration. Livestock grazing may be managed to allow for enhancement of plant health.

Additional factors that may be considered in the development of prescriptions include:

- Considering drought and site suitability when selecting planting species, stock type, and density.
- Promoting the development of large fire-resistant trees.
- Reducing stand densities and inter-tree competition.
- Providing for retention of biological legacies and connectivity with respect to the genetic flow.
- Focusing improvement, restoration, or protection on species that are vulnerable to climate change (e.g. ecotones, ponderosa pine, Douglas-fir, western larch, aspen, and whitebark pine).

General strategies for vegetation management

The following strategies could be considered to support the achievement of desired conditions.

- Developing a set of target stands that provide a consistent basis for prescriptions that integrate vegetation with wildlife, fire and fuels, soil and water, and socioeconomic aspects.
- Utilizing authorities such as stewardship contracting and partnerships as appropriate.
- Considering opportunities to utilize livestock grazing to achieve desired conditions; for example, reducing fine fuels.

Table 5 describes possible management approaches for plant species of local management interest. These strategies may be considered in stand and landscape level prescriptions.

Table 5. Considerations for plant species of local management interest

Common name	Possible management approaches
mountain big sagebrush	Managers may consider methods such as the removal of colonizing conifers to promote resilient sagebrush communities in a variety of age classes. Strategies for burning may include maintaining unburned adjacent areas to supply a seed bank, burning during periods of high humidity, burning and/or mechanically treating areas with competing conifers, and maintaining low fire intensity to promote re-establishment following fire.
antelope bitterbrush	Areas that support bitterbrush and do not typically carry fire well (e.g. rocky soils, dry sites) may be avoided; and/or low intensity fire may be used to reinvigorate deteriorating sites.
mountain mahogany	Management strategies may include reducing the spread of invasive species, managing grazing allotments to maintain native bunchgrasses, replanting or seeding in areas of high severity fire, removing colonizing conifers, and/or protecting or avoiding during prescribed burning.
willow	Management strategies may include preventing excessive grazing, browsing, and trampling; maintaining hydrology characteristics at riparian sites; reducing impacts of timber harvesting; removing colonizing conifers; and promoting sprouting with fire.
Rocky mountain juniper	Consider that the density and location of juniper could be designed so as not to detract from the resilience of nonforested and forested communities.

Common name	Possible management approaches
ponderosa pine	Consider promoting the extent and resilience of ponderosa pine communities through actions such as removal of competing conifers and ladder fuels, re-introduction of fire, and planting.
limber pine	Consider enhancing resilience by removing competing conifers and ladder fuels, re-introducing fire; and developing a program of seed collection, storage, and planting.
quaking aspen	Consider promoting aspen through actions such as removing competing or understory conifers, re-introducing fire, altering grazing practices, installing wildlife exclosures, root-cutting or burning to promote suckering, allowing beavers to flood area to maintain and regenerate riparian areas, and/or planting seedlings or cuttings.
western larch	In the Upper Blackfoot GA, consider promoting the extent and health of western larch by removing of competing conifers, re-introducing fire, and planting on suitable sites.
grasslands, shrublands, and savannas	Consider management actions such as removal of small conifers to maintain and increase extent and resilience; and employing appropriate livestock grazing practices.

Terrestrial vegetation - strategies for specific plan components

Vegetation Management Treatments (FW-VEGT-OBJ-01)

The purpose of this objective is to encompass all vegetation treatments (with the exceptions of livestock grazing and weed management) that may be used to move towards terrestrial vegetation desired conditions. Activities may be conducted mechanically or by hand and may include both commercial and noncommercial methods. Strategies could include the use of single methods or practices, or combinations. The treatments listed may meet more than one objective; for example, hazardous fuels treatments (FW-FIRE-OBJ-01), restoration of whitebark pine (FW-PLANT-OBJ-01) and providing commercial timber products (FW-TIM-OBJ-01 and FW-TIM-OBJ-02). Possible activities to meet this objective include (but are not limited to):

- Planned or unplanned fire ignitions
- Fuel reduction actions such as thinning, piling, chipping, and mastication
- Removing encroaching conifers in nonforested ecosystems
- Timber harvest, including regeneration harvest, intermediate harvest, salvage and sanitation.
- Tree planting and re-vegetation of native plants
- Non-commercial thinning or other stand tending activities
- Treating insects and disease infestations with integrated pest management practices.

Vegetation removal (FW-VEGT-GDL-01)

This guideline recognizes that vegetation removal may be necessary to meet the purpose and need of some projects (such as but not limited to trail or road construction, installation of improvements such as fences or culverts, and permitted mining or recreation activities). Management strategies that may help minimize vegetation removal to meet the intent of this guideline may include:

- Using an excavator bucket to scoop up vegetation and set aside to reapply in clumps after the ground disturbance.
- Collecting native seeds, shrubs, and trees from the site to be disturbed and using those materials to re-establish the vegetation.
- Using excavator buckets to break up the soil without removing topsoil and vegetative material, by inserting and shaking the teeth of the bucket instead of scraping.
- Using effective equipment that can operate with the least impact to vegetation.
- Minimizing vegetation removal on side slopes and steep ground.

Reforestation/revegetation (FW-VEGT-GDL-03 and FW-VEGT-GDL-04)

The intent of these guidelines is to ensure that appropriate stock and seed are used for reforestation and revegetation. Possible management strategies to meet these guidelines include:

- Using Regional seed transfer zones and seed collection procedures for cones and native plants.
- Trained silviculturists and/or botanists reviewing reforestation and revegetation prescriptions.

Forested vegetation – strategies for specific plan components

Large-tree structure (FW-VEGF-DC-04 and FW-VEGF-GDL-01)

Possible management strategies and approaches to help achieve the desired condition and meet the intent of these plan components may include:

- Promoting individual large and very large trees by thinning to providing additional growing space for mature trees to grow to larger sizes.
- Improving the resilience of large and very large trees by removing ladder fuels and reducing stand densities, thereby lowering susceptibility to bark beetle and wildfire mortality.
- Increasing the large size class by removing small and medium trees in a stand while retaining the large trees, resulting in an increase in the average stand diameter.
- Designing unit boundaries to avoid patches of large trees; and/or including specifications to retain large trees in silvicultural prescriptions. Consider retaining large trees in clumps and/or on inoperable areas, such as riparian/wetlands or rocky outcrops, to reflect natural disturbance patterns; consider those that are co-located with desirable snags.
- Retaining as many large trees as possible, if the required minimum amounts are not present; and encouraging the development of large trees through species selection and density management.
- Avoiding dysgenic effects by not retaining large trees that are infested, diseased, or their likelihood of persistence is low (e.g., shallow rooted on a windy site if there is no opportunity to retain other trees to protect them).
- Leaving large trees that are felled onsite (when consistent with coarse woody debris goals) and retaining smaller replacement trees if practicable.
- Identifying and compensating for losses of large trees that may occur due to operational limitations (e.g., fire lines, private property lines, essential harvest corridors, safety hazards).
- Retaining more large trees to account for potential mortality in prescribed burning units; and/or designing burn treatments and fuel placement to minimize potential mortality of large trees.

Old growth (FW-VEGF-DC-05 and FW-VEGF-GDL-04)

The function of the desired condition is to promote the development and retention of old growth. To achieve this, possible management strategies may include:

- Protecting and/or improving the resilience of stands that were identified as future old growth or late successional habitat under previous project analyses.
- Treating old growth stands to restore structure/function and/or improve resiliency while maintaining old growth characteristics, including downed wood and broken-topped trees.
- Developing future old growth where it is uncommon; where old growth patches are linear, narrow, and/or small; where connectivity of old growth patches is poor; and/or where the existing old growth does not represent a diversity of forest types. This could be accomplished by:
 - Improving younger stands to hasten the development of old growth (e.g., reducing densities, retaining large trees and downed wood, and promoting long-lived species).

- Emphasizing retention or improvement of younger stands in riparian areas; areas away from open roads or where patch size is large enough to limit the impact of potential firewood cutting along roads; and/or areas important for wildlife species that prefer late successional forest habitat.
- Protecting old growth stands through the strategic placement of treatments. Examples include:
 - Designing treatments near old growth to reduce fire hazard, alter potential fire spread or fire severity, or reduce potential insect or disease outbreak that may spread to old growth.
 - Considering the spatial location of old growth when designing projects that have a purpose of altering fire behavior at the landscape scale.
 - Retaining leave tree buffers of higher density in treatment units to limit edge effects such as wind-throw in adjacent old growth.
- Managing old growth at the stand scale, with larger stands or contiguous patches being more valuable than small, fragmented stands.

Guideline FW-VEGF-GDL-04 contributes toward the desired old growth condition by 1) not removing existing old growth by actions within FS control except in limited cases and 2) allowing for treatments within old growth for specific purposes. To meet this guideline, management approaches may include:

- Identifying if proposed treatment areas include old growth, using a reasonable and accurate approach based on data collection or validation. Consider delineating old growth stands based on the FSH 2409.17, or other current direction.
- Considering all of the quantitative and qualitative factors used in old growth definitions (Green et al 1992, errata corrected 2011) or new best available science, to identify old growth.
- Maintaining a map of old growth stands found during project design to promote consistent management of those areas; although old growth is dynamic through time and such mapping would not be static or all-inclusive.
- Considering the ecology of the old growth type, purpose and need of the project, and all resource values associated with old growth when determining whether old growth should be treated. Management actions that may be appropriate in old growth include (but are not limited to) hand slashing of ladder fuels, daylighting key species, commercial removal of smaller trees to restore resilient composition and structure, and/or or burning piles or low severity prescribed burning.
- Striving to retain habitat characteristics such as downed wood, snags, and broken tops when treating in old growth.
- Modifying the fuels in and adjacent to old growth stands, altering ignition patterns, or modifying unit boundaries to retain old growth in landscape prescribed burning areas.
- Promoting future old growth and/or the retention of other old growth stands in a project area where old growth is removed.
- Removing some lodgepole pine old growth on landscapes that contain abundant late seral lodgepole forests, especially those at imminent risk of fire or bark beetle-caused mortality, where an increase in landscape-level age class diversity may increase the likelihood that quality old growth patches are retained in the event of a large-scale disturbance.

Snags (FW-VEGF-DC-06 and FW-VEGF-GDL-02)

The desired condition recognizes that an array of snag sizes is important across the landscape, and that quantities and spatial distribution are variable depending on disturbance regimes and vegetation types. The guideline helps ensure the snag desired condition can be met. Possible management strategies and approaches to help achieve these plan components may include:

- Identifying and mapping snag analysis groups at the project level.

- Designing treatment units and snag retention strategies to best meet the unique conditions across a project area. Considerations may include:
 - Designing treatment units to exclude concentrations of the best snags on the landscape, if present, such as groves of large snags, when consistent with the purpose and need.
 - Retaining the sizes and species of snags that reflect the natural variability of the area.
 - Considering snag retention in treatment units, when safe and feasible, particularly in large units or when the most desirable snags in the project area are located there.
 - Identifying areas where snag retention may be unsafe or infeasible particularly (e.g., along fire lines, private property lines, and essential harvest corridors).
 - Leaving snags in clumps, particularly where mixed with large trees, in desirable locations such as rocky outcrops, riparian areas, and/or near wildlife foraging areas.
- Developing snag prescriptions to consider: safety and operational feasibility; the proportion of area influenced by management; disturbances that may provide snags in the short term (for example, fire) or long term (such as, root disease, dwarf mistletoe); snag characteristics (species, size, condition) within treatment units relative these characteristics across the landscape; the expected longevity of snags; the role of live trees in future snag recruitment; and other resource desired conditions or associated plan components.
- Leaving very large snags that are felled onsite, if consistent with coarse woody debris goals.
- Selecting live tree replacements that contain decay or other desirable qualities for wildlife; and/or that meet other resource purposes (e.g., large trees, desirable seed sources, desirable species, etc).

Coarse woody debris (FW-VEGF-DC-07 and FW-GDL-VEGF-05)

The desired condition recognizes a wide variability in the quantity and distribution, encompassing both areas with little to no downed wood and those with high amounts. The values in the guideline represent minimum thresholds to ensure managed areas contribute to the desired condition, while recognizing that more downed wood is likely present in unmanaged areas. Possible management approaches to help achieve these plan components may include:

- Retaining the largest pieces of wood possible due to their value to wildlife and low contribution to fire hazard.
- Felling live trees or snags that are not identified for retention, and/or distributing material from landing piles, when more downed wood is needed on a site.
- Developing site specific prescriptions for coarse woody debris, especially when one of the stated exceptions apply. These prescriptions may consider the condition and abundance of coarse woody debris at the landscape scale; the condition of snags, which represent the short-term contribution to woody debris; the proportion of area influenced by management; and other resource desired conditions.
- Specifying an upper limit for downed wood in project-level design when downed wood is abundant, which may be based on resource needs such as fire/fuel loading, wildlife habitat, and riparian functions.
- Monitoring for compliance of the guideline after all project activities are complete; for example, a timber harvest unit may contain less downed wood at the completion of the logging activity if subsequent activities such as prescribed burning result in the desired amount.

General strategies for threatened, endangered, proposed, candidate and plant species of conservation concern

The following strategies related to threatened, endangered, proposed, and candidate plant species, and plant species of conservation concern, could be considered at a programmatic or project-level stage to support the maintenance or achievement of desired conditions, standards and guidelines.

- Evaluating areas proposed for ground disturbing activities for the presence of occupied or suitable habitat for these species, including conducting pre-field review and field surveys when necessary. Providing opportunities for mitigation and protection to maintain occurrences and habitats that are important for species sustainability.
- Botanist works to increase known information when possible about other native plant species that may warrant species of conservation concern status in the future but are currently lacking sufficient information.
- Monitoring known occurrences of threatened, endangered, proposed, and candidate plant species, and plant species of conservation concern, within project areas and forestwide to determine trend data of individual occurrences, to contribute to trend data at the species-range level, and to document impacts of project activities (noxious weed treatments, vegetation treatments, restoration treatments, etc.), prioritizing those project activities for which species specific data is currently lacking.

Whitebark pine (FW-PLANT-DC-02, FW-PLANT-OBJ-01)

Desired condition FW-PLANT-DC-02 is designed to sustain or restore whitebark pine and minimize potential threats. Objective FW-PLANT-OBJ-01 is included to acknowledge that restoration activities are needed to achieve the desired condition. Vegetation treatments that contribute to this objective may also contribute toward FW-VEGT-OBJ-01. Possible restoration strategies may include:

- Pruning and/or daylight thinning whitebark pine to reduce incidence of blister rust and competition from other tree species.
- Planting rust-resistant white pine to reforest areas after harvest or fire.
- Harvesting or prescribed burning to create suitable sites for natural or artificial reforestation.
- Reducing fuels in whitebark pine stands to increase their resilience to fire.
- Protecting high value trees, such as blister rust resistant trees and large healthy cone producing trees from bark beetle mortality during outbreaks, using pheromones or insecticide applications.
- Collecting seed from whitebark pine trees exhibiting rust resistant traits. Participate in the Regional breeding program as necessary by collecting cones and scion as needed.
- Developing a whitepaper that describes the whitebark pine strategy for the HLC NF that supports analysis for restoration activities (including those in recommended wilderness areas) that includes information such as: conditions of whitebark pine, relevant factors (exotic disease, fire suppression, and mountain pine beetle) and the ecological consequences; documentation of inventories, research, studies, professional and local knowledge, and publications or other information that supports the importance of restoration for local populations; whitebark pine restoration program goals, objectives, methods, strategies and priorities; and present and future needs, expectations, and uncertainties.

General strategies for pollinators

Management approaches that would help meet the desired condition for pollinators include:

- Considering impacts (positive, negative, or neutral) to pollinators in project design, analysis, and implementation.
- Applying the latest best available science and policy direction, such as the guidelines in the Pollinator Friendly Best Management Practices for Federal Lands, to provide habitat elements.

- Designing projects to maintain or improve pollinator habitat while meeting resource objectives.
- Including local pollinator friendly native plant species in project seed mixtures.
- Including creation or maintenance of pollinator habitat in project rationale.

General strategies for invasive plants

Management approaches and strategies that may be used to meet the desired conditions, standards, and guidelines for invasive plant species include:

- Conducting inventory of portions of the Forest in a prioritized and systematic manner to document the distribution and abundance of target invasive species, identify un-infested areas, and locate and treat any new infestations.
- Striving to maintain an up-to-date map of known infestations and plant densities.
- Shifting emphasis to establishing a new desired plant community within large, heavy weed infestations, rather than attempting to restore to a pre-invasion community.
- Prioritizing areas designated for invasive plant management activities according to the criteria outlined within the latest guiding Invasive Species document for the Forest.
- Managing grazing on portions of allotments to avoid new invasive plant species infestations (specifically priority 1a and 1b species on the Montana State Noxious Weeds List) until treatment and/or control efforts are completed. Examples of economically damaging species include ventenata, medusahead rye, Dyer's woad, rush skeletonweed, yellow starthistle, etc.
- Prioritizing weed treatments to follow guidance in the weed control decision notice, using an adaptive strategy to determine where, when, and how to treat weeds/weed-infested sites. This strategy and its implementation include consideration of such factors as:
 - Weed category – potential invader, new invader, widespread invader;
 - Relative invasive nature of the species and its potential to displace native vegetation;
 - Relative ecological importance or rarity of the site that could be damaged by the presence of the weed;
 - Potential for off-site movement of seeds;
 - Determination of control method, which is dependent on the species and site;
 - Site monitoring to determine the need to repeat or alter treatment; and
 - Available funding.
- Using weed management strategies outlined in in FSM 2900 Invasive Species Management or other recommended documents for Region 1.
 - Providing education for forest field personnel as well as the general public in weed identification.
 - Pursuing and coordinating cooperative multi-ownership weed control efforts, such as sharing resources and information, setting treatment priorities, and applying for and sharing grants.
 - Using prevention efforts, for example, use of weed seed-free hay and straw by users of NFS lands and for reseeding projects.
 - Using native plants to revegetate disturbed areas where appropriate.
 - Using contract provisions to require that off-road equipment be washed before entering and moving between sites on the forest.

Wildlife

General strategies

The plan components for terrestrial vegetation represent most of the coarse-filter components that will “support the persistence of native species within the plan area, subject to the extent of FS authority and the inherent capability of the plan area” (FSH 1909.12, Chapter 20, Section 23.1). Therefore, most of the possible management strategies and actions described in the previous section to manage for desired vegetation would provide for most of the habitat needs of wildlife species. Additional possible management strategies and actions that could be used to achieve wildlife-related desired conditions are described here.

Connectivity

Desired condition FW-WL-DC-03 addresses habitat connectivity and movement between habitat patches and FW-WL-GO-04 addresses identifying linkage areas between NFS parcels. Desired conditions in the Big Belts, Crazies, Divide, Elkhorns, Rocky Mountain Range, and Upper Blackfoot GAs address habitat connectivity for wide-ranging species across broad landscapes, and guidelines in the Divide and Upper Blackfoot GAs address connectivity through specific areas where fragmentation is currently a concern. Specific management actions and strategies for maintaining connectivity may include:

- Working with other agencies and, where appropriate with private organizations or landowners to review data or other information or carry out fieldwork to identify linkage areas and other important wildlife movement areas.
- Restricting vegetation management or motorized use in important identified wildlife corridors and retaining hiding cover and other needed habitat elements in those areas.
- Restricting construction of new trails (motorized or non-motorized), trailheads, roads, developed recreation sites, or other features that could increase human use or presence or that could create or increase disturbance to wildlife or displacement from habitats in areas identified as important wildlife corridors or linkage areas.
- Working with other agencies and, where appropriate, with private organizations or landowners to purchase, develop cooperative management plans, support easements, or identify other means to maintain or improve habitat connectivity in areas identified through BASI as having value to wildlife for movement among separate parcels of NFS lands.

Management of key seasonal wildlife habitats

Desired condition FW-WL-DC-06 and guidelines FW-WL-GDL-05 and 06 concern key seasonal habitats, including winter range, and the need to minimize human disturbance during times those habitats are in use by wildlife. A variety of methods may be used to achieve this desired condition, some of which may include:

- Working with other agencies and using BASI to update habitat maps and identify areas used by wildlife during winter, breeding, or other key seasons, and determining the dates during which those habitats are used or during which it may be most important to minimize disturbance.
- Working with other agencies and using BASI to identify potential management actions that would help achieve the desired condition.
- Restricting motorized travel and other recreation opportunities in those habitats during those times, as needed based on the above.
- Restricting vegetation management activities in time and space based on the above, and designing vegetation management projects to maintain or increase forage, cover, or other habitat features used by wildlife in those areas.

Availability and distribution of elk and other big game species

Desired condition FW-FWL-DC-01 addresses the availability and distribution of elk and other big game species for harvest opportunity on NFS lands. A variety of methods may be used to achieve that desired condition, possibly including:

- Working with MTDFWP (per FW-FWL-GO-01, FW-WL-GO-01 and 02) to identify habitat issues and management concerns related to big game distribution and availability at an appropriate scale, such as at the scale of elk analysis units.
- Working with MTDFWP to identify actions that would address those issues and concerns, possibly including development of habitat improvement projects.
- Retaining hiding cover during vegetation management projects where and when doing so may contribute to achieving the desired conditions.
- Restricting motorized travel where and when doing so may contribute to achieving the desired conditions (also see below).

Guideline FW-FWL-GDL-01 addresses the need to reduce displacement of elk and other big game species from NFS lands during hunting seasons specifically as a result of actions that would alter the timing or pattern of motorized travel during those seasons. The guideline directs managers to apply the best available science, such as the USDA Forest Service and Montana Fish, Wildlife and Parks Collaborative Overview and Recommendations for Elk Habitat Management on the Custer, Gallatin, Helena, and Lewis and Clark National Forests (2013 or subsequent versions) to identify needs and manage for elk security at an elk herd unit scale. Possible management actions and strategies for implementing this guideline and influencing elk distribution and use of NFS lands may include some of the following:

- Working with MTDFWP to identify areas where enhancing or restoring habitat security on NFS land may help achieve the desired condition for availability and distribution of elk and other big game species.
- Restricting the timing and use of motorized routes during the archery and rifle seasons in specific identified areas.
- Retaining hiding cover (as defined in the BASI) at an appropriate scale in specific, identified areas.
- Creating, maintaining, or enhancing “security areas” as defined by the BASI (e.g. the 2013 FS-FWP collaborative recommendations, subsequent versions, or other) through combinations of motorized travel restrictions and hiding cover.
- Retaining or promoting hiding cover adjacent to motorized routes open during the archery and rifle hunting seasons, to reduce potential disturbance and displacement of elk or other big game species in specific identified areas where possible without compromising public safety.

Bighorn sheep

Several plan components address concerns regarding separation of domestic sheep and goats and bighorn sheep on NFS lands: desired conditions FW-WL-DC-10, BB-WL-DC-01, EH-WL-DC-04, and LB/RM-WL-DC-02, and standards FW-GRAZ-STD-03, FW-GRAZ-STD-04, BB/EH/LB/RM-WL-STD-01, and RM-WL-STD-02. Management to achieve separation of domestic sheep and goats from bighorn sheep may include some of the following:

- Applying the Recommendations for Domestic Sheep and Goat Management in Wild Sheep Habitat (2012), or subsequent versions or other agency or interagency recommendations) to minimize contact between domestic sheep and goats and bighorn sheep.
- Conducting a risk assessment using BASI for activities such as grazing allotment planning, weed control, permitted or recreational pack goat stock, or other uses that involve domestic sheep and goats

in bighorn sheep occupied habitat, in order to assess the potential for contact between domestic sheep and goats and bighorn sheep, evaluate associated risks, and identify actions required to minimize contact.

Harlequin duck

Specific management actions and strategies for harlequin duck may include some of the following, which would support RM/UB-WL-DC-03 and RM/UB-WL-GDL-02:

- Minimizing human disturbance along nesting stream reaches during the breeding season, particularly when broods are young and may be easily separated (June-late July); and encouraging recreational boating and floating use on streams other than harlequin duck breeding streams during this time period.
- Constructing new trails, bridges and fords, campgrounds, or other facilities away from harlequin duck breeding streams or in areas not known to be used by harlequins.
- Where possible, maintaining vegetation (dense tree and/or shrub cover) as a buffer between harlequin duck nesting stream reaches and potential sources of disturbance (such as trails, campgrounds, dispersed campsites that are routinely used, etc.).
- Carrying out surveys of known and potential breeding streams; and coordinating surveys, monitoring, and data with the Montana Natural Heritage Program or other entities that may be involved in harlequin duck monitoring or research.

Western toad

Specific management actions and strategies for western toad (see FW-WL-GDL-03, FW-WL-GDL-04, FW-WL-GDL-13) may include some of the following:

- Monitoring known breeding sites at an appropriate interval to detect changes in use by breeding toads, and to detect site changes due to altered hydrology or disturbance.
- Coordinating surveys, monitoring, and data with the Montana Natural Heritage Program or other entities that may be involved in western toad monitoring or research.
- Using information from the Montana Natural Heritage Program or other entities or conducting surveys following accepted protocols to detect potential toad (or other amphibian) breeding presence in waterbodies prior to application of piscicides.
- Adhering to the most current protocols recommended for decontaminating equipment used when carrying out toad surveys or other work in known toad breeding sites.
- At western toad breeding sites that are heavily used by livestock and that show evidence of heavy trampling and/or significant loss of emergent vegetation, considering partial fencing, use of complete enclosures, changes in timing of pasture use, or other measures to reduce impacts caused by livestock.

Bats

Specific management actions and strategies for bats (see FW-WL-DC-08, FW-WL-GDL-10, FW-WL-GDL-11, FW-WL-GDL-12) may include some of the following:

- Working cooperatively with other agencies, researchers, and recreational cavers to inventory caves for bats, and to monitor adjacent aquatic and riparian areas for bats (such as using mist nets, acoustic detectors, etc).
- Working cooperatively with other agencies, researchers, and recreational cavers to monitor bats for the presence of white-nose syndrome.
- Using recommended techniques, such as decontamination procedures, and bat-friendly cave and mine closures as appropriate to minimize the potential spread of white-nose syndrome.

- Limiting disturbances to hibernacula or maternity roosts by restricting entry to those areas.

Goals

In order to move toward the goals described in FW-WL-GO-01 (interagency coordination in project planning), FW-WL-GO-02 as well as guideline FW-WL-GDL-14 (coordination of some habitats across NFS boundaries), the following actions could be taken:

- Updating, maintaining and sharing maps, databases, and other information regarding wildlife distribution, seasonal ranges, key habitats, etc. among the FS and other agencies responsible for managing wildlife and wildlife habitat on or adjacent to NFS lands.
- Scheduling periodic and/or recurring meetings among FS and MTDFWP biologists and, as needed, other staff to review upcoming projects and discuss potential wildlife and habitat issues and needs in proposed or potential project areas.
- Participating in cooperative efforts (for example with US FWS and MTDFWP to survey or monitor wildlife species and habitats and to develop habitat improvement projects (see also above under the heading ‘Availability and distribution of elk and other big game species’).
- Working with MTDFWP or other land or wildlife management agencies as appropriate to identify habitat needs on ungulate winter ranges that occur on adjoining FS and state-owned Wildlife Management Areas and jointly develop habitat improvement projects.

In order to move toward the goal described in FW-WL-GO-03 (information about living and recreating in wildlife habitats), the following actions could be taken:

- Making information available to forest visitors, permittees, and contractors about the presence of wildlife species and how to avoid negative wildlife-human interactions. This information could emphasize how to work and recreate safely in bear habitat, and how to reduce the risk of bear-human encounters. Methods may include portal signs, kiosks, brochures, websites, social media messages, and collaboration on workshops and other public presentations and events.
- Providing field-going employees with training and information about the presence of wildlife species and how to avoid negative wildlife-human interactions. Incorporating the dissemination of this information into the regular duties of seasonal personnel such as recreation guards, wilderness guards, and other employees who have regular contact with forest visitors.

Threatened, endangered, proposed, and candidate wildlife species

General strategies

Specific management actions and strategies to move towards the desired conditions for threatened, endangered, proposed, and candidate wildlife species may include some of the following:

- Adhering to conservation strategies or other guidance. Using any additional informal guidance and working with the USFWS to inform planning and implementation of management activities on NFS lands.
- Working with the USFWS at the FS Regional level to develop and review consultation processes and guidance for analysis of FS projects.

Canada lynx habitat and/or critical habitat

Specific plan components regarding management of Canada lynx habitat are detailed in the Northern Rockies Lynx Management Direction Record of Decision, which is retained in the Plan (appendix F). The plan also includes a desired condition (FW-WL-DC-09) supporting management of lynx habitat needs at a forestwide scale, and GA-specific (DI, RM, UB) desired conditions regarding management of lynx habitat to support recovery and persistence of lynx in the plan area. A partial listing of possible management

actions and strategies that could occur in lynx habitat and that are consistent with those plan components may include, but may not be limited to the following:

- Using the best available scientific information to determine the amount, distribution, and mosaic of structural stages in lynx habitat that would support lynx presence throughout the plan area, and that would support lynx reproduction in core lynx habitat where lynx are resident.
- Using regeneration, group selection, or intermediate harvest methods in the stem exclusion structural stage of lynx habitat or in other forested stands that do not currently have a dense understory providing snowshoe hare habitat. Prescriptions may be designed to favor dense regrowth of coniferous tree species that provide food for snowshoe hares.
- Using precommercial thinning in some seedling/sapling stands that have established after harvest or fire, in order to promote development of future multi-story mature winter snowshoe hare habitat where it is lacking, provided such treatment does not reduce winter snowshoe hare habitat should it be present. The location, amount, and type of thinning could be based on analysis of vegetation at the scale of the lynx analysis unit, guided by the best available scientific information, and finalized through appropriate consultation with USFWS.
- Designing additional vegetation management projects to specifically move forest composition and structure to achieve desired conditions for lynx habitat, particularly the multi-story mature or late successional habitat preferred by snowshoe hare in winter.

Grizzly bear

Plan components from the December 2018 Forest Plan Amendments to Incorporate Relevant Direction from the Northern Continental Divide Ecosystem Draft Grizzly Bear Conservation Strategy are retained in the 2020 Forest Plan and provide specific direction for managing various activities that may occur in grizzly bear habitat. A partial listing of possible management actions and strategies that could occur in grizzly bear habitat and that are consistent with those plan components include, but may not be limited to the following:

- Restricting vegetation management activities in time and space within the PCA in order to reduce the potential for disturbance or displacement of grizzly bears, as determined by environmental analysis. This may include, where possible, restrictions on activities occurring during spring in mapped grizzly bear spring habitat.
- Using the best available scientific information, along with interagency recommendations as available, to manage mountain bike use to reduce the risk of grizzly bear-human conflicts. Actions may include designing trails where mountain bike use is allowed to facilitate maximum sight distances in areas where bike speed may be high, and by eliminating or reducing design features that promote high speeds in areas without good sight distances.
- Working with other agencies and, where appropriate, with private organizations or landowners to provide for habitat connectivity in zones 1 and 2 through purchases, management agreements, support for easements, and other means.

Wildlife species of conservation concern

Specific management actions and strategies to help move toward the desired conditions for wildlife species of conservation concern may include some of the following:

General strategies

- Using BASI to evaluate potential impacts of management actions on SCC when planning, analyzing, and implementing management actions.
- Using project design features or mitigations that would minimize potentially negative impacts to SCC and that would support persistence of viable populations of SCC in the plan area.

Flammulated owl and Lewis's woodpecker

- Using vegetation management techniques that promote the growth and retention of large (greater than 15" diameter at breast height), old ponderosa pine and Douglas-fir trees in ponderosa pine habitat types.
- Using prescribed burning to maintain an open canopy structure and development of large snags in areas adjacent to closed-canopy forest and shrub-dominated openings.

Recreation Settings, Opportunities, Access, and Scenic Character

Potential management strategies are those that (1) assist in providing a range of recreation opportunities across the Forest, (2) minimize visitor impacts to natural resources and conflicts between user groups, and (3) construct and maintain facilities and trails to address capacity issues and meet visitor needs. Potential strategies may include the following:

Settings – recreation opportunity spectrum

- Developing a recreation vision and a strategic prioritization process that provides direction for maintenance of existing recreation facilities, construction of new facilities, and reconstruction of and/or additions to existing facilities.

Opportunities – developed recreation sites

- Improving developed campgrounds to address accessibility, health and safety issues, types of use, size of recreational vehicles, and reduction of bear-human interactions.
- Considering the protection/maintenance of historic character, while meeting public needs, when identifying cabins to place on the reservation system.
- Developing vegetative management plans for all developed recreation sites. Each plan will provide details about the health and longevity of existing vegetation as well plans for future plantings and vegetative management.

Opportunities – dispersed recreation

- Addressing dispersed campsites with erosion and/or sanitation issues, especially rehabilitation of dispersed campsites located near river or stream corridors.
- Developing closure orders for dispersed recreation areas where visitor safety is at risk or changes need to be made to avoid or rehabilitate environmental impacts.
- Informing and educating users about Leave No Trace techniques for responsible, outdoor activities with minimal impacts on NFS lands.

Opportunities – recreation special uses

- Completing a needs assessment to determine new outfitter, guide, and livery services on the Forest, outside of designated wilderness areas.

Designated Areas

Inventoried roadless areas

In addition to the 2020 Forest Plan direction for inventoried roadless areas, the following considerations may apply to vegetation management that is designed to meet one or both of the emphasized purposes in inventoried roadless areas as discussed in 36 CFR 294.13 (b)(1)(i) or (ii):

- Determining the natural range of variation for vegetation and habitat conditions at the scale of the inventoried roadless area or project area and placing it into the context of the broader landscape.
- Considering the contribution of natural processes to achieving wildlife habitat, connectivity, and other vegetation or habitat desired characteristics within the inventoried roadless area.
- Considering that inventoried roadless areas may provide valuable vegetation components such as snags, old growth, and habitat connectivity, especially if surrounded by a more heavily managed or fragmented landscape.
- Emphasizing tools such as prescribed fire where feasible to meet project objectives.
- Utilizing mechanical (noncommercial or commercial) tree removal when it is the most effective and efficient method to meet project objectives and can be conducted to preserve the desired roadless area characteristics.
- Defining the size of tree that constitutes “small diameter timber” and explaining the rationale for that definition in the context of the landscape and associated vegetation communities. Consider using the definition of the seedling/sapling and small tree size classes in the R1 Vegetation Classification System (less than 10” diameter) as a general guide, although it could vary depending on the landscape and ecosystem context.

Wilderness

When working toward meeting the plan components for Designated Wilderness (see FW-WILD section), consider:

- Revising and/or updating the existing wilderness management plan for the Bob Marshall Wilderness complex.
- Developing a wilderness management plan for the Gates of the Mountains Wilderness.
- Implementing the national wilderness stewardship performance measures and wilderness character monitoring.

Continental Divide National Scenic Trail

When working towards meeting the plan components for the CDNST (see FW-CDNST section), the following actions could be taken:

- Developing a unit plan for the segments of the CDNST that are on the HLC NF.
- Completing trail location surveys for the CDNST within the HLC NF. Prioritizing sections to be completed and sections to be relocated off of roads where feasible and desirable.
- Identifying and pursuing opportunities to acquire lands or rights-of-way within the CDNST corridor.
- Considering how activities outside the visible foreground may affect CDNST view sheds and user experiences and mitigating potential impacts to the extent possible.
- Evaluating proposed relocations or new segment locations for the CDNST by using defined optimal location criteria.
- Using design criteria to minimize impacts to the CDNST trail infrastructure and prioritizing any necessary post-activity trail restoration for the project’s rehabilitation plan.
- Providing consistent signage along the trail at road and trail crossings to adequately identify the trail and providing interpretive signs at key trail entry points and limited historic and/or cultural sites to orient visitors and enhance the visitor experience.
- Emphasizing the unique intersection of the CDNST with the LCNHT.
- Developing appropriate measures to protect high-potential CDNST segments from deterioration due to natural forces, visitor use, vandalism, and other impacts.

- Ensuring incident commanders are aware of the CDNST as a resource to be protected during wildfire suppression activities and clearly identifying fire suppression rehabilitation and long-term recovery of the trail corridor as high priorities for incident commanders, Burned Area Emergency Rehabilitation team leaders, and post-fire rehabilitation efforts.
- Establishing appropriate carrying capacity for specific segments of the CDNST, monitoring use and conditions, while taking appropriate management actions to maintain or restore the nature and purposes of the trail if the results of the monitoring or other information indicate a trend away from desired conditions.
- Considering the use of vegetation management to create vistas, protect natural resources, and promote threatened and endangered species habitat conditions.

Research natural areas

- Identifying, prioritizing, and designating potential additions to the research natural area network through the process that has been cooperatively developed by the FS and the Rocky Mountain Research Station.

Lewis and Clark National Historic Trail Interpretive Center.

- Developing a management plan for the Lewis and Clark National Historic Trail Interpretive Center that provides guidance for the center and outlines both short- and long-term plans for interpretive programming, educational programming, exhibit hall, and maintenance needs.
- Ensuring that interpretive and educational programming and exhibits at the Lewis and Clark National Historic Trail Interpretive Center accommodate current and anticipated changes to visitor use and changes in interpretation and education methods for message delivery.

Cultural and Historic Resources and Uses

The following management strategies may apply to help meet the desired conditions for cultural resources and areas of tribal importance:

- Developing and implementing a program and schedule to complete an inventory of cultural resources on all NFS lands within the plan area which are likely to contain cultural resources in accordance with the National Historic Preservation Act, Archaeological Resource Protection Act, and Executive Order 11593.
- Preparing historic property plans for highly significant historic properties with an emphasis on priority heritage assets, as per the guidance in FSM 2362.4.
- Updating annually a forest heritage program plan that is tiered to the FS Heritage Program Managed to Standard measures. The Heritage Program Managed to Standard measures reflects the Agency's guidance for Heritage Program Management as outlined in Forest Service Manual 2360 and responsibilities in fulfillment of Section 110 of the National Historic Preservation Act. The forest heritage program plan includes a synthesis of known cultural resources, a synthesis of projected cultural resources (i.e. predictive modeling and site identification strategies), protocols for responding to unanticipated discovery of cultural resources or human remains as required by the Native American Graves Protection and Repatriation Act, protocols for responding to damage to or theft of cultural resources, and direction for the protection of cultural resources vulnerable to catastrophic fires or other natural or human-caused damaged.

Lands Status and Ownership, Land Uses

The following management strategies may apply to meet the desired conditions for land status and ownership, land uses, and access patterns:

Land Status and Ownership

Adjust land ownership through purchase, exchange or other authority, to protect resources and improve efficiency of management. Consider the following criteria when evaluating lands for acquisition:

- Lands that can contribute to recovery of threatened or endangered species.
- Lands important for wildlife connectivity and big game winter range.
- Lands needed for the protection of important historical or cultural resources.
- Lands that enhance recreation, public access, and protection of aesthetic values.
- Lands within designated wilderness.
- Lands that contain rivers with potential for Wild and Scenic designation.
- Other environmentally sensitive lands.
- Lands that reduce expense and support logical and efficient management.

Consider the following criteria when evaluating lands for conveyance:

- Lands and administrative buildings adjacent to communities that are chiefly valuable for non-National Forest uses.
- Inaccessible, isolated, or intermingled ownership parcels.
- Lands with long-term, special use permits that are not consistent with national forest purposes and character.
- Lands not logical or efficient to manage.
- Lands eligible under the Small Tracts Act.

Prioritize National Forest land boundary surveys to areas where trespass is most likely.

Land Uses

The strategy for prioritizing the workload for land uses could include the following:

- Process renewals and re-issuances in a timely fashion. Environmental analysis should be commensurate and minimal for those uses where the decision to allow the use has already been made and the new permit is simply an administrative function.
- Emphasize processing new proposals that contribute to the greater public good (utility projects, public highways, reciprocal access cases).
- For utility authorizations that do not have current operation and maintenance plans, work with holders to develop and implement those plans.
- Prioritize and facilitate vegetation management activities within and adjacent to utility line rights-of-ways.

Communication Uses

- Proponents for new communication uses (cellular, FM radio, internet service provider, etc.) should first consider co-location in an existing site that has an approved communication site management plan. Per special uses policy, the Forest Service authorizes use of NFS lands as communication sites by issuing leases to facility owners or managers, who may sublease their facilities to multiple occupants for operation of communications equipment.
- New facilities, which would require new leases, could be authorized after a site-specific environmental analysis pursuant to the NEPA is completed. Communication sites are designated for a specific type or types of communication uses. Broad categories of communication uses include:

- Broadcast. Television, AM/FM radio, cable television, broadcast translator, and low power television and radio.
- Non-broadcast. Intermittent transmitter use, including mobile radio service (two-way radio or paging), cellular phone, microwave.
- At existing communication sites, the senior use at the site establishes the site designation.
- Sometimes a use that is not compatible with the designated use is proposed. In these situations, the proponent must demonstrate that the equipment for the proposed use can be installed and operated in a manner that is compatible with the site designation.
- In addition to the site designation, some sites have specific restrictions, such as Government-entities only.

Benefits to People: Multiple Uses and Ecosystem Services

Livestock grazing

The general approach to grazing management implements management practices intended to maintain the health and function of rangelands and other resources. Strategies to move towards desired conditions may include the following:

- Using the allotment management plan, annual operating instructions, as tools to implement plan direction, as part of the terms and conditions of permitted grazing.
- Scheduling and completing NEPA allotment management plan (AMP) or AMP revisions, or NEPA sufficiency reviews (FSH 1909.15 Section 18) on a priority basis. Priorities could include, but are not limited to, allotments where monitoring indicates downward trends, allotments where other resource considerations or conflicts exist or arise, or allotments where opportunities develop for improving conditions.
- Reviewing, verifying, updating, and/or modifying allotment management plans or permit terms and conditions is based on information gathered from allotment compliance and long-term trend monitoring.
- Controlling the timing, duration, and intensity of livestock grazing to move toward and achieve desired resource conditions in riparian management zones, woody plant communities, and upland rangeland.
- Considering utilization levels, stubble height, streambank disturbance, and woody stem use, etc. (Allowable use levels), as short-term indicators of grazing effects on meeting long-term upland and riparian desired conditions (vegetation composition, streambank stability, etc.).
- Applying appropriate allowable use levels at the site-specific scale depending on the questions needing to be addressed on rangeland, woody plant communities, or riparian areas.
 - Using upland utilization criteria based on best available science, the dominant habitat type, functional groups, ecological sites (or equivalent) within the allotment pasture and local rangeland conditions (relative to site potential and capability).
 - Implementing riparian utilization, woody browse, stubble height, or streambank alteration criteria from the best available science applicable to the site.
 - Implementing FW-GRAZ-GDL-01 (stubble height annual indicator guideline) could be best achieved by an interdisciplinary approach with aquatics, hydrology, wildlife, and range specialists selecting monitoring sites and establishing initial stubble height on allotments based on criteria established in the guidelines and site-specific issues (i.e. 4” may be appropriate on a functioning properly functioning condition stream reach, where 6” may be needed where trend is

- down). The interim stubble height guideline could be used until long-term monitoring and evaluation is available to adapt this numeric range and/or support the use of other indicators.
- Following Northern Region streambank alteration protocol or adopting new methodologies recommended by the Northern Region that demonstrate similar effectiveness and efficiency, for streambank alteration methodology.
 - Using methodology for forage use measurements that is efficient to monitor multiple sites per day and can easily be taught to permittees and cooperators. Methodology currently in use on the HLC NF includes grazed/ungrazed paced transects and landscape appearance method. Additional methods found in FSH 2209.14 - Rangeland Vegetation Assessment, Inventory, Monitoring, and Analysis Handbook, or other developed protocols approved by the Northern Region may be used to answer questions regarding resource condition and movement towards or departure from desired conditions.
 - Consider prescribing and adjusting specific indicators and indicator values, if needed, in a manner applicable to site conditions. Values can also be adapted over time based on long-term monitoring and evaluation of conditions and trends.
 - Annual indicators could be used to provide a measure to reflect the need for management adjustments and the basis for interpreting factors influencing long term trend. However, annual indicators would not be the sole basis for adverse administrative actions on a grazing permit.
- Assessing and updating allotment management plans to ensure suitable acres and sustainable stocking levels are in place, and forage utilization standards, mitigation measures, and appropriate grazing systems are used to manage rangelands to maintain or move towards desired conditions.
 - Managing existing grazing allotments in wilderness areas and recommended wilderness in accordance with wilderness values. Applicable grazing direction is found in FSM 2323. Where practical alternatives do not exist, consider authorizing maintenance or other activities through the occasional use of motorized/mechanical equipment.
 - Conducting rangeland inspections annually on selected allotments to determine the degree of compliance with NEPA decisions, grazing permits, allotment management plans, or annual operating instructions, and providing monitoring information for initiating changes or improvements as applicable.
 - National Forest permittees and cooperators may be encouraged to participate in allotment inspections to help resolve problems on the ground.

Timber, other forest products, and wood for fuel

General strategies

The following management strategies may apply to help meet the desired conditions for timber, other forest products, and wood for fuel:

- Using the full range of applicable stewardship, contracting, and permitting authorities to offer timber, other forest products, and wood for fuel, to meet the needs of the public and contribute to local economies.
- Conducting salvage harvest operations as soon as possible to capture economic value of the wood.
- Determining forest product utilization standards at the project scale as needed to reflect market conditions and site-specific considerations, with Regional approval (FSH 2409.12-2013-1). These standards are regionally determined, and generally minimum standards for sawtimber are 7.0” diameter at breast height, 8’ in length, and 5.6” diameter inside bark at the small end. A diameter at breast height of 6” and diameter inside bark of 4.6” may be used without Regional approval and are

generally used for lodgepole pine. Post and pole material usually consist of material 2 to 6” in diameter, with no minimum height.

Strategies for specific plan components

Timber volume offerings

Treatments described in FW-VEGT-OBJ-01 can be used to meet objectives FW-TIM-OBJ-01 and 02. Harvest may be designed to meet timber and other resource objectives, such as forest restoration, fuel reduction, and wildlife habitat improvements. Possible actions and strategies to meet these objectives include:

- Offering timber sales with a variety of sizes and complexities.
- Exploring opportunities to improve biomass utilization.
- Providing opportunities for commercial firewood sales, as well as other forest products such as post and poles.
- Integrating all resource objectives and using timber harvest as a tool where appropriate to achieve desired conditions.
- Utilizing special authorities such as stewardship contracting as appropriate to achieve timber volume offerings and other resource objectives.

Reforestation

Standard FW-TM-STD-02 ensures that forested sites where regeneration harvests occur are reforested in a timely manner to appropriate stocking levels. This applies regardless of whether the harvested area is suitable for timber production. Areas that are being managed as nonforested plant communities are not included in this standard, even though it is possible that timber harvest may occur, for example to remove encroaching conifers. Management approaches for applying this standard include:

- Varying the level of appropriate stocking depending on site conditions and management objectives, but not be lower than the definition of a forested site (ten percent occupied by trees).
- Reforesting sites to lower levels than the original stand, if consistent with the other desired conditions, standards, guidelines, and project objectives applicable to the site.

Maximum opening size for timber harvest

The NFMA limits clearcutting and other even-aged harvest to 40 acres, with some exceptions. The 2012 Planning Rule provides for development of components that exceed opening size limits, where “larger harvest openings are necessary to help achieve desired ecological conditions” (36 CFR 219.11(d)(4)(i)). FW-TIM-STD-08 provides a maximum opening size (75 acres) under these provisions. Openings up to 75 acres do not need public review and Regional Forester approval. Exceptions to create openings greater than this size may occur in cases of natural catastrophic conditions, such as fire, insect and disease attack, or windstorm. Exceptions may also be granted as per handbook guidance, with Regional Forester approval and a 60-day public comment period. Management strategies to create appropriate patch sizes across the landscape may include:

- Retaining forest structural components in larger regeneration harvest areas to provide greater short and long-term structural diversity and provide a more visually pleasing landscape. This strategy could include leaving patches of uncut forest or individual/small groups of live trees distributed throughout the harvest openings and may include retaining more snags.
- Considering scenery in project design. To lessen the visual impact, harvest openings can have irregular shapes that are blended to the natural terrain. Retention of individual or patches of trees within the opening may also be more visually pleasing. Consideration for the natural patterns that

might be produced by a mixed severity fire may be incorporated into the shape and size and design of openings. There may be an expectation of short-term visual impacts to achieve long-term benefits.

- Locating new harvest openings adjacent to existing patches of sapling trees. This initially creates a larger patch of early successional forest, where trees are of the same cohort (for example, ages are within 20 years of each other), while lessening potential concerns related to larger openings.
- Considering the location of large units. When determining where a large opening might be created, consider factors such as: wildlife security, visibility from areas with high level of public use, desired conditions related to potential fire behavior and fuel loadings, and watershed conditions related to water yields.
- Considering desired conditions for development of future late successional and old growth forests. Larger patches of young, seedling/sapling forests can eventually develop into larger patches of old growth or late successional forest over time, which is desired.

Special forest and botanical products (FW-OFP-GDL-02)

The intent of the guideline is to ensure that the collection of special forest and botanical material does not adversely impact resources or preclude future opportunities. The methods used to meet this guideline may vary depending on the specific product and resource conditions. For example, when living plants or plant parts are being gathered, consider a requirement to not remove or damage an entire local population.

Connecting people with nature and history

The following management approaches may apply to support plan components for connecting people with nature and history:

- Creating a forestwide public information and communication plan that reviews and develops public communication measures to ensure communication methods and forums are reaching the appropriate audiences.
- Developing a forestwide education plan that is reviewed and updated to ensure relevancy with area schools and is in sync with national policies for conservation education and stewardship messages.
- Developing a forestwide interpretation plan to coordinate interpretive messages across the Forest and to provide an inventory of interpretive structures and facilities, including the programming being offered at the Lewis and Clark National Historic Trail Interpretive Center.
- Ensuring that visitor information is readily available for pre-visit information gathering in a variety of forums and kept up to date so that the public may be informed and educated through modern technology about current FS related policies, activities, services, and issues.
- Ensuring that the Forest has an organized and consistent approach to working with all youth and young adults and aims to connect with underserved populations.
- Continuing to offer programs already in place, such as the Youth Forest Monitoring Program (YFMP), that have established strong ties to the community.
- Working with partners to identify and widely-publicize grant programs for communities and local schools that connect youth with outdoor recreation. Exploring avenues to match the interest and programming capacity of local partners and the unit's personnel with the resources available in local and national grant programs.
- Working with communities and partners to develop strategies for getting youth outside in nature. Coordinating efforts to ensure compliance with agency policies (e.g., outfitter/guide permits).
- Working with permittees and other partners to identify and remove existing obstacles for diverse and inclusive participation in recreation opportunities on the forest.
- Forging new partnerships with State, local, tribal, private, and non-profit partners to expand access to underserved populations, particularly those in the immediate vicinity of the forest.

- Exploring opportunities to establish programs that preserve and protect the unit's natural and cultural resources, offer training and employment opportunities, develop future stewards of NFS lands, and leverage the unit's capacity to achieve priority work.

Carbon

The desired condition acknowledges the role of forest management in the carbon cycle. The following management strategies may apply to meet this desired condition:

- Maintaining landscapes with native vegetation– not converting them to other uses such as agriculture or urban development.
- Conducting vegetation treatments that increase forest resilience to disturbance.

Energy and minerals

The following management strategies may apply to help meet the desired conditions for energy and minerals:

- Developing compliance inspections for mineral operations to be commensurate with the complexity of the mineral activity.
- Providing guidance to claimants/operators for planning reclamation and minimizing environmental impacts.
- Ensuring that adequate reclamation requirements and bonds are in place prior to authorizing mineral activities.

Literature

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