

## Glossary

The glossary defines terms used throughout the document. If a term's definition(s) is associated with a particular species, management direction, or originates from a specific source, the source is cited or applicable direction is referenced with the following bracketed abbreviations:

- [GBCS] Grizzly Bear Conservation Strategy for the Northern Continental Divide Ecosystem (draft 2013, final in progress).
- [NCDE Food/Wildlife Attractant Storage Orders] one or more special orders related to occupancy and use restrictions for the Northern Continental Divide Ecosystem for grizzly bears
- [NRLMD] Northern Rockies Lynx Management Direction 2007
- [LCAS] Lynx Conservation and Assessment Strategy 2013
- [NWCG] National Wildfire Coordinating Group 2013

**activity area** a land area affected by a management activity to which soil quality standards are applied. An activity area must be feasible to monitor and includes harvest units within timber sale areas, prescribed burn areas, grazing areas or pastures within range allotments, riparian areas, recreation areas, and alpine areas. Temporary roads, skid trails, and landings are considered to be part of an activity area.

**adaptive management** the general framework encompassing the three phases of planning: assessment, plan development, and monitoring (36 CFR 219.5). This framework supports decision-making that meets management objectives while simultaneously accruing information to improve future management by adjusting the plan or plan implementation. Adaptive management is a structured, cyclical process for planning and decision-making in the face of uncertainty and changing conditions with feedback from monitoring, which includes using the planning process to actively test assumptions, track relevant conditions over time, and measure management effectiveness.

**administrative site** a location or facility constructed for use primarily by government employees to facilitate the administration and management of public lands. Examples on NFS lands include, but are not limited to, ranger stations, warehouses, and guard stations.

**adfluvial** migration of fish between lakes to rivers.

**administrative use** a generic term for authorized agency activity.

**aerial retardant avoidance area** mapped areas (interactive map online at <https://www.fs.fed.us/fire/retardant/index.html>) that are to be avoided during applications of fire retardant; including: habitat for threatened, endanger, proposed, candidate or sensitive species and all waterways. This national direction is mandatory and would be implemented except in cases where human life or public safety is threatened and retardant use within avoidance areas could be reasonably expected to alleviate that threat.

**aircraft** an airplane, helicopter, or other machine capable of flight.

**airstrip** an area of land that is used as a runway for aircraft to take off and land.

**animal unit month** the amount of dry forage required by one mature cow of approximately 1,000 pounds or its equivalent, for one month, based on a forage allowance of 26 pounds per day.

**aquifer** an underground layer of water-bearing permeable rock, rock fractures or unconsolidated material (gravel, sand or silt) from which groundwater can be extracted using a water well.

**aquatic organism passage** provides the ability for fish and other aquatic creatures to move up and downstream under a road.

**attractant** a nourishing substance, which includes human food or drink (canned, solid or liquid), livestock feed (except baled or cubed hay without additives), pet food, and garbage. (Northern Continental Divide Ecosystem Food/Wildlife Attractant Storage Order).

**alpine** high elevation ecosystem dominated by grasses and low-lying shrubs.

**baseline** the environmental conditions at a specific point in time.

**best management practice** the method(s), measure(s), or practice(s) selected by an agency to meet its nonpoint source control needs. Best management practices include but are not limited to structural and nonstructural controls and operation and maintenance procedures. Best management practices can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (36 Code of Federal Regulations 219.19).

**biodiversity** the variety and abundance of plants, animals, and other living organisms and the ecosystem processes, functions, and structures that sustain them. Biodiversity includes the relative complexity of species and communities across the landscape at a variety of scales, connected in a way that provides for the genetic diversity to sustain species over the long-term.

**biological soil crust** are a complex mosaic of cyanobacteria, green algae, lichens, mosses, microfungi, and other bacteria occurring on the soil surface in open spaces within arid and semiarid systems.

**biophysical settings** a grouping of potential vegetation types based on broad climatic and site conditions, such as temperature and moisture gradients. Also see potential vegetation types.

**board foot** a unit of measurement represented by a board one foot square and one inch thick.

**boreal forest (lynx)** a forest type to which lynx and snowshoe hares are strongly associated. The predominant vegetation of boreal forest is conifer trees, primarily species of spruce (*Picea* spp.) and fir (*Abies* spp.) (USFWS Critical Habitat Final Rule 2009).

**broadcast burn** a management treatment where a prescribed fire is allowed to burn over a designated area within well-defined boundaries. A broadcast burn is used for reduction of fuel hazard, as a resource management treatment, or both.

**candidate species** a status (1) for USFWS candidate species, a species for which the U.S. Fish and Wildlife Service possesses sufficient information on vulnerability and threats to support a proposal to list as endangered or threatened, but for which no proposed rule has yet been published by the U.S. Fish and Wildlife Service; (2) for National Marine Fisheries Service candidate species, a species that is: (i) the subject of a petition to list and for which the National Marine Fisheries Service has determined that listing may be warranted, pursuant to section 4(b)(3)(A) of the Endangered Species Act (16 United States Code (U.S.C.) 1533(b)(3)(A)), or (ii) not the subject of a petition but for which the National Marine Fisheries Service has announced in the Federal Register the initiation of a status review.

**canopy** the forest cover of branches and foliage formed by tree crowns.

**canopy base height** the lowest height above the ground at which there is a sufficient amount of canopy fuel to propagate fire vertically into the canopy; canopy base height is an effective value that incorporates ladder fuels such as shrubs and understory trees.

**canopy fuel** the live and dead foliage, live and dead branches, and lichen of trees and tall shrubs that lie above the surface fuels.

**capability** the potential of an area of land and/or water to produce resources, supply goods and services, and allow resource uses under a specified set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions (climate, slope, landform, soils, and geology), as well as the application of management practices (silviculture systems, or protection from fires, insects, and disease).

**carbon pool** an area that contains an accumulation of carbon or carbon-bearing compounds or having the potential to accumulate such substances. May include live and dead material, soil material, and harvested wood products.

**carbon stock** the amount or quantity contained in the inventory of a carbon pool.

**clearcut** a harvest technique: 1) a stand in which essentially all trees have been removed in one operation. Note: depending on management objectives, a clearcut may or may not have reserve trees left to attain goals other than regeneration. 2). A regeneration or harvest method that removes essentially all trees in a stand (synonym is clearcutting). Also see regeneration method.

**climate change adaptation** an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. This adaptation includes initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects. Adaptation strategies include the following: building resistance to climate-related stressors; increasing ecosystem resilience by minimizing the severity of climate change impacts, reducing the vulnerability and/or increasing the adaptive capacity of ecosystem elements; facilitating ecological transitions in response to changing environmental conditions.

**climax** the final stage of succession in a plant community. A relatively stable condition where plant species on the site are able to perpetuate themselves indefinitely in the absence of disturbance.

**coarse woody debris** a piece or pieces of larger sized dead woody material (for example, dead boles, limbs, and large root masses) on the ground or in streams. Minimum size to be defined as “coarse” is generally 3 inches diameter.

**commercial thinning** a treatment that selectively removes trees large enough to be sold as products, such as sawlogs, poles or fence posts, from an overstocked stand. This treatment is usually carried out to improve the health and growth rate of the remaining crop trees, or to reduce fire hazard.

**commercial use/activity** a use or activity on NFS lands (a) where an entry or participation fee is charged, or (b) where the primary purpose is the sale of a good or service, and in either case, regardless of whether the use or activity is intended to produce a profit (36 Code of Federal Regulations 251.51).

**community wildfire protection plans** are strategic plans developed by communities to address issues such as wildfire response, hazard mitigation, community preparedness, or structure protection—or all of the above. The Healthy Forests Restoration Act (HFRA) in 2003 includes statutory incentives for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction

projects. In order for a community to take full advantage of this opportunity, it must prepare a Community Wildfire Protection Plan (CWPP).

**composition** the biological elements within the different levels of biological organization, from genes and species to communities and ecosystems.

**confidence interval** a range of values around the estimated mean that defines a specified probability that the value of a parameter lies within it.

**contemporary vegetation management challenges** are issues with controlling, restoring or improving vegetation dynamics to achieve certain resource objectives. Some examples include but are not limited to such things as controlling invasive exotic weeds, reducing fire risk in the wildland-urban interface, and finding chemical-free ways to control weeds, etc.

**cohort** a group of trees developing after a single disturbance, commonly consisting of trees of similar age, although it can include a considerable range of tree ages of seedling origin and trees that predate the disturbance.

**connectivity** the ecological conditions that exist at several spatial and temporal scales that provides landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to climate change (36 Code of Federal Regulations 219.19). Connectivity needs vary by species.

**conservation** the protection, preservation, management, or restoration of natural environments, ecological communities, and species.

**consumptive water use** the act of removing water from an available supply and utilizing it in a manner that it is not returned to a waterbody.

**coppice** a forest regeneration method by which the majority of regeneration is from sprouts or root suckers. The suitable species on the HLC NF for this method is limited to aspen.

**cover** the elements of the environment used by an animal for hiding. Cover varies depending upon the species or the time of year and may include a variety of vegetation types as well as topography. The amount and quality of cover needed depends on the animal's size, mobility, and reluctance or willingness to venture into relatively open areas. Cover can occur as horizontal cover, which may provide security from disturbance by humans or predators, or thermal cover (often provided by vegetation canopy), which can help animals regulate body temperature during periods of extreme heat or cold.

**cover type** the vegetation composition of an area, described by the dominant plant species. Also see forest type.

**Cretaceous** is a geologic period and system from  $145 \pm 4$  to 66 million years (Ma) ago.

**critical habitat** (for a threatened or endangered species) (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (16 United States Code 1533), on which are found those physical or biological features (a) essential to the conservation of the species, and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (16 USC 1533), upon a determination by the Secretary that such areas are essential for the conservation of the

species. Endangered Species Act, sec. 3 (5)(A), (16 USC 1532 (3)(5)(A)). Critical habitat is designated through rulemaking by the Secretary of the Interior or Commerce. Endangered Species Act, sec. 4 (a)(3) and (b)(2) (16 United States Code 1533 (a)(3) and (b)(2)).

**crown** the part of a tree or other woody plant bearing live branches and foliage.

**culmination of mean annual increment of growth** see mean annual increment of growth

**decision document** a record of decision, decision notice, or decision memo (36 Code of Federal Regulations 220.3).

**dedicated skid trail** a pathway used repeated, and only, to move logs or trees from the stump to a landing, where they are processed and loaded onto trucks.

**deferred trail maintenance** the backlog of trails in need of maintenance.

**deleterious** having a harmful or injurious effect.

**density (stand)** the number of trees growing in a given area usually expressed in terms of trees per acre.

**designated area** an area or feature identified and managed to maintain its unique special character or purpose; some categories of designated areas may be designated only by statute and some categories may be established administratively in the land management planning process or by other administrative processes of the federal executive branch; examples of statutorily designated areas are national heritage areas, national recreational areas, national scenic trails, wild and scenic rivers, wilderness areas, and wilderness study areas; examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, and significant caves.

**designated over-the-snow route** a course managed under permit or agreement or by the agency, where use is encouraged, either by on-the ground marking or by publication in brochures, recreation opportunity guides or maps (other than travel maps), or in electronic media produced or approved by the agency. The routes identified in outfitter and guide permits are designated by definition; groomed routes also are designated by definition.

**desired condition (DC)** a description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Also see chapter 1.

**desired plant community** is selected as the one species composition (of the many possible within any given ecological site or equivalent) that is most compatible with management objectives for a site. This decision depends on the relative value expected to be obtained from alternative land uses, as well as the feasibility of implementing actions required to change the present vegetation to a more desirable type. It is unlikely that the desired plant community would feature substandard levels of soil protection, biotic integrity and hydrologic function, because it is assumed that maintaining site potential should be an intrinsic goal of any management plan. Desired plant community is in essence the benchmark against which to compare existing vegetation and provides a system to evaluate the success of current practices in meeting management objectives. (Global Rangelands 2016).

**diameter breast height (d.b.h.)** the diameter of a tree measured 4.5 feet above the ground on the uphill side of the tree, or diameter of a log measured 4.5 feet from the large end of the log.

**discretionary** the exploration and development of leasable mineral resources are discretionary activities, meaning that leasing them may or may not be allowed.

**disturbance** an event that alters the structure, composition, or function of terrestrial or aquatic habitats; any relatively discrete event in time that disrupts ecosystem, watershed, community, or species population structure and/or function and changes resources, substrate availability, or the physical environment. Natural disturbances include, among others, drought, floods, wind, fires, wildlife grazing, and insects and pathogens; human-caused disturbances include actions such as timber harvest, livestock grazing, roads, and the introduction of exotic species.

**disturbance activities** are activities which result in notable vegetation removal and/or soil disturbance (road construction, timber harvest, etc.).

**disturbance regime** a description of the characteristic types of disturbance on a given landscape; the frequency, severity, size, and distribution of these characteristic disturbance types, and their interactions. The natural pattern of periodic disturbances, such as fire or flooding.

**disturbance/displacement** the repeated avoidance of humans by a species by shifting its habitat use in space or time.

**driver (ecology)** see ecosystem driver.

**duff** the partially decayed organic matter on the forest floor.

**early-seral/successional stage (forest)** the earliest stage in the sequence of plant communities that develop after a stand replacing disturbance, such as fire or regeneration harvest. On the forested communities of the HLC NF, this stage typically occurs in the period from 1 to 30 or 40 years after the disturbance, and is dominated by grass, forbs, shrubs, and seedling/sapling sized trees.

**early successional forest patches** are specifically defined for modeling purposes as areas classified into the seedling/sapling size class (less than 5” diameter) and transitional areas reforesting following disturbance (these areas have little to no tree cover but are found on forested potential vegetation types).

**ecological condition** the biological and physical environment that can affect the diversity of plant and animal communities, the persistence of native species, and the productive capacity of ecological systems; ecological conditions include habitat and other influences on species and the environment; examples of ecological conditions include the abundance and distribution of aquatic and terrestrial habitats, connectivity, roads and other structural developments, human uses, and invasive species.

**ecological integrity** the quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence. The quality of a natural unmanaged or managed ecosystem in which the natural ecological processes are sustained, with genetic, species and ecosystem diversity assured for the future.

**ecological site** an ecological site is a distinctive kind of land with specific soil and physical characteristics that differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation, and in its ability to respond similarly to management actions and natural disturbances (NRCS, National Range and Pasture Handbook, December 2003).

**ecological sustainability** see sustainability.

**ecosystem** (36 Code of federal Regulations 219.19) a spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries. The term ecosystem can be used at a variety of scales; for the forest plan, the ecosystem is referred to spatially at the forestwide and geographic area scales as well as within potential vegetation types. An ecosystem is commonly described in terms of its:

- composition: The biological elements within the different levels of biological organization, from genes and individual plant and animal species to communities (such as cover types).
- structure: The organization and physical arrangement of biological elements such as, snags and down woody debris, vertical (size class and structure class) and horizontal (density) distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity.
- function: Ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods.
- connectivity: See connectivity.

**ecosystem driver** a natural or human-induced factor that directly or indirectly causes a change in an ecosystem. Examples include climate change, fire events, invasive species and flooding.

**ecosystem resilience** see resilience

**ecosystem service** the benefit(s) people obtain from an ecosystem, including: (1) provisioning services, such as clean air and fresh water, energy, fuel, forage, fiber, and minerals; (2) regulating services, such as long-term storage of carbon; climate regulation; water filtration, purification, and storage; soil stabilization; flood control; and disease regulation; (3) supporting services, such as pollination, seed dispersal, soil formation, and nutrient cycling; and (4) cultural services, such as educational, aesthetic, spiritual and cultural heritage values, recreational experiences and tourism opportunities.

**ecosystem stressor** a factor that may directly or indirectly degrade or impair ecosystem composition, structure or ecological process in a manner that may impair its ecological integrity, such as an invasive species, loss of connectivity, or the disruption of a natural disturbance regime.

**ecotone** a zone of transition between two distinctly different plant communities, where they meet and integrate. It may be narrow or wide; local (between a field and forest) or regional (between forest and grassland ecosystems); gradual or manifested as a sharp boundary line. This zone usually exhibits competition between organisms common to both communities. For this Plan, this term is used to describe the zone of transition between nonforested grass/shrub communities and forested communities, and may often blend with savannas. This zone shifts in location and condition based on climate influences, successional processes, and disturbance processes.

**elk security** The protection inherent in any situation that allows elk to remain in a defined area despite an increase in stress or disturbance associated with the hunting season or other activities (Lyon and Christensen 1992).

**endangered species** a species that the Secretary of the Interior or the Secretary of Commerce has determined is in danger of extinction throughout all or a significant portion of its range. Endangered species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act. Endangered species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 224.101.

**environmental document** a written analysis that provides sufficient information for a responsible official to undertake an environmental review. Examples include: a categorical exclusion, an environmental assessment, and an environmental impact statement.

**epidemic (outbreak)** the rapid spread, growth, and development of pathogen or insect populations that affect large numbers of a host population throughout an area at the same time.

**even-aged stand** a stand of trees composed of a single age class (cohort). Usually trees in a single age class are within + 20 years of each other.

**even-aged system** a planned sequence of treatments designed to maintain and regenerate a stand with predominantly one age class. Treatments include clearcutting, seedtree, shelterwood, and coppice regeneration methods.

**final regeneration harvest** the final timber harvest in a sequence of harvests designed to regenerate a timber stand or release a regenerated stand. A final regeneration harvest could be a clearcut, removal of a shelterwood or seedtree system, or a selectin cut.

**fine fuel** the fast-drying dead or live materials, generally characterized by a comparatively high surface area-to-volume ratio, which is defined as less than 0.25 inches in diameter and having a timelag of 1 hour or less in which fuel moisture content can change by 95%. Fine fuels (grass, leaves, needles, etc.) ignite readily and are consumed rapidly by fire when dry [NWCG].

**fire control** see fire suppression

**fire exclusion** the disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression, but other factors such as land use changes and livestock grazing contribute as well).

**fire hazard** the potential fire behavior for a fuel type, regardless of the fuel type’s weather-influenced fuel moisture content or its resistance to fireline construction. Fire behavior assessment is based on physical fuel characteristics, such as fuel arrangement, fuel load, condition of herbaceous vegetation, and presence of elevated fuels.

**fire regime** a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention but including the influence of prehistoric human burning (Agee 1993; Brown 1995; Hann and Bunnell 2001). The five natural fire regimes are classified based on the average number of years between fires combined with the severity of the fire (the amount of vegetation replacement), and its effect on the dominant overstory vegetation (Hann 2005). The five natural fire regimes on the HLC NF are as follows, with detail added to describe conditions found on the HLC NF:

Fire Regime Group	Frequency (Fire Return Interval)	Severity	Representative Vegetation Types / Habitats
I	0 to 35 years	Nonlethal, low intensity to mixed severity (less than 75 percent of the dominant overstory vegetation replaced)	Ponderosa pine, dry-site Douglas-fir <i>Open forest, woodland, shrub and savanna structures maintained by frequent non-lethal fire; also includes mixed severity fire that create a mosaic of different age classes, post-fire open forests. Mean fire return interval can be greater than 35 years in systems with high temporal variation. These fires result in minimal overstory mortality (&lt;25% of dominant overstory) and small patch size (Agee 1998; Arno et al. 2000; Hessburg et al 2005). The forests that adapted to these fires on the HLC NF were often dominated by ponderosa pine or Douglas-fir; fire</i>



Fire Regime Group	Frequency (Fire Return Interval)	Severity	Representative Vegetation Types / Habitats
			<i>maintained these species and promoted open, often uneven-aged, structures. Surviving fire-resistant trees reforest the gaps created by disturbance. These fires also maintained open, dry forest savanna structures and a shifting distribution of dry limber pine/juniper ecotone communities.</i>
II	0 to 35 years	Stand-replacing (greater than 75 percent of the dominant overstory vegetation replaced)	Drier grasslands; cool-site sagebrush (such as Mountain big sagebrush) <i>Shrub or grasslands maintained or cycled by frequent fire; fire typically remove non-sprouting shrubs, tops of sprouting shrubs and most tree regeneration. These fires are important in vegetation communities such as big mountain sagebrush.</i>
III	35 to 100+ years	Nonlethal and mixed severity (less than 75 percent of the dominant overstory vegetation replaced)	Interior dry-site shrub communities (such as warm-site sagebrush - Big sage, basin big sagebrush); moist-site Douglas-fir/lodgepole pine forests <i>A mosaic of different ages, open forests, early to mid-seral forest structure stages, and shrub and herb dominated patches is maintained by infrequent fire events. Mixed severity fires kill a moderate amount of the overstory, burning with a mosaic of severities but replacing &lt;75% of the overstory (Barrett et al. 2010). Highly variable patch sizes are created, with a mosaic of effects including stand replacement, low severity, and unburned areas (Agee 1998; Arno et al. 2000). This creates an irregular pattern with an abundant amount of edge. Fire tolerant species often survived many fire events, with large, old trees becoming prominent overstory components. These fires also resulted in unburned patches that could develop into climax conditions dominated by shade tolerant species.</i>
IV	35 to 100+ years	Stand-replacing, high intensity (greater than 75 percent of the dominant overstory vegetation replaced)	Lodgepole pine <i>Large patches of similar age, post-fire structures and early to mid-seral forests are cycled by infrequent fire events. Stand replacing fires kill most of the trees (&gt;75%) over a substantial area (Barrett et al. 2010) and creating an intermediate amount of edge (Agee 1998; Arno et al. 2000). Lodgepole pine regenerates large areas without a living seed source by storing serotinous cones on trees and in the soil that open under intense heat. Fire return intervals are generally long; however, shorter intervals also occur (USDA 1990; Barrett 1993) and forests may re-burn after the dead trees have fallen. Lodgepole pine produces open cones at a very young age to re-seed re-burned or understocked patches. Serotiny in fire-prone ecosystems is typically expressed from 30-60 years of age (USDA 1983) to ensure that seed is available for regeneration after the next stand-replacing event.</i>
V	200+ year	Stand-replacing, high intensity.	Boreal forest and high elevation conifer forest; lodgepole pine/subalpine fir; subalpine fir; whitebark pine <i>Variable size patches of shrub and herb dominated structures, or early to mid to late seral forest occur depending on the type of biophysical environment and are cycled by rare fire or other disturbance events. These forests often have complex structures influenced by small gap disturbances and understory regeneration. These fires result may result in the regeneration of lodgepole pine but also provide suitable sites for the establishment of whitebark pine at the highest elevations. Many sites become dominated by subalpine fir at the later stages of succession.</i>

**fire risk** the probability or chance of fire starting determined by the presence and activities of causative agents.

**fire severity** for this effort, it is the effect of fire within the fire perimeter in terms of replacement/removal of the upper layer vegetation and surface burning. Replacement/removal may or may not cause a lethal effect on understory vegetation or surface duff/litter and mineral soil. For example, replacement fire in grassland may remove the leaves, but leaves resprout from the undamaged basal crown, while replacement fire in most conifers cause mortality of the overstory trees.

**fire suppression** the work and activities connected with fire extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

**fire-adapted species** a plant type that has evolutionary adaptations to survive and thrive in an ecosystem where fire is a primary driver, including tree species that are termed fire-tolerant as well as trees and other plant species that have a myriad of other types of adaptations. Some examples of adaptations are the serotinous cones of lodgepole pine (which open only when heated in a fire); fast early tree growth for rapid site domination; rhizomatous (below ground) root systems or root crowns; seeds with hard, fire resistant seed-coats; or very lightweight, wind-dispersed seed (also see fire-tolerant species).

**fire-intolerant tree species** a tree type that is susceptible to severe damage or mortality in a fire event. Characteristics typically include thin bark at maturity, crowns that retain lower branches (close to the ground), less protected buds and needles. For example, subalpine fir, grand fir and spruce are fire-intolerant species in the HLC NF.

**fire-tolerant tree species** a tree type resistant to severe damage or mortality in a fire event. Characteristics include thick bark at maturity, readily self-pruning (lower branches are shed as the tree grows), and protected buds. Examples of fire-tolerant species on the HLC NF are western larch, ponderosa pine and, to a lesser extent, Douglas-fir.

**fish passage** a clear access for migrating fish through a potential barrier.

**flame length** the distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface), an indicator of fire intensity [NWCG].

**focal species** a small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. Focal species would be commonly selected on the basis of their functional role in ecosystems (36 Code of Federal Regulations 219.19).

**food-conditioned (bear)** a bear that associates humans and areas of human activity (e.g., campgrounds, cabins, dwellings, etc.) with food, usually as a result of repeatedly obtaining food rewards (e.g., garbage, camp food, pet or livestock food, bird seed, etc.) in such areas.

**forage** the browse and nonwoody plants available to livestock or wildlife for feed.

**forage allocations for ecological needs** at the allotment management planning level a determination of forage production for the dominant ecological sites (or their equivalent) within the grazing allotment is determined. Forage allocations permitted for livestock grazing are made after analyzing the effects to other resources. Examples of resource areas taken into consideration prior to determining forage availability for livestock grazing include soil health, native plant community viability and resilience, hydrologic function, aquatic habitat quality, and the forage and cover needs of wildlife species.

**forb** a herbaceous (herb-like) plant other than grass or grass-like plants.

**forest connectivity** see ‘connectivity’ above; an area providing those functions for wildlife species that prefer to remain within or close to forested cover.

**forest dominance type** a classification that reflects the most common tree species within a forest stand. The dominant species comprises at least 40 percent of the stocking, as measured by canopy cover, basal area, or trees per acre, depending on available information and stand characteristics.

**forest floor** All organic matter generated by forest vegetation, including litter and unincorporated humus, on the mineral soil surface.

**forest health** the perceived condition of a forest derived from concerns about such factors as its age, structure, composition, function, vigor, presence of unusual levels of insects or disease, and resilience to disturbance. A useful way to communicate about the current condition of the forest, especially with regard to the ability of the ecosystem to respond to disturbances. Note: perception and interpretation of forest health are influenced by individual and cultural viewpoints, land management objectives, spatial and temporal scales, the relative health of the stands that comprise the forest, and the appearance of the forest at a point in time.

**forest land** an area at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for nonforest uses. Lands developed for nonforest use include areas for crops, improved pasture, residential or administrative sites, improved roads of any width and adjoining road clearing, and power line clearings of any width.

**forest management** the practical application of biological, physical, quantitative, managerial, economic, social, and policy principles to the regeneration, management, utilization, and conservation of forests to meet specified goals and objectives while maintaining the productivity of the forest. Note: forest management includes management for aesthetics, fish, recreation, urban values, water, wilderness, wildlife, wood products, and other forest resource values. Forest management varies in intensity from leaving the forest alone, to a highly intensive regime composed of periodic silvicultural treatments.

**forest plan** a document that guides sustainable, integrated resource management of the resources within a plan area and within the context of the broader landscape, giving due consideration to the relative values of the various resources in particular areas (36 Code of Federal Regulations 219.1(b)). Consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 United States Code 528–531), the FS manages NFS lands to sustain the multiple use of its renewable resources in perpetuity while maintaining the long-term health and productivity of the land. Resources are managed through a combination of approaches and concepts for the benefit of human communities and natural resources.

**forest structure** a complex three-dimensional construct consisting of the various horizontal and vertical physical elements of the forest, including tree diameters, tree heights, tree ages, stand density, canopy layers, quantity/quality of deadwood, herbaceous species, and the clumpiness of the stand. There is no one measure to quantify or describe structure. Often individual forest attributes are described and integrated to evaluate forest structure, such as tree sizes or ages or number of canopy layers.

**forest system road** see NFS road.

**forest type** a category of forest usually defined by its vegetation, particularly its dominant vegetation as based on percentage cover of trees (for example, subalpine fir/spruce; lodgepole pine).

**fuel management** an act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological or manual means, or by fire, in support of land management objectives. [NWCG]

**fuel model** a set of surface plant material characteristics (for example, load and surface-area-to-volume-ratio by size class, heat content, and depth) organized for input to a fire model. Standard fuel models (such as Anderson 1982) have been stylized to represent specific fuel conditions.

**fuel treatment** the manipulation or removal of dead or live plant materials to reduce the likelihood of ignition and/or lessen potential damage and resistance to fire control (example treatments include, lopping, chipping, crushing, piling and burning). [NWCG]

**fuelwood** a term for wood that is used for conversion to a form of energy (for example, firewood, biomass).

**function** ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods.

**geographic area (GA)** a spatially contiguous land area identified within the plan area. A geographic area may overlap with a management area (36 Code of Federal Regulations 219.19).

**geographic information system (GIS)** a computer process that links database software to graphics (spatially explicit) software and provides database and analytic capabilities.

**goals (GO)** broad statements of intent, other than desired conditions, usually related to process or interaction with the public. Also see chapter 1.

**gradient (stream)** the slope of a streambed.

**graminoids** grasses.

**grazing allotment** a designated area of land that is available for livestock grazing and is represented on a map. A grazing allotment can include NFS and non-NFS lands. Permits are issued for the use of allotments or portions of allotments. Allotments may be FS Manual 2205):

- active: Livestock grazing allotments, including pack and saddle stock allotments.
- closed: Areas having suitable livestock range that have been closed to livestock grazing by administrative decision or action.
- combined: An allotment that has been combined into another allotment, and therefore, no longer exists as an independent allotment.
- vacant: An allotment that does not have a current grazing permit issued.

**grazing permit in nonuse status** a term that applies to circumstances where a grazing permit holder either does not place any livestock, or at numbers less than 90% of permitted, on an allotment due to personal convenience, resource protection, or range research reasons (FSH 2209.13). Approval for grazing permit non-use is granted by a Forest Service authorized officer prior to livestock turnout for the specific grazing year.

**Grizzly Bear Conservation Strategy (GBCS)** a document published by the U.S. Fish and Wildlife Service that describes the regulatory framework for management of the Northern Continental Divide

Ecosystem grizzly bear population and its habitat upon recovery and subsequent removal from the Federal list of Threatened and Endangered Species.

**ground cover** is the material on the soil surface that impedes raindrop impact and overland flow of water. Ground cover consists of all living and dead herbaceous and woody material in contact with the ground and all rocks greater than 0.75 inches in diameter.

**ground fire** a term used to describe organic material, such as duff, organic soils, roots, and rotten buried logs, burning beneath the surface. [NWCG]

**ground-based logging system** a log skidding method using tracked or wheeled tractors. These tractors or “skidders” typically operate on gentle slopes (for example, on slopes less than 40%). Steeper slopes may require cable logging systems.

**groundwater-dependent ecosystem** a community of plants, animals, and other organisms whose extent and life processes depend on groundwater. Examples include many wetlands, groundwater-fed lakes and streams, cave and karst systems, aquifer systems, springs, and seeps.

**group selection method** a cutting method to develop and maintain uneven-aged stands by the removal of small groups of trees (generally up to 0.5 acre in size) at periodic intervals to meet a predetermined goal of size distribution and species composition in remaining stands.

**group use** an activity conducted on NFS lands that involves a group of 75 or more people, either as participants or spectators (36 Code of Federal Regulations 251.51).

**guide** to provide services or assistance (such as supervision, protection, education, training, packing, touring, subsistence, transporting people, or interpretation) for pecuniary remuneration or other gain to individuals or groups on NFS lands (36 Code of Federal Regulations 251.51).

**guideline (GDL)** a constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Also see chapter 1.

**habitat type** an aggregation of plant communities of similar biophysical characteristics, and similar function and response to disturbances. A habitat type will produce similar plant communities at climax. On the HLC NF, habitat types are based upon Pfister et al. 1977. Also see potential vegetation type.

**habituated (bear)** a bear that does not display avoidance behavior near humans or in human use areas (e.g., campgrounds, lodges, town sites, cabin or dwelling yards, within 100m of open roads, etc.), as a result of repeated exposure to those circumstances.

**hazard tree** a tree that has the potential to cause property damage, personal injury or fatality in the event of a failure, where failure is the mechanical breakage of a tree or tree part. Failures often result from the interaction of defects, weather factors, ice or snow loading or exposure to wind. Tree hazards may include dead or dying trees, dead parts of live trees, or unstable live trees (due to structural defects or other factors) that are within striking distance of people or property (a target). Defects are flaws in a tree that reduce its structural strength. Trees may have single or multiple defects, which may or may not be detectable. Failures result in accidents only if they strike a target.

**Healthy Forests Restoration Act** the public law (108-148), passed in December 2003, which provides statutory processes for hazardous fuel reduction projects on certain types of at-risk NFS and Bureau of Land Management managed public lands. The Healthy Forests Restoration Act also provides other

authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships. [NRLMD]

**heterogeneity** exhibiting dissimilarity among members of a group (Helms 1998).

**highway** a term that includes all roads that are part of the National Highway System. (23 Code of Federal Regulations 470.107(b))

**high use areas** areas that receive high levels of visitor use such as trailheads, developed campgrounds, etc.

**historic climax** the plant community that existed at the time of European immigration and settlement in North America. It is the plant community that was best adapted to the unique combination of environmental factors associated with the site. The historic climax plant community was in dynamic equilibrium with its environment. It is the plant community that was able to avoid displacement by the suite of disturbances and disturbance patterns (magnitude and frequency) that naturally occurred within the area occupied by the site.

**historical range of variation** the variation in ecological conditions resulting from disturbance regimes and other natural influences under which the ecosystem and forests evolved. Typically refers to the period prior to the dramatic changes in human land uses and patterns beginning with the influx of European-Americans about the mid-1800s. Historical range of variation is considered valuable for providing a context or frame of reference to evaluate current ecosystem conditions and understanding what an ecologically healthy and sustainable condition might look like. Also see natural range of variation.

**home range** an area, from which intruders may or may not be excluded, to which an individual animal restricts most of its usual activities.

**hydrologic unit code (HUC)** The United States is divided and sub-divided into successively smaller hydrologic units (watersheds) which are classified into six levels: regions (HUC 1), sub-regions (HUC 2), basin (HUC 3), subbasin (HUC 4), watershed (HUC 5), subwatersheds (HUC 6). The hydrologic units are arranged or nested within each other, from the largest geographic area (regions) to the smallest geographic area (cataloging units). Each hydrologic unit is identified by a unique hydrologic unit code consisting of two to twelve digits based on the levels of classification in the hydrologic unit system.

**inherent capability of the plan area** the ecological capacity or ecological potential of an area characterized by the interrelationship of its physical elements, its climatic regime, and natural disturbances.

**integrated resource management** a means to realize many benefits from a forest or other natural area and assure the renewable benefits are there for future generations. [NWCG]

**integrity (ecology)** see ecological integrity

**interagency consultation** a process required by Section 7 of the Endangered Species Act whereby federal agencies proposing activities in a listed species habitat confer with the USFWS about the impacts of the activity on the species.

**intermediate harvest** a removal of trees from a stand between the time of its formation and a regeneration harvest. Most commonly applied intermediate cuttings are release, thinning, improvement, and salvage.

**intermittent stream** a stream that flows only at certain times of the year when it receives water, usually from springs or a surface source such as melting snow.

**invasive plant management activities** activities designed to locate, monitor, prevent and reduce invasive species infestations. These include prevention, survey, inventory, treatment, and monitoring activities.

**invasive species** an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. A species that causes, or is likely to cause, harm and that is exotic to the ecosystem it has infested. Invasive species infest both aquatic and terrestrial areas and can be identified within any of the following four taxonomic categories: plants, vertebrates, invertebrates, and pathogens (Executive Order 13112).

**key ecosystem characteristic** the dominant ecological characteristic(s) that describes the composition, structure, function and connectivity of terrestrial, aquatic and riparian ecosystems that are relevant to addressing important concerns about a land management plan. Key ecosystem characteristics are important to establishing or evaluating plan components that would support ecological conditions to maintain or restore the ecological integrity of ecosystems in the plan area.

**laccolith** is a sheet intrusion (or concordant pluton) that has been injected between two layers of sedimentary rocks. The pressure of the magma is high enough that the overlying strata's are forced upwards forming a dome shape rock formation.

**lacustrine** of, relating to, or associated with lakes

**ladder fuel** a term to describe plant materials that provide vertical continuity between forest strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease.

**land management plan** see forest plan

**landscape** a defined area irrespective of ownership or other artificial boundaries, such as a spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area (36 Code of Federal Regulations 219.19).

**landtype** a unit shown on an inventory map with relatively uniform potential for a defined set of land uses. Properties of soils landform, natural vegetation, and bedrock are commonly components of landtype delineation used to evaluate potentials and limitations for land use.

**large/very large live tree concentrations** are defined using the following minimum criteria:

- warm dry potential vegetation type: Large tree concentrations are areas with at least 5 trees per acre of trees greater than or equal to 15" diameter. Very large tree concentrations are areas with at least 4 trees per acre greater than or equal to 20" diameter.
- cool moist potential vegetation type: Large tree concentrations are areas with at least 10 trees per acre of trees greater than or equal to 15" diameter. Very large tree concentrations are areas with at least 10 trees per acre greater than or equal to 20" diameter.
- cold potential vegetation type: Large tree concentrations are areas with at least 8 trees per acre of trees greater than or equal to 15" diameter. Very large tree concentrations are areas with at least 8 trees per acre greater than or equal to 20" diameter

**late-seral/successional stage (forest)** a late stage in the sequence of plant communities that develops after a disturbance, such as fire or harvest. On the forested communities of the HLC NF, this stage may begin to develop 140 years or more after the disturbance. Forest structures can be very diverse, with wide

range in densities, number of canopy layers and trees sizes. Usually larger trees are dominant (greater than 16 inches diameter breast height).

**Lidar** is a detection system that works on the principle of radar but uses a light from a laser.

**linkage** (also linkage habitat, linkage area, or linkage zone) an area that will support a low density population of a species during certain parts of the year, and that facilitates demographic or genetic connectivity between geographically separate patches of habitat suitable for that species. Linkage areas facilitate movements of an animal (for example, dispersal, breeding season movements, exploratory movements) beyond its home range. Linkage areas may include sizeable areas of nonhabitat and areas influenced by human actions.

**livestock** a type of domestic animal raised for commercial production purposes (for example, cattle). Small livestock includes animals such as sheep, goats, and llamas.

**livestock movement guides** defined utilization limits for key species developed at the allotment management plan level that when achieved would trigger the need for livestock to be moved to the next scheduled pasture/area or off of the allotment depending on the authorized management system in place on any respective allotment.

**losing stream** is a stream or river that loses its water as it flows downstream. Water infiltrates into the ground recharging the local groundwater because the groundwater is below the bottom of the stream channel.

**lynx habitat** an area within a boreal forest with gentle rolling topography, dense horizontal cover, deep snow, and moderate to high snowshoe hare densities (more than 1 hare/2 ha (0.4 hares/2 ac)). In the western United States, forest cover types dominated by Engelmann spruce, subalpine fir and lodgepole pine provide habitat for lynx. [LCAS]

**maintain** to keep in existence or continuance of the desired ecological condition in terms of its desired composition, structure, and processes. Depending upon the circumstance, ecological conditions may be maintained by active or passive management or both.

**management area** a land area identified within the plan area that has the same set of applicable plan components. A management area does not have to be spatially contiguous (36 Code of Federal Regulations 219.19).

**management system (timber)** an administrative method that includes even-aged stand and uneven-aged stand protocols.

**mature multi-story structural stage (forest)** a phase characterized by understory reinitiation, resulting in several tree age classes and vegetation layers. Fallen trees may be present, creating gaps in the overstory canopy. In lynx habitat, these stands typically have high horizontal cover from young understory trees and lower limbs of mature trees that reach the ground or snow level. [LCAS]

**mature tree** a tree which has achieved its maximum or near-maximum mean annual rate of growth in height or diameter.

**MBF/MMBF** (thousand board feet and million board feet, respectively) a specialized unit of measure for the volume of lumber in the United States and Canada. One board foot is the volume of a 1-foot length of a board 1 foot wide and 1 inch thick.



**mean annual increment of growth** the total increment of increase in volume of a stand (standing crop plus thinning removals) up to a given age divided by that age. Culmination of mean annual increment of growth is the age in the growth cycle of an even-aged stand at which the average annual rate of increase of volume is at a maximum. In land management plans, mean annual increment is expressed in cubic measure and is based on the expected growth of stands, according to intensities and utilization guidelines in the plan.

**mechanized travel/mechanical transport** a contrivance for moving people or material in or over land, water, or air, having moving parts, that provides a mechanical advantage to the user, and that is powered by a living or nonliving power source. This includes, but is not limited to, sailboats, hang gliders, parachutes, bicycles, game carriers, carts, and wagons. It does not include wheelchairs when used as necessary medical appliances. It also does not include skis, snowshoes, rafts, canoes, sleds, travois, or similar primitive devices without moving parts (36 Code of Federal Regulations 2320.5(3)).

**mesic** a type of habitat that is moderately moist.

**mid-seral/successional stage (forest)** a mid-stage in the sequence of plant communities that develop after a disturbance, such as fire or harvest. On the forested communities of the HLC NF, stands may be considered in this stage from about 40 to 140 years after the disturbance. Stand structure, such as density and number of canopy layers, can vary widely. Dominant tree sizes are typically from 5 to 15 inches diameter breast height.

**mine reclamation** the process of restoring land that has been mined to a natural or economically usable state. Although the process of mine reclamation occurs once mining is completed, the preparation and planning of mine reclamation activities occur prior to a mine being permitted or started.

**minerals** the FS defines three types of mineral (and energy) resources:

- locatable minerals: Commodities such as gold, silver, copper, zinc, nickel, lead, platinum, etc. and some nonmetallic minerals such as asbestos, gypsum, and gemstones.
- salable minerals: Common varieties of sand, stone, gravel, cinders, clay, pumice and pumicite.
- leasable minerals: Commodities such as oil, gas, coal, geothermal, potassium, sodium phosphates, oil shale, sulfur, and solid leasable minerals on acquired lands.

**mitigate** to avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with an action.

**mixed-severity fire/mixed-severity fire regime** a combination of nonlethal, low-intensity to stand-replacing fire effects within the perimeter of a single fire, or across consecutive events. Mixed-severity fire regimes give rise to unique patch dynamics and ecosystem responses.

**modified thinning technique** a precommercial thin prescription for a stand dominated by seedling or sapling size trees specifying use of techniques designed to develop multiple tree canopy layers over time, enhancing long-term species and structural diversity within forest stands, and contributing to forest conditions more resilient to future disturbance and climate change (also see appendix B, potential management strategies, Canada lynx habitat section).

**monitoring** a systematic process of collecting information to evaluate effects of actions or changes in conditions or relationships.

**motorized equipment** a machine that uses a motor, engine, or other nonliving power sources. This includes, but is not limited to, such machines as chain saws, aircraft, snowmobiles, generators, motorboats, and motor vehicles. It does not include small battery or gas powered hand carried devices such as shavers, wristwatches, flashlights, cameras, stoves, or other similar small equipment.

**motorized route** a NFS road or NFS trail that is designated for motorized use on a motor vehicle use map pursuant to 36 Code of Federal Regulations 212.51

**motorized use** the designation of roads, trails, and areas that are open to motor vehicle use as specified in Federal Register / Volume 70, Number 216 / Wednesday, November 9, 2005 /36 Code of federal Regulations Parts 212, 251, 261, Travel Management; Designated Routes and Areas for Motor Vehicle Use; Final Rule.

**multiple use** is defined by the Multiple-Use Sustained-Yield Act of 1960 (16 United States Code 528–531) as “the management of the various renewable surface resources of the NFS so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.” Additionally, the first paragraph of the MUSY Act states, “Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that, it is the policy of the Congress that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes” (emphasis added).

**National Forest System** the National Forest lands reserved or withdrawn from the public domain of the United States, all National Forest lands acquired through purchase, exchange, donation, or other means, the National Grasslands and land utilization projects administered under title III of the Bankhead-Jones Farm Tenant Act (50 Stat. 525, 7 United States Code 1010-1012), and other lands, waters or interests therein which are administered by the FS or are designated for administration through the FS as a part of the system.

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

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

**natural range of variation (NRV)** the variation of ecological characteristics and processes over scales of time and space that are appropriate for a given management application. Also see historical range of variation. The natural range of variation (or historic range of variation) is a tool for assessing the

ecological integrity and does not necessarily constitute a management target or desired condition. The natural range of variation can help identify key structural, functional, compositional, and connectivity characteristics, for which plan components may be important for either maintenance or restoration of such ecological conditions.

**natural regeneration** a renewal of a tree crop by natural seeding, sprouting, suckering, or layering.

**nonattainment area** an area within a State that exceeds the national ambient air quality standards.

**nonconsumptive water use** the act of removing water from an available supply and utilizing it in a manner that it returns to a waterbody.

**nondiscretionary** exploration and development of locatable mineral resources are nondiscretionary activities, meaning that the Forest Service cannot prohibit reasonably necessary activities required or the exploration, prospecting, or development of valuable mineral deposits.

**nonpoint source pollution** a discharge from a diffuse source, such as polluted runoff from an agricultural area or precipitation, to a water body.

**Northern Continental Divide Ecosystem** a region identified in the Grizzly Bear Conservation Strategy encompassing about 110,636 sq. km. of western and central Montana, that is one of five areas in the lower 48 states where grizzly bear populations occur.

**noxious weed** an exotic plant species established, or that may be introduced in the area, which may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses.

**objective (OBJ)** a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Also see chapter 1.

**occupied lynx habitat** mapped lynx habitat is considered occupied by lynx when [2006 Amendment to the Canada Lynx Conservation Assessment]:

1. There are at least 2 verified lynx observations or records since 1999 on the national forest unless they are verified to be transient individuals; or
2. There is evidence of lynx reproduction on the national forest

**off-highway vehicle** a motor vehicle designed for, or capable of, cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain (36 Code of Federal Regulations 212.1).

**old growth forest** an ecosystem that is distinguished by old trees and related structural attributes. This term is deliberately defined generically, as the use of the term old growth and definitions for old growth vary substantially by ecological regions, forest types, local conditions, literature source, and a host of other factors. In the context of the HLC NF ecosystem the definitions for old growth are those provided within the document titled “Old Growth Forest Types of the Northern Region (Green et al. 1992, and errata 12/11).

**old-growth associated species** the group of wildlife species that is associated with old-growth forest plant communities on the HLC NF.

**old-growth habitat** a community of forest vegetation characterized by a diverse stand structure and composition along with a significant showing of decadence. The stand structure will typically have multi-

storied crown heights and variable crown densities. There is a variety of tree sizes and ages ranging from small groups of seedlings and saplings to trees of large diameters exhibiting a wide range of defect and breakage both live and dead, standing and down. The time it takes for a forest stand to develop into an old-growth habitat condition depends on many local variables such as forest type, habitat type, and climate. Natural chance events involving forces of nature such as weather, insect, disease, fire, and the actions of man also affects the rate of development of old-growth stand conditions. Old-growth habitat may or may not meet the definition for old growth forest (Green et al 1992).

**opening** (as pertaining to maximum opening size standard for timber harvest) a forest patch in a seedling/sapling size class (average stand diameter breast height is less than five inches) created as a result of one even-aged harvest operation (clearcut, seedtree or shelterwood seed cutting). Legacy or reserve trees left to meet other desired conditions are not counted in the calculation of size class for determining the seedling/sapling classification. Adjacent seedling/sapling stands created as a result of an earlier harvest operation are not considered part of an opening.

**outfitting** to rent on, or deliver to, NFS lands for pecuniary remuneration or other gain any saddle or pack animal, vehicle, boat, camping gear, or similar supplies or equipment (36 Code of Federal Regulations 251.51).

**over snow motorized use** an activity involving a motor vehicle that is designed for use over snow and that runs on a track or tracks and/or a ski or skis, while in use over snow (36 Code of Federal Regulations 212.1, Definitions).

**over snow standard season** the time period for over snow motorized use. Generally, the season is defined as December 1 to March 31 of each year; however exceptions apply in specific areas and are noted at the applicable locations as well as in Over Snow Vehicle Use Maps for the HLC NF.

**overstory** the portion of the trees that form the uppermost canopy layer in a forest of more than one story.

**passive crown fire** a type of fire in which individual or small groups of trees torch out, but solid flaming in the canopy cannot be maintained except for short periods. Passive crown fire encompasses a wide range of crown fire behavior from the occasional torching of an isolated tree to a nearly active crown fire. Also called torching and candling.

**patch** an area distinguished from its surroundings by environmental discontinuities, such as a small area of early seral/successional forest (seedling/sapling size class) surrounded by mid-seral and late-seral/successional forest (small to large tree size classes).

**perennial** a stream that flows continuously throughout most years and whose upper surface generally stands lower than the water table in the region adjoining the stream.

**permit** a special use authorization which provides permission, without conveying an interest in land, to occupy and use NFS land or facilities for specified purposes, and which is both revocable and terminable (36 Code of Federal Regulations 251.51).

**permit modification** the revision of one or more grazing permit terms and conditions made in accordance with 36 Code of Federal Regulations 222.4(a)(7) or (a)(8) (or applicable Code of Federal Regulations as revised).

**piscicide** chemical substance which is poisonous to fish.

**plan** a document, or set of documents, that provides management direction for an administrative unit of the NFS developed under the requirements of the 2012 Planning Rule or a prior planning rule. Also see forest plan.

**plan area** the NFS lands covered by a forest plan.

**planned fire** Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and where applicable, National Environmental Policy Act requirements must be met, prior to ignition.

**Pleistocene** is the geological epoch which lasted from about 2,588,000 to 11,700 years ago, spanning the world's recent period of repeated glaciations.

**palustrine** includes any inland wetland which lacks flowing water. Wetlands within this category include inland marshes and swamps, as well as bogs, fens and floodplains.

**point source pollution** a discharge from a known pollutant source, such as a sewage treatment plant, to a water body from a single location.

**pole** a tree at least 5 inches diameter breast height and smaller than 8 inches diameter at breast height.

**potential vegetation type/potential vegetation group** an assemblage of habitat types on the basis of similar biophysical environments, such as climate, slope and soil characteristics. This biophysical environment influences the vegetation characteristics and ecosystem processes that occur. The vegetation communities and conditions that would develop over time given no major natural or human disturbances (the climax plant community) would be similar within a particular potential vegetation type classification.

**Precambrian** is the largest span of time in Earth's history before the current Phanerozoic Eon. It spans from the formation of Earth about 4.6 billion years ago (Ga) to the beginning of the Cambrian Period, about 541 million years ago (Ma), when hard-shelled creatures first appeared in abundance.

**precommercial thinning** the selective felling, deadening, or removal of trees in a young stand dominated by trees less than 5 inches diameter breast height. Primary purposes for thinning include to accelerate diameter increment on the remaining stems, to maintain a specific stocking or stand density range, to develop desired tree species composition, and/or to improve the vigor and quality of the trees that remain.

**prescribed burning or prescribed fire** a fire ignited via management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and National Environmental Policy Act requirements (where applicable) must be met, prior to ignition. [NWCG]

**primary constituent element** specific biological or physical features that provide for a species' life history processes and are essential to the conservation of the species (Canada lynx).

**productivity** the capacity of NFS lands and their ecological systems to provide the various renewable resources (such as timber) in certain amounts in perpetuity. In land management, productivity is an ecological term, not an economic term.

**projected timber sale quantity** the estimated quantity of timber meeting applicable utilization standards that is expected to be sold during the plan period. As a subset of the projected wood sale quantity (PWSQ), the projected timber sale quantity includes volume from timber harvest for any purpose from lands in the plan area based on expected harvests that would be consistent with the plan components. The

PTSQ is also based on the planning unit's fiscal capability and organizational capacity. Projected timber sale quantity is not a target nor a limitation on harvest, and is not an objective unless the responsible official chooses to make it an objective in the plan.

**projected wood sale quantity** the estimated quantity of timber and other wood products that is expected to be sold from the plan area for the plan period. The projected wood sale quantity consists of the projected timber sale quantity as well as other woody material such as fuelwood, firewood, or biomass that is also expected to be available for sale. The projected wood sale quantity includes volume from timber harvest for any purpose based on expected harvests that would be consistent with the plan components. The projected wood sale quantity is also based on the planning unit's fiscal capability and organizational capacity. Projected wood sale quantity is not a target nor a limitation on harvest, and is not an objective unless the responsible official chooses to make it an objective in the plan.

**project** an organized effort to achieve an outcome on NFS lands identified by location, tasks, outputs, effects, times, and responsibilities for execution (36 Code of Federal Regulations 219.19).

**proposed action** a project, activity, or action that a federal agency aims to implement or undertake, and which is the subject of an environmental analysis. Proposed action is a specific term defined under the National Environmental Policy Act.

**proposed species** a type of animal or plant that is proposed by the USFWS, or the National Marine Fisheries Service, through the Federal Register to be listed for protection under Section 4 of the Endangered Species Act.

**public involvement** a process designed to broaden the information base upon which agency decisions are made. The process involves informing the public about FS activities, plans, and decisions, and participation in the planning processes which lead to final decision making.

**rangelands** are land on which the indigenous vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs and is managed as a natural ecosystem. If plants are introduced, they are managed similarly. Rangelands include natural grasslands, savannas, shrublands, many deserts, tundra, alpine communities, marshes, and wet meadows (Society for Range Management 1999). Also included in this definition are oak and pinyon-juniper woodlands.

**rangeland health** the degree to which the integrity of the soil and ecological processes are sustained.

**range improvements** developments and/or activities (treatments) intended to improve rangeland and watershed conditions, enhance wildlife habitat, enhance or improve livestock grazing management or serve similar purposes. There are two kinds of range improvements: nonstructural and structural. Seedings or prescribed burns are examples of nonstructural range improvements. Fences or facilities such as wells or water pipelines are examples of structural improvements.

**reach** a length of stream channel, lake, or inlet exhibiting, on average, uniform hydraulic properties and morphology.

**rearing habitat** a stable and protected micro-environment for a species to birth and rear their young. For example, for juvenile westslope cutthroat trout, rearing habitat is primarily the pool environment found in streams.

**reasonable assurance** a judgment made by the Responsible Official based on the best available scientific information and local professional experience that practices based on existing technology and knowledge

are likely to deliver the intended results. Reasonable assurance applies to average and foreseeable conditions for the area and does not constitute a guarantee to achieve the intended results.

**recently burned forest** a forest area that has burned (via natural or planned ignition) in the last 10 years. These areas contain specific vegetation characteristics including recently burned snags.

**recovery** the improvement in the status of a listed species to the point at which listing as federally endangered or threatened is no longer appropriate (36 Code of Federal Regulations 219.19). This definition is for the purposes of the land management planning regulation at 36 Code of Federal Regulations part 219 and Land Management Planning Handbook 1909.12, and with respect to threatened or endangered species.

**recovery plan** a document that details actions or conditions necessary to promote improvement in the status of a species listed under the Endangered Species Act, to the point at which listing is no longer appropriate.

**recreation** the set of recreation settings and opportunities on the NFS that is ecologically, economically, and socially sustainable for present and future generations. Also see sustainable recreation.

**recreation development scale** a relative scale of development that is used in Forest Service recreation management and planning to describe the level of development associated with the diverse recreation opportunity spectrum settings within the forest.

**recreation development scale 1** recreation sites with minimum site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials excluded. Minimum controls are subtle. No obvious regimentation. Spacing informal and extended to minimize contacts between users. Motorized access not provided or permitted. Development scale 1 recreation sites are most associated with Primitive ROS settings.

**recreation development scale 2** recreation sites with little site modification. Rustic or rudimentary improvements designed primarily for protection of the site rather than the comfort of the users. Use of synthetic materials avoided. Minimum controls are subtle. Little obvious regimentation. Spacing informal and extended to minimize contacts between users. Motorized access provided or permitted. Primary access over primitive roads. Interpretive services informal. Development scale 2 recreation sites are most associated with Semi-primitive ROS settings (both non-motorized and motorized).

**recreation development scale 3** recreation sites with moderate modification. Facilities about equal for protection of natural site and comfort of users. Contemporary/rustic design of improvements is usually based on use of native materials. Inconspicuous vehicular traffic controls usually provided. Roads may be hard surfaced and trails formalized. Development density about three family units per acre. Primary access may be over high standard roads. Interpretive services informal, but generally direct. Development scale 3 recreation sites are most associated with Roaded Natural ROS settings.

**recreation development scale 4** recreation site that are heavily modified. Some facilities designed strictly for comfort and convenience of users. Luxury facilities not provided. Facility design may incorporate synthetic materials. Extensive use of artificial surfacing of roads and trails. Vehicular traffic control usually obvious. Primary access usually over paved roads. Development density about three to five family units per acre. Plant materials usually native.

Interpretive services often formal or structured. Development scale 4 recreation sites are most associated with Rural ROS settings.

**recreation development scale 5** recreation sites with a high degree of site modification. Facilities mostly designed for comfort and convenience of users and usually include flush toilets; may include showers, bathhouses, laundry facilities, and electrical hookups. Synthetic materials commonly used. Formal walks or surfaced trails. Regimentation of users is obvious. Access usually by high-speed highways. Development density about five or more family units per acre. Plant materials may be foreign to the environment. Formal interpretive services usually available. Designs formalized and architecture may be contemporary. Mowed lawns and clipped shrubs not unusual. Development scale 5 recreation sites are most associated with Urban ROS settings.

**recreation event** a recreational activity conducted on NFS lands for which an entry or participation fee is charged, such as animal, vehicle, or boat races; dog trials; fishing contests; rodeos; adventure games; and fairs.

**recreation opportunity spectrum** the opportunity to participate in a specific recreation activity in a particular recreation setting to enjoy desired recreation experiences and other benefits that accrue. Recreation opportunities include nonmotorized, motorized, developed, and dispersed recreation on land, water, and in the air. The six classes are the following:

- **primitive** large, remote, wild, and predominately unmodified landscapes. There is no motorized activity and little probability of seeing other people. Primitive ROS settings are managed for quiet solitude away from roads, people, and development. There are few, if any facilities or developments. Most of the primitive recreation opportunity spectrum settings coincide with designated wilderness boundaries.
- **semi-primitive nonmotorized** large, semi-remote, areas of the forest that provide for backcountry nonmotorized uses. Mountain bikes and other mechanized equipment are often present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area. These settings are not as vast or remote as the primitive ROS settings, but offer opportunities for exploration, challenge, and self-reliance.
- **semi-primitive motorized** large, semi-remote areas of the forests that provide for motorized backcountry motorized on designated routes or in designated areas. Routes are designed for off highway vehicles and other high clearance vehicles. This setting offers visitors motorized opportunities for exploration, challenge, and self-reliance. Mountain bikes and other mechanized equipment are also sometimes present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area or providing portals to adjacent areas of primitive, or semi-primitive, nonmotorized areas.
- **roaded natural** the roaded natural setting is managed as natural appearing with nodes and corridors of development that support higher concentrations of use, user comfort, and social interaction. The road system is well defined and can typically accommodate sedan travel. System roads also provide easy access to adjacent in semi-primitive motorize, semi-primitive nonmotorized and primitive areas.
- **rural** the rural settings represent the developed recreation sites and modified natural settings with higher concentrations of use and increased opportunities for group recreation activities and social interactions. Facilities are designed primarily for user comfort and convenience. The road system is well defined, often paved, and can easily accommodate all forms of transportation. Rural settings often include a combination of private lands intermixed with FS lands.



- **urban** the urban setting is characterized by a substantially developed environment although the background may have natural appearing elements. Highly developed ski areas, visitor centers, interpretive centers, and resorts are examples of an urban setting on National FS lands. Urban areas offer visitor comfort and convenience and modern building materials, such as concrete and asphalt, are a common occurrence.

**recreation setting** the social, managerial, and physical attributes of a place that, when combined, provide a distinct set of recreation opportunities. The FS uses the recreation opportunity spectrum to define recreation settings and categorize them into six distinct classes: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded natural, rural, and urban. Also see recreation opportunity.

**reforestation** the renewal of forest cover by planting, seeding, and natural means (such as seed from existing trees on the site).

**refugia** location and habitats that support populations of organisms that are limited to small fragments of their geographic range

**regeneration** the renewal of a forest, whether by natural or artificial means. This term may also refer to a tree crop itself.

**regeneration harvest** any removal of trees intended to assist in the regeneration of a new age class or to make regeneration of a new age class possible. Regeneration harvest may be through even-aged or uneven-aged methods.

**regeneration method** the cutting approach used to regenerate a stand. Example methods include clearcut, seedtree and shelterwood cutting methods.

**relative return on investment** ROI is a means to evaluate the conservation benefits of an invasive plant control project in relation to cost (Murdock et al. 2007).

**resilience (ecology)** the capacity of a (plant or animal) community or ecosystem to maintain or regain normal function and development following disturbance.

**resistance** the ability of a community to avoid alteration of its present state by a disturbance (Helms 1998)

**resource selection function** the relative probability of an animal using a unique set of habitat (landscape) characteristics. For studies involving radio-collared animals, “use” of landscape combinations is compared to the “availability” of those combinations in a designated study area.

**restocked** the condition of the growing space occupancy of trees to be achieved after a disturbance that has substantially altered the existing stocking (see “stocking”).

**restoration** the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed; ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems sustainability, resilience, and health under current and future conditions (36 Code of Federal Regulations 219.19).

**riffle** a shallow rapid where the water flows swiftly over completely or partially submerged obstructions (rocks, etc.) to produce surface agitation, but standing waves are absent.

**riparian area** a three-dimensional ecotone of interaction that include terrestrial and aquatic ecosystems that extend into the groundwater, above the canopy, and outward across the floodplain, up the near-slopes

that drain to the water, laterally into the terrestrial ecosystem, and along the water course at variable widths.

**riparian ecosystem** a transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem. A riparian ecosystem is identified by soil characteristics and by distinctive vegetative communities that require free or unbounded water.

**riparian management zone** Riparian management zones (RMZs) are portions of watersheds where riparian-associated resources receive primary emphasis, and management activities are subject to specific plan components including standards and guidelines. RMZs include traditional riparian corridors, wetlands, intermittent streams, and other areas that maintain the integrity of aquatic ecosystems. RMZs shall be delineated on the ground based on site conditions as follows:

- **Category 1 Fish-bearing streams:** RMZs consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet total, including both sides of the stream channel), whichever is greatest.
- **Category 2 Permanently flowing non-fish bearing streams:** RMZs consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet total, including both sides of the stream channel), whichever is greatest.
- **Category 3 *Constructed ponds and reservoirs, and wetlands greater than 1 acre*** – RMZs consist of the body of water or wetland and: the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or the extent of unstable and potentially unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the wetland greater than 1 acre or the maximum pool elevation of constructed ponds and reservoirs, whichever is greatest.

*Lakes and natural ponds* - RMZs consist of the body of water and: the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or to the extent of unstable and potentially unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance, whichever is greatest.

- **Category 4 *Seasonally flowing or intermittent streams, wetlands, seeps and springs less than 1 acre, and unstable and potentially unstable areas*** - This category applies to features with high variability in size and site-specific characteristics. At a minimum, the RMZs should include:
  - The extent of unstable and potentially unstable areas (including earthflows).
  - The stream channel and extend to the top of the inner gorge.
  - The stream channel or wetland and the area from the edges of the stream channel or wetland to the outer edges of the riparian vegetation, extending from the edges of the stream channel to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest. A site-potential tree height is the average maximum height of the tallest dominant trees for a given site class.
  - Intermittent streams are defined as any non-permanent flowing drainage feature having a definable channel and evidence of annual scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet these two physical criteria. Fish-bearing intermittent streams are distinguished from non-fish-bearing intermittent streams by the presence of any species of fish for any duration. Many intermittent streams may be used as spawning and rearing streams, refuge areas during flood events in larger rivers and streams

or travel routes for fish emigrating from lakes. In these instances, the guidelines for fish-bearing streams would apply to those sections of the intermittent stream used by the fish.

In order to achieve watershed desired conditions, the RMZ is broken into two areas called the inner and outer RMZs. Some activities are prohibited or restricted in the inner RMZ, whereas more active management is allowed in the outer RMZ. RMZs are not intended to be “no touch zones,” but rather “carefully managed zones” with an increase in protections in close proximity to water resources.

**riparian wildlife habitat** an environment that occurs along lakes, rivers, streams, springs, and seeps where the vegetation and microclimate are influenced by year-round or seasonal water and associated high water tables. Plant and animal species in these areas are more productive and diverse than on nearby uplands, making these areas very important to many wildlife species.

**road** a motor vehicle route more than 50 inches wide, unless identified and managed as a trail. (36 Code of Federal Regulations 212.1, FS Manual 7705):

- decommissioned: The stabilization and restoration of an unneeded road to a more natural state (36 Code of Federal Regulations 212.1).
- forest road or trail: A route wholly or partly within or adjacent to and serving the NFS that is necessary for the protection, administration, and utilization of the NFS and the use and development of its resources (36 Code of Federal Regulations 212.1 – Definitions)
- impassable: A road that has been treated in such a manner that the road is blocked and there is little resource risk if road maintenance is not performed on a regular basis (self-maintaining).
- intermittent stored service/intermittent service road, closed to traffic: The road is in a condition that there is little resource risk if maintenance is not performed.
- maintenance level: A term for the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria (FS Handbook 7709.59, 62.32)

Level 1: These are roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns.

Level 2: Assigned to roads open for use by high clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations.

Level 3: Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities

Level 4: Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds

Level 5: Assigned to roads that provide a high degree of user comfort and convenience.

- NFS: A forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority (36 Code of Federal Regulations 212.1)

- temporary: A road necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road and that is not included in a forest transportation atlas (36 Code of Federal Regulations 212.1)

**rotation** the number of years (including the regeneration period) required to establish and grow timber under an even-aged management system to a specified condition or maturity for regeneration harvest.

**salvage harvest** The removal of dead trees or trees being damaged or dying due to injurious agents other than competition, to recover value that would otherwise be lost.

**sanitation cutting** or removal of trees to improve stand health by stopping or reducing the actual or anticipated spread of insects and disease.

**sapling** a young tree that is larger than a seedling but smaller than a pole or small tree; typically 5 to about 25 feet tall and 1 to 5 inches diameter breast height.

**savanna** a lowland grassland with a scattering of trees. Widely scattered trees are present with less than 10% tree canopy cover and the understory is dominated by grass and/or shrubs.

**sawtimber** a collection of logs cut from trees with minimum diameter (typically greater than 6 or 7 inches diameter breast height) or trees of the same minimum diameter and of sufficient length and stem quality suitable for conversion to lumber.

**scarification** the removal of the surface organic material (duff) of an area, typically to prepare the site for reforestation.

**scenery management system** describes the existing and desired conditions of scenic character within a plan area

**scenic character** a combination of the physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place; scenic character provides a frame of reference from which to determine scenic attractiveness and to measure scenic integrity.

**scenic integrity objectives** a measure of the degree to which a landscape is visually perceived to be complete when compared to the scenic character of that area.

- very high: Landscapes where the valued landscape character “is” intact with minute if any deviations. The existing landscape character and sense of place is expressed at the highest possible level. These landscapes generally provide for ecological change only.
- high: Landscapes in which the valued landscape character “appear” intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such a scale that they are not evident. Management activities do not dominate the landscape.
- moderate: Landscapes in which the valued landscape character “appears slightly altered”. Noticeable deviations must remain visually subordinate to the landscape character being viewed. Management activities are subordinate to the attributes described within the described scenic character of the area.
- low: Landscapes in which the valued landscape character “appears altered”. Deviations begin to dominate the landscape character being viewed but borrow valued attributes such as size, shape, edge effect and pattern of natural openings vegetation type changes or architectural styles outside of

the landscape being viewed. Management activities are visible and sometimes dominant features on the landscape.

- very low: Landscape where the valued landscape character “appears heavily altered”. Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as sized, shape, edge effect and pattern of natural opening, vegetative type changes or architectural styles within or outside of the landscape being viewed. Management activities are visible and dominate the views of the overall landscape.

**scion** a detached living portion of a plant, such as a bud or shoot, often a branch tip, that is grafted onto the root-bearing part of another plant.

**security habitat** an area with low levels of human disturbance or habitat that allows a wildlife species to remain in a defined area despite an increase in stress or disturbance. The components of security habitat can include vegetation, topography, the size of the patches of vegetation, road density, distance from roads, intensity of the disturbance, and seasonal timing of the disturbance. This general definition covers most uses of the term security habitat, except for elk and grizzly bear, which have specific definitions.

**sediment** solid material, both mineral and organic, that is in suspension, being transported, or has been moved from its site of origin by air, water, gravity, or ice.

**seedling** a young tree that has just germinated but has not yet reached sapling size, typically 1 to 5 feet tall.

**seedling/sapling** a size category for forest stands in which trees less than 5 inches in diameter and less than about 25 feet tall are the predominant vegetation.

**seedtree method** a cutting technique used to regenerate a stand in which nearly all trees are removed from an area, except for a small number of trees that are left singly or in small groups.

**seedtree with reserves** the application of the seedtree method with the intention of retaining or reserving all or a portion of the seed trees for future stand structure.

**selection method** a cutting technique used to regenerate a forest stand and maintain an uneven-aged structure, by periodically removing some trees within multiple size classes either singly or in small groups or strips.

**seral** a biotic community that is developmental; a transitory stage in an ecologic succession.

**seral/structural stage** a phase of development of an ecosystem in ecological succession from a disturbed, relatively unvegetated state to a complex, mature plant community.

**shade-intolerant** a plant species that does not grow well or dies from the effects of too much shade.

**shade-tolerant** a plant species that can develop and grow successfully in the shade of other plants.

**shelterwood method** a cutting technique used to regenerate an even-aged stand in which some of the mature trees are left to provide protection for regeneration species (greater numbers of trees are left in this method than with the seedtree method). This technique may be performed uniformly throughout the stand, in strips, or in groups. Regeneration may be natural or artificial (planting).

**shelterwood with reserves** the application of the shelterwood cutting technique with the intention of retaining or reserving all or a portion of the shelterwood trees for future stand structure.

**silvicultural diagnosis** the compiling, summarizing, evaluation and analyzing of forest stand and/or landscape data. Includes describing desired conditions, interpreting management direction and determining feasible alternative silvicultural systems and initial treatments. Integrates other resource conditions and considerations, such as soils, wildlife habitat and visual sensitivity.

**silvicultural prescription** a written document that describes management activities needed to implement one or more silvicultural treatments, or a treatment sequence. The prescription documents the results of the analysis during the diagnosis phase.

**silvicultural system** a management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. It includes cultural management practices performed during the life of the stand, such as regeneration cutting, thinning, and use of genetically improved tree seeds and seedlings to achieve multiple resource benefits.

**silviculture** the theory and practice of controlling the establishment, composition, growth, and quality of forest stands in order to achieve the objectives of management.

**site preparation** a general term for a variety of activities that remove competing vegetation, slash, and other debris that may inhibit the reforestation effort.

**site productivity** the combined effect of physical and climate properties, soil depth, texture, nutrient load, precipitation, temperature, slope, elevation, and aspect, on tree growth of a specific area of land.

**ski area** a site and attendant facilities expressly developed to accommodate alpine or Nordic skiing and from which the preponderance of revenue is generated by the sale of lift tickets and fees for ski rentals, for skiing instruction and trail passes for the use of permittee-maintained ski trails. A ski area may also include ancillary facilities directly related to the operation and support of skiing activities (36 Code of Federal Regulations 251.51).

**slash** the residue left on the ground after felling and other silvicultural operations, or that has accumulated there as a result of storms, fire, or natural pruning.

**snag** a standing dead tree usually greater than 5 feet in height and 6 inches in diameter breast height.

**species of conservation concern** a species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the Regional Forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area (36 Code of federal Regulations 219.9(c)).

**stand** a community of trees occupying a specific area and sufficiently uniform in canopy composition, age, and size class to be a distinguishable unit, forming a single management entity.

**standard (STD)** a mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements. Also see chapter 1.

**stand-replacing disturbance** an agent such as fire, blowdown, insect or disease epidemic, or timber harvest, which kills or removes enough trees (usually considered 80% or more of the tree component) to result in an early seral/successional forest.

**stem exclusion structural stage** (or closed canopy structural stage) a phase when trees initially grow fast and quickly occupy the growing space, creating a closed canopy. Because the trees are tall, little light reaches the forest floor so understory plants (including smaller trees) are shaded and grow more slowly. Species that need full sunlight usually die; shrubs and herbs may become dormant. New trees are precluded by a lack of sunlight or moisture. (Oliver and Larson, 1996) [NRLMD]

**stocking** a measure of timber stand density as it relates to the optimum or desired density to achieve a given management objective.

**storm proofing** measures taken to reduce the risk or amount of damage to roads from major storms.

**stressor** (ecology) see ecosystem stressor

**structural stage** a particular forest condition, characterized by a set of forest structural characteristics (such as tree diameters, tree heights, tree densities, canopy layers) that is representative of a particular period of stand development. Also see stand initiation structural stage, stem exclusion structural stage, and understory reinitiation structural stage.

**structure** the organization and physical arrangement of biological elements such as, snags and down woody debris, vertical and horizontal distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity. Also see forest structure.

**substrate** a mineral and/or organic material that forms the streambed (stream bottom).

**subwatershed** a 6th level/12 digit hydrologic unit code watershed. They range in size from 10,000 to 40,000 acres, as defined in the U.S. Geological Survey hierarchical system of watersheds.

**succession/successional stage** a predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages in succession are often referred to as “seral,” or “successional” stages.

**suitability of lands** a determination made regarding the appropriateness of various lands within a plan area for various uses or activities, based on the desired conditions applicable to those lands. The terms suitable and suited and not suitable and not suited can be considered the same.

**summer range** a part of the overall range of a species where the majority of individuals are located between spring green-up and the first heavy snowfall; in some areas or for some species winter range and summer range may overlap.

**sustainability** the capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs. For purposes of this part, “ecological sustainability” refers to the capability of ecosystems to maintain ecological integrity; “economic sustainability” refers to the capability of society to produce and consume or otherwise benefit from goods and services including contributions to jobs and market and nonmarket benefits; and “social sustainability” refers to the capability of society to support the network of relationships, traditions, culture, and activities that connect people to the land and to one another, and support vibrant communities (36 CFR 219.19).

**sustainable recreation** the set of recreation settings and opportunities on the NFS that is ecologically, economically, and socially sustainable for present and future generations.

**sustained yield limit** the amount of timber, meeting applicable utilization standards, “which can be removed from [a] forest annually in perpetuity on a sustained-yield basis” (National Forest Management Act at section 11, 16 United States Code 1611; 36 CFR 219.11(d)(6)). It is the volume that could be produced in perpetuity on lands that may be suitable for timber production. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of the sustained yield limit is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity. The sustained yield limit is not a target but is a limitation on harvest, except when the plan allows for a departure.

**system road** see NFS road.

**threatened species** a species that the Secretary of the Interior or the Secretary of Commerce has determined is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. Threatened species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act. Threatened species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 223.102.

**thrust fault** is a type of low angle fault, or break in the Earth's crust across which there has been relative movement, in which rocks of lower stratigraphic position are pushed up and over higher strata. They are often recognized because they place older rocks above younger.

**timber harvest** the removal of trees for wood fiber use and other multiple-use purposes (36 Code of federal Regulations 219.19).

**timber harvest** the removal of trees for wood fiber use and other multiple-use purposes

**timber management** the growing of, tending to, commercial harvesting of, and regeneration of crops of trees. [NRLMD]

**timber production** the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 Code of Federal Regulations 219.19).

**total maximum daily load** is a pollution budget and includes a calculation of the maximum amount of a pollutant that can occur in a waterbody and allocated the necessary reductions to one or more pollutant sources (metals, sediment, turbidity, etc.). A total maximum daily load serves as a planning tool and potential starting point for restoration or protection activities with the ultimate goal of attending or maintaining water quality standards.

**total soil resource commitment** is the conversion of a productive site to an essentially nonproductive site (0 to 40 percent of natural productivity) for a period of more than 50 years. Examples include system roads, administrative sites, developed campgrounds, rock quarries, mine sites, livestock watering facilities, and home ignition zones.

**trail** a route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail (36 Code of Federal Regulations 212.1).

**trail class** the prescribed scale of development for a trail, representing its intended design and management standards.

**trailhead** an area that provides parking for or access to a singular trail or trails through the forest.



**transitory range** forested lands that are suitable for grazing for a limited time following a complete or partial forest removal

**transportation livestock** livestock used as pack and saddle stock for travel on NFS lands.

**two-aged stand** a stand containing two distinctive age classes or cohorts.

**underburning** a fire that consumes surface fuels but not trees and some large shrubs.

**understory** the trees and other woody species which grow under a more or less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.

**understory re-initiation structural stage** establishment of a new age class of trees after overstory trees begin to die, are removed, or no longer fully occupy their growing space. The stand of trees begins to stratify into vertical layers, with some small shade-tolerant trees in the understory. [LCAS]

**uneven aged stand** a stand of trees of three or more distinct age classes, either intimately mixed or in groups.

**uneven aged system** a planned sequence of treatments designed to regenerate or maintain a timber stand with three or more age classes. Treatments include single-tree, selection, and group selection regeneration methods.

**untrammeled** a term defined in the context of the Wilderness Act as an area where human influence does not impede the free play of natural forces or interfere with natural processes in the ecosystem.

**unique and/or limited ecological sites** ecological sites (or their equivalent) that are limited in size/area and/or distribution.

**utilization standards** utilization standards are specifications for merchantable forest products offered in a timber sale.

**vegetation management** a process that changes the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire or timber harvest. For the purposes of this decision, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, roads and the like, and does not apply to fire suppression or to wildland fire use.

**viable population** a population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments. (36 Code of Federal Regulations 219.19)

**viewshed** the visible portion of the landscape seen from viewpoints. Viewpoints can include residences, recreational facilities, and travelways.

**water quality** the physical, chemical, and biological properties of water.

**water yield** the runoff from a watershed, including groundwater outflow.

**watershed** a region or land area drained by a single stream, river, or drainage network; a drainage basin.

**watershed condition** the state of a watershed based on physical and biogeochemical characteristics and processes.

**watershed condition framework** The watershed condition framework is a comprehensive approach for proactively implementing integrated restoration on priority watersheds on national forests and grasslands.

**weighted average/weighted mean** similar to an arithmetic mean or average, where instead of all data points contributing equally to the final average, some data points contribute more than others. In the example of patch sizes of early successional seedling/sapling forests, the data point is the patch. Patches are “weighted” by their acreage, and thus larger patches will contribute more to the determination of average than the smaller patches. This statistic gives insight into how large the largest patches really are, and how the individual patches are distributed along the range from smallest to largest patch size.

**wetland** is an area that under normal circumstances has hydrophytic vegetation, hydric soils, and wetland hydrology.

**wild and scenic river** a waterway designated by Congress as part of the National Wild and Scenic Rivers System, which was established in the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271, 1271–1287).

**wilderness** an area of land designated by Congress as part of the National Wilderness Preservation System that was established in the Wilderness Act of 1964 (16 United States Code 1131–1136).

**wildfire** unplanned ignition of a wildland fire or an escaped prescribed fire. Wildfire includes unplanned fires that are human-caused and those that are naturally-ignited.

**wildland fire** Any nonstructure fire that occurs in the wildland. There are two types of wildland fire: unplanned (natural or human-caused ignitions) and planned (prescribed fire).

**wildland-urban interface** a term is defined by the Healthy Forest Restoration Act § 101:

(A) an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan; or

(B) in the case of any area for which a community wildfire protection plan is not in effect—

(i) an area extending 1/2-mile from the boundary of an at-risk community;

(ii) an area within 1 1/2 miles of the boundary of an at-risk community, including any land that—

(I) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community;

(II) has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or

(III) is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; and

(iii) an area that is adjacent to an evacuation route for an at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous fuel reduction to provide safer evacuation from the at-risk community.

**wildlife security** The protection inherent in any situation that allows animals to remain in a defined area despite an increase in stress or disturbance associated with human activities

**windthrow** a tree or stand of trees that have been blown over by the wind.

**winter range** the portion of the overall area a species inhabits where the majority of individuals are found from the first heavy snowfall to spring green-up, or during a specific period of winter. In the Rocky Mountains, winter range areas tend to have a relatively low amount of snow cover.

**yarding** the operation of hauling timber from the stump to a collecting point.

**xeric** (of an environment or habitat) containing little moisture; very dry.

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