

Helena and Lewis & Clark National Forests

Forest Plan Assessment

Chapter 13, Preparers, Acronyms and Abbreviations, and
Glossary

2015

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Preparers

The following individuals were involved in the preparation of this assessment.

Name	Role	Education	Experience
Core Team			
Erin Swiader	Team Leader	B.S. Wildlife Science, Virginia Polytechnic Institute and State University M.P.A. Old Dominion University	1.5 years Forest Service 10 yrs Dept of Defense 3 years State of VA
David Anderson	Planning Analyst	BS Forest Mgt., Texas A&M MS Quantitative Res. Mgt., U. of WA	11 yrs Pvt. Industry 11 yrs Forest Service
Elizabeth Casselli	Recreation	BS Horticulture/Landscape Design, MSU Bozeman	25 yrs Forest Service
Wendy Clark	Wildlife	BA Biology, Knox College MS Ecology and Behavioral Biology, U. of MN	15 yrs Forest Service 4 yrs Natl. Park Service
Deb Entwistle	Watershed	BS Biology, SUNY MS Watershed Science, CO State U.	19 yrs Forest Service
Krista Gebert	Socio Economics	BA and MA Economics, U. of MT	17 yrs Forest Service
Cynthia Manning	Social Science	BA Anthropology, U. of Pittsburgh MA Anthropology, U. of MT	36 yrs Forest Service
Amanda Milburn	Vegetation	BS Resource Conservation, U of MT FS Certified Silviculturist	15 yrs Forest Service
Liz Van Genderen	Technical Writing	BS Nat. Res. Mgt., CO State U.	26 yrs Forest Service
Lori Wollan	GIS	BS Forest Res. Mgt., U of MT	25 yrs Forest Service
Support Personnel to the Core Team			
Beth Anderson	Hydro/soils/fish	BS Environmental Science U of MN MS Soil Science U of MN	3 yrs Forest Service 8 yrs NRCS & ARS
Liz Burke	Conservation Education	BS Biological Sciences, U of Notre Dame MS Environmental Sciences, U of MT	13 yrs Forest Service
Kathy Bushnell	Public Affairs	BS Journalism, University of Montana	13 yrs Forest Service
Kendall Cikanek	Fisheries	BS Natural Res. Mgt., Kansas State Univ.	19 yrs Forest Service -
Dave Cunningham	Public Affairs	BS Wildlife Biology, U of MT BS Forestry-Range, Mgt. U of MT	23 yrs Forest Service
Tessa Donahue	Lands	BS, Management, Park University	14 yrs Forest Service
David Fothergill	Scenery	BS Biology, University of KY MLA Landscape Architecture, University of Oregon	2 yrs Forest Service
Amanda Hendrix	Native Plants	BS Plant Science, MT State U	9 yrs Private Industry 5 yrs Forest Service
Pam Hergett	Transportation	BS Civil Engineering, Mt State U	24 yrs Forest Service
LaWen Hollingsworth	Fire Planning, Air Quality	BS Forest Resources, U of ID MS Forestry, U of MT	13 yrs Forest Service
Beth Ihle	Minerals/geology	BS Geology, U of UT MS Earth Sciences, MT State U	27 yrs Forest Service
Shanna Kleinsmith	Writer/Editor	BS Natural Resource Ecology and Conservation Biology, U of ID	13 yrs Forest Service

Name	Role	Education	Experience
Kelsey McCartney	Recreation	BA Anthropology, University of ID	14 yrs Forest Service
Ryan Quire	Native Plants	BS Nat. Res. Con. & Mgmt. U of KY MS Plant Biology, MT State U	1 yr Private Industry 1 yr Forest Service
Arian Randall	Cultural Resources	BS Anthropology, MT State U	6 yrs Forest Service
Rowdy Wood	Range & Invasive Plants	BS Range Ecology, CO State U.	29 yrs Forest Service

Acronyms and Abbreviations

ac	acre
ADS	aerial detection surveys
AF/S	subalpine fir/Engelmann Spruce
AIS	aquatic invasive species
AMO	Atlantic Multidecadal Oscillation
ANCOVA	analysis of covariance
APHIS	Animal and Plant Health Inspection Service
AQI	air quality index
AQRV	air quality related values
ARRA	American Recovery and Reinvestment Act
ATV	all-terrain vehicle
BGEPA	Bald and Golden Eagle Protection Act
BMU	bear management unit
BASI	best available scientific information
BMP	best management practice
BE	biological evaluation
BO	biological opinion
BMW	Bob Marshall Wilderness
BMWC	Bob Marshall Wilderness Complex
BLM	Bureau of Land Management
BBS	North American breeding bird surveys
CAPS	crucial areas planning system
CCE	Crown of the Continent Ecosystem
CECRA	Comprehensive Environmental Cleanup and Responsibility Act

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFLRP	collaborative forest landscape restoration program
CFR	Code of Federal Regulations
CO2	carbon dioxide
CWA	Clean Water Act
CWPP	community wildfire protection plans
dbh	diameter at breast height
DCA	demographic connectivity area
DF	Douglas-fir
DOI	Department of the Interior
DPS	distinct population segment
EHU	elk herd units
ECMA	Elkhorn Cooperative Management Area
ENSO	El Niño Southern Oscillation
EPS	economic profile system
ERU	ecological reporting units
ESA	Endangered Species Act
ESR	ecological subregion
FACTS	forest activity tracking system database
FHP	Forest Health Protection
FHWA	Federal Highway Administration
FIA	forest inventory and analysis
FLREA	Federal Lands Recreation Enhancement Act
FMP	fire management plan
FMU	fire management unit
FSH	Forest Service Handbook
FSM	Forest Service Manual
FVS	forest vegetation simulator model
GA	geographic area
GIS	geographic information system
GNP	Glacier National Park

GYA	Greater Yellowstone Ecosystem
HLC NFs	Helena and Lewis & Clark National Forests
HNF	Helena National Forest
HD	hunting district
HDT	human dimension tool
HRV	historic range of variability
HT	habitat type
HTG	habitat type group
HUC	hydrologic unit code
ICBEMP	Interior Columbia Basin Ecosystem Management Project
IGBC	Interagency Grizzly Bear Committee
IMPROVE	interagency monitoring of protected visual environments
INFISH	Inland Native Fish Strategy
IPCC	Intergovernmental Panel on Climate Change
LCNF	Lewis and Clark National Forest
LAU	lynx analysis unit
LCAS	Lynx Conservation and Assessment Strategy
LP	lodgepole pine
LRMP	land and resource management plan
MAAQS	Montana ambient air quality standards
MBF	thousand board feet
MOU	memorandum of understanding
mi	mile
MMBF	million board feet
MTDEQ	Montana Department of Environmental Quality
MTFWP	Montana Department of Fish, Wildlife, and Parks
MTDNRC	Montana Department of Natural Resources and Conservation
MMC	Montana mining claim
MTNHP	Montana Natural Heritage Program
MTSHPO	Montana State Historic Preservation Office
MVUM	motor vehicle use map

MPB	mountain pine beetle
MUSY	Multiple-Use Sustained-Yield Act
NAAQS	national ambient air quality standards
NASIS	national soil information system
NCDE	Northern Continental Divide Ecosystem
NEPA	National Environmental Policy Act
NF	national forest
NFMA	National Forest Management Act
NFS	National Forest System
NRCS	Natural Resources Conservation Service
NRIS	natural resource information system
NRLMD	Northern Rockies Lynx Management Direction
NRM	natural resource manager (database)
NRV	natural range of variability
NSRE	National Survey on Recreation and the Environment
NVUM	National Visitor Use Monitoring (report)
OG	outfitter and guide
OHV	off-highway vehicle
OMAD	open motorized access density
ORV	outstanding remarkable values
PCA	primary conservation area
PDO	Pacific Decadal Oscillation
PIBO	PACFISH/INFISH Biological Opinion
PM	particulate matter
PP	ponderosa pine
PVT	potential vegetation type
PCA	primary conservation area
RAC	resource advisory council
RARE	roadless area review and evaluation
RHCA	riparian habitat conservation area
RNA	research natural area

ROS	recreational opportunity spectrum
RPA	Resource Planning Act
RSFMP	recreation site facility master plan
RU	recovery unit
SCC	species of conservation concern
SIMPPLLE	Simulating Pattern and Process at Large Landscape Scales (model)
SIO	scenic integrity object
SMS	scenery management system
SOPA	schedule of proposed actions
SOC	species of concern
SIP	State Implementation Plan (air)
SMZ	streamside management zone
SNOTEL	Snow Telemetry (snow data gathering equipment/sites)
TES	threatened, endangered, and sensitive species
TMAD	total motorized access density
TMDL	total maximum daily load
BOR	United States Bureau of Reclamation
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
VQO	visual quality objective
WBP	whitebark pine
WCATT	watershed condition and tracking tool
WCF	watershed condition framework
WL	western larch
WUI	wildland urban interface
WMU	wildlife management unit
WMU	wolverine management unit
WSA	wilderness study area

Glossary

adaptive capacity – the ability of ecosystems to respond, cope, or adapt to disturbances and stressors, including environmental change, to maintain options for future generations. As applied to ecological systems, adaptive capacity is determined by:

1. Genetic diversity within species in ecosystems, allowing for selection of individuals with traits adapted to changing environmental conditions.
2. Biodiversity within the ecosystem, both in terms of species richness and relative abundance, which contributes to functional redundancies.
3. The heterogeneity and integrity of ecosystems occurring as mosaics within broader-scale landscapes or biomes, making it more likely that some areas will escape disturbance and serve as source areas for re-colonization.

age class - a distinct aggregation of trees originating from a natural event or regeneration activity, or a grouping of trees.

airshed - a geographical area in which atmospheric characteristics e.g. mixing height and transport winds are similar. [MT/ID Airshed Group]

assessment - the identification and evaluation of existing information to support land management planning; assessments are not decision making documents, but provide current information on select topics relevant to the plan area, in the context of the broader landscape

bear management subunit - a subunit of a bear management unit representing the approximate size of an average annual female grizzly bear home range generally delineated from ridgetop to valley bottom, and encompassing all seasonal habitats.

best management practices (BMPs) - a practice or usually a combination of practices that are determined by a state or a designated planning agency to be the most effective and practicable means (including technological, economic, and institutional considerations) of controlling point and nonpoint sources pollutants at levels compatible with environmental quality goals—*note* BMPs were conceptualized in the 1972 US Federal Water Pollution Control Act

biodiversity - the variety and abundance of life forms, processes, functions, and structures of plants, animals, and other living organisms, including the relative complexity of species, communities, gene pools, and ecosystems at spatial scales that range from local through regional to global – *synonym* biological diversity, diversity

biological assessment - a document prepared by a federal agency for the purpose of identifying any endangered species or threatened species that is likely to be affected by an agency action. This document facilitates compliance with the Endangered Species Act. The federal agency, in consultation with the Secretary of Interior, must insure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of its habitat

biological evaluation - a document prepared by the Forest Service to review programs or activities to determine how an action might affect any threatened, endangered, proposed, or sensitive species, this document often focuses only on sensitive species if the threatened, endangered, and proposed species will be covered in a biological assessment

biomass (fuels) - live and dead accumulations of organic material

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

broadcast burn - allowing a prescribed fire to burn over a designated area within well-defined boundaries. Used for reduction of fuel hazard, as a resource management treatment, or both

candidate species - (1) for U.S. Fish and Wildlife Service 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 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 bulk density - the mass of available canopy fuel per unit canopy volume; it is a bulk property of a stand, not of an individual tree

canopy cover - the percentage of ground surface that is shaded by the vertical projection of live foliage of plants as seen from above. Used to describe how open or dense a stand of trees is

canopy fuels - 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 flux - the change in carbon stocks over time. A negative change means carbon is being removed from the atmosphere and sequestered by forests (e.g. **carbon sink**), while a positive change means carbon is added to the atmosphere (e.g. **carbon source**).

carbon pool - any area containing 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 sequestration - is the capture and storage of carbon.

carbon stocks - the amount or quantity contained in the inventory of a carbon pool.

clearcut - 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). See also **regeneration method**

climax - in reference to plant communities and succession: the final stage of succession. Relatively stable condition where plant species on the site are able to perpetuate themselves indefinitely.

coarse woody debris - any piece(s) of dead woody material (e.g., dead boles, limbs, and large root masses) on the ground or in streams that is at least three inches in diameter

collaboration or collaborative process - a structured manner in which a collection of people with diverse interests share knowledge, ideas, and resources while working together in an inclusive and cooperative manner toward a common purpose; collaboration, in the context of this part, falls within the full spectrum of public engagement described in the Council on Environmental Quality's publication of October, 2007: *Collaboration in NEPA A Handbook for NEPA Practitioners*

commercial thinning - a treatment that “thins” out an overstocked stand by removing trees large enough to be sold as products such as poles or fence posts. This treatment is usually carried out to improve the health and growth rate of the remaining crop trees, or to reduce fire hazard.

competition ecology - the extent to which each organism maximizes fitness by both appropriating contested resources from a pool not sufficient for all, and adapting to the environment altered by all participants

composition - the constituent elements of an entity; e.g. the types and variety of living things in an ecosystem or the species that constitute a plant community.

condition class - a function of the degree of departure of an area from historical fire regimes, resulting from alterations of key ecosystem components such as species composition, structural stage, stand age, and canopy closure.

connectivity - ecological conditions that exist at several spatial and temporal scales, providing 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. For example, bull trout are able to move upstream to spawn as long as there is not a barrier to connectivity, such as a dam.

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

conserve - to protect, preserve, manage, or restore natural environments and ecological communities to potentially avoid federally listing of proposed and candidate species

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 U.S. Fish and Wildlife Service about the impacts of the activity on the species; consultation may be informal, and thus advisory, or formal, and thus binding

Council on Environmental Quality - an advisory council to the President established by the National Environmental Policy Act of 1969. The Council reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

cover - 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. For example, cover allows elk to use areas for bedding, foraging, thermal relief, wallowing, or other functions, but it does not necessarily provide security during the hunting season.

cover/forage ratio - the ratio of tree cover (usually conifer types) to foraging areas (natural openings, clearcuts, etc.).

cover type - the vegetation composition of an area, described by the dominant plant species. See also forest type

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

crown fire - a fire that advances from top-to-top of trees or shrubs more or less independently of the surface fire.; sometimes, crown fires are classed as either running or dependent, to distinguish the degree of independence from the surface fire; a crown fire can be **active**—a crown fire in which the entire fuel complex becomes involved, but the crowning phase remains dependent on heat released from the surface fuels for continued spread—also called running and continuous crown fire; **independent**—a fire that burns in canopy fuels without aid of a supporting surface fire; independent crown fires occur rarely and are short-lived, requiring a combination of steep slope, high windspeed, and low foliar moisture content; or **passive**—a fire in which individual or small groups of trees torch out, but a solid flame is not consistently maintained in the canopy.

culmination of mean annual increment of growth - see mean annual increment of growth

d.b.h. - see diameter breast height

dedicated skid trail - a trail used repeatedly for skidding logs in order to confine disturbance to that trail only

density (stand) - the number of trees growing in a given area usually expressed in terms of trees per acre, basal area per acre, or percent canopy cover.

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

developed recreation recreation that occurs where improvements enhance recreation opportunities and accommodate intensive recreation activities in a defined area

diameter breast height (d.b.h.) - the diameter of a tree measured four and one-half feet above the ground or diameter of a log measured four and one-half feet from the butt end of the log

dispersed recreation - that portion of outdoor recreation use that occurs outside of developed sites in the unroaded and roaded forest environment i.e. hunting, backpacking, and berry picking

disturbance - refers to events that alter the structure, composition, or function of terrestrial or aquatic habitats. 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; 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

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

dominance types - describe the species making up the plurality of vegetation in the R1 Classification System.

drivers (ecology) - see ecosystem drivers

duff - the partially decayed organic matter on the forest floor

early-seral/successional stage - as pertaining to forested ecosystems of the Helena and Lewis and Clark National Forests - a stage of development of an ecosystem from a disturbed, relatively unvegetated state to a forested plant community that is up to 30 to 40 years old; stand structure is typically seedling and sapling sized trees, and single canopy layer.

ecological conditions - 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 sustainability - see sustainability

ecological system - see ecosystem

economic sustainability - see sustainability

ecosystem - a functional unit consisting of all the living organisms (plants, animals, and microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow; an ecosystem can be of any size (a log, pond, field, forest, or the earth's biosphere) but it always functions as a whole unit; ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, old-growth ecosystem, or range ecosystem; a spatially explicit, relatively homogeneous unit of the earth that includes all interacting organisms and elements of the abiotic environment within its boundaries; an ecosystem is commonly described in terms of its: (1) **composition**—the biological elements within the different levels of biological organization, from genes and species to communities and ecosystems; (2) **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; (3) **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; and (4) **connectivity** (See **connectivity**)

ecosystem diversity - the variety and relative extent of ecosystems

ecosystem drivers - any 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 services - benefits people obtain from ecosystems, 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 stressors - factors 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.

edge - the outer band of a patch that has an environment significantly different from the interior of the patch.

edge effects - changes in ecological community due to the rapid creation of abrupt edges in large patches of previously undisturbed habitat. For old growth habitat, this is where sun, wind, predators, competitors, etc., can penetrate further into what was previously interior forest. For Western Montana forests, the edge effect generally affects the forest for a distance upto 2 to 4 times the average tree height of the stand

endangered species - any species, plant, or animal that 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.

endemic - a species whose natural occurrence is confined to a certain region and whose distribution is relatively limited (vertebrate biology). A population that is at equilibrium or low density (invertebrate biology or pathology).

environmental assessment (EA) - a public document that provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact, aids an agency's compliance with the National Environmental Policy Act when no EIS is necessary, and facilitates preparation of a statement when one is necessary (40 Code of Federal Regulations 1508.9; Forest Service Handbook 1909.15, Chapter 40).

environmental document - refers to an environmental assessment, environmental impact statement, finding of no significant impact, categorical exclusion, and notice of intent to prepare an environmental impact statement.

environmental impact statement - a detailed written statement as required by section 102(2)(C) of the National Environmental Policy Act of 1969 (40 Code of Federal Regulations (CFR) 1508.11; 36 CFR 220).

even-aged stand - a stand of trees composed of a single age class. Usually trees are within +/-20 years of each other.

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.

extirpation - the local disappearance of a species, as opposed to extinction, which is global disappearance.

fine fuels - fast-drying dead or live fuels, generally characterized by a comparatively high surface area –to-volume ratio, which are less than 1/4 –inch in diameter and having a timelag of one hour or less. These fuels (grass, leaves, needles, etc.) ignite readily and are consumed rapidly by fire when dry. [NWCG]

fire exclusion - the disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

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. Assessment is based on physical fuel characteristics, such as fuel arrangement, fuel load, condition of herbaceous vegetation, and presence of elevated fuels.

fire management unit - a land management area defined by objectives, topographic features, values to be protected, political boundaries, fuel types, and/or major fire regimes.

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

fire regimes - the ecological effects of frequency, intensity, extent, season, and synergistic interactions with other disturbances, such as insects and disease, classified into generalized levels of fire severity. The periodicity and pattern of naturally occurring fires in a particular area or vegetative type, described in terms of frequency, biological severity, and aerial extent (Anderson 1982). The five natural fire regimes follow:

- I 0- to 35-year frequency and low (surface fires most common) to mixed severity (less than 75 percent of the dominant overstory vegetation replaced);
- II 0- to 35-year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);
- III 35- to 100+ -year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced);
- IV 35- to 100+ -year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);
- V 200+ -year frequency and high (stand replacement) severity.

fire severity - describes the effects of fire on the ecosystem, and is often expressed by the amount of vegetation replacement or effects to the soil.

fire suppression (fire control) - all of the work and activities connected with fire extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

fire-adapted species - plant species that have evolutionary adaptations to survive and thrive in an ecosystem where fire is a primary driver. These include tree species that are termed fire-tolerant (see **fire-tolerant species**) as well as trees and other plant species that have a myriad of other types of adaptations. Some of the other adaptations are the serotinous cones of lodgepole pine (opening 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 light, wind-spread seed.

fire-intolerant species - in the context of the HLC NFs assessment, tree species 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.

fire-tolerant species - in the context of the HLC NFs assessment, tree species 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), protected buds. **fish passage** 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.

forage - all browse and non-woody plants available to livestock or wildlife for feed.

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

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. *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. 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.

forest land - land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest uses. Lands developed for non-forest use include areas for crops, improved pasture, residential or administrative areas, 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 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 National Forest System Road

forest type - a category of forest usually defined by its vegetation, particularly its dominant vegetation as based on percentage cover of trees, e.g., subalpine fir/spruce; lodgepole pine. See also **cover type**.

forested connectivity - connectivity for wildlife species that prefer to remain within or close to forested cover.

forested riparian linkages - areas of forested cover along and connecting adjacent riparian features, such as streams, ponds, and wetlands.

fragmentation - the alteration of a large habitat patch to create isolated or tenuously connected patches of the original habitat that are interspersed with an extensive mosaic of other habitat types. This may result in the reduction of total habitat area, increased isolation of patches, and reduced connectivity between patches of natural vegetation. This occurs naturally through such agents as fire, landslides, windthrow, and insect attack, or due to forest management activities including timber harvesting and related activities.

fuel management - 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 fuel bed characteristics (load and surface-area-to-volume-ratio by size class, heat content, and depth) organized for input to a fire model. Standard fuel models have been stylized to represent specific fuel conditions.

fuels reduction zone - areas in which continuous high hazard fuels are broken up. These zones are designed to increase firefighter safety and reduce resistance to fire control efforts. Fuels reduction zones may be of any size or shape. They may have a higher number of snags, down logs, and canopy closure than other fuels treatment zones. They are recognized as being a significant portion of a complete fuels management program.

fuel treatment - manipulation or removal of fuels to reduce the likelihood of ignition and/or lessen potential damage and resistance to control (e.g. lopping, chipping, crushing, piling and burning). [NWCG]

function - is the processes or interactions that occur between the elements of the ecosystem

geographic area - a spatially contiguous land area identified within the planning area. A geographic area may overlap with a management area.

geographic information system - (also known as GIS) computer software that links database software to graphics (spatially explicit) software and provides database and analytic capabilities.

genotype - an individual's hereditary (genetic) constitution.

goal - the end state, aspiration, or purpose that reflects what a decision maker hopes to achieve —note 1. a goal is normally expressed in broad, general terms (without specific target dates or quantities) or specifically stated in the context of goal criteria —note 2. goal statements form the principal basis from which objectives are developed

gradient - (stream) the slope of a streambed.

ground-based logging system - a log skidding method using tracked or wheeled tractors. These tractors or “skidders” typically operate on gentle slopes. Steeper slopes may require cable logging systems.

group selection method - a cutting method to develop and maintain uneven-aged stands by the removal of small groups of trees (generally up to ½ acre in size) at periodic intervals to meet a predetermined goal of size distribution and species composition in remaining stands.

ground fire - a fire that burns organic material beneath the surface, such as duff, organic soils, roots, and rotten buried logs. [NWCG]

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. See also **potential vegetation type**.

harvest - refers to any activity which cuts and removes trees with mechanical equipment. Basic types of harvest include the following:

One or two-aged Regeneration Harvest: One or two-aged regeneration harvests establish a new age class and include silvicultural systems such as clearcutting, shelterwood cutting, seed tree cutting, and coppice cutting. These treatments result in the establishment of early seral forest, single or 2-aged depending on the quantity of remnant trees.

Uneven-aged Harvest: An un-even aged harvest is part of a planned treatment sequence designed to regenerate or maintain a stand with three or more age classes. This category includes silvicultural systems such as single tree selection and group tree selection.

Intermediate Harvest: Intermediate harvest is cutting designed to enhance growth, quality, vigor, and composition of a stand after establishment. Density, structure, and/or species composition may be altered. This category includes treatments such as commercial thinning, liberation harvest, sanitation/salvage, and improvement cutting.

heterogeneity - is the quality of consisting of dissimilar elements, as with mixed habitats or cover types occurring on a landscape (Turner et al 2001).

historical range of variability (HRV) - 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. HRV 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, or natural range of variation.

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

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.

initial attack - a planned response to a wildfire given the wildfire’s potential fire behavior. The objective of initial attack is to stop the fire and put it out in a manner consistent with firefighter and public safety and values to be protected. [NWCG]

insect hazard - is the susceptibility of a forest stand to an insect based on its characteristics.

insect risk - is the presence of insect populations in proximity to an area where it can utilize susceptible hosts.

integrated resource management - multiple use management that recognizes the interdependence of ecological resources and is based on the need for integrated consideration of ecological, social, and economic factors

interdisciplinary team - a group of individuals with different training assembled to resolve an issue or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately resolve an issue. Participants bring different points of view to each issue or problem.

interior habitat - forest interior conditions found deep within forests, away from the effect of open areas. Forest interior conditions include particular microclimates found within large forested areas. Interior conditions are achieved at a point where environmental conditions within a patch are no longer influenced by edge effects, such as light intensity, temperature, wind, relative humidity, and snow accumulation and melt.

intermediate harvest - any 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.

key ecosystem characteristics - the dominant ecological characteristics that describe the composition, structure, function and connectivity of terrestrial, aquatic and riparian ecosystems that are relevant to addressing important concerns about the land management plan. Characteristics that 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

ladder fuels - fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

land management plan - consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528–531) (MUSYA), the Forest Service manages the NFS 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. Land management plans guide sustainable, integrated resource management of the resources within the plan area in 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)).

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.

landtype - an inventory map unit 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.

late-seral/successional stage - as pertaining to forested ecosystems of the Helena and Lewis and Clark National Forests - a stage of development of an ecosystem generally 140+ years old. Trees typically

average >16" d.b.h. Structural conditions vary considerably among different stands (such as tree density, number of canopy layers, etc).

linkage (habitat) - or linkage areas are broad ranges of connectivity or combinations of landscape structural factors that allow a species or multiple species of wildlife to move through, and/or live within, areas influenced by human actions. Linkage habitat may include areas used for dispersal or exploratory movements.

lynx analysis unit (LAU) - landscape units that approximate the size of a female lynx annual home range (appropriate to the geographic area) and encompass all seasonal habitats. These may also include areas of non-lynx habitat, such as open meadows, especially in mountainous regions. An LAU is a unit for which the effects of a project (including direct, indirect and cumulative effects) would be analyzed; its boundaries should remain constant.

maintain - in reference to an ecological condition: 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 planning area that has the same set of applicable plan components. A management area does not have to be spatially contiguous.

management system (timber) - a management system including even-aged management and uneven-aged management.

matrix habitat - the portion of the landscape in which habitat patches and corridors are "embedded." The role played by matrix habitat will depend both on its composition and on the unique behavioral response of the species under consideration. For Canada lynx, for example, matrix habitat is defined as habitat that occurs between patches of boreal forest in close juxtaposition (at the scale of a lynx home range) such that lynx are likely to travel through matrix while accessing patches of boreal forest within a home range.

MBF and **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 one-foot length of a board one foot wide and one inch thick.

mean annual increment of growth - (also, culmination of 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.

mean fire interval - the average number of years between fires, and is an indicator of fire frequency.

mesic - moderately moist.

metapopulation - a collection or set of local populations living where discrete patches of the area are habitable and the intervening regions are not; a basic demographic unit composed of a set of populations in different habitat patches linked by the movement of individuals.

mid-seral/successional stage - as pertaining to forested ecosystems of the Helena and Lewis and Clark National Forests - a stage of development of an ecosystem from approximately 40 to 120 (or up to 140)

years old. Trees are typically 5 to 18 inches average d.b.h. (small to medium size). Other stand structural characteristics will vary considerably among stands, such as density, species, heights, canopy layers.

mixed-severity fire regime - mixed-severity fire regime areas can experience the full range of fire severity during either a single event or consecutive events. In other words, mixed-severity fire regime areas may experience fires of intermediate effects, often consisting of fine-grained spatial patterns resulting from a mosaic of varying severity.

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

montane - of, growing in, or inhabiting mountain areas.

multiple use - the management of all the various renewable surface resources of the National Forest System 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 lands 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, consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 United States Code 528–531).

National Forest System - all national forest lands reserved or withdrawn from the public domain of the United States, all national forests lands acquired through purchase, exchange, donation, or other means, the national grasslands and land utilization projects administered under Title III.

National Forest System Road - a road wholly or partly within or adjacent to and serving the National Forest System that is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources.

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) - spatial and temporal variation in ecosystem characteristics under historic disturbance regimes during a reference period. Synonymous with HRV.

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

no-action alternative - the management direction, activities, outputs, and effects most likely to exist in the future if the current plan would continue unchanged.

non-attainment areas - areas within the State that exceed the national ambient air quality standards are classified as non-attainment.

noxious weed - any 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.

objection - the written document filed with a reviewing officer by an individual or entity seeking predecisional administrative review of a plan, plan amendment, or plan revision.

old growth - ecosystems that are distinguished by old trees and related structural attributes. This is deliberately very generic, 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 Helena and Lewis and Clark National Forest ecosystem and the development of the revised Forest Plan, definitions for old growth are those provided within the document titled "Old Growth Forest Types of the Northern Region (Green et al. 1992 (errata corrected 12/11)).

old-growth associated species - the group of 31 wildlife species that is associated with old-growth forest plant communities on the Helena and Lewis and Clark National Forests.

old-growth habitat - a community of forest vegetation that is 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 old-growth 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.

open motorized route density (OMRD) - as defined by the draft Grizzly Bear Conservation Strategy includes: all Federal, State, and Tribal roads and motorized trails that are open to public use for any part of the year and motorized routes closed by sign only. All roads are included in the database. However non-motorized trails, highway, county, private, decommissioned, or revegetated roads are not included in the calculations.

open motorized route density (OMRD) - as defined by the IGBC Task Force Report (1998) and used for Helena and Lewis and Clark NF Amendment 19 implementation, includes open roads and open motorized trails. Density calculations use GIS moving window routines to display density as a percentage in a defined density category. The analysis area for **OMRD** approximates the size of an annual home range for an adult female grizzly bear, or a bear management subunit. (OMRD has also been referred to as OMAD, or open motorized access density, and also as OMD, which is not the same as "unrestricted road density").

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

Pacific decadal oscillation (PDO) - an index which tracks variations in sea surface temperatures in the northern Pacific.

passive crown fire - a crown 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 - areas distinguished from their surroundings by environmental discontinuities, such as a patch of early seral/structural stage forest surrounded by mid-seral and late-seral structural stage forest.

perennial streams - streams that flow continuously throughout most years and whose upper surface generally stands lower than the water table in the region adjoining the stream.

persistence - continued existence.

phenotype - the observable characteristics or constitution of an organism..

plan area - the National Forest System lands covered by a plan.

plan or land management plan - a document, or set of documents, that provides management direction for an administrative unit of the National Forest System developed under the requirements of the 2012 planning rule or a prior planning rule.

plant and animal community - a naturally occurring assemblage of plant and animal species living within a defined area or habitat.

pole - a tree at least 5 inch d.b.h. and smaller than 8 inch d.b.h.

potential habitat (wildlife) - habitat that is likely to be occupied by a wildlife species or group of species, currently or in the near future.

potential vegetation type or group (PVT or PVG) - groupings 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 (i.e., the climax plant community) would be similar within a particular PVT classification.

precommercial thinning - the selective felling, deadening, or removal of trees in a young stand primarily to accelerate diameter increment on the remaining stems, maintain a specific stocking or stand density range, and improve the vigor and quality of the trees that remain.

prescribed burning or prescribed fire - any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met, prior to ignition. [NWCG]

productivity - the capacity of National Forest Service lands and their ecological systems to provide the various renewable resources in certain amounts in perpetuity. In land management, productivity is an ecological term, not an economic term.

project - an organized effort to achieve an outcome on National Forest Service lands identified by location, tasks, outputs, effects, times, and responsibilities for execution.

proposed action - in terms of the National Environmental Policy Act, the project, activity, or action that a federal agency intends to implement or undertake, and which is the subject of an environmental analysis.

proposed species - any species of fish, wildlife, or plant that is proposed by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service in the Federal Register to be listed under Section 4 of the Endangered Species Act.

public involvement - a process designed to broaden the information base upon which agency decisions are made by informing the public about Forest Service activities, plans, and decisions, and participation in the planning processes which lead to final decision making.

public issue - a subject or question of widespread public interest identified through public participation relating to management of National Forest System lands.

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

rearing habitat - in the case of juvenile westslope cutthroat trout, this is primarily the pool environment in streams.

reclamation (road) - the act of taking a National Forest System road out of the system and no longer allowing motorized travel. Some drainage features may be removed and vegetation is allowed to grow on the road surface. The road prism is not altered and the road may be put back into service with usually a small amount of reconditioning.

recovery (threatened or endangered species) - the improvement in the status of a listed species to the point at which listing as federally endangered or threatened is no longer appropriate.

recovery plan - a plan that details actions or conditions necessary to promote species recovery, that is, improvement in the status of species listed under the Endangered Species Act to the point at which listing is no longer appropriate. Plans are required for virtually all listed species.

recreation - see sustainable recreation

recreation opportunity - an 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 non-motorized, motorized, developed, and dispersed recreation on land, water, and in the air. (36CFR 219.19) The six classes are described below:

recreation setting - the social, managerial, and physical attributes of a place that, when combined, provide a distinct set of recreation opportunities. The Forest Service uses the recreation opportunity spectrum to define recreation settings and categorize them into six distinct classes: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural, and urban. (36CFR 219.19)

Primitive (P) - the Primitive recreational opportunity spectrum (ROS) setting is 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 few, if any facilities or developments. Most of the primitive ROS settings coincide with designated wilderness boundaries.

Semi-Primitive Non-Motorized (SPNM) - Semi-Primitive Non Motorized ROS settings include areas of the forest managed for non-motorized use. 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 (SPM) - Semi-Primitive Motorized ROS settings areas of the forests are managed for backcountry motorized use on designated routes. Routes are designed for off highway vehicles (OHVs) 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, non-motorized areas.

Roaded Natural (RN) - This 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 non-motorized and primitive areas.

Rural (R) - Settings represent the most developed recreation sites and modified natural settings. Facilities are designed primarily for user comfort and convenience.

Urban (U) – Area is characterized by a substantially urbanized environment although the background may have natural appearing elements. Highly developed ski areas and resorts are examples of urban class on NFS lands.

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

refugia - locations and habitats that support populations of organisms that are limited to small fragments of their geographic range (Helms 1998).

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

regeneration method - a cutting method that regenerates a stand. Includes clearcut, seedtree and shelterwood cutting methods.

rehabilitation (road) - the act of maintaining a road and improving drainage features, usually to meet best management practices standards.

resilience – the ability of an ecosystem and its component parts to absorb, or recover from the effects of disturbances through preservation, restoration, or improvement of its essential structures and functions and redundancy of ecological patterns across the landscape.

resilience ecology - the capacity of a (plant) community or ecosystem to maintain or regain normal function and development following disturbance. See also **forest health** and **ecosystem resilience**.

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

restore - to renew by the process of restoration. See also **restoration**.

restricted road - a road on which motorized vehicle use is restricted during the entire non-denning period, with the exception of snowmobile use, which is allowed on some restricted roads, as specified in Helena and Lewis and Clark NF plan. The road requires physical obstruction, and motorized vehicle use during prohibited periods is legally restricted by order. On the HLC the non-denning season is defined as that period from April 1 through November 30. For purposes of Amendment 19, all restricted roads will be included in calculating total motorized access route density. Seasonally restricted roads, that are open

during the non-denning period, will be considered open for the purpose of calculating open road density. An exception is roads that are open for snowmobile use, where all other motorized use is restricted during the non-denning season. These roads will be considered closed for the purpose of calculating open road density.

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 areas - three-dimensional ecotones of interaction that include terrestrial and aquatic ecosystems that extend down into the groundwater, up above the canopy, 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 habitat conservation area (RHCA) - portions of watersheds where riparian-dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines. RHCAs are determined according to INFISH guidelines.

riparian landtype - integrated map units of the types of riparian habitats based on topography, substrate materials (i.e., clays or boulders), and associated vegetation.

riparian management zone - portions of a watershed where riparian-dependent resources receive primary emphasis, and for which plans include plan components to maintain or restore riparian functions and ecological functions.

riparian wildlife habitat - riparian habitats occur 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.

risk - a combination of the likelihood that a negative outcome will occur and the severity of the subsequent negative consequences.

salvage harvest - the cutting of trees that are dead, dying, or deteriorating (e.g. because they are materially damaged by fire, wind, insect, fungi, or other injurious agents), usually to recover economic value that would otherwise be lost. This term is used to describe operations that are intermediate in nature, e.g. no reforestation is required after tree cutting.

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 inch d.b.h.

sawtimber - trees or logs cut from trees with minimum diameter (typically greater than 6 or 7 inches d.b.h.) and length and with stem quality suitable for conversion to lumber.

scarification - the removal of the surface organic material (duff) to the surface of the underlying mineral soil.

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. (36CFR 219.19).

scenic integrity - is a measure of the degree to which a landscape is visually perceived to be “complete”, especially as it relates to the described scenic character or a landscape or area.

scoping process - an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to the proposed action. Identifying the significant environmental issues deserving of study and de-emphasizing insignificant issues, narrowing the scope of the environmental impact statement accordingly (Reg. CEQ regulations, 40 CFR 1501.7).

secure core habitat - as defined by the draft Grizzly Bear Conservation Strategy, is an area more than 500 meters (0.3 miles) from an open motorized route (road or motorized trail), or helicopter flight line meeting the definition of “recurring.” Must be greater than or equal to 2,500 acres in size. “Recurring” is defined as multiple trips per day for more than two consecutive days.

security - the protection inherent in any situation that allows a wildlife species to remain in a defined area despite an increase in stress or disturbance, such as that associated with hunting season. The components of security include vegetation, topography, the size of the blocks of vegetation, road density, distance from roads, intensity of the disturbance, and seasonal timing. For elk, security areas should be greater than or equal to 250 acres in size, greater than or equal to ½ mile from an open road during the hunting season.

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 method 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 method to regenerate a forest stand and maintain an uneven-aged structure, by periodically removing some trees in all size classes either singly or in small groups or strips.

sensitive species - a term defined in the 1982 planning rule as those wildlife and plant species identified by the Regional Forester for which population viability is a concern because of significant current or predicted downward trends in (a) population numbers or density, or (b) habitat capability that would reduce a species' existing distribution.

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

seral/structural stage - a stage of development of an ecosystem from a disturbed, relatively unvegetated state to a complex, mature plant community.

severity - refers to the ecological effects of fires, usually on the dominant organisms of the ecosystem, such as the trees.

shade-intolerant - species of plants that do not grow well or die from the effects of too much shade.

shade-tolerant - species of plants that can develop and grow in the shade of other plants.

shelterwood method - a cutting method to regenerate an even-aged stand in which some of the mature trees are left to provide shelter for regeneration (more than is left in a seedtree method). It may be done uniformly throughout the stand, in strips, or in groups. Regeneration may be natural or artificial.

shelterwood with reserves - the application of the shelterwood method with the intention of retaining or reserving all or a portion of the shelterwood trees for future stand structure.

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

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

silvicultural systems - a management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. It includes all 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.

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 - production capability (typically in terms of the plant component) of a specific area of land.

skidding - moving logs or felled trees from the stump to a landing, usually with the forward end supported off the ground.

skyline corridors - linear areas cleared of vegetation for cable logging systems.

skyline logging - a type of cable logging system in which a suspended skyline cable is stationary and a carriage moves along it carrying logs above the ground, from the felling site to the landing.

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 at breast height.

social sustainability - see sustainability

soil productivity - the capacity of a soil to produce a specific crop such as fiber and forage, under defined levels of management. It is generally dependent on available soil moisture and nutrients, and the length of the growing season.

sole source aquifer - underground water supply designated by the Environmental Protection Agency (EPA) as the "sole or principle" source of drinking water for an area as established under section 1424(e) of the Safe Drinking Water Act (42 U.S.C. 300h-3(e)).

source water protection areas - the area delineated by a State or Tribe for a public water system (PWS) or including numerous PWSs, whether the source is ground water or surface water or both, as part of a State or tribal source water assessment and protection program (SWAP) approved by Environmental Protection Agency under section 1453 of the Safe Drinking Water Act (42 U.S.C. 300h-3(e)).

spawning gravel - small gravels (1/4 to 1.0 inch diameter) in streams grouped in areas of about one square foot or larger with good water circulation through them.

spawning habitat - areas of substrate that provide well-oxygenated and suitable sized gravels for fish spawning.

species - a group of actually or potentially interbreeding populations that is reproductively isolated from all other kinds of organisms.

species of conservation concern (SCC) - 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).

species of concern (SOC) - Montana native taxa that are at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors. Designation as a Montana Species of Concern or Potential Species of Concern is based on the Montana Status Rank, and is not a statutory or regulatory classification. Rather, these designations provide information that helps resource managers make proactive decisions regarding species conservation and data collection priorities.

species of public interest (36 Code of Federal Regulations 219.6; Directives, part 13.35) - include one or more of the following:

- a. Fish, wildlife and plant species commonly enjoyed and used by the public for hunting, fishing, trapping, gathering, observing or sustenance.
- b. The conditions and trends in the plan area are associated with these species.
- c. The use and enjoyment of these species contributes to social and economic sustainability.

spread rate - the final headfire spread rate (in the direction of maximum spread).

stagnation - a condition where plant growth is markedly reduced or even arrested through, e.g., competition, state of the soil, or disease.

stand - a community of trees or other vegetative growth occupying a specific area and sufficiently uniform in composition (species), age, spatial arrangement, and conditions as to be distinguishable from the other growth on adjoining lands, so forming a silvicultural or management entity.

stand improvement - is a treatment done to alter the composition, structure, health, and growth of a young forested stand.

stand initiation - the forest structural stage immediately following a stand replacement disturbance. See **early seral/successional stage**

stand replacement fire (lethal) - fire that emphasizes the destruction of the living overstory vegetation.

stand replacement fire regime - stand-replacement fire regimes typically occur on lands that historically experience lethal fires, where less than 10 percent of the forested canopy cover remains after the fire.

stand-replacing disturbance - an agent such as fire, blowdown, insect or disease epidemic, or timber harvest, which kills or removes enough trees to result in an early seral/structural stage.

stem exclusion structural stage - in this stage, trees initially grow fast and quickly occupy all 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.

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

streamside management zone - an area adjacent to the bank of a stream or body of open water where extra precaution is necessary to carry out forest practices in order to protect bank edges and water quality.

stressors (ecology) - see ecosystem stressors.

structure - see forest structure.

subspecies - subpopulations or races within a species that are distinguishable by morphological characteristics and, sometimes, by physiological or behavioral characteristics.

substrate - mineral and/or organic material that forms the streambed (i.e., stream bottom).

succession - 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.”

summer range - that 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 winter range and summer range may overlap.

surface fire - fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation. [NWCG]

surface fuels - needle and leaf litter, dead branches and boles, stumps, shrubs, and short trees, and low stature living plants. [NWCG]

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.

sustainable recreation - the set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations.

sustained yield - the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forest System without impairment of the productivity of the land.

system road - see National Forest System Road

temporary road - a road constructed to facilitate forest management activities that is reclaimed soon after the activity is completed. A temporary road may be reclaimed immediately after timber harvesting is completed or may need to remain in use for up to five years to facilitate reforestation and/or weed control operations.

thermal cover - cover used by animals to ameliorate the chilling effects of winter weather or the heating effects of summer weather.

threatened species - any species, plant or animal, which 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.

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

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.

torching index - the open (6.1-m) wind speed at which crown fire activity can initiate for the specified fire environment.

total motorized route density (TMRD) - as defined by the draft Grizzly Bear Conservation Strategy, includes: all Federal, State, and Tribal roads and motorized trails, whether they are open or closed. All roads are included in the database. However, non-motorized trails, highway, county, private, decommissioned, or revegetated roads are not included in the calculations.

total motorized route density (TMRD) - as defined by the IGBC Task Force Report (1998) includes open and restricted roads and motorized trails. Density calculations use GIS moving window routines to display density as a percentage in a defined density category. The analysis area for TMRD approximates the size of an annual home range for an adult female grizzly bear, or a bear management subunit. (TMRD has also been referred to as TMAD, or total motorized access density, and also as TMD).

travel habitat - habitat used by a wildlife species for daily or periodic movements between areas

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.

ungulate - a former order of all hoofed mammals, now divided into the odd-toed and even-toed groupings; used to refer to species such as deer, elk, moose, and mountain goats.

unrestricted road density - the miles of road open seasonally or yearlong, divided by the square miles of land

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).

viewsheds - visible portions of the landscape seen from viewpoints. Numerous viewpoints were identified including 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 that all drains to a common point; a drainage basin.

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

wetland - areas that under normal circumstances have hydrophytic vegetation, hydric soils, and wetland hydrology.

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

wilderness - any 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).

wildland fire - a non-structure fire, other than prescribed fire, that occurs in the wildland. Any fire originating from an unplanned ignition.

wildland fire use - refers to fires which are naturally ignited and are allowed to burn within prescribed conditions to meet resource objectives.

wildland-urban interface - as defined by the Healthy Forest Restoration Act (HFRA), (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.

wind-dominated fire - a situation where the power of the wind is greater than the power of the fire in influencing its behavior.

windfirm - a tree (live or dead) or species of tree that is relatively resistant to being blown over by the wind.

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

winter range - that part of the overall range of an animal where the majority of individuals are from the first heavy snowfall to spring green-up, or during a site-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.