

# Appendix D: Bibliography, Glossary, and Acronyms

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Hemlock Elk Fuels Reduction and Forest Health Environmental Assessment  
Appendix D Bibliography, Glossary, and Acronyms

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## Glossary

**Action Alternative** - An alternative that proposes some management action, as contrasted to the No Action Alternative.

**Adaptive Management** – Adaptive management rigorously combines management, research, monitoring, and means of changing practices so that credible information is gained and management activities are modified by experience.

**Administrative Appeal** - A request to a higher authority for review of a decision related to an Environmental Impact Statement, Environmental Analysis, or Categorical Exclusion.

**Affected Environment** - The biological and physical environment that will or may be changed by actions proposed and the relationship of people to that environment.

**Age or Size Class** - A distinct group of trees, or portion of growing stock recognized on the basis of age (or size).

**Airshed** - Basic geographic units in which air quality is managed.

**Alternative** - A combination of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis. One of the several policies, plans or projects, proposed for decision-making.

**Anthropogenic** – Effects, processes, objects or materials that are derived from human activities, as opposed to those occurring in natural environments without human influences.

**Artificial Regeneration** – Renewal of a tree crop by direct seeding or by planting seedlings or cuttings.

**All Terrain Vehicle (ATV)** – Small All Terrain Vehicle sometimes referred to as a “four-wheeler.”

**Bank Cover** - Living streamside vegetation overhanging the water for up to one meter above the water surface.

**Bear Management Area (BMA)** – Areas delineated to include important habitat components and to implement standards and guidelines pertaining to grizzly bears. These areas have also been used for evaluating habitat for other wildlife species including big game and old growth indicator species.

**Bear Management Subunit** – An area approximately the size of an average female home range (about 50 mi<sup>2</sup>), generally from ridge top to valley bottom, and including all seasonal habitats.

**Best Management Practices (BMPs)** - Methods, measures or practices to prevent or reduce water pollution, including but not limited to, structural and non-structural controls, operation and maintenance procedures, other requirements, and scheduling and distribution of activities. Usually BMPs are applied as a system of practices rather than a single practice. BMPs are selected based on site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility.

**Biological Assessment (BA)** - A document prepared by a federal agency for the purpose of identifying any endangered species or threatened species, which 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 (BE)** - 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.

**Blowdown (Windthrow)** - Uprooting by the wind. Also refers to a tree or trees so uprooted.

**Board Foot** - A unit of measurement represented by a board one foot square and one inch thick.

**Boreal** – Of or relating to the forest areas of the northern temperate zone, dominated by coniferous trees.

**Browse** - Twigs, leaves, and young shoots of trees and shrubs on which animal feed; in particular, those shrubs which are utilized by big game animals for food.

**Buffer** – A land area designated to block or absorb unwanted effects to the area beyond the buffer and to preserve other qualities along or adjacent to roads, trails, watercourses, and recreation sites.

**Burn Severity**– A relative measure of the degree of change in a watershed that related to the intensity of the fire on soil hydrological function. Burn severity is delineated on topographic maps of polygons. Classes of burn severity are high, moderate, low, and unburned.

**Canopy** - The forest cover of branches and foliage formed by tree crowns.

**Canopy Cover or Crown Closure** - The percentage of ground surface that is shaded by the 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 such as climate, slope, landform, soils, and geology; as well as the application of management practices, such as silviculture or protection from fires, insects, and disease.

**Cavity** - A hollow in a tree that is used by birds or mammals for nesting, denning, roosting, etc.

**Clearcutting Method** – The process of removing all trees, large and small, in a stand in one cutting operation. Also, a cutting method to regenerate an even-aged forest stand in which new seedlings become established in fully exposed microenvironments after removal of most or all of the existing trees. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class. Regeneration can originate naturally or artificially.

**Clearcut with Reserves** – A variation of the clearcut silvicultural system in which trees are retained, either uniformly or in small groups, for purposes other than regeneration.

**Closed Canopy** - The description given to a stand when the crowns of the main level of trees forming the canopy are touching and intermingled so that light cannot reach the forest floor directly.

**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.

**Cohort** – An age class of trees that is distinctively different from other age classes in a particular forest stand.

**Commerical Thinning** - A silviculture treatment that “thins” out an overstocked stand by removing trees, which are large enough to be sold as products such as poles or fence posts. It is carried out to improve the health and growth rate of the remaining crop trees.

**Composition (Species)** - The mix of different species that make up a plant or animal community, and their relative abundance.

**Condition Class** – A function of the degree of departure from historical fire regimes resulting in alterations of key ecosystem components, such as species composition, structural stage, stand age, and canopy closure. Categorized by three classes as follows: Condition Class 1 – Fire regimes are within or near an historical range; Condition Class 2 – Fire regimes have been moderately altered from their historical range; Condition Class 3 – Fire regimes have been significantly altered from their historical range.

**Connectivity** – A measure of how well different areas (patches) of a landscape are connected by linkages, such as habitat patches, single or multiple corridors, or stepping stones of like vegetation. The extent to which conditions among late-seral/structural forest areas provide habitat for breeding, feeding, dispersal, and movement of late-seral/structural dependent wildlife 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.

**Corridor** - A band of vegetation, usually older forest, which serves to connect distinct patches on the landscape. By providing connectivity, corridors permit the movement of plant and animal species between what would otherwise be isolated patches.

**Council on Environmental Quality (CEQ)** - An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

**Cover/Forage Ratio** - The ratio of tree cover (usually conifer types) to foraging areas (natural openings, clearcuts, etc.).

**Cover Type** - The present vegetation composition of an area, described by the dominant plant species.

**Crown** - The part of a tree or other woody plant bearing live branches and foliage.

**Crown Closure** (see Canopy Cover)

**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.

**Cultural Resources** - The physical remains of human activity (artifacts, ruins, burial mounds, petroglyphs, etc.) and conceptual content or context (as a setting for legendary, historic, or prehistoric events; as a sacred area of native peoples, etc.) of an area of prehistoric or historic occupation.

**Cumulative Effect** - The impact on the environment, which results from the incremental impact of the action when added to other actions. Cumulative impacts can also result from individually minor but collectively significant actions taking place over a period of time.

**Dedicated Skid Trail** – A trail used repeatedly for skidding logs in order to confine disturbance to that trail only.

**Defensible Fuel Profile Zone (DFPZ)** – A 100 to 500 foot wide strip adjacent to private lands where forest fuels (both live and dead) are reduced

**Defensible Space** - That area between a structure and an oncoming wildfire where the vegetation has been modified to reduce the wildfire threat and to provide an opportunity for firefighters to effectively and safely defend the structure.

**Demarcation** – The act of creating a boundary around a place or thing.

**Density (Stand)** - The number of trees growing in a given area, usually expressed in terms of trees per acre.

**Developed Recreation** – Recreation that occurs where improvements enhance recreation opportunities and accommodate intensive recreation activities in a defined area.

**Diameter Best Height (DBH)** - The diameter of a tree measured four and one-half feet above the ground.

**Direct Effect** - Effects on the environment that occur at the same time and place as the initial cause or action.

**Dispersal** - The movement of organisms away from the place of birth or from centers of population density.

**Dispersed Recreation** – That portion of outdoor recreation use which occurs outside of developed sites in the unroaded and roaded forest environment, i.e., hunting, backpacking, and berry picking.

**Disturbance (Ecosystem)** - 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.

**Disturbance Regime** - Natural pattern of periodic disturbances, such as fire or flooding.

**Diversity** - The distribution and abundance of different plant and animal communities and species.

**Downed Wood Recruitment** – Trees, live or dead, that will contribute to future downed wood.

**Duff** - The partially decayed organic matter on the forest floor.

**Early Seral/Structural Stage** - A stage of development of an ecosystem from a disturbed, relatively unvegetated state to a plant community that is up to 30 years old. Stand structure is seedling and sapling sized.

**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.

**Ecotone** – A zone of transition habitat created by the juxtaposition of distinctly different habitats, and usually exhibiting competition between organisms common to both.

**Efficiency, Economic** – The usefulness of inputs (costs) to produce outputs (benefits) and effects when all costs and benefits that can be identified and valued are included in the computations. Economic efficiency is usually measured using present net value, though use of benefit-cost ratios may sometimes be appropriate.

**Endangered Species** - Any species, plant, or animal that is in danger of extinction throughout all or a significant portion of its range. In accordance with the 1973 Endangered Species Act, the Secretary of the Interior identifies endangered species.

**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).

**Ephemeral stream** – A stream or portion of a stream which flows only in direct response to precipitation, receiving little or no water from springs and no long continued supply from snow or other sources and whose channel is at all times above the water table.

**Escape Route** – A means to access a safety zone.

**Extirpation** – The local disappearance of a species, as opposed to extinction, which is global.

**Facultative Wetland** - Largely in wet soils, 67 to 99 percent of the time

**Fire Exclusion** - The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

**Fire Event (Fire Occurrence, Fire Incidence)** - A single fire or series of fires within an area at a particular time.

**Fire Frequency** – A general term referring to the recurrence of fire in a given area over time.

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

**Fire Intensity** – Based on temperature, flame length, rate of spread, heat of combustion, and total amount and size of fuel consumed. Accounts for convective heat rising into the atmosphere and fire effects to the overstory.

**Fire Intolerant (or “intolerant”)** - Species of plants that do not grow well or die from the effects of fire. Generally these species are shade-tolerant as well.

**Fire Management Zone (FMZ)** – A geographic area delineated by the “appropriate management response” to a wildland fire. Defined by fuels, topography, values at risk, threats to private property, wilderness boundaries, etc.

**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.

**Fire Return Interval (Fire Interval)** - The number of years between successive fire events in a given area.

**Fire Risk** - The probability or chance of fire starting determined by the presence and activities of causative agents.

**Fire Rotation** – The length of time necessary for an area equal in size to the study area to burn.

**Fire Severity** – A relative measure of the post-fire appearance of vegetation (residual fuels/mortality) as it related to the intensity of the fire and its consumptive effects on vegetation.

**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 In-Tolerant Species** – Trees species with thin bark at maturity, such as subalpine fir and spruce.

**Fire Tolerant (or “tolerant”)** - Species of plants that can withstand certain frequency and intensity of fire. Generally these species are shade-intolerant as well.

**Firefighter Safety** - A work environment where foreseeable risks have been minimized through the mitigation of known hazards associated with wildfire suppression.

**Fish Habitat** - The place where a population of fish species lives and its surroundings; includes the provision of life requirements such food and cover.

**Fish Passage** - Clear access for migrating fish through a potential barrier.

**Fishery** - The total population of fish in a stream or body of water and the physical, chemical, and biological factors affecting that population.

**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 that has little or no wood on it. For example, wildflowers are forbs.

**Forest Development Road (FDR)** - A road wholly or partly within or adjacent to and serving the National Forest System and which is necessary for the protection, administration, and use of the National Forest System and the use and development of its resources.

**Forest Health** - (also called forested landscape or forestland) is defined as: the conditions under which the integrity of the soil and ecological processes are sustained resulting in systems that maintain their diversity, resiliency, and productivity with associated sustainable human resource issues.

#### **Forest Inventory Assessment (FIA)**

**Forest Plan** - The Flathead National Forest Land and Resource Management Plan. A Forest Plan is a document prepared under the National Forest Management Act by each national forest that generally describes how the resources in the forest will be managed for a 10 to 15 year period.

#### **Forest Service Handbook (FSH)**

#### **Forest Service Manual (FSM)**

**Forest Structure** - The mix and distribution of tree sizes, layers, and ages in a forest. Some stands are mostly one size (single-story), some are two-story, and some are a mix of trees of different ages and sizes (multi-story).

**Forest Supervisor** – The official responsible for administering the National Forest System lands in a forest Service Administrative unit, which may consist of one or more National Forests or all the National Forests within a State.

**Forest Type** relates to the tree species (and to generalized understory plant) composition.

**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 results in the reduction of total 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. In managed forests, timber harvesting and related activities have been the dominant disturbance agents.

**Fry** – The name applied to young fish from the time of hatching until they have absorbed the yolk sac.

**Fuel Break** – A zone in which fuel quantity has been reduced or altered to provide a position for suppression forces to make a stand against wildfire. Fuel breaks are designated or constructed before the outbreak of a fire. Fuel breaks may consist of one or a combination of the following: natural barriers, constructed fuel breaks, or man-made barriers.

**Fuel Loading** - The oven dry weight of fuels in a given area, usually expressed in tons per acre. Fuel loadings may be referenced to fuel size or time-lag categories; and may include surface fuels or total fuels.

**Fuel Management** - Manipulation or reduction of flammable matter for the purpose of reducing the intensity or rate of spread of a fire, while preserving and enhancing environmental quality.

**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 (Anderson 1982) have been stylized to represent specific fuel conditions.

**Fuels** - Includes living plants, dead, woody vegetative materials; and other vegetative materials capable of burning.

**Fuels Reduction Zone (FRZ)** - Areas in which continuous high hazard fuels are broken up. They are designed to increase firefighter safety and reduce resistance to fire control efforts. FRZs 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 programs. .

**Fuel Treatment** - The rearrangement or disposal of natural or activity fuels.

**Genotype** – An individual's hereditary (genetic) constitution. An individual's genotype plus the environment make up the individual's phenotype.

**Geographic Information System (GIS)** - Computer software that provides database and spatial analytic capabilities.

**Goal** – A concise statement that describes a desired condition to be achieved. It is normally expressed in broad, general terms and is timeless in that it has no specific date that it is to be completed. Goal statements form the principal basis upon which objectives are developed.

**Gradient (Stream)** – The slope of a streambed.

**Guideline** - An indication or outline of policy or conduct dealing with the basic management of the Forest. Forest-wide management standards and guidelines apply to all areas of the Forest regardless of the other management prescriptions applied.

**Habitat Type** - An aggregation of all land areas potentially capable of producing similar plant communities at climax.

**Hazard** - A real or potential condition that may result in an undesired event, the cause of risk. Hazard can apply to the probability of tree mortality or damage by an insect or disease and also represents material or fuel that will ignite and burn.

**Hiding Cover** - Vegetation used by an animal for hiding. The amount and quality of vegetation needed depends on the animal's size, mobility, and reluctance to venture into relatively open areas.

For an elk, hiding cover conceals 90 percent of a standing adult elk from the view of a human at a distance equal to or less than 200 feet. Hiding 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.

**Historic Range of Variability (HRV)** - Conditions which be expected to occur under natural disturbance and succession regimes.

**Home Range** - An area, from which intruders may or may not be excluded, to which an individual restricts most of its usual activities.

**Indirect Effects** - Secondary effects which occur in locations other than the initial action or significantly later in time.

**Initial Attack** - An aggressive suppression action consistent with firefighter and public safety and values to be protected.

**Instream Cover** - Anything in the water that provides protection to fish from predators (including turbulence, debris, logs, and rocks).

**Intensity** - Energy release rates; these are physical descriptors of the fire, not its ecological effects. Generally referred to as High, Moderate, or Low intensity.

**Interdisciplinary Team (ID Team)** - A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem. Through interaction, participants bring different points of view to bear on the problem.

Intermittent Stream - A stream which flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow.

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

**Intermittent Stream** – A stream which flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow.

**Invasive Plant** – All State and County listed “noxious weeds” are considered invasive plants. Also, other exotic species (not listed by State or Counties as noxious weeds) that can successfully out compete and displace native plant communities.

**Inventoried Roadless Area** - An area identified and classified as roadless. These areas were identified during the second Roadless Area Review and Evaluation (RARE II).

**Issue** - See Public Issue.

**Juvenile Trout** – The fingerling or sub-adult stages (not sexually mature)

**Ladder Fuels** - Fuels which provide vertical continuity between the surface fuels and crown fuels in a forest stand, thus contributing to the ease of torching and crowning.

**Land and Resource Management Plan (Forest Plan)** - A strategic integrated resource plan based on the principles of enhanced public involvement, consideration of all resource values, and resource sustainability.

**Landscape** - The landforms of a region in the aggregate; the land surface and its associated habitats at scales of many acres to many square miles; a spatially heterogeneous area.

**Landscape Management** – Creation of landscapes with a distribution of forest conditions for continuous production of desired goods and services and without adverse effects. Considers management on larger spatial scales and longer time frames.

**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.

**Large Woody Debris** – Large logs and stumps in streams and on land that provide habitat for aquatic and terrestrial organisms and affects stream function.

**Late Seral/Structural Stage** - A stage of development of an ecosystem from approximately 80 to 120 years old. Forested stands are generally 12 to 16 inches average dbh.

**Lethal Fire/Lethal Fire Regime** - Fire that consumes the entire vegetative community (grasses, shrubs, trees. Also see Stand Replacement Fire.

**Linkage (Habitat)** - Linkage zones are combinations of landscape structural factors that allow wildlife to move through, and live within, areas influenced by human actions. A linear habitat patch through which a species must travel to reach habitat more suitable for reproduction and other life-sustaining needs.

**Long-term Soil Productivity Research Program (LTSP)**

**Low Severity Ground Fire** - A fire with low intensity that primarily scorches tree boles, allowing fire tolerant species to survive.

**Lynx Analysis Unit (LAU)** – An area that approximates the size of an average female lynx home range (25-50 square miles in contiguous habitat, and that contains habitats needed in all seasons. The LAU is not the actual home range, but is an analysis unit upon which direct, indirect, and cumulative effects analyses are performed.

**Management Area (MA)** - An aggregation of capability areas that have common management direction and may be dispersed over the Forest. Consists of a grouping of capability areas selected through evaluation procedures and used to locate decisions and resolve issues and concerns.

**Management Indicator Species (MIS)** - Species identified in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish including those that are socially or economically important.

**Mature Timber** - Individual trees or stands of trees that in general are at their maximum rate in terms of the physiological processes expressed as height, diameter, and volume growth.

**MBF and MMBF** - Thousand board feet and million board feet, respectively.

**Mean Fire Return Interval (Mean Fire Interval)** – The average of all fire intervals in a given area over a given time period.

**Mesic** - Moderately moist.

**Mid-Seral/Structural Stage** - A stage of development of an ecosystem from approximately 30 to 80 years old. Forested stands are generally 5 to 12 inches average dbh. Stand structure is pole- and small sawlog-sized trees.

**Mixed-Severity Fire/Mixed Severity Fire Regime** - Mixed-severity fire regime areas can experience the full range of fire severities during either a single event or consecutive events. In other words, in a single fire event both low severity (killing few trees) and high severity (killing all trees) in patches of

variable sizes. This tends to create complex fine-grained spatial patterns of vegetation conditions across a landscape.

**Moist Sites (Elk)** – An important characteristic of elk habitat consisting of wet meadows, ponds, seeps, and springs, and typically located in more remote, upper-drainage perched sites.

**Monitoring and Evaluation** - The periodic evaluation on a sample basis of Forest Plan management practices to determine how well objectives have been met and how closely management standards have been applied.

**Montane** - Of, growing in, or inhabiting mountain areas.

**Morphology** – The outward appearance of an organism or taxon and its component parts.

**National Environmental Policy Act (NEPA)** - An act which encourages productive and enjoyable harmony between man and his environment; promotes efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enriches the understanding of the ecological systems and natural resources important to the Nation; and establishes a Council on Environmental Quality.

**National Forest Management Act (NFMA)** - A law passed in 1976 as amendments to the Forest and Rangeland Renewable Resources Planning Act that requires the preparation of Regional and Forest plans and the preparation of regulations to guide that development.

**National Forest System (NFS)** - 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 Wilderness Preservation System** - All lands covered by the Wilderness Act and subsequent wilderness designations, irrespective of the department or agency having jurisdiction.

**Native Species** - Species that are indigenous to a region, as opposed to introduced or exotic species.

**Native (Natural) Succession and Disturbance Regimes** - The historic patterns (frequency and extent) of fire, insects, wind, landslides and other natural processes in an area.

**Natural Regeneration** - Renewal of a tree crop by natural seeding, sprouting, suckering, or layering.

**Neotropical Migratory Birds** – Migratory bird species that nest in North America and winter in central or South American or the Caribbean.

**No Action Alternative** - The management direction, activities, outputs, and effects most likely to exist in the future if the current plan would continue unchanged.

**Nonattainment Areas** – Areas within the State that exceed the national ambient air quality standards are classified as nonattainment.

**Non-Lethal Fire/Non-Lethal Fire Regime** – Fire that primarily consumes surface fuels causing little mortality to overstory trees. See also Low Severity Fire.

**Noxious and Invasive Weed EA (NIWC)**

**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.

**Old Growth Habitat** - A community of forest vegetation which has reached a late stage of plant succession 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.

**Off-Road Vehicle** – Any vehicle capable of being operated off an established road or trails, e.g., motorbikes, four-wheel drives, and snowmobiles.

**Old Growth Associated Species** – A group of wildlife species associated with old-growth forest plan communities on the Flathead National Forest.

**Open Road** – A road with no restrictions on motorized vehicle use.

**Overmature Timber** - Individual trees or stands of trees that in general are past their maximum rate in terms of the physiological processes expressed as height, diameter, and volume growth.

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

**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.

**Phenotype** – The product of the interaction of the genes of an organism (genotype) with the environment.

**Phloem** – The layer of cells under the bark and outside of the cambium layer responsibility for transporting food created by the leaves.

**Pole** - A tree between a sapling and small timber size at least five inches in dbh but smaller than 8" DBH.

**Pool** - A portion of the stream with reduced current velocity, often with water deeper than the surrounding areas, and which is usable by fish for resting and cover.

**Population** - A group of coexisting (conspecific) individuals that interbreed if they are sexually reproductive.

**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 Group (PVG)** - Groupings of habitat groups on the basis of similarity of general moisture or temperature environment.

**Pre-Commercial 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.

**Preferred Alternative** - The agency's preferred alternative is the alternative that the agency believes would best fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors, and which meets the purpose and need of the NEPA document.

**Prescribed Burning** - The controlled use of fire to reduce or eliminate the unincorporated organic matter of the forest floor, or low, undesirable vegetation. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

**Propagules** – Any of various usually vegetative portions of a plant, such as a bud or other offshoot, that aid in dispersal of the species and from which a new individual may develop.

**Proposed Action** - The proposed action or proposal exists at that stage in the development of an action when an agency subject to the Act (NEPA) has a goal and is actively preparing to make a decision on one or more alternative means of accomplishing that goal and the effects can be meaningfully evaluated.

**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.

**Ranger District** – Administrative subdivision of the Forest supervised by a District Ranger.

**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.

**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.

**Reforestation** - The renewal of forest cover by seeding, planting, and natural means.

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

**Rehabilitation (Road)** - The act of maintaining a road and improving drainage features, usually to meet Best Management Practices standards.

**Release** - Freeing a tree or group of trees from more immediate competition by cutting or otherwise eliminating growth that is overtopping or closely surrounding them.

**Resident Fish** - Non-migratory fish species.

**Resilient, Resiliency** - The ability of a system to respond to disturbances. Resiliency is one of the properties that enable the system to persist in many different states or successional stages.

**Responsible Official** - The Forest Service employee who has the authority to select and/or carry out a specific planning action.

**Restore, Restoration** - The re-creation of a natural or self-sustaining, resilient community or ecosystem, or a movement in that direction.

**Restricted Road** - A road on which motorized vehicle use is restricted during the entire non-denning period. The road requires physical obstruction and motorized vehicle use in the non-denning period is legally restricted by order.

**Retention Level** – The amount of forest vegetation left on a site after a treatment is accomplished. Treatments are usually timber harvest, prescribed burns, or thinning.

**Riparian Areas** - Areas with distinctive resource values and characteristics that are comprised of an aquatic ecosystem and adjacent upland areas that have direct relationships with the aquatic system. This is considered the horizontal distance of approximately 100 feet from the normal high water line of a stream channel, or from the shoreline of a standing body of water.

**Riparian Ecosystem** - A transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem. It 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 were established as 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 Wildlife Habitat** - Vegetation growing close to a watercourse, lake, swamp, or spring that is generally critical for wildlife cover, fish food organisms, stream nutrients and large organic debris, and for streambank stability.

**Risk** - The probability of a hazard and/or the consequences of that hazard (hazards are undesirable events).

**Road Density** – Number of miles in a given area.

**Road Management** - The combination of both traffic management and maintenance management operations. Traffic management is the continuous process of analyzing, controlling, and regulating uses to accomplish National Forest objectives. Maintenance management is the perpetuation of the transportation facility to serve intended management objectives.

**Roadless Area** – A National Forest area which (1) is larger than 5,000 acres, or if smaller than 5,000 acres, contiguous to a designated wilderness or primitive area; (2) contains no roads; and (3) has been inventoried by the Forest System for possible inclusion in the Wilderness Preservation System.

**Salvage Harvest**– Harvest of trees that are dead, dying, or deteriorating due to fire, wind, insect or other damage, or disease.

**Sanitation Salvage Harvest** – Tree removal or modification operations designed to reduce damage caused by forest pests and to prevent their spread.

**Sapling** - A young tree that is larger than a seedling but smaller than a pole, typically 5 to 25 feet tall.

**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 deemphasizing insignificant issues, narrowing the scope of the environmental impact statement accordingly (CEQ regulations, 40 CFR 1501.7).

**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.

**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.

**Seed Tree Method** – A cutting method to regenerate a stand in which all trees are removed from an areas except for a small number (commonly 4-8) of seed-bearing trees per acre, left singly or in small groups.

**Seed Tree with Reserves** – The application of the seed tree method with the intention of retaining or reserving all or a portion of the seed trees for future stand structure.

**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 5 inches in diameter are the predominant vegetation.

**Sensitive Species** - 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 Stage** (also called successional or structural stage) refers to vegetation structural development; and describes the mix and distribution of tree species, sizes, canopy layers, ages, and general conditions in a forest.

**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, for example a stand dominated by lodgepole pine.

**Shade Intolerant** - Species of plants that do not grow well or die from the effects of too much shade. Generally these are fire-tolerant species.

**Shade Tolerant** - Species of plants that can develop and grow in the shade of other plants. Generally these are fire-intolerant species.

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

**Silviculture Diagnosis** - The process of compiling, summarizing, analyzing, and recording of stand data.

**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 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.

**Slash** - The residue left on the ground after felling and other silvicultural operations and/or accumulating there as a result of storms, fire, or poisoning trees.

**Snag** - A standing dead tree usually greater than five feet in height and six inches in diameter at breast height.

**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 length of growing season.

**Spatial** – Of, relating to, involving, or having the nature of space.

**Spawning Gravel** - Small gravels (1/4" - 1.0" 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 are reproductively isolated from all other kinds of organisms.

**Specified Road** - See Forest Development Road.

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

**Stolens (Stoleniferous)** – Horizontal stems which grow at the soil surface or below ground.

**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 Maintenance Fire (Non-Lethal)** - Fire that emphasizes the survival of the living overstory vegetation.

**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 experience predominantly lethal fires, with less than 10 percent of the forested canopy cover remaining after the fire.

**Stand-Replacing Disturbance** - An agent such as fire, blowdown, insect or disease epidemic, or timber harvest, that kills or removes enough trees to result in an early-seral/structural stage condition.

**Standards and Guidelines** - An indication or outline of policy or conduct dealing with the basic management of the Forest. Forest-wide management standards and guidelines apply to all areas of the Forest regardless of the other management prescriptions applied.

**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 (SMZ)** - 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.

**Structure** - The various horizontal and vertical physical elements of the forest, including tree size, canopy composition, quantity and quality of deadwood, ephemeral herbaceous species, density of wildlife trees, fungi, age structure, forest height, etc.

**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 stream bed (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 stages."

**Summer Range** - Land used by wildlife species (specifically big game and/or grizzly bear) during the summer months.

**Surface Fire** - A fire spreading through surface fuels.

**Surface Fuels** - Needles, leaves, grass, forbs, dead and down branches and boles, stumps, shrubs, and short trees.

**Sustainability** is defined as the capacity of forests, ranging from stands to eco-regions, to maintain their health, productivity, diversity, and overall integrity, in the long run, in the context of human activity and use.

**System Road** - See Forest Development Road, above.

**Temporary Road** - A road constructed to facilitate forest management activities but 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 5 years to facilitate reforestation and/or weed control operations.

**Territory** - Any area defended by one or more individuals against intrusion by others of the same or different species.

**Thermal Cover** - Cover used by animals to ameliorate the chilling effects of winter weather or the heating effects of summer weather. For elk, a stand of coniferous trees 40 feet or taller with an average crown closure of 70 percent or more.

**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. In accordance with the 1973 Endangered Species Act, the Secretary of the Interior identifies endangered species.

**Tiering** - Refers to the elimination of repetitive discussions of the same issue by incorporating by reference the general discussion in an environmental impact statement of broader scope. For example, a project environmental assessment could be tiered to the Forest Plan EIS.

**Timber Production** - The purposeful growing, tending, harvesting, and regeneration of rotational crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. For purposes of Forest planning, timber production does not include production of fuelwood or harvest from unsuitable lands.

**Total Maximum Daily Load** – A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

**Travel Habitat** - Habitat used by a wildlife species for daily or periodic movements between areas of higher-quality habitat. For example, for a lynx this would be the forested cover used while traveling between areas used for denning and that used for hunting.

**Underburning** - A fire that consumes surface fuels but not trees and large shrubs. See also Low Severity Fire and Stand Maintenance Fire.

**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 mammal with hooves.

**Vector** – An organism, such as deer, or vehicle, that carries organisms from one host to another.

**Vegetative Screening** - Vegetation (trees, shrubs, etc.) that ameliorates the visual effect of management activities adjacent to viewing areas (i.e. main roads).

**Vegetative Succession** - A phase in the gradual supplanting of one community of plants by another.

**Viability** - A viable animal or plant species is defined as consisting of self-sustaining populations that are well distributed throughout the species' range. Self-sustaining populations are those that are sufficiently large, and have sufficient genetic diversity to display the array of life history strategies and forms that will provide for their persistence and adaptability in the planning area over time.

**Visual Resource** - The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

**Water Quality** - The physical, chemical, and biological properties of water.

**Water Yield** - The runoff from a watershed, including groundwater outflow.

**Watershed** - The land area drained by a river system.

**WEPP** – Water Erosion Prediction Project. A computer simulation that predicts soil erosion.

**Wetland** - Areas that under normal circumstances have hydrophytic vegetation, hydric soils, and wetland hydrology.

**Wilderness** - Federal land retaining its primeval character and influence without permanent improvements or human habitation as defined under the 1964 Wilderness Act. It is protected and managed so as to preserve its natural conditions which (1) generally appear to have been affected primarily by forces of nature with the imprint of man's activity substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and confined type of recreation; (3) has at least 5000 acres or is of sufficient size to make practical its preservation, enjoyment, and use in an unimpaired condition, and (4) may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

**Wildfire** - An unwanted wildland fire that requires a suppression response.

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

**Wildland Urban Interface (WUI)** - That line, area, or zone where structures and other human development meet or intermingles with undeveloped wildland or vegetative fuels.

**Wind Dominated Fire** - 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** - The areas available to and used by big game during the winter season. Must contain forage or browse to feed big game. Winter range areas tend to have a relatively low amount of snow cover which enables the animals to reach the forage.

**Xeric** – Characterized by, or adapted to an extremely dry habitat.

**Yarding** – The operation of hauling timber from the stump to a collecting point. This is commonly done using a cable system, dozers, helicopters, or rubber-tired skidders.

## Acronyms

<b>ACHPA</b>	Advisory Council on Historic Preservation
<b>AIRFA</b>	American Indian Religious Freedom Act of 1980
<b>ARM</b>	Administrative Rules of Montana
<b>BA</b>	Biological Assessment
<b>BCR</b>	Bird Conservation Region
<b>BE</b>	Biological Evaluation
<b>BLM</b>	Bureau of Land Management
<b>BMA</b>	Bear Management Area
<b>BMPs</b>	Best Management Practices
<b>BMU</b>	Bear Management Unit
<b>BO</b>	Biological Opinion
<b>CAA</b>	Clean Air Act
<b>CEQ</b>	Council on Environmental Quality
<b>CCF</b>	Hundred (centum) Cubic Feet
<b>CFR</b>	Code of Federal Regulations
<b>CRPA</b>	Cave Resource Protection Act of 1988
<b>CSKT</b>	Confederated Salish and Kootenai Tribes
<b>CWA</b>	Clear Water Act
<b>DBH</b>	diameter breast height
<b>DEQ</b>	Montana Department of Health and Environmental Quality
<b>DFPZ</b>	Defensible Fuel Profile Zone
<b>DMR</b>	Dwarf Mistletoe Rating
<b>DN</b>	Decision Notice
<b>DNA</b>	Deoxyribonucleic acid
<b>DNRC</b>	Montana Department of Natural Resources and Conservation
<b>EA</b>	Environmental Analysis
<b>EAWS</b>	Ecosystem Analysis at the Watershed Scale
<b>EIS</b>	Environmental Impact Statement
<b>EO</b>	Executive Order
<b>EPA</b>	Environmental Protection Agency
<b>ERC</b>	Energy Release Component
<b>ESA</b>	Endangered Species Act

<b>FDR</b>	Forest Development Road
<b>FIA</b>	Forest Inventory and Analysis
<b>FMZ</b>	Fire Management Zone
<b>FOFEM</b>	First Order Fire Effects Model
<b>FRZ</b>	Fuels Reduction Zone
<b>FSH</b>	Forest Service Handbook
<b>FSM</b>	Forest Service Manual
<b>FSVeg</b>	Field Sampled Vegetation
<b>FVS</b>	Forest Vegetation Simulator
<b>GIS</b>	Geographic Information System
<b>GNP</b>	Glacier National Park
<b>HRV</b>	Historic Range of Variability
<b>ID Team</b>	Interdisciplinary Team
<b>KV</b>	Knutson-Vandenberg
<b>LAU</b>	Lynx Analysis Unit
<b>LRMP</b>	Land and Resource Management Plan (Forest Plan)
<b>LTSP</b>	Long-Term Soil Productivity Research Program
<b>MA</b>	Management Area
<b>MAFI</b>	Mean Annual Fire Interval
<b>MBF</b>	thousand board feet
<b>MBTA</b>	Migratory Bird Treaty Act
<b>MDFW&amp;P</b>	Montana Department of Fish, Wildlife & Parks
<b>MIS</b>	Management Indicator Species
<b>MMBF</b>	million board feet
<b>MNHP</b>	Montana Natural Heritage Program
<b>MOU</b>	Memorandum of Understanding
<b>MS</b>	Management Situation
<b>NAAQS</b>	National Ambient Air Quality Standards
<b>NAGPRA</b>	Native American Grave Protection and Repatriation Act
<b>NCDE</b>	Northern Continental Divide Ecosystem
<b>NEPA</b>	National Environmental Policy Act
<b>NFMA</b>	National Forest Management Act
<b>NFS</b>	National Forest System
<b>NHPA</b>	National Historic Preservation Act
<b>NIFMID</b>	National Interagency Fire management Integrated Database

<b>NIWC EA</b>	Noxious and Invasive Weed EA
<b>NFMB</b>	Neotropical Migratory Birds
<b>NRHP</b>	National Registry of Historic Places
<b>NRIS</b>	Natural Resource Inventory System
<b>NRLMD</b>	Northern Rockies Lynx Management Direction
<b>NTMB</b>	Neotropical Migratory Bird
<b>OHV</b>	Off-Highway Vehicle
<b>OMB</b>	Office of Management and Budget
<b>ORD</b>	Open Road Density
<b>PCTC</b>	Plum Creek Timber Company, LLP
<b>PFA</b>	Potential Fledging Area
<b>PM</b>	Particulate Matter
<b>PVG</b>	Potential Vegetation Group
<b>R1PA</b>	Region One Programmatic Agreement
<b>RAWS</b>	Remote Automated Weather Stations
<b>RHCA</b>	Riparian Habitat Conservation Area
<b>RMO</b>	Road Management Objectives
<b>ROS</b>	Recreation Opportunity Spectrum
<b>RPA</b>	Forest and Rangeland Renewable Resources Planning Act
<b>SEC</b>	Swan Ecosystem Center
<b>SHPO</b>	Montana State Historic Preservation Office
<b>SIP</b>	State Implementation Plan
<b>SMZ</b>	Streamside Management Zone
<b>SOPA</b>	Schedule of Proposed Activities
<b>SVGBCA</b>	Swan Valley Grizzly Bear Conservation Agreement
<b>TEA</b>	Transaction Evidence Appraisal System
<b>TES</b>	Threatened and Endangered Species
<b>TMDL</b>	Total Maximum Daily Load
<b>TRD</b>	Total Road Density
<b>TSMRS</b>	Timber Stand Management Records System
<b>USDA</b>	United States Department of Agriculture
<b>USDI</b>	United States Department of Interior
<b>USFWS</b>	United States Fish and Wildlife Service
<b>USGS</b>	United States Geological Survey

<b>VMAP</b>	Vector Map
<b>WEPP</b>	Water Erosion Prediction Project
<b>WRA</b>	Weed Risk Assessment
<b>WUI</b>	Wildland Urban Interface