

■ Definitions

Understanding the terminology in range-land management is important when interpreting ideas, strategies, and goals. The following are common terms described by the Society for Range Management in the “Glossary of Terms Used in Range Management (1989)”:

Acclimatized Species: An introduced species which has become adapted to a new climate or a different environment and can perpetuate itself in the community without cultural treatment. cf. *exotic, introduced species*.

Aerial Photograph: A photograph of the earth’s surface taken from airborne equipment, sometimes called aerial photo or air-photograph.

Aftermath: Residue and/or regrowth of plants grazed after harvesting of a crop.

Allelopathy: Chemical inhibition of one organism by another.

Animal unit: Considered to be one mature cow of approximately 1000 pounds, either dry or with calf up to six months of age, or their equivalent, based on a standardized amount of forage consumed. Abbr = AU.

Animal unit day: The amount of forage on a dry matter basis required by one animal unit in one day based on a 26-pound forage allowance. Abbr = AUD.

Animal unit equivalent: A number expressing the energy requirements of a particular kind or class of animal relative to one animal unit. Abbr = AUE.

Animal unit month: The amount of dry forage required by one animal unit for one month based on a forage allowance of 26 pounds per day. Abbr = AUM.

Animal Unit Conversion Factor: A numerical figure expressing the forage requirements of a particular kind or class of animal related to the requirement for an animal unit. A conversion factor is satisfactory with respect to the amount of forage required to maintain an animal, but may not be applicable in determining stocking rates for range use for particular kinds or classes of animals because of different grazing preferences.

Annual Plant: A plant that completes its life cycle and dies in one year or less.

Apical Dominance: Domination and control of meristematic leaves or buds located on the lower stem, roots, or rhizomes by hormones produced by apical meristems located on the tips and upper branches of plants, particularly woody plants.

Auxin: A plant hormone promoting or regulating growth.

Backfiring: Ignition of a fire on the leeward (downwind) side of a bum area, resulting in a slow moving ground fire. cf. *headfiring*.

Badland: A land type consisting of steep or very steep barren land, usually broken by an intricate maze of narrow ravines, sharp crests, and pinnacles resulting from serious erosion of soft geologic materials. Most common in and or semiarid regions. A miscellaneous land type.

Bentonite: A natural clay deposit which has high swelling capabilities when saturated; used to seal earthen stock ponds.

Biennial: A plant that lives for two years, producing vegetative growth the first year and usually blooming and fruiting in the second year and then dying.

- Biomass:** The total amount of living plants and animals above and below ground in an area at a given time.
- Biome:** A major biotic unit consisting of plant and animal communities having similarities in form and environmental conditions, but not including the abiotic portion of the environment.
- Biota:** All the species of plants and animals occurring within an area or region.
- Biotic:** Refers to living components of an ecosystem, e.g., plants and animals.
- Blowout:** (1) An excavation in areas of loose soil, usually sand, produced by wind. (2) A breakthrough or rupture of a soil surface attributable to hydraulic pressure, usually associated with sand boils.
- Breeding Herd:** The animals retained for breeding purposes to provide for the perpetuation of the herd or band. Excludes animals being prepared for market.
- Broadcast Seeding:** Process of scattering seed on the surface of the soil prior to natural or artificial means of covering the seed with soil. cf. *dill seeding*.
- Browse:** (n.) That part of leaf and twig growth of shrubs, woody vines and trees available for animal consumption. (v.) Act of consuming browse. cf. *graze*.
- Brush:** A term encompassing various species of shrubs or small trees usually considered undesirable for livestock or timber management. The same species may have value for browse, wildlife habitat, or watershed protection.
- Brush Control:** Reduction of unwanted woody plants through fire, chemicals, mechanical methods, or biological means to achieve desired land management goals.

Brush Management: Manipulating woody plant cover to obtain desired quantities and types of woody cover and/or to reduce competition with herbaceous understory vegetation, in accordance with ecologically sound resource management objectives.

Buck-Fence: A fence constructed of wooden poles fastened horizontally to wooden cross-members. Such fences withstand heavy snows in mountainous regions, and eliminate the need for digging holes for posts in rocky terrain. Also called buck-pole fence.

Bunch Grass: A grass having the characteristic growth habit of forming a bunch; lacking stolons or rhizomes. cf. *sod grass*.

Burn: An area over which fire has recently passed.

Butte: An isolated hill with relatively steep sides. cf. *mesa*.

C-3 Plant: A plant employing the pentose phosphate pathway of carbon dioxide assimilation during photosynthesis; often a cool-season plant.

C-4 Plant: A plant employing the dicarboxylic acid pathway of carbon dioxide assimilation during photosynthesis; often a warm-season plant.

Cactus: A spiny, succulent plant of the Cactaceae family.

Canopy: (1) The vertical projection downward of the aerial portion of vegetation, usually expressed as a percent of the ground so occupied. (2) The aerial portion of the overstory vegetation. cf. *canopy cover*.

Canopy Cover: The percentage of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage of plants. Small openings within the canopy are included. It may exceed 100 percent. Syn. *aerial cover*.

Carrying Capacity: The maximum stocking rate possible which is consistent with maintaining or

improving vegetation or related resources. It may vary from year to year on the same area due to fluctuating forage production. cf. *grazing capacity*.

Cell: A grazing arrangement comprised of numerous sub-divisions (paddocks or pastures) often formed by electrical fencing, with a central component to facilitate livestock management and movement to the various sub-divisions. Normally used to facilitate a form of controlled grazing. cf. *paddock*.

Class of Animal: Description of age and/or sex-group for a particular kind of animal. Example, cow, calf, yearling, ewe, doe, fawn, etc.

Claypan: A dense compact layer in the subsoil having much higher clay content than the overlying material from which it is separated by a sharply designed boundary; formed by downward movement of clay or by synthetic of clay in place during soil formation. Claypans are usually hard when dry and plastic and sticky when wet. They usually impede the movement of water and air.
cf. *hardpan*.

Climax: (1) The final or stable biotic community in a successional series which is self-perpetuating and in dynamic equilibrium with the physical habitat; (2) the assumed end point in succession.
cf. *potential natural community*.

Community (Plant Community): An assemblage of plants occurring together at any point in time, while denoting no particular ecological status.
A unit of vegetation.

Companion Crop: A crop sown with another crop (perennial forage or trees or shrubs) that is allowed to mature and provide a return in the first year. cf. *nurse crop*.

Complementary Pasture: Short-term forage crop (not necessarily annual) planted for use by domestic stock to enhance the management and productivity of the ranch.

Concentrate Feed: Grains or their products and other processed food materials that contain a high proportion of nutrients and are low in fiber and water.

Conservation: The use and management of natural resources according to principles that assure their sustained economic and/or social benefits without impairment of environmental quality.

Conservation District: A public organization created under State enabling law as a special-purpose district to develop and carry out a program of soil, water, and related resource conservation, use, and development within its boundaries. Usually a subdivision of State government with a local governing body and always with limited authorities. Often called a soil conservation district or a soil and water conservation district.

Conservation Plan: The recorded decisions of a landowner or operator, cooperating with a conservation district on how he/she plans, within practical limits, to use his/her land according to its capability and to treat it according to its needs for maintenance or improvement of the soil, water, and plant resources.

Consumption: Dietary intake based on (1) amounts of specific forages and other feedstuffs, or (2) amounts of specific nutrients.

Contact Herbicide: An herbicide that kills primarily by contact with plant tissue rather than as a result of translocation.

Continuous Grazing: The grazing of a specific unit by livestock throughout a year or for that part of the year during which grazing is feasible. The term is not necessarily synonymous with year-long grazing, since seasonal grazing may be involved.

Cool-Season Plant: A plant which generally makes the major portion of its growth during the late fall, winter, and early spring. Cool-season species generally exhibit the C3 photosynthetic pathway.

Coordinated Resource Management Planning:

The process whereby various user groups are involved in discussion of alternate resource uses and collectively diagnose management problems, establish goals and objectives, and evaluate multiple use resource management.

Coulee: The term used for deep gulch or ravine in the northern USA.

Cover: (1) The plants or plant parts, living or dead, on the surface of the ground. Vegetative cover or herbage cover is composed of living plants and litter cover of dead parts of plants. *Syn. foliar cover.*
(2) The area of ground cover by plants of one or more species. *cf. basal area.*

Cover Type: The existing vegetation of an area.

Creep Feeding: Supplemental feeding of suckling livestock in such a manner that the feed is not available to the mothers or other mature livestock.

Cryptogam: A plant in any of the groups Thallophytes, Bryophyte, and Pteridiophytes — mosses, lichens, and ferns.

Cultivar: A named variety selected within a plant species. Distinguished by any morphological, physiological, cytological, or chemical characteristics. A variety of plant produced and maintained by cultivation which is genetically retained through subsequent generations.

Cured Forage: Forage, either standing or harvested, that has been naturally or artificially dried and preserved for future use. *cf. stockpiling.*

Debris: Accumulated plant and animal remains.

Deciduous (Plant): Plant parts, particularly leaves that are shed at regular intervals, or at a given stage of development, i.e. a deciduous plant regularly loses or sheds its leaves. *cf. evergreen.*

Decomposer: Heterotrophic organisms, chiefly the microorganisms, that break down the bodies of dead animals or parts of dead plants and absorb some of the decomposition products while releasing similar compounds usable by producers.

Decreaser: Plant species of the original or climax vegetation that will decrease in relative amount with continued disturbance to the norm, e.g. heavy defoliation, fire, drought. Some agencies use this only in relation to response to overgrazing.

Deferment: Delay of livestock grazing in an area for an adequate period of time to provide for plant reproduction, establishment of new plants, or restoration of vigor of existing plants. cf. *deferred grazing, rest*.

Deferred Grazing: The use of deferment in grazing management of a management unit, but not in a systematic rotation including other units. cf. *grazing system*.

Deferred-Rotation: Any grazing system which provides for a systematic rotation of the deferment among pastures.

Defoliation: The removal of plant leaves, i.e. by grazing or browsing, cutting, chemical defoliant, or natural phenomena such as hail, fire, or frost.

Degree of Use: The proportion of current year's forage production that is consumed and/or destroyed by grazing animals. May refer either to a single species or to the vegetation as a whole. Syn. *use*.

Density: (1) The number of individuals per unit area. It is not a measure of cover. However, in the past, the term "density" has been used to mean cover. cf. *frequency*.

Desert: An arid area with insufficient available water for dense plant growth.

Desirable Plant Species: Species which contribute positively to the management objectives.

Desired Plant Community: A plant community which produces the kind, proportion, and amount of vegetation necessary for meeting or exceeding the land use plan/activity plan objectives established for an ecological site(s). The desired plant community must be consistent with the site's capability to produce the desired vegetation through management, land treatment, or a combination of the two.

Deteriorated Range: Range where vegetation and soils have significantly departed from the natural potential. Corrective management measures such as seeding would change the designation from deteriorated range to some other term. Syn. *degenerated range*.

Detritus: Fragmented particulate organic matter derived from the decomposition of debris.

Diurnal: Active during daylight hours.

Diversity: The distribution and abundance of different plants and animal communities within an area.

Dominant: (1) Plant species or species groups, which by means of their number, coverage, or site, have considerable influence or control upon the conditions of existence of associated species. (2) Those individual animals which, by their aggressive behavior or otherwise, determine the behavior of one or more animals resulting in the establishment of a social hierarchy.

Draw: A natural watercourse, including the channel and adjacent areas on either side, which may occasionally overflow or receive extra water from higher adjacent areas; generally having intermittent flows associated with higher intensity rainfall.

Drill Seeding: Planting seed directly into the soil with a drill in rows, usually 6' to 24' apart.

Drip Torch: Portable equipment for applying flammable liquids giving a residual flame upon ignition; primarily used in prescribed burning.

Drouth (Drought): (1) A prolonged chronic shortage of water, as compared to the norm, often associated with high temperatures and winds during spring, summer, and fall. (2) A period without precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water.

Dugout: (1) An artificially constructed depression that collects and stores water and differs from a reservoir in that a dam is not relied upon to impound water. *cf. stock pond* (2) a large hole dug in the ground, frequently on the side of a hill, and often covered with logs and sod, used as a dwelling or shelter.

Ecological Site: A kind of land with a specific potential natural community and specific physical site characteristics, differing from other kinds of land in its ability to produce vegetation and to respond to management. *Syn. ecological type, ecological response unit. cf. range site.*

Ecological Status: The present state of vegetation and soil protection of an ecological site in relation to the potential natural community for the site. Vegetation status is the expression of the relative degree of which the kinds, proportions, and amounts of plants in a community resemble that of the potential natural community. If classes or ratings are used, they should be described in ecological rather than utilization terms. For example, some agencies are utilizing four classes of ecological status ratings (early seral, mid-seral, late seral, potential natural community) of vegetation corresponding to 0-25%, 26-50%, 51-75% and 76-100% of the potential natural community standard. Soil status is a measure of present vegetation and litter cover relative to the amount of cover needed on the site to prevent accelerated erosion. This term is not used by all agencies. *cf. range condition.*

Ecological Type: A land classification category which is more specific than a phase of a habitat type. Ecological types are commonly used to differentiate habitat phases into categories of land which differ in their ability to produce vegetation or their response to management. Syn. *ecological response unit, ecological site*.

Ecology: The study of the interrelationships of organisms with their environment.

Ecosystem: Organisms together with their abiotic environment, forming an interacting system, inhabiting an identifiable space.

Ecotone: A transition area of vegetation between two communities, having characteristics of both kinds of neighboring vegetation as well as characteristics of its own. Varies in width depending on site and climatic factors.

Ecotype: A locally adapted population within a species which has certain genetically determined characteristics; interbreeding between ecotypes is not restricted. cf. *biotype*.

Enclosure: An area fenced to confine animals.

Endemic: Native to or restricted to a particular area, region or country.

Environment: The sum of all external conditions that affect an organism or community to influence its development or existence.

Eradication (plant): Complete kill or removal of a noxious plant from an area, including all plant structures capable of sexual or vegetative reproduction.

Erosion: (v.) Detachment and movement of soil or rock fragments, by water, wind, ice, or gravity. (n.) The land surface worn away by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

Essential Element: A chemical element which is necessary for the life of an organism.

- Evergreen (plant):** A plant that has leaves all year round, and generally sheds them in a single season after new leaves of the current growing season have matured. cf. *deciduous*.
- Evapotranspiration:** The actual total loss of water by evaporation from soil, water bodies, and transpiration from vegetation, over a given area with time.
- Exclosure:** An area fenced to exclude animals.
- Exotic:** An organism or species which is not native to the region in which it is found.
- Exposure:** Direction of slope with respect to points of a compass.
- Fauna:** The animal life of a region. A listing of animal species of a region.
- Feces:** Waste material voided through the anus.
- Fibrous Root System:** A plant root system having a large number of small, finely divided, widely spreading roots, but no large taproots. Typified by grass root system. cf. *taproot system*.
- Flushing:** Improving the nutrition of female breeding animals prior to and during the breeding season to stimulate ovulation.
- Flora:** (1) The plant species of an area. (2) A simple list of plant species or a taxonomic manual.
- Foliage:** The green or live leaves of plants; mass leaves, leafage.
- Forage:** (n.) Browse and herbage which is available and may provide food for grazing animals or be harvested for feeding. (v.) To search for or consume forage. Syn. *graze*.
- Forage Production:** The weight of forage that is produced within a designated period of time on a given area. The weight may be expressed as either green, air-dry, or oven-dry. The term may also be modified as to time of production such as annual, current year's growth, or seasonal forage production.

Forage Reserve: Standing forage specifically maintained for future or emergency use.

Forb: Any broad-leafed herbaceous plant other than those in the *Gramineae* (or *Poaceae*), *Cyperaceae* and *Juncaceae* families.

Free Range: Range open to grazing regardless of ownership and without payment of fees. Not to be confused with *open range*.

Frequency: The ratio between the number of sample units that contain a species and the total number of sample units.

Fresh Weight: The weight of plant materials at the time of harvest. Syn. *green weight*.

Full Use: The maximum use during a grazing season that can be made of range forage under a given grazing program without inducing a downward trend in range condition or ecological status.

Geographic Information System (GIS): A spatial type of information management system which provides for the entry, storage, manipulation, retrieval, and display of spatially oriented data.

Graminoid: Grass or grass-like plant, such as *Poa*, *Carex* and *Juncus* species.

Grass: A member of the family *Gramineae* (*Poaceae*).

Grassland: Land on which the vegetation is dominated by grasses, grasslike plants, and/ or forbs (cf. *dominant*). Non-forest land shall be classified as grassland if herbaceous vegetation provides at least 80% of the canopy cover excluding trees. Lands not presently grassland that were originally or could become grassland through natural succession may be classified as potential natural grassland. cf. *prairie*, *rangeland*.

Grasslike Plant: A plant of the *Cypeaceae* or *Juncaceae* families which vegetatively resembles a true grass of the *Gramineae* family.

Gravel, Cobble, Stones: As defined in Soil Taxonomy (Soil Conservation Service 1975): Gravel (2 mm-3 inches), cobble (3-10 inches), stones (over 10 inches). (Note: For standard range inventory procedures it is recommended that gravel smaller than 5 mm in diameter be classed as bare ground in cover determinations.)

Graze: (1) (vi.) The consumption of standing forage by livestock or wildlife. (2) (vt.) To put livestock to feed on standing forage.

Grazer: A grazing animal.

Grazier: A person who manages grazing animals.

Grazing: (vt.) To graze.

Grazing Behavior: The foraging response elicited from an herbivore by its interaction with its surrounding environment.

Grazing Capacity: The total number of animals which may be sustained on a given area based on total forage resources available, including harvested roughage and concentrates. cf. *carrying capacity*.

Grazing Distribution: Dispersion of livestock grazing within a management unit or area.

Grazing Land: A collective term that includes all lands having plants harvestable by grazing without reference to land tenant, other land uses, management, or treatment practices.

Grazing Management: The manipulation of grazing and browsing animals to accomplish a desired result.

Grazing Management Plan: A program of action designed to secure the best practicable use of the forage resources with grazing or browsing animals.

Grazing Period: The length of time that animals are allowed to graze on a specific area.

Grazing Preference: (1) Selection of certain plants, or plant parts, over others by grazing animals.

(2) In the administration of public lands, a basis upon which permits and licenses are issued for grazing use. cf. *palatability, grazing privilege and grazing right*.

Grazing Pressure: An animal to forage relationship measured in terms of animal units per unit weight of forage at any instant, i.e., AU/T.

Grazing Pressure Index: An animal to forage relationship measured in terms of animal units per unit weight of forage over a period of time, i.e., AUM /T.

Grazing Season: (1) On public lands, an established period for which grazing permits are issued. May be established on private land in a *grazing management plan*. (2) The time interval when animals are allowed to utilize a certain area.

Grazing System: A specialization of *grazing management* which defines the periods of grazing and non-grazing. Descriptive common names may be used; however, the first usage of a grazing system name in a publication should be followed by a description using a standard format. This format should consist of at least the following: the number of pastures (or units); number of herds; length of grazing periods; length of non-grazing periods for any given unit in the system followed by an abbreviation of the unit time used. cf. *deferred grazing, deferred-rotation, rotation, rest-rotation, and short duration grazing*.

Grazing Unit: An area of rangeland, public or private, which is grazed as an entity.

Ground Cover: The percentage of material, other than bare ground, covering the land surface. It may include live and standing dead vegetation, litter, cobble, gravel, stones and bedrock. Ground cover plus bare ground would total 100 percent. cf. *foliar cover*.

Growing Season: In temperate climates, that portion of the year when temperature and moisture permit plant growth. In tropical climates it is determined by availability of moisture.

Growth Form: The characteristic shape or appearance of an organism.

Gully: A furrow, channel or miniature valley, usually with steep sides through which water commonly flows during and immediately after rains or snowmelt.

Habitat: The natural abode of a plant or animal, including all biotic, climatic, and edaphic factors affecting life.

Habitat Type: The collective area which one plant association occupies or will come to occupy as succession advances. The habitat type is defined and described on the basis of the vegetation and its associated environment.

Half-Shrub: A perennial plant with a woody base whose annually produced stems die each year.

Hardiness: The ability to survive exposure to adverse conditions.

Hardpan: A hardened soil layer in the lower A or in the B horizon caused by cementation of soil particles with organic matter or with materials such as silica, sesquioxides, or calcium carbonate. The hardness does not change appreciably with changes in moisture content, and pieces of the hard layer do not crumble in water.

Harvest: Removal of animal or vegetation products from an area of land.

Heavy Grazing: A comparative term which indicates that the stocking rate of a pasture is relatively greater than that of other pastures. Often erroneously used to mean overuse. cf. *light and moderate grazing*.

Herb: Any flowering plant except those developing persistent woody stems above ground.

Herbaceous: Vegetative growth with little or no woody component. Non-woody vegetation, such as graminoids and forbs.

Herbage: (1) Herbs taken collectively. (2) Total aboveground biomass of herbaceous plants regardless of grazing preference or availability.

Herbage Disappearance Rate: The rate per unit area at which herbage leaves the standing crop due to grazing, senescence or other causes. Unit: kg/ha/d, or lbs/ac/d.

Herbicide: A phytotoxic chemical used for killing or inhibiting the growth of plants.

Herbivore: An animal that subsists principally or entirely on plants or plant materials.

Herd: An assemblage of animals usually of the same species.

Holistic Resource Management: Holistic Resource Management (HRM) is a practical, goal-oriented approach to the management of the ecosystem including the human, financial and biological resources on farms, ranches, public and tribal lands, as well as national parks, vital water catchments and other areas. HRM entails the use of a management model which incorporates a holistic view of land, people and dollars.

Hybrid: Offspring of a cross, between genetically dissimilar individuals.

Hybrid Vigor: The increased performance (rate of gain) associated with FI crossbreeding.

Ice-Cream Species: An exceptionally palatable species sought and grazed frequently by livestock or game animals. Such species are often overutilized under proper grazing.

Increaser: Plant species of the original vegetation that increase in relative amount, at least for a time, under continued disturbance to the norm, e.g., heavy defoliation, fire, drought.

Indicator Species: (1) Species that indicate the presence of certain environmental conditions, seral stages, or previous treatment. (2) One or more plant species selected to indicate a certain level of grazing use. cf. *key species*.

Infestation: Invasion by large numbers of parasites or pests.

Infiltration: The flow of a fluid into a substance through pores or small openings. It connotes flow into a substance in contradistinction to the word *percolation*.

Infiltration Rate: Maximum rate at which soil under specified conditions can absorb rain or shallow impounded water, expressed in quantity of water absorbed by the soil per unit of time, e.g., inches/hour.

Interseeding: Seeding into an established vegetation cover. Often is planting seeds into the center of narrow seedbed strips of variable spacing and prepared by mechanical or chemical methods.

Introduced Species: A species not a part of the original fauna or flora of the area in question. cf. *native and resident species*.

Invader: Plant species that were absent in undisturbed portions of the original vegetation of a specific range site and will invade or increase following disturbance or continued heavy grazing.

Invasion: The migration of organisms from one area to another area and their establishment in the latter. cf. *ecesis*.

Key Management Species: Plant species on which management of a specific unit is based.

Key Species: (1) Forage species of sufficient abundance and palatability to justify its use as an indicator to the *degree of use* of associated species. (2) Those species, which must, because of their impotence, be considered in the management program.

Kind of Animal: An animal species or species group such as sheep, cattle, goats, deer, horses, elk, antelope, and etc. cf. *class of animal*.

Land: The total natural and cultural environment within which production takes place; a broader term than soil. In addition to soil, its attributes include other physical conditions, such as mineral deposits, climate, and water supply; location in relation to centers of commerce, populations, and other land; the size of the individual tracts or holdings; and existing plant cover, works of improvement, and the like. Some use the term loosely in other senses; as defined above but without the economic or cultural criteria; especially in the expression "natural land;" as a synonym for "soil;" for the solid surface of the earth; and also for earthly surface formations, especially in geomorphologic expression "land form."

Land Use Planning: The process by which decisions are made on future land uses over extended time periods that are deemed to best serve the general welfare. Decision-making authorities on land uses are usually vested in state and local governmental units, but citizen participation in the planning process is essential for proper understanding and implementation, usually through zoning ordinances.

Light Grazing: A comparative term which indicates that the stocking rate of one pasture is relatively less than that of other pastures. Often erroneously used to mean under use. cf. *heavy and moderate grazing*.

Lime: (1) Calcium oxide. (2) All limestone-derived materials applied to neutralize acid soils.

Limiting Factor: Any environmental factor which exists at suboptimal level and thereby prevents an organism from reaching its full biotic potential.

Livestock: Domestic animals.

Management Area: An area for which a single management plan is developed and applied.

Management Objective: The objectives for which rangeland and rangeland resources are managed which includes specified uses, accompanied by a description of the desired vegetation and the expected products and/or values.

Management Plan: A program of action designed to reach a given set of objectives.

Marginal Land: Land of questionable physical or economic capabilities for sustaining a specific use.

Marsh: Flat, wet treeless areas usually covered by standing water and supporting a native growth of grasses and grasslike plants.

Mast: Nuts, acorns, and similar products which are consumed by animals.

Meadow: (1) An area of perennial herbaceous vegetation, usually grass or grasslike, used primarily for hay production. (2) Openings in forests and grasslands of exceptional productivity in arid regions, usually resulting from high water content of the soil, as in stream-side situations and areas having a perched water table. cf. *dry and wet meadow*.

Moderate Grazing: A comparative term which indicates that the stocking rate of a pasture is between the rates of other pastures. Often erroneously used to mean *proper use*. cf. *heavy and light grazing*.

Monitoring: The orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives.

Morphology: The form and structure of an organism with special emphasis on external features.

Mulch: (n.) (1) A layer of dead plant material on the soil surface. (cf. *fresh and humic mulch*.) (2) An artificial layer of material such as paper or plastic on the soil surface. (v.) Cultural practice of placing

rock, straw, asphalt, plastic or other material on the soil's surface as a surface cover.

Multiple Use: Use of range for more than one purpose, i.e., grazing of livestock, wildlife production, recreation, watershed and timber production. Not necessarily the combination of uses that will yield the highest economic return or greatest unit output.

Native Species: A species which is a part of the original fauna or flora of the area in question. Syn. *indigenous*. cf. *introduced and resident species*.

Naturalized Species: A species not native to an area but which adapted to that area and has established a stable or expanding population. Does not require artificial inputs for survival and reproduction. Examples: cheatgrass, Kentucky bluegrass, starling, etc.

Nonuse: (1) Absence of grazing use on current year's forage production. (2) Lack of exercise, temporarily, of a grazing privilege on grazing lands. (3) An authorization to refrain, temporarily, from placing livestock on public ranges without loss of preference for future consideration.

Noxious Species: A plant species that is undesirable because it conflicts, restricts, or otherwise causes problems under management objectives. Not to be confused with species declared noxious by laws concerned with plants that are weedy in cultivated crops and on range.

Nurse Crop: A temporary crop seeded at or near the time primary plant species are seeded to provide protection and otherwise help to insure establishment of the latter, cf. *companion crop, preparation crop*.

Nutritive Value: Relative capacity of given forage or other feedstuff to furnish nutrition for animals. In range management, the term is usually prefixed by *high, low or moderate*.

Open Range: (1) Range which has not been fenced into management units. (2) All suitable rangeland of an area upon which grazing is permitted. (3) Untimbered rangeland. (4) Range on which the livestock owner has unlimited access without benefit of land ownership or leasing.

Organism: Any living entity; plant, animal, fungus, etc.

Outcrop: The exposure of bedrock or strata projecting through the overlying cover of detritus and soil.

Oven Dry Weight: The weight of a substance after it has been dried in an oven at a specific temperature to equilibrium.

Overgrazing: Continued heavy grazing which exceeds the recovery capacity of the community and creates a deteriorated range. cf. *overuse*.

Overland Flow: Surface runoff of water following a precipitation event. cf. *runoff*.

Overstocking: Placing a number of animals on a given area that will result in *overuse* if continued to the end of the planned grazing period.

Overstory: The upper canopy or canopies of plants. Usually refers to trees, tall shrubs and vines.

Overuse: Utilizing an excessive amount of the current year's growth which, if continued, will result in *range deterioration*. cf. *overgrazing*.

Paddock: (1) One of the subdivisions or subunits of the entire pasture unit, i.e. a grazing area enclosed and separated from other areas by fencing or other barriers. (2) A subdivision or subunit of an entire grazing unit (cell) often involved in controlled grazing of some manner. (3) A relatively small enclosure used as an exercise and saddling area for horses, generally adjacent to stalls or stable. Syn. *pasture*. cf. *cell*.

Palatability: The relish with which a particular species or plant part is consumed by an animal.

Pan (Soils): Horizon or layer in soils that is strongly compacted, indurated, or very high in clay content. cf. *caliche, claypan, hardpan*.

Pasture: (1) A grazing area enclosed and separated from other areas by fencing or other barriers; the management unit for grazing land. (2) Forage plants used as food for grazing animals. (3) Any area devoted to the production of forage, native or introduced, and harvested by grazing. (4) A group of subunits grazed within a rotational grazing system.

Pastureland: Grazing lands, planted primarily to introduced or domesticated native forage species, that receive periodic renovation and/ or cultural treatments, such as tillage, fertilization, mowing, weed control and irrigation. Not in rotation with crops.

Percent Use: Grazing use of current growth, usually expressed as a percent of the current growth (by weight) which has been removed. cf. *degree of use*.

Perennial Plant: A plant that has a life span of 3 or more years.

Pesticide: Any chemical agent such as herbicide, fungicide, insecticide, etc., used for control of specific organisms.

Phenotype: The physical appearance of an individual as contrasted with genetic makeup or genotype.

Photopoint: An identified point from which photographs are taken at periodic intervals.

Photosensitization: A noncontagious disease resulting from the abnormal reaction of light-colored skin to sunlight after a photodynamic agent has been absorbed through the animal's system. Grazing certain kinds of vegetation or ingesting certain molds under specific conditions causes photosensitization.

- Pioneer Species:** The first species or community to colonize or recolonize a barren or disturbed area in primary or secondary succession.
- Pitting:** Making shallow pits or basins of suitable capacity and distribution on range to reduce overland flow from rainfall or snowmelt.
- Plain:** A broad stretch of relatively level treeless land.
- Plant Vigor:** Plant health.
- Poisonous Plant:** A plant containing or producing substances that cause sickness, death or a deviation from the normal state of health of animals.
- Prairie:** An extensive tract of level or rolling land that was originally treeless and grass-covered.
cf. grassland, rangeland.
- Precipitation:** Condensation from the atmosphere, falling as rainfall, snow, hail or sleet.
- Preferred Species:** Species that are preferred by animals and are grazed by first choice.
- Prescribed Burning:** The use of fire as a management tool under specified conditions for burning a predetermined area. *cf. maintenance burning.*
- Primary Production:** The conversion of solar energy to chemical energy through the process of photosynthesis. It is represented by the total quantity of organic material produced within a given period by vegetation.
- Primary Productivity:** The rate of conversion of solar to chemical energy through the process of photosynthesis.
- Primary Range:** Areas which animals prefer to use when management is limited. Primary range will be overused before *secondary range* is fully used.
- Pristine:** A state of ecological stability or condition existing in the absence of direct disturbance by modern man.

Productivity: The rate of production per unit area, usually expressed in terms of weight or energy.

Proper Grazing: The act of continuously obtaining proper use.

Proper Stocking: Placing a number of animals on a given area that will result in proper use at the end of the planned grazing period. Continued proper stocking will lead to proper grazing.

Proper Use: A degree of utilization of current year's growth which, if continued, will achieve management objectives, and maintain or improve the long-term productivity of the site. Proper use varies with time and systems of grazing. Syn. *proper utilization*, *proper grazing use*. cf. *allowable use*.

P.L.S.: Abbreviation for pure live seed.

Pure Live Seed: Purity and germination of seed expressed in percent; may be calculated by formula: $P.L.S. = \% \text{ germination} \times \% \text{ purity} / 100$; e.g. $91 \times 96/100 = 87.36\%$. Abbr., PLS or P.L.S. cf. *seed purity*.

Range: (n.) Any land supporting vegetation suitable for grazing including rangeland, grazable woodland and shrubland. Range is not a use. (adj.) Modifies resources, products, activities, practices, and phenomena pertaining to rangeland. cf. *rangeland*, *forested range*, *grazable woodland*, *shrubland*.

Range Appraisal: The classification and valuation of rangeland from an economic or production standpoint.

Range Condition: (a) A generic term relating to present status of a unit of range in terms of specific values or potentials. Specific values or potentials must be stated. (b) Some agencies define range condition as follows: The present state of vegetation of a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of

plants in a plant community resemble that of the climax plant community for the site. cf. *ecological status and resource value rating*.

Range Condition Class: Confusion has existed regarding both definition and use of this term. (1) The following definition fits the thinking expressed in the definition Range Condition (a) above: One of a series of arbitrary categories used to either classify ecological status of a specific range site in relation to its potential (early, mid, late seral or PNC) or classify management-oriented value categories for specific potentials, e.g., good condition spring cattle range. (2) Some agencies consider range condition class in the context of Range Condition (b) above as follows:

Range Condition Class	% of climax for the range site
Excellent	76-100
Good	51-75
Fair	26-50
Poor	0-25

Range Improvement: (1) Any structure or excavation to facilitate management of range or livestock. (2) Any practice designed to improve range condition or facilitate more efficient utilization of the range. (3) An increase in the grazing capacity of range, i.e., improvement of rangeland condition.

Range Management: A distinct discipline founded on ecological principles and dealing with the use of rangelands and range resources for a variety of purposes. These purposes include use as watersheds, wildlife habitat, grazing by livestock, recreation, and aesthetics, as well as other associated uses.

Range Readiness: The defined stage of plant growth at which grazing may begin under a specific management plan without permanent damage to vegetation or soil. Usually applied to seasonal range.

Range Seeding: The process of establishing vegetation by the artificial dissemination of seed.

Range Site: Synonymous with *ecological site* when referring to rangeland. An area of rangeland which has the potential to produce and sustain distinctive kinds and amounts of vegetation to result in a characteristic plant community under its particular combination of environmental factors, particularly climate, soils, and associated native biota. Some agencies use range site based on the climax concept, not potential natural community.
cf. *vegetative type*.

Rangeland: Land on which the native vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs. Includes lands revegetated naturally or artificially when routine management of that vegetation is accomplished mainly through manipulation of grazing. Rangelands include natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows. cf. *forestland, range*.

Rangeland Inventory: (1) The systematic acquisition and analysis of resource information needed for planning and for management of rangeland.
(2) The information acquired through rangeland inventory.

Rangeland Renovation: Improving rangeland by mechanical, chemical or other means.

Reclamation: Restoration of a site or resource to a desired condition to achieve management objectives or stated goals. cf. *revegetation*.

Remote Sensing: The measurement or acquisition of information of some property of an object or phenomenon by a recording device that is not a physical or intimate contact with the object or phenomenon under study. Often involves aerial photography or satellite imagery.

Reseeding: Syn. *range seeding*.

- Rest:** Leaving an area ungrazed; thereby, foregoing grazing of one forage crop. Normally rest implies absence of grazing for a full growing season or during a critical portion of plant development; i.e., seed production. cf. *deferment*.
- Rest Period:** A time period of no grazing included as part of a grazing system.
- Rest-Rotation:** A grazing management scheme in which rest periods for individual pastures, paddocks, or grazing units, generally for the full growing season, are incorporated into a grazing rotation. cf. *grazing system*.
- Rhizome:** A horizontal underground stem, usually sending out roots and above-ground shoots from the nodes.
- Riparian:** Referring to or relating to areas adjacent to water or influenced by free water associated with streams or rivers on geologic surfaces occupying the lowest position on a watershed.
- Riparian Species:** Plant species occurring within the riparian zone. Obligate species require the environmental conditions within the riparian zone; facultative species tolerate the environmental conditions, and may occur away from the riparian zone.
- Riparian Zone:** The banks and adjacent areas of water bodies, water courses, seeps and springs whose waters provide soil moisture sufficiently in excess of that otherwise available locally so as to provide a more moist habitat than that of contiguous flood plains and uplands.
- Ripping:** The mechanical penetration and sheering of range soils to depths of 8 to 18 inches, for the purpose of breaking hardpan layers to facilitate penetration of plant roots, water, organic matter, and nutrients. A range improvement practice used where native grasses of a rhizomatous nature can spread into the ripped soil. cf. *chiseling*.

- Rotation Grazing:** A grazing scheme where animals are moved from one grazing unit (paddock) in the same group of grazing units to another without regard to specific graze:rest periods or levels of plant defoliation. cf. *grazing system*.
- Roughage:** Plant materials containing a low proportion of nutrients per unit of weight and usually bulky and coarse, high in fiber and low in total digestible nutrients. Roughage may be classed as either dry or green.
- Rumen:** The large, first compartment of the stomach of a ruminant from which ingested food is regurgitated for rechewing and in which digestion is aided by symbiotic action of microbes.
- Ruminant:** Even-toed, hooved mammals that chew the cud and have a 4-chamber stomach., i.e. *Ruminantia*.
- Runoff:** The total stream discharge of water, including both surface and subsurface flow, usually expressed in acre-feet of water yield.
- Sacrifice Area:** A portion of the range, respective of site that is unavoidably overgrazed to obtain efficient overall use of the management area.
- Season Long Grazing:** See Continuous Grazing.
- Seasonal Grazing:** Grazing restricted to a specific season.
- Seasonal Use:** (1) Synonymous with *seasonal grazing*. (2) Seasonal preference of certain plant species by animals.
- Secondary Range:** Range which is lightly used or unused by livestock under minimal management and will ordinarily not be fully used until the primary range has been overused.
- Seed:** A fertilized ripened ovule of a flowering plant.
- Seed Certification:** A system whereby seed of plant cultivars is produced, harvested and marketed under authorized regulation to insure seed of high quality and genetic purity.

Seed, Dormant: Live seed in a non-germinative condition because of (1) internal inhibitions in the seed, i.e., hard seed, or (2) unfavorable environmental conditions.

Seed Inoculation: Treatment of legume seed with rhizobium bacteria before planting to enhance subsequent nitrogen fixation.

Seedbed Preparation: Soil treatment prior to seeding to: (1) reduce or eliminate existing vegetation, (2) reduce the effective supply of weed seed, (3) modify physical soil characteristics, and (4) enhance temperature and water characteristics of the micro-environment.

Seed Purity: The percentage of the desired species in relation to the total quantity, including other species, weed seed, and foreign matter. cf. *pure live seed*.

Seep: Wet areas, normally not flowing, arising from an underground water source.

Selective Grazing: The grazing of certain plant species, individual plants, or plant parts on the range to the exclusion of others.

Short-Duration Grazing: Grazing management whereby relatively short periods (days) of grazing and associated non-grazing are applied to range or pasture units. Periods of grazing and non-grazing are based upon plant growth characteristics. Short duration grazing has nothing to do with intensity of grazing use. cf. *grazing system*.

Shrub: A plant that has persistent, woody stems and a relatively low growth habit, and that generally produces several basal shoots instead of a single bole. It differs from a tree by its low stature (generally less than 5 meters, or 16 feet) and non-arborescent form.

Shrubland: Any land on which shrubs dominate the vegetation.

Slope: A slant or incline of the land surface, measured in degrees from the horizontal, or in the

percent (defined as the number of feet or meters change in elevation per 100 of the same units of horizontal distance); may be further characterized by direction (*exposure*).

Sod: Vegetation which grows so as to form a mat of soil and vegetation. Syn. *turf*.

Sod Grasses: Stoloniferous or rhizomatous grasses which form a sod or turf. cf. *bunchgrass*.

Soil: (1) The unconsolidated mineral and organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants. (2) The unconsolidated mineral matter on the surface of the earth that has been subjected to and influenced by genetic and environmental factors of parent material, climate (including moisture and temperature effects), macro- and micro-organisms, and topography, all acting over a period of time and producing a product-soil that differs from the material from which it was derived in many physical, chemical, biological, and morphological properties and characteristics.

Soil Condition Class: One of a series of arbitrary categories based principally on the amount of ground cover weighted by the degree of accelerated erosion used to identify soil stability.

Species: A taxon or rank species; in the hierarchy or biological classification, the category below genus.

Species Composition: The proportions of various plant species in relation to the total on a given area. It may be expressed in terms of cover, density, weight, etc.

Spot Grazing: Repeated grazing of small areas while adjacent areas are lightly grazed or unused.

Spring: Flowing water originating from an underground source.

Stand: An existing plant community with definitive bounds that is relatively uniform in composition, structural, and site conditions; thus it may serve as a local example of a community type.

Standing Crop: The total amount of plant material per unit of space at a given time. Often is divided into aboveground and belowground portions and further may be modified by the descriptors 'dead,' 'live' to more accurately define the specific type of biomass.

Stem: The culm or branch of a plant.

Stock: Livestock.

Stocking Density: The relationship between number of animals and area of land at any instant of time. It may be expressed as animal-units per acre, animal-units per section or AU/ ha. cf. *stocking rate*.

Stocking Rate: The number of specific kinds and classes of animals grazing or utilizing a unit of land for a specified time period. May be expressed as animal unit months or animal unit days per acre, hectare, or section, or the reciprocal (area of land/animal unit month or day). When dual use is practiced (e.g., cattle and sheep), stocking rate is often expressed as animal unit months/unit of land or the reciprocal. Syn. *stocking level*. cf. *stocking density*.

Stockpiling: Allowing standing forage to accumulate for grazing at a later period, often for fall and winter grazing after dormancy. cf. *cured forage*.

Stock pond: A water impoundment made by constructing a dam or by excavating a dugout or both, to provide water for livestock and wildlife. cf. *catchment, guzzler, drink tank*.

Stockwater Development: Development of a new or improved source of stockwater supply, such as well, spring, pond, together with storage and delivery system.

Stolon: A horizontal stem which grows along the surface of the soil and roots at the nodes.

Stubble: The basal portion of herbaceous plants remaining after the top portion has been harvested either artificially or by grazing animals.

Submarginal Land: Land that is either physically or economically incapable of indefinitely sustaining a certain use.

Succession: The progressive replacement of plant communities on a site which leads to the potential natural plant community: i.e., attaining stability. Primary succession entails simultaneous successions of soil from parent material and vegetation. Secondary succession occurs following disturbances on sites that previously supported vegetation and entails plant succession on a more mature soil.

Suitable Range: (1) Range accessible to a specific kind of animal and which can be grazed on a sustained yield basis without damage to the resource. (2) The limits of adaptability of plant or animal species. One U.S. agency utilizes the term as follows: Land that is accessible or that can become accessible to livestock; that produces forage or has inherent forage producing capabilities; and, that can be grazed on a sustained yield basis under reasonable management goals. Suitable range includes both rangeland and forest land with a grazable understory which are contained in grazing allotments.

Supplement: Nutritional additive (salt, protein, phosphorus, etc.,) intended to remedy deficiencies of the range diet.

Supplemental Feeding: Supplying concentrates or harvested feed to correct deficiencies of the range diet. Often erroneously used to mean *emergency feeding*. cf. *maintenance feeding*.

Surfactant: (surface active agent). Materials used in herbicide formulations to bring about emulsifiability, spreading, wetting, sticking, dispersibility, solubilization or other surface modifying properties.

Swale: An area of low and sometimes wetland.

Taproot System: A plant root system dominated by a single large root, normally growing straight downward, from which most of the smaller roots spread out laterally. cf. *fibrous root system*.

Terracing: Mechanical movement of soil along the horizontal contour of a slope to produce an earthen dike to retain water and diminish the potential of soil erosion.

Tiller: The asexual development of a new plant from a meristematic region of the parent plant.

Total Annual Yield: The total annual production of all plant species of a plant community.

Trace Element: An element essential for normal growth and development of an organism but required only in minute quantities.

Trampling: Treading underfoot; the damage to plants or soil brought about by movements or congestion of animals.

Tree: A woody perennial, usually single stemmed plant that has a definite crown shape and reaches a mature height of at least 16 feet (5 meters). There is no clear-cut distinction between trees and shrubs. Some plants, such as oaks (*Quercus* spp.) may grow as either trees or shrubs.

Trend (Range Trend) Classes and Ecological

Status Ratings: Trend in range condition or ecological status should be described as up, down or not apparent. Up represents a change toward climax or potential natural community; down represents a change away from climax or potential natural community; and not apparent indicates there is no recognizable change. This category is often recorded as static or stable. There is no necessary correlation between trends in resource value ratings, vegetation management status, and trend in range condition or ecological status.

Trophic Levels: The sequence of steps in a food chain or food pyramid, from producer to primary, secondary or tertiary consumer.

Turf: Syn. *sod*.

Twice-over Rotational Grazing: A variation of the deferred-rotation grazing system, which involves grazing three or more native pastures in rotation based on the growth stages of key species. Livestock are rotated through the grazing system faster than a deferred-rotation (once-over), allowing for periods of regrowth and recovery of vegetation, resulting in a second grazing period; thus twice-over.

Undergrazing: The act of continued underuse.

Understocking: Placing a number of animals on a given area that will result in *underuse* at the end of the planned grazing period.

Understory: Plants growing beneath the canopy of other plants. Usually refers to grasses, forbs and low shrubs under a tree or shrub canopy.
cf. *overstory*.

Underuse: A degree of use less than *proper use*.

Undesirable Species: (1) Species that conflict with or do not contribute to the management objectives. (2) Species that are not readily eaten by animals.

Ungulate: A hoofed animal, including ruminants but also horses, tapirs, elephants, rhinoceroses, and swine.

Unsuitable Range: Range which has no potential value for, or which should not be used for, a specific use because of permanent physical or biological restrictions. When unsuitable range is identified, the identification must specify what use or uses are unsuitable (e.g., "unsuitable cattle range").

Use: (1) The proportion of current years forage production that is consumed or destroyed by grazing animals. May refer either to a single species or to the vegetation as a whole. Syn. *degree of use*. (2) Utilization of range for a purpose such as grazing, bedding, shelter, trailing, watering, watershed, recreation, forestry, etc.

Utilization: Syn. *use*.

Vegetation: Plants in general, or the sum total of the plant life above and below ground in an area.
cf. vegetative.

Vegetation Type: A kind of existing plant community with distinguishable characteristics described in terms of the present vegetation that dominates the aspect or physiognomy of the area.

Vegetative: Relating to nutritive and growth function of plant life in contrast to sexual reproductive functions. Of or relating to vegetation.

Vegetative Reproduction: Production of new plants by any asexual method.

Vigor: Relates to the relative robustness of a plant in comparison to other individuals of the same species. It is reflected primarily by the size of a plant and its parts in relation to its age and the environment in which it is growing. Syn. *plant vigor*.
cf. hybrid vigor.

Virgin: Syn. *pristine*.

Warm-Season Plant: (1) A plant which makes most or all its growth during the spring, summer or fall and is usually dormant in winter. (2) A plant that usually exhibits the C4 photosynthetic pathway.

Watershed: (1) A total area of land above a given point on a waterway that contributes runoff water to the flow at that point. (2) A major subdivision of a drainage basin.

Weed: (1) Any plant growing where unwanted.
(2) A plant having a negative value within a given management system.

Wetlands: Areas characterized by soils that are usually saturated or ponded, i.e., hydric soils that support mostly water-loving plants (hydrophytic plants).

Wetland Communities: Plant communities that occur on sites with soils typically saturated with or covered with water most of the growing season.

Wet Meadow: A meadow where the surface remains wet or moist throughout the growing season, usually characterized by sedges and rushes.

Wildlife: Undomesticated vertebrate animals considered collectively, with the exception of fish. cf. *game*.

Winter Range: Range that is grazed during the winter months.

Wolf Plant: (1) An individual plant that is generally considered palatable, but is not grazed by livestock. (2) An isolated plant growing to extraordinary size, usually from lack of competition or utilization.

Woodland: A land area occupied by trees; a forest, woods.

Woody: A term used in reference to trees, shrubs or browse that characteristically contain persistent ligneous material.

Xeric: Having very little moisture; tolerating or adapted to dry conditions.

Yearling: An animal approximately one year of age. A short yearling is from 9 to 12 months of age and a long yearling is from 12 to 18 months.

Yield: (1) The quantity of a product in a given space and/or time. (2) The harvested portion of a product. Syn. *production, total annual yield or runoff*.