# Glossary

Terms used in the Grazing Land Applications (GLA) software are identified by a (GLA) after the term name.

Abbreviations used in this glossary:

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| Abbr. | abbreviation |
| e.g. | for example |
| i.e. | in other words |
| Syn. | Synonym |
| n. | Noun |
| v. | Verb |
| vi. | Verb intransitive |
| vt. | Verb transitive |

**Abiotic** Nonliving components of an ecosystem; basic elements and compounds of the environment.

**Accelerating practices** Practices that supplement vegetative management; help to achieve desired changes in the plant community more rapidly than is possible through vegetative management alone. Included are such practices as seeding, prescribed burning, brush management, and certain other practices that accelerate vegetative change. See Facilitating practices.

**Accessibility** The ease with which an area can be reached by people or penetrated and grazed by animals. The ease with which herbivores can reach plants or plant parts.

**Acid soil** A soil that has a pH below 6.6.

**Adjustment (GLA)** Change in animal numbers, seasons of use, kinds or classes of animals, or management practices as warranted by specific conditions.

**Adjustment factor (GLA)** A value used to adjust the recommended stocking rate for landscape attributes that limit capture of forage, such as distance to water, slope, barriers, terrain, or site preference.

**Aftermath** Crop residue and/or regrowth of forage crops, including growth of volunteer plants, used for grazing after a machine harvest.

**Age-class** (1) A descriptive term to indicate the relative age of plants. (2) Refers to age and class of animal.

**Air-dry weight** The weight of a substance, usually vegetation, after it has been allowed to dry to equilibrium with the atmosphere, usually without artificial heat.

**Alkaline soil** A soil that has a pH above 7.3.

**Alkaloids** Bitter tasting organic compounds of plant origin that have alkaline properties and a complex molecular structure containing nitrogen. They reduce dry matter intake and interfere with digestion of livestock grazing forages containing significant levels of them. Metabolic and reproductive disorders in livestock can occur from ingestion of the more toxic alkaloids. They are anti-quality chemicals.

**Allelopathy** Chemical inhibition of one organism by another.

**Allotment** An area designated for the use of a prescribed number and kind of livestock under one plan of management.

**Allowable use** (1) The degree of utilization considered desirable and attainable on various parts of a ranch or allotment considering the present nature and condition of the resource, management objectives, and levels of management. (2) The amount of forage planned to be used to accelerate range improvement.

**Alluvium** Sediment deposited by streams and rivers.

**Amortizing** The process of paying initial costs plus subsequent interest costs over a payment period, usually in equal periodic installments.

**Anabolic stimulant (GLA)** Growth hormones that affect the metabolic efficiency of an animal at the cellular level.

**Anhydrous ammonia** A nitrogen fertilizer that is 82 percent nitrogen. It is stored in pressurized tanks and injected into the soil to prevent loss to the air. Great care must be taken during application to avoid exposure to a vapor cloud of the ammonia. It is extremely toxic and can cause significant damage to eyes, nasal passages, and lungs.

**Animal attributes (GLA)** A listing of major domestic and wild animal species, major animal classes, and breed attributes.

**Animal class (GLA)** Age and/or sex groups of a kind of animal (e.g., cow, bull, calf, weaner steer, weaner heifer, yearling steer, yearling heifer, 2-year old heifer, 3-year old heifer, ox).

**Animal-day** One day's tenure upon grazing land by one animal. Most specify kind and class of animal. Not synonymous with animal unit day.

**Animal-demand** Energy requirement of ungulate herbivores based only on animal-related factors, such as body size, stage of life cycle, or production stage.

**Animal kind (GLA)** The common name of a kind or species of animal (e.g., cattle, sheep, goat, horse, white-tailed deer).

**Animal-month** A month's tenure upon grazing land by one animal. Must specify kind and class of animal. Not synonymous with animal-unit month.

**Animal substitution ratio** A numerical ratio of numbers, units or stocking levels of one animal species to another or in partitioning grazing capacity between two or more animal species.

**Animal-unit** An animal unit (AU) is one mature cow of approximately 1,000 pounds and a calf up to weaning, usually 6 months of age, or their equivalent.

**Animal-unit-day** The amount of forage required by an animal unit for 1 day. The NRCS uses 30 pounds of air dry forage or 26 pounds of oven dried forage per day as the amount of feed needed to meet this requirement. The pounds of feed needed to meet an animal's daily requirement is usually calculated by taking 2.5 to 3 percent of the animal's body weight.

**Animal-unit-equivalent** The amount of forage consumed by the different kind and class of animals expressed as a portion of an animal unit.

**Animal-unit-month** The amount of forage required by an animal unit for 1 month.

**Animal-unit-year** The amount of forage required by an animal unit for 1 year, equal to 12 AUM's. The NRCS uses 9,490 pounds of oven dried forage as required pounds of forage to equal an animal unit year.

**Annual plant** A plant that completes its life cycle and dies in 1 year or less.

**Annual range** Range on which the principal forage plants are self-perpetuating annual, herbaceous species.

**Anti-quality chemicals** Chemicals produced in some forages that reduce dry matter intake or cause negative responses in animals consuming those forages.

**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.

**Apparent trend** An interpretation of trend based on a single observation. Apparent trend is described in the same terms as measured trend except that when no trend is apparent it shall be described as not apparent.

**Aquifer** A geologic formation capable of transmitting water through its pores at a rate sufficient for water supply purposes. The term water-bearing is sometimes used synonymously with aquifer when a stratum furnishes water for a specific use. Aquifers are usually saturated sands, gravel, fractures, caverns, or vesicular rock.

**Arid** A term applied to regions or climates where lack of sufficient moisture severely limits growth and production of vegetation. The limits of precipitation vary considerably according to temperature conditions, with an upper annual limit for cool regions of 10 inches or less and for tropical regions as much as 15 to 20 inches. See Semiarid.

**Arroyo** A ravine in southwestern United States.

**Ash (GLA)** The noncombustible portion of feedstuff, generally nonvolatile minerals.

**Ash** The remaining residue after all the combustible material from a feed stuff has been burned off in a furnace at 500 to 600 °C. Nutritionally ash values have little importance.

**Aspect** The predominant direction of slope of the land.

**Association** Syn. Plant association.

**AU** Abbr. for Animal-unit. (Usually no periods)

**AUM** Abbr. for Animal-unit-month. (Usually no periods)

**Autecology** A subdivision of ecology that deals with the relationship of individuals of a species to their environment.

**Autogate** See cattleguard.

**Autotoxicity** A specific type of allelopathy where the presence of adult plants of a species interferes with the germination and development of seedlings from that species.

**Auxin** A plant hormone promoting or regulating growth.

**AUY** Abbr. for animal-unit-year. (Usually no periods)

**Available forage** (Animal oriented.) That portion of the forage production that is accessible for use by a specified kind or class of grazing animal. (Plant and animal oriented.) It is the consumable forage stated in digestible dry matter per land unit area that can be removed by grazing livestock without damage to the forage plants. See Usable forage; same except stated as dry matter per land unit area.

**Available water** The portion of water in a soil that can be absorbed by plant roots.

**Available water holding capacity** The volume of water available to plants when the soil including fragments is at field capacity.

**Azonal soil** A soil lacking a well-defined profile.

**Backfiring** Ignition of a fire on the leeward (downwind) side of a burn area, resulting in a slow moving ground fire that backs into the wind.

**Bactericide** A pesticide that kills bacteria.

**Bag silo (plastic tube)** Long (95 to 135 feet) plastic bags ranging from 8 to 10 feet in diameter that hold silage or haylage. They are filled with a wheeled machine that holds the open end of the bag and stuffs the bag with moist to wet forage. The machine is moved forward as the bag fills. For best forage quality, storage should be during cool weather and not exceed 5 months.

**Balage** Round baled, 40 to 60 percent moisture, grass or legume forage completely wrapped in plastic film or bagged. For best forage quality, storage should be during cool weather, in a shaded area, and not exceed 5 months.

**Balanced operation** (1) A livestock enterprise that provides sufficient feed and forage resources during each season to promote continuous satisfactory maintenance and production of its livestock and game. (2) An operation that integrates the kinds, classes, and numbers of animals (livestock or wildlife) to effectively use available forage resources to maintain continuous, sustainable production. (3) An operation that integrates various livestock, wildlife, and recreational enterprises which most effectively uses available forages and other range resources to maintain continuous, sustainable production.

**Baler** A machine that picks up a windrow of forage, compresses it, forms it into a rectangular or cylindrical bale, wraps it, and discharges it either onto the ground or into a trailing, convenient hauling vehicle. Bale size is highly variable among models.

**Band** Any number of sheep handled as a unit attended by a herder. See Flock.

**Band-day** Tenure by a band of sheep of a given size and class for 1 day.

**Bare ground** All land surface not covered by vegetation, rock, or litter. See Ground cover.

**Barren** (1) Any area devoid of vegetation or practically so. (2) A term to describe a mature female animal that is incapable of producing offspring.

**Barrier** A physical obstruction that limits movement.

**Basal area** The cross sectional area of the stem or stems of a plant or of all plants in a stand. Herbaceous and small woody plants are measured at or near the ground level; larger woody plants are measured at breast or other designated height. Syn. basal cover.

**Bed ground** An area where animals sleep and rest.

**Bench mark** (1) A permanent reference point. (2) In range inventory, it is used as a point where changes in vegetation through time are measured. (3) In soils, it is used to designate a major soil series that is representative of similar soils. (4) In economics, data that are used as a base for comparative purposes with similar data. (5) A surveyor's mark made on a permanent landmark that has known position and altitude.

**Biennial** A plant that lives for 2 years, producing vegetative growth the first year, usually blooming and fruiting in the second year, and then dying.

**Biocide** A chemical toxic or lethal to living organisms.

**Biodegradable** Capable of being decomposed by natural processes.

**Biological diversity** The variety and variability of the world's organisms, the ecological complexes in which they occur, and the processes and life support services they mediate.

**Biomass** The total amount of living plants and animals above and/or 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.

**Biotype** A group of individuals within a population occurring in nature, all with essentially the same tolerance ranges. A species usually consists of many biotypes. See Ecotype.

**Bi-pass protein** Protein that bypasses or escapes the rumen directly into the intestine, such as dehydrated alfalfa, blood meal, corn gluten meal, distillers grains, and feather meal.

**Blackline** A backfired area in front of the head fire used for stopping the head fire. Its area (length and width) is determined by the fuel load and risk. Can be burned in advance of prescribed fire. See Firebreak.

**Blowout** (1) An excavation in an area of soil, usually loose sand, produced by wind. (2) A breakthrough or rupture of a soil surface attributable to hydraulic pressure, usually associated with sand boils.

**Body condition score (BCS) (GLA)** A rating system used to evaluate the overall health and well being of livestock has become a widely used method of determining when supplemental feeding should be used. A BCS of 5 usually indicates an animal in average condition. BCS systems usually go from 1 to 9 or 10, with 1 being extremely poor and 9 or 10 being excessively fat.

**Boot stage** Growth stage when a grass seedhead is enclosed by the sheath of the uppermost (flag) leaf.

**Bovine fat necrosis** Several physiological disorders in cattle caused by necrotic or hard fat lesions in the abdominal cavity. Ingestion of highly fertilized endophyte fungus infected tall fescue seems to cause the disorder.

**Brand** (1) (v) To mark the skin or wool of an animal in a distinctive pattern by use of a hot or cold iron, chemical, paint, or other means to designate ownership or to identify individual animals for registration or management purposes. (2) (n) The mark so made.

**Breeding herd** The animals retained for breeding purposes to provide for the perpetuation of the herd or band. Excludes animals being prepared for market.

**Breed type (GLA)** Name of the breed (e.g., Hereford cattle, merino sheep).

**Broadcast seeding** Process of scattering seed on the surface of the soil prior to natural or artificial means of covering the seed with soil.

**Browse** (n) That part of leaf and twig growth of shrubs, woody vines, and trees available for animal consumption. (v) Act of consuming browse.

**Browse line** A well-defined height to which browse has been removed by animals.

**Browseway** A lane built through a dense brush thicket to provide access by herbivores and people and/or to encourage browse rejuvenation. See Sendero.

**Brush** 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.

**Brushland** An area covered primarily with brush; i.e., shrubland.

**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 overall resource management objectives.

**Buck pasture** In certain localities, a pasture or paddock for holding rams separately from ewes.

**Bucking range** In certain localities, range selected for placing rams with ewes.

**Buffalo wallow** A small natural depression of prairie occasionally containing standing water and having vegetation different from that of the surrounding area.

**Buildup or corrective fertilizer applications** Nutrient additions, especially phosphorus and potassium, that bring the soil up to the desired level of availability for optimum plant growth.

**Bunch grass** A grass so-called because of its characteristic growth habit of forming a bunch.

**Bunker or horizontal silo** Above- or below-ground, lined or unlined storage facility used to store fermented forage material (silage or haylage). Forage material must be machine compacted and covered with an air tight film of plastic to get proper fermentation and reduce storage losses. Unlined ones can leak silage effluent, a pollutant with high biochemical oxygen demand.

**Burn** An area over which fire has recently passed.

**Butte** An isolated hill with relatively steep sides. See Mesa.

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

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

**Cabling** The use of a large cable pulled between two large tractors (usually crawler tractors) to pull down or uproot brush. See Chaining.

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

**Calf crop** The number of calves weaned from a given number of cows exposed to breeding, usually expressed in percent; i.e., number of calves weaned divided by number of cows exposed x 100. Calves weaned.

**Caliche** (1) A layer in the soil horizon more or less cemented by secondary carbonates of calcium or magnesium precipitated from the soil solution. It may occur as a soft, thin soil horizon; as a hard, thick bed just beneath the solum; or as a surface layer exposed by erosion. Often used for road material or as a filler to build up areas in heavily traveled areas, such as pens or troughs. Not a geologic deposit. (2) Alluvium cemented with sodium nitrate, chloride, and/or other soluble salts.

**Calorie** The amount of heat required to raise the temperature of 1 gram of water 1 °C measured from 14.5 to 15.5 °C.

**Cam plant** A plant employing the crasulacean acid metabolism pathway of carbon dioxide assimilation during photosynthesis.

**Canopy** (1) The vertical projection downward of the aerial portion of vegetation, usually expressed as a percent of the ground so occupied. (2) A generic term referring to the aerial portion of vegetation.

**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. Syn. crown cover.

**Carrier** (1) Material used to dilute the active ingredient in a chemical formulation. (2) Material used to carry a pesticide to its target. (3) Plant or animal carrying an infectious disease agent internally, but showing no marked symptoms.

**Carrying capacity** The maximum stocking rate possible without inducing permanent or long-term damage to vegetation or related resources. The rate may vary from year to year in the same area as a result of fluctuating forage production.

**Catchment basin** See Guzzler.

**Cation exchange capacity** The amount of exchangeable cations that a soil can adsorb at pH 7.0.

**Cattleguard** A device or structure, at points where roads or railroads cross a fence line, that is so designed that vehicular travel is uninterrupted, but crossing by all kinds of livestock is restricted. Syn. autogate.

**Cattle walkway** Syn. walkway.

**Cell** A grazing arrangement comprised of numerous subdivision (pastures or paddocks) often formed by electrical fencing, with a central management to facilitate livestock management and movement to the various subdivisions. Normally used to facilitate a form of short duration grazing.

**Certified seed** Seed produced from foundation or registered seed that is available for consumer use. It carries a tag signifying it is high quality seed.

**Chaining** Similar practice as cabling except a large ship anchor chain with each chain link weighing 80 to 100 pounds is used. See Cabling.

**Chaparral** (1) A shrub community. (2) A dense thicket of stiff or thorny shrubs or dwarf trees, common to the Southwest United States.

**Chiseling** Breaking or loosening the soil, without inversion, with a chisel cultivator or chisel plow. A practice used for grassland or pasture renovation.

**Class of animal** Description of age and/or sex-group for a particular kind of animal; e.g., cow, calf, yearling, ewe, doe, or fawn.

**Claypan** A dense compact layer in the subsoil having a much higher clay content than the overlying material from which it is separated by a sharply defined boundary; formed by downward movement of clay or by synthesis 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. See Hardpan.

**Climax** See Historic climax plant community.

**Climax plant community** Syn. historic climax plant community.

**Clone** A group of plants, growing in close association, derived by asexual reproduction from a single parent plant. Such plants are therefore of the same genetic constitution.

**Closed range** Any range on which livestock grazing or other specified use is prohibited. See Livestock exclusion.

**Close herding** Handling a herd in a closely bunched manner, restricting the natural spread of the animals when grazing. See Mob stocking.

**Co-grazing** Grazing the current year's forage production by more than one kind of grazing animal either at the same time or at different seasons.

**Cold stratification** Keeping seed in a cool, moist environment for a period of time to simulate overwintering thereby reducing dormancy and increasing seed germination.

**Commercial** (1) Livestock raised primarily for meat, milk, wool, or other animal-derived products. (2) The label applied to a producer of such animals. See Seedstock for contrasting term.

**Common use** (1) Grazing the current year's forage production by more than one kind of grazing animal either at the same time or at different seasons. (2) More than one operator running livestock on the same area at the same time.

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

**Community** An assemblage of populations of plants and/or animals in a common spatial arrangement.

**Community type** An aggregation of all plant communities distinguished by floristic and structural similarities in both overstory and undergrowth layers. A unit of vegetation within a classification.

**Companion crop** A crop sown with another crop (i.e., perennial forage) that is allowed to mature and provide a return in the first year.

**Competition** A process of struggling between or among organisms of the same species (intraspecific) or different species (interspecific) for light, water, essential elements, or space within a trophic level, resulting in a shortage of essential needs for some individuals or groups.

**Complementary pasture** Short-term forage crop or perennial pasture used for special purposes, to extend grazing seasons, or to enhance productivity of the ranch.

**Composition** Syn. Species composition.

**Concentrate (GLA)** A feed or feed mixture for livestock that usually contains less than 18 percent crude fiber.

**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.

**Concentrates** Feeds low in crude fiber (less than 10% on a dry matter basis), low in moisture, and highly digestible. Protein concentrates are of plant or animal origin that contain > 20 percent protein.

**Condition class** (Term is no longer used by NRCS.) Syn. Range condition class.

**Conservation** The use and management of natural resources according to principles that assure their sustained productivity.

**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. Generally called a soil and water conservation district.

**Conservation plan** The recorded decisions of a landowner or operator, cooperating with a conservation district, on how the landowner or operator 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, animal, plant, and air resources.

**Consolidated band** A band of sheep made up of several small bands.

**Constancy** The percentage occurrence of a species within a given community type.

**Consumers** Heterotrophic organisms, chiefly animals, that ingest other organisms or particulate organic matter.

**Consumption** Dietary intake based on amounts of specific forages and other feedstuffs or amounts of specific nutrients.

**Contact herbicide** A 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 yearlong grazing since seasonal grazing may be involved. Also referred to as continuous stocking.

**Continuous set stockin**g Allowing a fixed number of animals unrestricted access to an area of grazing land for the whole or substantial part of a grazing season.

**Contour furrow** A plowed or listed strip, commonly 8 to 18 inches deep and wide, made parallel to the horizontal contour for the purpose of water retention and reduction of soil erosion.

**Control** (1) Manipulation and management for reduction of noxious plants, a term of many degrees ranging from slightly limiting to nearly complete replacement. (2) Untreated areas or animals used for research, comparison, or evaluation of treatment responses.

**Controlled breeding** (1) Controlling the time of breeding of livestock to synchronize the period of optimum growth for the animals with the period of peak quality and optimum growth of forage. (2) A planned program whereby livestock males and females are brought together for breeding purposes so that offsprings are born during a desired period.

**Controlled burning** Syn. Prescribed burning.

**Conversion factor** A factor by which stocking rates are partitioned according to the kind or class of animal based on energy requirements. See Animal-unit.

**Cool-season plant** A plant that generally makes the major portion of its growth late in fall, in winter, and in early spring. Cool-season species generally exhibit the C-3 photosynthetic pathway.

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

**Corral** An enclosure or pen for handling livestock.

**Coulee** A regional term used for deep gulch or ravine.

**Cover** Syn. Foliar cover, see 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.

**Creep grazing** The practice of allowing juvenile animals to graze areas that their dams cannot access at the same time.

**Critical area** An area to be treated with special consideration because of inherent site factors, size, location, condition, values, or significant potential conflicts among uses.

**Cropland** Land used primarily for the production of cultivated crops.

**Crop residue** The portion of a crop remaining after harvest of seed or other primary plant parts. It may be managed for grazing and/or ground cover and to replenish soil organic matter levels.

**Crop rotation pasture** Cropland pasture where livestock are stocked on forages grown in a designed crop rotation cycle with other cultivated crops. Livestock move from crop field to crop field as the stand life of the forage and crop rotation dictate. Depending on the forage stand life and length of the crop rotation, livestock entry may occur seasonally on the same field, or take several years to cycle around the crop fields being grazed in rotation.

**Crude fiber** Fiber made up primarily of plant structural carbohydrates, such as cellulose and hemicellulose, but it also contains some lignin.

**Crude protein** A calculated portion from the nitrogen content of a feedstuff, using the Kjedahl procedure. The crude protein content is made up of those compounds defined as proteins and designated true proteins, as well as nonprotein nitrogen compounds such as free amino acids, amides of amino acids, ammonium salts or urea. The protein content of feedstuffs is currently estimated only on the basis of crude protein.

**Cryptogam** A plant in any of the groups Thallophytes, Byophytes, Pteridiophytes - mosses, lichens, and ferns.

**Culm** The stem of a grass that has elongated internodes between nodes (jointed).

**Culmless** A vegetative tiller of some grasses that holds its growing point close to the ground by not elongating internodes until it is ready to initiate reproductive growth.

**Cultivar (derived from cultivated variety)** 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.

**Cultivars** (1) A variety, strain, or race of plant that has originated and persisted under cultivation or was specifically developed for use as a cultivated crop. (2) For cultivated crops, the equivalent of botanical variety, in accordance with the International Code of Nomenclature of Cultivated Plants—1980.

**Cultivated crops** (1) Crops grown from seed, bulbs, corms, sprigs, crowns, tubers, cuttings, and graftings and cared for by humans for harvest or landscaping. (2) Crops genetically improved or developed by various agronomic or horticultural techniques.

**Cultivating tools** Variously designed machinery used to uproot weeds to keep them from competing with the desired crop. The class of equipment includes field and row crop cultivators, spike and spring tooth harrows, chain drags, and rotary hoes.

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

**Cut** (1) (v) To separate one or more animals from the herd or band. (n) The animal(s) so separated. (2) To reduce livestock grazing, particularly on a public land allotment.

**Dam (GLA)** The female parent of a calf.

**Damping off** The rapid rotting of seeds or seedlings before they emerge from the soil or the rapid rotting of the stem bases and toppling of seedlings after emergence.

**DBH** Abbreviation of diameter-at-breast-height of a tree.

**Death loss** The number of animals in a herd that die from various natural and accidental causes. Usually expressed as a percentage.

**Debris** Accumulated plant and animal remains.

**Deciduous (plant)** A plant whose parts, particularly leaves, are shed at regular intervals or at a given stage of development.

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

**Decreaser** Plant species of the climax vegetation that will decrease in relative amount with continued heavy defoliation (grazing).

**Deferment** Delay of livestock grazing in an area for an adequate period to provide for plant reproduction, establishment of new plants, or restoration of vigor of existing plants. See Deferred grazing and Rest.

**Deferred grazing** Postponing grazing or resting an area for a prescribed period, usually to meet a specific management objective.

**Deferred-rotation** Any grazing system, that provides for a systematic rotation of the deferment among pastures. The time of the rest period generally changes in succeeding years.

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

**Degenerated range** Syn. Deteriorated range.

**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. (2) Refers to the relative closeness of individuals to one another.

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

**Desertification** The process by which an area or region becomes more arid through loss of soil and vegetative cover. The process is often accelerated by excessive, continuous overstocking and drought.

**Desirable plant (GLA)** See Plant preference classification.

**Desired plant community** One of the several plant community types that may occupy an ecological site, the one or combination that meets the minimum quality criteria for the soil, water, air, plant, and animal resources, and that meets the landowner's or manager's objective.

**Deteriorated range** Range on which present vegetation and soil conditions represent a significant departure from natural potential. Syn. Degenerated range.

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

**Dietary essentials (nutrient)** Nutrients that must be orally ingested, in contrast to those which can be manufactured or converted in the animal, such as through microbial symbiosis in the rumen.

**Digestible dry matter (DDM)** See Digestible organic matter.

**Digestible energy (DE)** The gross energy of food consumed minus fecal energy. Energy in the feces accounts for the greatest loss of ingested energy. In ruminants the losses are 40 to 50 percent for roughage and 20 to 30 percent for concentrates. In horses fecal losses account for 40 percent of the energy ingested.

**Digestible organic matter (DOM)** A percentage of energy and protein in forages expressed as organic matter intake minus fecal dry matter divided by dry matter intake times 100.

**Discounting** The process of determining the present value of a stream of future financial returns.

**Discount rate (GLA)** The rate of return that could be earned if you chose an investment other than the one being analyzed; it is the minimum acceptable rate of return from an investment.

**Diurnal** Active during daylight hours.

**Diversity** A measure of the number of species and their relative abundance in a community.

**Docking** v. To surgically shorten an animal's tail.

**Doggie** Syn. Orphan.

**Domestication status (GLA)** The animal ranking status used in GLA (i.e., domesticated - controllable, wild/feral - uncontrollable, or domestic wild - wild animals that are being managed in a semi-controllable situation, such as game farms).

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

**Dormant** (1) A living plant that is not actively growing aerial shoots. (2) A pesticide application made on crop plants that are not actively growing.

**Drag** An implement used for control of vegetation, e.g., chain drag.

**Drainage class** A method of classifying the natural drainage condition of the soil that refers to the frequency and duration of soil wetness.

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

**Drenching** (v) Giving orally a forced dose of a specific solution to an animal, usually to control internal parasites.

**Drift** (v) (1) The movement of materials by wind or water. (2) The natural movement of animals. (n) Vegetative material moved and deposited by wind and water. See Spray drift.

**Drift fence** An open-ended fence used to retard or alter the natural movement of livestock; generally used in connection with natural barriers.

**Drill seeding** Planting seed directly into the soil with a drill in rows, usually 6 to 24 inches apart.

**Dripline** The area under the outermost branches of a tree or shrub.

**Drip torch** Portable equipment for applying flammable liquids to ignite a vegetative area to be burned. Primarily used in prescribed burning.

**Drive** The moving of livestock under human direction. In cowboy parlance, the term drift is often used in lieu of drive when animals are slowly urged in a certain direction.

**Drop band** A band of ewes that are giving birth or are expected to give birth within a few days.

**Drouth (drought)** (1) A prolonged chronic shortage of water. (2) A period with below normal precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water; frequently associated with excessively high temperatures and winds during spring, summer, and fall in many parts of the world.

**Drouth (drought) plan** The livestock operator's contingency plan to make necessary adjustments during unfavorable years of low forage production.

**Dry band** A band of ewes without lambs.

**Dry flowable** A water dispersible granule pesticide formulation rather than being suspended in a liquid carrier. See Flowable. Mixed with water and sprayed. Less inhalation hazard to the user.

**Dry matter** The amount of a feedstuff remaining after all the free moisture is evaporated out. The feedstuff is placed in a oven at a temperature of 100 to 105 °C.

**Dry matter digestibility (DMD)** The percentage of energy and protein in forages expressed as dry matter intake minus fecal dry matter divided by dry matter intake times 100.

**Dry meadow** A meadow dominated by grasses which is characterized by soils that become moderately dry by midsummer.

**Dual use** Grazing the current year's forage production by two species of grazing animals at the same time. See Co-grazing.

**Dugout** 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. See Stock pond.

**Dust** (1) Windblown soil. (2) A formulation that is a finely ground, dry mixture of an inert carrier and a pesticide. Danger of drift and inhalation by user during use.

**Early head** Flower head (seedhead) of a grass is emerging or emerged from flag leaf sheath, but not shedding pollen.

**Earmarking** The process of removing parts of the ears of livestock to leave a distinctive pattern for the purpose of designating ownership and identification.

**Ecesis** Establishment and development of a plant in the plant community.

**Ecological site** A distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.

**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 that has certain genetically determined characteristics; interbreeding between ecotypes is not restricted. See Biotype.

**Edaphic** Refers to the soil.

**Edge effect** (1) The influence of one adjoining plant community upon the margin of another affecting the composition and density of the populations. (2) The effect executed by adjoining communities on the population structure within the margin zone.

**Effective precipitation** That portion of total precipitation that becomes available for plant growth. It does not include precipitation lost to deep percolation below the root zone, to surface runoff, to evaporation, or to rainfall that falls during the dormant season and is gone from the soil profile prior to the growing season.

**Effluent (silage)** Leachate produced by excess moisture in silage during anaerobic fermentation; often called silage juice or silo juice. If allowed to escape the silo facility, it poses a significant threat to receiving water because of its high biochemical oxygen demand.

**Emergency crops** Crops, not part of a planned rotation, grown either because of primary crop failure (planting delayed past time needed for maturity or failed growth after planting) or lack of grazeable forage on fields used for pasture, or both.

**Emergency feeding** Supplying feed to range animals when available forage is insufficient because of heavy storms, fires, or other such emergencies. See maintenance feeding and Supplemental feeding.

**Emulsifiable concentrate** A pesticide formulation with the active ingredient and an emulsifier suspended in a liquid. It mixes well and easy to handle, but is more easily absorbed through the skin. Can be corrosive and of greater toxicity.

**Enclosure** An area fenced to confine animals.

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

**Energy adjustment factor (GLA)** An adjustment factor in GLA for the animal's net energy level.

**Energy for maintenance** Energy used to carry out service functions that are performed by the tissues and organisms for the benefit of the organism.

**Ensile** (1) To preserve a forage crop as silage. (2) The act of placing a forage crop in a silo.

**Enterprise** Any segment of the land unit's business that can be isolated by accounting procedures so revenue and expenses can be allocated to it.

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

**Epinasty** The bending or twisting of twigs or leaf petiole or blades; often used in diagnosis of herbicidal effects on plants.

**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.

**Escarpment** A steep slope or ridge, terminating high lands abruptly, which was formed by erosion or by faulting.

**Esophageal-cannula** A device used for maintenance and closure of an esophageal fistula.

**Esophageal-fistula** A permanent, surgically established opening in the esophagus of an animal used for collecting diet samples. See Esophageal-cannula.

**Essential element** A chemical element that is essential to the life of an organism.

**Evapotranspiration** The actual total loss of water by evaporation from soil, waterbodies, and transpiration from vegetation over a given area with time.

**Evergreen (plant)** A plant that has leaves all year round and sheds them more or less regularly through all seasons.

**Exchangeable aluminum (extractable)** The amount of aluminum extracted in one normal potassium chloride that was on the cation exchange sites in the soil.

**Exclosure** An area fenced to exclude animals.

**Exotic** An organism or species that is not native to the region in which it is found.

**Exposure** Direction of slope with respect to points of a compass.

**Facilitating practices** Practices that control or influence the movement and handling of grazing animals and make it easier to apply vegetative management practices. Facilitating practices include practices, such as water developments, stock trails, walkways, fencing, salting, and herding.

**Fauna** The animal life of a region. A listing of animal species of a region.

**Fecal analysis** A process of analyzing livestock manure for diet content of crude protein and digestible organic matter.

**Feed** (n) Any non-injurious, edible material having nutritive value when ingested. (v) The act of providing feed to animals.

**Feed additive (GLA)** A feed ingredient provided to animals that improves the conversion efficiency of ruminants.

**Feed additives** Materials other than the feeds themselves added to diets; e.g., vitamins, mineral supplements, or antibiotics.

**Feed conversion (feed efficiency) (GLA)** Units of feed consumed per unit of body weight gained; the production (meat, milk) per unit of feed consumed.

**Feed ground** A designated place on a range where livestock are fed.

**Feed reserve** Feed stored for future use. See Forage reserve.

**Feedstuff profiles (GLA)** A list of common feedstuffs and their nutritional value to cattle, sheep, goats, and horses.

**Feedstuffs** Any substance suitable for animal feed.

**Fence** A structure that acts as a barrier to livestock, wildlife, or people.

**Fencing** Enclosing or dividing an area of land with a suitable structure that acts as a barrier to livestock, wildlife, or people.

**Feral** Escaped from cultivation or domestication and existing in the wild.

**Fescue foot** A malady in cattle that commonly occurs during late fall and winter grazing of endophyte infected tall fescue. Symptoms range from hind quarter tenderness (slow walk with limp) to gangrene and tissue death of tail, ear, and feet. In extreme cases a tail or hoof may be lost. Constriction of blood vessels at the extremities limits blood flow to them and causes tissue death.

**Fescue toxicosis** A malady in cattle that commonly occurs during summer grazing of endophyte infected tall fescue. Symptoms include rough hair coat, low weight gain or milk production, rapid breathing, excess salivation, increased body temperature, depressed serum-prolactin levels, poor conception rates, and general unthrifty condition. Cattle spend an inordinate amount of time in shade or water, or wallow in the mud if accessible. This malady is directly linked to ergopeptine alkaloids.

**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.

**Firebrand** A piece of burning wood or other material. A term used in prescribed burning describing a piece of burning material drifting away from the primary fire and capable of starting another fire.

**Firebreak** A natural or manufactured barrier used to prevent or retard the spread of fire, that is in existence or made before a fire occurs. It is usually created by the removal of vegetation. See Fireline and Fuelbreak.

**Fireline** A narrow line, 2 to 10 feet wide, from which all vegetation is removed by soil sterilization, yearly maintenance, treatment with chemical fire retardant, or clearing just before ignition of a prescribed burn.

**First-last grazing** A method of using two or more groups of animals, usually with different nutritional requirements, to graze sequentially on the same area.

**Fixation** A soil process that renders available plant nutrients unavailable or fixed in the soil.

**Flail conditioner** A machine used to abrade the waxy outer plant layer and break plant stems that have been cut for harvest. It uses steel or nylon free-swinging fingers on a revolving shaft (rotor). It was developed for use on grass hay crops only.

**Flexibility** Characteristics of a management plan that allow it to accommodate changing conditions.

**Flock** A group of sheep managed in fenced pastures. See Band.

**Flooding** The temporary covering of the soil surface by water that flows over it from any source, such as a stream, irrigation canal, tidal action, or runoff from adjacent or surrounding slopes.

**Flora** (1) The plant species of an area. (2) A simple list of plant species or a taxonomic manual.

**Flowable** A pesticide formulation that is a finely ground material suspended in a liquid carrier. It is easy to handle and apply.

**Flushing** Improving the nutrition of female breeding animals prior to and during the breeding season to stimulate ovulation.

**Fluvial** Pertaining to or produced by the action of a stream or river.

**Foliage** The green or live leaves of plants; mass leaves or leafage.

**Foliar cover** The percentage of ground covered by the vertical projection of the aerial portion of plants. Small openings in the canopy and intraspecific overlap are excluded. Foliar cover is always less than canopy cover; either may exceed 100 percent. Syn. cover.

**Food reserves** The excess carbohydrates in plants produced during photosynthesis and stored in a readily available form in various plant parts. Depending on forage species, they may be stored in the root, stem base, stolon, or rhizome. Often erroneously called root reserves.

**Forage** (n) All browse and herbage that is available and acceptable to grazing animals, or that may be harvested for feeding purposes. (v) Act of consuming forage. Syn. graze.

**Forage allocation** The planning process or act of apportioning available forage among various kinds of animals; e.g., elk and cattle.

**Forage allowance** Weight of forage per unit of animal demand at any instant of time. It is the inverse of grazing pressure and synonymous with herbage allowance.

**Forage crops** (Specific) Forage plants mechanically harvested before being fed to animals. These crops are fed to animals primarily as hay, haylage, fodder (stover), silage, or green chop. (General) A crop of cultivated plants, whose plant parts, other than separated grain, are produced to be grazed or harvested for use as feed for animals.

**Forage harvest management** The timely cutting and removal of forages from the field as hay, greenchop, or ensilage.

**Forage harvester** A machine that cuts standing forage or picks up windrowed forage and chops it to the desired length of cut for silage and blows the chopped forage into a trailing forage wagon or truck box.

**Forage (herbage) on-offer** (1) Total forage presented to livestock on a pasture at any moment in time. It is equal to available forage times pasture acreage. (2) A term that is synonymous with forage allowance. See Forage allowance.

**Forage inventory** An estimate of available forage in each pasture and for the operating unit as a whole; used to project stocking rates and feed requirements for specific time periods (i.e., annually, grazing season, rotation cycle)

**Forage moisture content (GLA)** The percent of plant weight that is water.

**Forage production** The weight of forage that is produced within a designated period in 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, or seasonal forage production.

**Forage reserve** Standing forage specifically maintained for future or emergency use.

**Forage suitability groups** Soils with similar species adaptation, production potential, and management needs. A planning tool for species selection, practice selection, management options, forage production levels, and recommended initial stocking rates.

**Forage utilization** The percentage of available forage actually consumed by the grazing animal based on net forage accumulation that occurs prior to and while they occupy the pasture unit.

**Forage value (GLA)** The classification scheme for determining stocking rates in grazeable forest land based on the minimum percent of preferred species and minimum percent of preferred and desirable species in a stand. Values are very high, high, moderate, and low.

**Forage value rating** A utilitarian rating of forage plants on a particular area for a specific kind of herbivore. Forage ratings are based on preference, quality, nutritional value, and plant maturity. This is not an ecological rating.

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

**Ford** A constructed or natural stream crossing for equipment, humans, or animals at a point where water is shallow, footing is firm, and banks are low or inclined for easy approach and exit. The bottom of the channel and approaches are either naturally or artificially paved to facilitate ease of crossing and to reduce muddying of the water.

**Forest land (forest)** Land on which the historic climax plant community is dominated by trees.

**Formulation** (1) A pesticide product supplied by the manufacturer for practical use composed of the active ingredient and a carrier. (2) The process of preparing pesticides for practical use carried out by manufacturers.

**Frame score** A score based on a subjective evaluation of height or actual measurement of hip height, related to slaughter weights at which cattle will grade choice or have comparable amounts of fat cover over the loin eye at the 12th to 13th rib. For horses, frame score is the measure of the size by height at the withers (shoulders).

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

**Free ranging** Ability to roam or forage at-will, unrestricted by fences.

**Frequency (relative)** The ratio between the number of sample units that contain a species and the total number of sample units.

**Fresh mulch** The primary layer of bulky, coarse, largely undecayed herbage residuum. See Mulch.

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

**Frontal grazing** A stocking method by which ungrazed forage within a management unit is allocated by moving a portable fence ahead of a herd of livestock.

**Frost action potential** The rating of the susceptibility of a soil to frost heave upward or laterally by the formation of segregated ice lens wedges between soil peds.

**Frost heave** Soil and plants displaced by ice needles and lenses. Primary frost heave is caused by ice needles producing minor soil displacement. Secondary frost heave is caused by ice lenses producing major soil displacement. Primary frost heave tends to displace seedlings. Secondary frost heave can displace mature overwintering plants. The heaving action pushes plants upward. This causes root breakage, desiccation of exposed roots, and often death of susceptible plant species.

**Fuelbreak** A strategically located block or strip on which existing flammable vegetation has been replaced by vegetation of lower fuel volume and/or flammability and subsequently maintained as an aid to fire control. See Fireline.

**Fumigant** A volatile chemical that kills pests with a gas or vapor.

**Fungicide** Any chemical agent that kills or inhibits fungi that cause plant diseases.

**Game** (1) Wild birds, fish, and other animals hunted. (2) Wildlife species so designated by law and the harvest of which is regulated by law.

**Game ranching (game farming)** Maintaining game animals under semidomestication and maximum animal management to control breeding, health, nutrition, and production as a ranch based enterprise.

**Game range** Range that is predominantly grazed by wildlife seasonally or year around. Especially pertinent with migratory big game herds; e.g., winter elk or deer range.

**Game refuge** An area set aside as a sanctuary for game.

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

**Global Positioning System (GPS)** A computer based receiver system that uses satellite transmissions to determine precise latitude and longitude readings at any location in a field. This system is used to map crop yield, soil fertility, weed infestations, soil type, and other yield influencing differences. It then forms the basis for variable rate applications of fertilizer and pesticides. Application equipment is guided by a georeferenced program to deliver different application rates as it traverses back and forth across a field.

**Grade** (1) In livestock breeding, an offspring resulting from mating a purebred with a non-purebred or from mating animals not purebred, but having close purebred ancestors. (2) Livestock marketing classification. (3) To evaluate live animals in relation to a standard of quality.

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

**Grams per plot to kilograms per hectare**

| Plot size | Multiply grams by: |
|---|---|
| 0.25 $M^2$ | 40 |
| 1.0 $M^2$ | 10 |
| 10.0 $M^2$ | 1 |
| 100 $M^2$ | 0.10 |
| 400 $M^2$ | 0.025 |

**Grams per plot to pounds per acre**

| Plot size | Multiply grams by: |
|---|---|
| 1.92 $ft^2$ | 50 |
| 2.4 $ft^2$ | 40 |
| 4.8 $ft^2$ | 20 |
| 9.6 $ft^2$ | 10 |
| 96 $ft^2$ | 1 |

**Granule** (1) A soil aggregate. (2) A pesticide formulation of dry, ready-to-use, low-concentrate pesticide with a particle size less than 10 cubic millimeters. Drift hazard is low. Contamination hazard to the user is low. Soil applied. May be ingested by birds.

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

**Grassland** Land on which the vegetation is dominated by grasses, grasslike plants, and/or forbs.

**Grassland agriculture** A land management system emphasizing cultivated forage crops, pasture, and rangelands for livestock production and natural resource protection.

**Grasslike plant** A plant of the Cyperaceae or Juncaceae families that vegetatively resembles a true grass of the Gramineae family.

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

**Grazeable forest land** Land capable of sustaining livestock grazing by producing forage of sufficient quantity during one or more stages of secondary forest succession.

**Grazed forest land** Land that is currently used for forest land and livestock grazing.

**Grazed rangeland** Rangeland that is used primarily for the production of livestock. Grazed rangelands include native plant communities and those seeded to native or introduced species, or naturalized by introduced species, that are ecologically managed using range management principles.

**Grazer** A grazing animal.

**Grazier** A person who manages grazing animals.

**Grazing** (vt) To graze.

**Grazing behavior** The foraging response elicited from a herbivore by its interaction with its surrounding environment.

**Grazing capacity** The total number of animals that may be sustained in a given area based on total forage resources available, including harvested roughages and concentrates. See Carrying capacity.

**Grazing distribution** Dispersion of livestock grazing within a management unit or area.

**Grazing district** (1) An administrative unit of federally managed, public rangeland established by the Secretary of Interior under the provisions of the Taylor Grazing Act of 1934, as amended. (2) An administrative unit of state, private, or other rangelands established under certain state laws.

**Grazing fee** A charge, usually on a monthly basis, for grazing a given kind of animal.

**Grazing land** (1) Collective term used by NRCS for rangeland, pastureland, grazed forest land, native and naturalized pasture, hayland, and grazed cropland. Although grazing is generally a predominate use, the term is used independent of any use. (2) Land used primarily for production of forage plants maintained or manipulated primarily through grazing management. Includes all lands having plants harvestable by grazing without reference to land tenure, other land uses, management, or treatment practices.

**Grazing land mechanical treatment** Renovating, contour furrowing, pitting, or chiseling native grazing land by mechanical means. The purpose of this practice is to improve plant cover and water quality by aerating the soil, increasing infiltration and available moisture, reducing erosion, and protecting low areas or structures from siltation.

**Grazing license** Official written permission to graze a specific number, kind, and class of livestock for a specified period on a defined allotment or management area.

**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 by manipulation of the grazing animal.

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

**Grazing permit** Syn. grazing license.

**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.

**Grazing pressure** (1) Animal-demand per unit weight of forage at any instant; i.e., AU/T; an animal/forage relationship. (2) The relationship between the amount of forage utilized by grazing animals on a given area.

**Grazing privilege** Permissive use of lands for grazing by livestock.

**Grazing right** A right to graze specified lands, permanently vested in the beneficiary as specified by the terms of the law or contract.

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

**Grazing survey** The systematic collection of data pertaining to forage resources and other information pertinent to range management. May be either extensive or intensive grazing survey. See Forage inventory.

**Grazing system** A specialization of grazing management that defines systematically recurring periods of grazing and deferment for two or more pastures or management units. Descriptive common names, such as Merrill, Hormay, or South African switchback, 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 shall consist of a numerical description in the following prescribed order: the number of pastures (or units), number of herds, length of grazing periods, length of deferment periods for any given unit in the system followed by an abbreviation of the unit of time used. Examples:

- Merrill system (4-3;12: 4 mo.) is a grazing system with 4 pastures, 3 herds of livestock, a 12-month grazing period, and a 4-month deferment period.
- South African switchback (2-1;3:3,6:3,3:6 mo.) is a grazing system with 2 pastures, 1 herd, and a grazing schedule of 3 months grazing, 3 months deferment, 6 months grazing, 3 months deferment, 3 months grazing, 6 months deferment.
- High intensity, low frequency (HILF) (14-1; 12:156 da.) A grazing system consisting of 14 pastures, 1 herd, a 12-day grazing period, and a 156-day deferment period for each pasture.

**Grazing trespass** The grazing of livestock on range without proper authority and resulting from a willful or negligent act.

**Grazing unit** An area of land which is grazed as an entity.

**Green chop** Mechanically harvested forage fed to animals while still fresh.

**Green manure** Any crop or plant grown and not harvested that is used to improve the soil's organic matter content and structure. It may or may not be incorporated by tillage.

**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. Syn. cover, see Foliar cover.

**Ground datum** A point on the earth's surface used as reference for measuring the height of aerial photography and for calculating photo scale.

**Ground truth** Measurements or observations made on the ground for the purpose of verifying interpretations made from aerial photography or remote sensing.

**Ground water** Subsurface water that is in the zone of saturation. The top surface of the ground water is the water table. Source of water for wells, seepage, and springs.

**Growing season** That portion of the year when temperature and moisture permit plant growth.

**Growth form** The characteristic shape or appearance of a plant.

**Growth regulator** An organic substance effective in minute amounts for controlling or modifying plant processes.

**Grubbing** The act of removing roots, whether woody or herbaceous, by humans or animal activity.

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

**Guzzler** A device for collecting and storing precipitation for use by wildlife or livestock. Consists of an impenetrable water collecting area, a storage facility, and a trough from which animals can drink. Syn. Catchment basin.

**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. 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 part of the horizon A or in the B horizon caused by cementation of soil particles with organic matter or with such materials 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.

**Harvest efficiency** The total percent of vegetation harvested by a machine or ingested by a grazing animal compared to the total amount of vegetation grown in the area in a given year. For continuous grazing, harvest efficiency usually averages:

| | |
|---|---|
| Rangeland | 25 percent |
| Pastureland | 30 percent |
| Grazed cropland | 35 percent |

**Harvest interval** The length of time that occurs between forage cuttings.

**Hay** The herbage of grasses, legumes, or comparatively fine-stemmed forbs cut and cured (dried) to preserve forage for later use as livestock feed.

**Hay crop** Forage crops traditionally harvested for dry hay that can also be ensiled.

**Haylage** A fermented product resulting from ensiling forage that ranges from 40 to 55 percent moisture in the absence of oxygen.

**Headfiring** Ignition of a fire on the windward (upwind) side of a burn area resulting in a fairly rapid moving flame front moving with the wind.

**Hedged** The appearance of woody plants that have been repeatedly browsed so as to appear artificially clipped.

**Hedging** The persistent browsing of terminal buds of browse species causing excessive lateral branching and a reduction in main stem growth.

**Heifer (GLA)** A female of the cattle species less than 3 years of age that has not borne a calf.

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

**Herbaceous** Vegetative growth with little or no woody component. Nonwoody vegetation, such as graminoids and forbs.

**Herbage** (1) Total aboveground biomass of plants including shrubs regardless of grazing preference or availability. (2) Herbs taken collectively.

**Herbage allowance** Weight of forage available per unit animal demand at any instant.

**Herbage disappearance rate** The rate per unit area at which herbage leaves the standing crop by grazing, senescence, or other causes.

**Herbage growth rate** The rate of addition of new mass per unit area to the standing crop.

**Herbage production** Production of certain herbaceous plants or groups of herbaceous plants.

**Herbicide** A chemical used to kill or inhibit 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.

**Herder** One who tends livestock on a range. Usually applied to the man herding a band of sheep or goats.

**Herding** The handling or tending of a herd.

**Hide factor (GLA)** Indicates the thickness of the animal's hide. This factor is used in GLA to compute the insulating value of the animal's hide relative to energy requirements for the thermal environment of the animal (e.g., Holstein-thin, Hereford-thick, Angus-moderate).

**High intensity, low frequency** Usually a single herd multipasture grazing system, that normally includes a slow rotation for range improvement (usually characterized by relatively long grazing periods and substantially longer rest periods).

**Highlining** Syn. browse line.

**Historic climax plant community** The plant community that was best adapted to the unique combination of factors associated with the ecological site. It was in a natural dynamic equilibrium with the historic biotic, abiotic, climatic factors on its ecological site in North America at the time of European immigration and settlement.

**Holding ground** An area where livestock are often held during roundups.

**Home range** The area over which an animal normally travels in search of food.

**Humus** The organic fraction of soil in which decomposition is so far advanced that its original form is not distinguishable.

**Hybrid** Offspring of a cross between genetically dissimilar individuals.

**Hybrid vigor** The increased performance (rate of gain) associated with F1 crossbreeding.

**Hydrocyanic acid** A poisonous compound, HCN, produced when forages containing antiquality chemicals called cyanogenic glycosides and the proper enzymes are eaten by a grazing animal. Plants developed cyanogenic compounds as a defense mechanism against herbivore feeding. It is the scientific term for prussic acid.

**Ice-cream species** A slang term used to indicate obvious grazing preference by livestock and game animals. Such species are the first plants grazed by livestock and are often overutilized under excessive grazing.

**Improved pasture** Grazing land permanently producing introduced or domesticated native forage species that receives varying degrees of periodic cultural treatment to enhance forage quality and yields and is primarily harvested by grazing animals.

**Increaser** The climax native plants in a community of different plants that, under excessive continuous grazing by livestock, are not selected initially, and increase in abundance. If the heavy grazing continues, livestock will reduce the more palatable plants and shift to the increaser species causing them to decrease in abundance.

**Indicator species** (1) Species that indicate the presence of certain environmental conditions, range condition, previous treatment, or soil type. (2) One or more plant species selected to indicate a certain level of grazing use. See Key species.

**Indigenous** Born, growing, or produced naturally (native) in an area, region, or country.

**Infestation** Invasion by large numbers of parasites or pests.

**Infiltration** The intake of water into the soil profile. 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 per hour.

**Infiltration velocity** The actual rate at which water is entering the soil at any given time. It may be less than infiltration rate because of limited supply of water. Expressed in same units as infiltration rate.

**Ingest** Nutritive materials consumed by the animal.

**Initial stocking rate** A safe starting stocking rate assumed to ensure against excessive grazing utilization. It is intended as a guide until experienced yields can be determined and realistic stocking rates established for a given area.

**Insecticide** A pesticide used to control or prevent damage by insects.

**Intake adjustment (GLA)** A percent of feed consumed either above or below the average Animal Unit Equivalent intake by specific breed types of cattle. Used to calculate feed and nutritional demands in GLA.

**Integrated pest management** Controlling pest populations using a combination of proven methods that achieve the proper level of control of them while minimizing harm to other organisms in the ecosystem. Control methods include natural suppression, biological control, resistance breeding, cultural control, and direct control.

**Internal rate of return (GLA)** An estimate of the average annual rate of return that an investment will produce over a given period. It is the discount rate that results in a Net Present Value of zero.

**International feed number (INF) (GLA)** A number that applies to a feedstuff and animal kind. This number is used for identification and computer manipulation. It is particularly useful as a tag to recall nutrient data for calculation of diets. Numbers are assigned to individual feed samples by the National Research Council.

**Interseeding** Planting seed in the center of narrow seedbed strips, commonly 6 inches to 6 feet wide 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.

**Invader** Plants that are not a part of the original plant community that invade an area as a result of disturbance, or plant community deterioration, or both.

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

**Invert emulsion** A water soluble pesticide dispersed in an oil carrier. Forms large droplets that do not drift easily.

**Inverter** A swathing machine that lifts a swath of cut forage and turns it over to speed drying and avoid weather damage to a hay crop.

**Jointed** A grass stem that has distinct, elongated internodes between nodes.

**Key grazing area** A relatively small portion of a pasture or management unit selected because of its location, use, or grazing value as a monitoring point for grazing use. It is assumed that key areas, if properly selected, will reflect the current grazing management over the pasture or management unit as a whole.

**Key species** A single plant species (or in some situations two or three similar species) chosen to serve as a guide to the grazing use of the entire plant community. If the key species on the key grazing area is properly grazed, the entire plant community will not be excessively grazed.

**Kid crop** The number of kids produced by a given number of does, usually expressed in percent kids weaned of does bred.

**Kid house** A small structure designed to give shelter to a newborn kid. The doe or the kid is staked so that both remain in or near the shelter.

**Kind of animal** An animal species or species group, such as sheep, cattle, goats, deer, horses, elk, antelope.

**Lamb crop** The number of lambs produced by a given number of ewes, usually expressed in percent of lambs weaned of ewes bred.

**Lambing ground** Range reserved for grazing during lambing period.

**Land capability** Land capability, as originally used in the United States, is an expression of the effect of physical land conditions, including climate, on the total suitability for use without damage for crops that require regular tillage.

**Land use class (GLA)** The classification of land based on the primary use and associated management practices (i.e., rangeland, pastureland, hayland, native pastureland).

**LD50** The relative degree of toxicity of pesticides to warmblooded animals. Defined as the single lethal dosage by mouth that kills 50 percent of test animals, expressed as mg/kg of body weight.

**Leaf area index (LAI)** Sum of leaf area expressed as a percentage of ground surface. Leaf area index may exceed 100 percent.

**Lessee** One who has specified rights or privileges under lease. Syn. permittee.

**Lessor** One who leases specified rights or privileges.

**License** See Grazing license or Permit.

**Life-form** Characteristic form or appearance of a species at maturity, e.g., tree, shrub, herb.

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

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

**Linear extensibility percent** The unit of measurement that determines soil shrink-swell classes. It is the linear expression of the volume difference of natural soil fabric at one-third bar or one-tenth bar water content and oven dryness. It equals the moist length minus the dry length value sum divided by the dry length times 100.

**Litter** The uppermost layer of organic debris on the soil surface; essentially the freshly fallen or slightly decomposed vegetal material.

**Livestock** Domestic animals used for the production of goods and services.

**Livestock exclusion** Land closed to grazing by domestic livestock.

**Livestock flexibility** The ability to alter the number, kind, or class of animals within a livestock enterprise as warranted by variability in forage, economic, weather, or other conditions.

**Livestock management** Application of technical principles and business methods to livestock production.

**Livestock operation** (Farm) See Ranch.

**Livestock production** (1) The weight, number of animals, etc., that a rangeland area, seeded pasture, or management system produces. (2) The business of producing livestock.

**Local plant code (GLA)** A four character code system for identifying the plant common name in GLA

| Common Name | Local |
|---|---|
| Single name | SING |
| Double Name | DONA |
| Some Triple Name | STNA |

**Maintenance** Condition in which a nonproductive animal neither gains nor loses body energy reserves.

**Maintenance burning** The use of prescribed burning to maintain vegetation in a desired condition or to maintain the desired composition. Most often used to reduce woody species.

**Maintenance feeding** Supplying feed to range animals when available forage does not meet their minimum daily requirement. This may be necessitated by excessive grazing, inclement weather, or the inability of the site to produce the desired quality forage.

**Maintenance fertilizer applications** Nutrient additions that replace losses by one or more of the following: crop removal, erosion, leaching, denitrification, fixation, and volatilization.

**Major Land Resource Area (MLRA)** Broad geographic areas that are characterized by a particular pattern of soils, climate, water resources, vegetation, and land use. Each MLRA in which rangeland and forest land occur is further broken into range sites.

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

**Management plan** A program of action designed to reach a given set of objectives.

**Management site potential** The kinds of levels of productivity or values of a range site that can be achieved under various management prescriptions.

**Management unit (GLA)** In GLA this is synonymous with pasture or field number.

**Management unit** A subdivision of a management area.

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

**Marker** (1) A colored or otherwise marked sheep in a range band. (2) Dye, foam, or paper strips to indicate area covered in earlier pass of sprayer. (3) An infertile (vasectomized) male animal, often equipped with a dye marker, used to identify ovulating females for artificial insemination.

**Marking** Any method, other than branding, of placing a sign on an animal for the purpose of identification. For example: ear slits, tags, wattles. See Brand, Earmarking, and Tagging.

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

**Mast** Nuts, acorns, fruit, and similar plant products that may be consumed by animals.

**Mature soil** A soil with well developed characteristics produced by the natural processes of soil formation and in equilibrium with its environment. See Soil.

**Maximum coat length (GLA)** The maximum length of the animal's hair coat in the coldest period of the year. GLA uses this value to determine body nutritional needs.

**Maximum economic yield** The yield reached where the last increment of an input, such as fertilizer, just pays for itself by producing a yield increment of equal value.

**Meadow** An area of perennial herbaceous vegetation, usually grass or grasslike, used primarily for hay production.

**Mesa** A flat-topped mountain, or other elevation bounded on at least one side by a steep cliff. Local in Southwest.

**Metabolizable energy (ME)** The gross energy of feed minus energy in feces, urine, and gaseous products of digestion.

**Metric units**

| To Convert: | To: | Multiply by: |
|---|---|---|
| Kilograms per hectare | Pounds per acre | 0.891 |
| Kilograms | Pounds | 2.2046 |
| Hectares | Acres | 2.471 |
| Pounds per acre | Kilograms per hectare | 1.12 |
| Pounds | Kilograms | 0.4536 |
| Acres | Hectares | 0.4047 |

**Microencapsulate** A formulation where particles of a pesticide, either dry or liquid, are surrounded by a plastic coating. Can be used as a slow release product. Safer to the user since active ingredient is not exposed. Hazard to bees if picked up by a worker and taken back to hive. Can settle to bottom of spray tank unless agitated.

**Migrant** One that moves from place to place.

**Miticide** A pesticide used to control mites and ticks. Also called acaricide.

**Molluscides** Poisons used to kill terrestrial mollusks, such as slugs.

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

**Mott** A group of trees and/or shrubs.

**Mottling** Variation of coloration in soils as represented by localized spots, patches, or blotches of contrasting color. Commonly develops under alternating wet and dry periods with associated reduction and oxidation environments. Mottling generally indicates poor aeration and impeded drainage.

**Mower-conditioner** A pull-type or self-propelled machine that has a mower unit mounted in front of a conditioner unit for one pass mowing and conditioning of forages being prepared for harvest. Both units are enclosed in the same housing.

**Mulch** (n) (1) A layer of dead plant material on the soil surface. (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 mulch.

**Multiple use** Use of land 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.

**National plant symbol (GLA)** A unique plant code assigned to each scientific plant name in the National List of Scientific Plant Names.

**Native pasture** See Naturalized pasture.

**Native species** A species which is a part of the original fauna or flora of the area in question. See Indigenous.

**Naturalized pasture** Forest land that is used primarily for the production of forage for grazing by livestock rather than for the production of wood products. Overstory trees are removed or managed to promote the native and introduced understory vegetation occurring on the site. This vegetation is managed for its forage value through the use of grazing management principles.

**Naturalized species** An introduced species that has become adapted to a new climate, different ecological site, or a different environment and can perpetuate itself in the community without cultural treatment.

**Nematicide** A pesticide used to control nematodes.

**Nematodes** Tiny, tubular, unsegmented, eel-like, soil-borne worms that feed on plant roots or parasitize grazing animals.

**Net energy (NE)** Energy available to the animal for the maintenance or various productive purposes.

**Net present value (GLA)** Today's worth of a sum of money that is to be available sometime in the future.

**Net primary production** The net increase in plant biomass within a specified area and time interval; i.e., primary production less that used in metabolic processes.

**Niche** The ecological role of a species in a community.

**Nonconsumed plant (GLA)** See Plant preference classification.

**Nonprotein nitrogen** Sources other than natural protein, such as urea, biuret, and ammonia hydroxide.

**Nonjointed** See Culmless.

**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 temporarily refrain from placing livestock on public ranges without loss of preference for future consideration.

**Nose pump** A livestock watering device that operates a plunger by the action of the watering animal pushing on a nose plate. The animal pushes the nose plate forward while drinking water from the cup below it. When it drinks all the water, the nose plate is fully forward. Once realizing the water is gone, the animal raises it head, the nose plate is released, and the plunger it is connected to forces more water into the cup.

**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.

**Noxious weed** An unwanted plant specified by Federal or State laws as being especially undesirable, troublesome, and difficult to control. It grows and spreads in places where it interferes with the growth and production of the desired crop.

**NPK (GLA)** Letters used to designate the elements of nitrogen, phosphorous, and potassium in that order; usually expressed as a percentage by weight of fertilizer.

**Nurse crop** A temporary crop seeded at or near the time primary plant species are seeded to provide protection and otherwise ensure establishment of the latter. Syn. companion crop.

**Nutrient** Any food constituent or ingredient that is required for or aids in the support of life.

**Nutrient management** Managing the amount, form, placement, and timing of plant nutrient applications to optimize plant growth, provide safe nutritious food, and minimize environmental degradation.

**Nutrition** Ingestion, digestion, and/or assimilation of food by plants and animals.

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

**On-off stocker operation** A grazing system where the grazing is dictated by moving livestock on and off the ranch, such as early intensive stocking.

**Open (GLA)** A term commonly used to describe a nonpregnant female animal.

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

**Operating unit** Syn. Ranch

**Opportunistic species** A species adapted for utilizing variable, unpredictable, or transient environments; characteristic of ephemeral plants.

**Opportunity cost** The financial returns given up by not putting a factor of production, particularly capital, to a different use.

**Organism** Any living entity: plant, animal, fungus.

**Orphan** An offspring whose mother has died.

**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 60 degrees for 48 hours.

**Overgrazed range** Rangeland that has experienced loss of plant cover and accelerated erosion because of heavy grazing or browsing pressure.

**Overgrazing** Grazing that exceeds the recovery capacity of the individual species or the plant community.

**Overland flow** Surface runoff of water following a precipitation event. See Runoff.

**Overstocking** Placing a number of animals in 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 plant growth which, if continued, will result in deterioration.

**Paddock** (1) One of the subdivisions or subunits of the entire pasture unit. (2) A relatively small enclosure used as an exercise and saddling area for horses, generally adjacent to stalls or a stable. Syn. pasture.

**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.

**Partial budgeting** A limited budgeting procedure used to evaluate a proposed investment in an existing earning enterprise requiring only that additional costs and returns associated with the investment be considered. Results are often expressed in terms of an internal rate of return.

**Pasture** (1) Grazing lands comprised of introduced or domesticated native forage species that are used primarily for the production of livestock. They receive periodic renovation and/or cultural treatments such as tillage, fertilization, mowing, weed control, and may be irrigated. They are not in rotation with crops. (2) A grazing area enclosed and separated from other areas by fencing or other barriers; the management unit for grazing land. (3) Forage plants used as food for grazing animals. (4) Any area devoted to the production of forage, native or introduced, and harvested by grazing.

**Pasture budget** A plan developed to allocate forage to one or more groups of livestock over the grazing season. It is used to identify shortfalls and excesses in forage production, and to evaluate alternatives to either meet or reduce forage demand. It indicates when and how much excess forage to harvest and conserve.

**Pastureland** See Pasture.

**Pasture planting** Establishing adapted herbaceous species on land to be treated and grazed as pasture.

**Peak milk yield (GLA)** The maximum daily milk yield from a lactating cow. Usually occurs 60 to 90 days after calf birth.

**Pedestaled** A condition where the soil has eroded from around individual plants or other objects, such as small rocks, leaving them on small pedestals of soil. Sometimes the result of frost heaving.

**Pellets** A pesticide formulation similar to granules except pellets are usually more uniform, of a specific weight or shape, and greater than 10 cubic millimeters in size. Often used as rodenticide and slug baits.

**Percent use** Grazing use of current growth, usually expressed as a percent of the current growth (by weight) that has been removed. See Degree of use.

**Percentage allowable (GLA)** The percentage that is specified in the relative percentage list of range site descriptions for individual plant species or groups of species. This percentage represents the maximum amount of these species, individually or collectively, that can be counted when determining range condition.

**Percolation** The flow of a liquid through a porous substance.

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

**Permanent water** A watering place that supplies water at all times throughout the year or grazing season.

**Permit** See Grazing license.

**Permittee** One who holds a permit to graze livestock on State, Federal, or certain privately-owned lands. Syn. Lessee

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

**Phenology** The study of periodic biological phenomena that are recurrent, such as flowering, or seeding, especially as related to climate.

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

**Phenoxy herbicide** Syn. Translocated herbicide

**Photo interpretation** The art and science of identifying objects and conditions from photographs.

**Photo point** An identified point from which photographs are taken at periodic intervals.

**Photo sensitization** 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 photo sensitization.

**Photo toxic** Toxic to plants.

**Phylogeny** The origin and evolution of higher taxa.

**Physiological stage (GLA)** A unique phase of biological functions of an animal (e.g., growth, pregnancy, lactation).

**Phytomass** Total amount of plants (including dead attached parts) above and below ground in an area at a given time. See Biomass.

**Phytomer** One modular unit of a plant; consisting of the leaf, sheath (or petiole), and internode.

**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 and snowmelt.

**Plain** A broad stretch of relatively level treeless land.

**Planned grazing system** A system in which two or more grazing units are rested and grazed in a planned sequence over a period. Planned grazing systems are designed and applied to meet the needs of the vegetation, the animals, and the overall objectives of the operator.

**Planned trend** The change in plant composition within an ecological site from one plant community type to another relative to management objectives and to protecting the soil, water, air, plant, and animal resources. Planned trend is described as moving towards or away from the desired plant community or objective.

**Plant association** A kind of climax plant community consisting of stands with essentially the same dominant species in corresponding layers.

**Plant community type** Each of the existing plant communities that can occupy an ecological site. Several plant community types will typically be found on an ecological site, including the historic climax plant community for that site.

**Plant growth curve (GLA)** The percent growth occurring on a specific location expressed as a monthly percent of the total yearly production. GLA uses growth curves to project daily, monthly, and yearly production on various vegetative areas. Growth curves reflect differences in ecological condition, composition of warm-season and cool-season annuals, herbaceous species, and level of woody plant components.

**Plant preference classification (GLA)** Five plant classifications used in GLA:

Preferred plant—Composition of a plant species is greater in the diet of the target animal than found in the area being grazed by this animal.

Desirable plant—Composition of plant species is approximately the same in the diet of the target animal as that found in the area being grazed by this animal.

Undesirable plant—Composition of plant species is lower in the diet of the target animal than is found in the area being grazed by this animal.

Toxic plant—Rare occurrence in the diet of the target animal and, if consumed in any tangible amounts, will result in death or severe illness in the animal.

Nonconsumed Plant—Plant species that would not be eaten under normal extremes in forage conditions, but if no other forage is available, the target animal will attempt consumption although at greatly reduced rates.

**Plant succession** Syn. succession.

**Plant symbol** An abbreviation used to indicate the genus and species of a plant.

**Plant vigor** Plant health.

**Plant vigor index** An estimate of plant vigor based on measurement of one or a few attributes.

**PLS** Abbreviation for pure live seed.

**Poisonous plant** A plant containing or producing substances that cause sickness, death, or a deviation from the normal state of health of animals. See Toxic plant species.

**Poloxalene** An anti-foaming agent fed to prevent legume bloat in ruminants.

**Pond** A water impoundment made by constructing a dam or an embankment, or by excavating a pit or dugout usually to supply drinking water for livestock and or wildlife.

**Ponding** Water standing in a closed depression that is removed by percolation, transpiration, evaporation, or a combination of these processes.

**Postemergence** A herbicide applied after emergence of a specified weed or planted crop.

**Potential ADG (GLA)** The potential average daily weight gains of domestic livestock. Weight gains expressed as an average daily gain over a given time period.

**Potential natural community (PNC)** The biotic community that would become established on an ecological site if all successional sequences were completed without interferences by man under the present environmental conditions. Natural disturbances are inherent in its development. The PNC may include acclimatized or naturalized nonnative species.

**Prairie** An extensive tract of level or rolling land that was originally grass-covered and treeless.

**Precipitation** Rainfall; also include snow, hail, and sleet.

**Precision farming** Variable rate seeding and/or application of fertilizers and pesticides based on very precise mapping of soil conditions and yield variability done by a computerized global positioning system. It requires grid sampling of soils for fertility and organic matter levels. Harvesting equipment is equipped with a yield monitor linked to GPS receivers. Degree of resolution is cost and equipment driven.

**Pre-emergence** A herbicide applied prior to emergence of a specified weed or planted crop.

**Preference** See Grazing preference.

**Preferred plant (GLA)** See Plant preference classification.

**Preferred species** Species that are preferred by animals and are grazed first by choice.

**Premature grazing** Grazing before range readiness; may be allowable if done infrequently and followed by adequate rest.

**Preparatory crop** A residue-producing temporary crop used as part of seedbed preparation to provide mulch into which forage plants can be directly seeded.

**Preplant** A herbicide applied on the soil surface before seeding or transplanting.

**Preplant incorporated** A herbicide applied and tilled into the soil before seeding or transplanting.

**Prescribed burning** The use of fire as a tool to achieve a management objective on a predetermined area under conditions where the intensity and extent of the fire are controlled.

**Prescribed grazing** The controlled harvest of vegetation with grazing or browsing animals, managed with the intent to achieve a specified objective

**Prescription fertilization method** A procedure that accounts for nutrient inputs from different sources, primarily from soil residual fertility, manure (when available for use), and commercial fertilizer, if needed. Manure and commercial fertilizer applications are coordinated to deliver the proper ratio of nutrients for the crop.

**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. It is represented by the total quantity of organic material produced within a given period by vegetation.

**Problem area** An area that is difficult to manage because of its shape, size, accessibility or other limiting factors.

**Producer** Rancher or stock farmer

**Productivity** The rate of production per unit area, usually expressed in terms of weight.

**Propagule** Any part of an organism produced sexually or asexually that is capable of giving rise to a new individual.

**Proper grazing use** Grazing at an intensity that will maintain enough cover to protect the soil and maintain or improve the quantity and quality of desirable vegetation.

**Proper harvest efficiency (GLA)** The level of harvest efficiency that meets management objectives for range improvement, sustained current levels of production, and short term use.

**Proper stocking** Placing a number of animals in a given area that will result in proper use at the end of the planned grazing period.

**Proper use** A degree of utilization of current year's growth that, 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.

**Proper woodland grazing** Grazing wooded areas at an intensity that will maintain adequate cover for soil protection and maintain or improve the quantity and quality of trees and forage vegetation.

**Prussic acid** A poison, hydrocyanic acid, released when forages containing cyanogenic glycosides and the proper enzymes are chewed by a grazing ruminant.

**Pure live seed** Purity and germination of seed expressed in percent; may be calculated by this formula: P.L.S. = % germination x % purity x 100. See Seed purity.

**Quality criteria for native grazing lands** One or several plant communities occupying an ecological site that will meet the minimum quality criteria for the soil, water, air, plant, and animal resources and the landowner's or manager's objectives.

**Quiescence** A temporary resting phase characterized by reduced activity, inactivity, or cessation of development.

**Rain shadow** The region of diminished rainfall on the lee side of a mountain range, where the rainfall is noticeably less than on the windward side.

**Ranch** An establishment or firm with specific boundaries, together with its lands and improvements, traditionally used for the grazing and production of domestic livestock and/or wildlife. A ranch may also have nontraditional uses and produce other goods and services as well as environmental and social benefits.

**Rancher** One who owns, leases, or manages a ranch.

**Range** Rangelands, native and naturalized pasture, forest and woodlands, and riparian areas that support an understory or periodic cover of herbaceous or shrubby vegetation useful for grazing or browsing by wildlife and/or livestock and that are amenable to range management principles or practices.

**Range condition** (Term is no longer used by NRCS.) The present status of vegetation of a range site in relation to the historic climax or natural potential plant community for the site. Range condition is expressed as a percentage of the climax plant community presently occurring on the range site and grouped into the following range condition classes:

| Range condition class | Percentage of climax plant community present on the site |
|---|---|
| Excellent | 76–100 |
| Good | 51–75 |
| Fair | 26–50 |
| Poor | 0–25 |

**Range forage** Forage produced on rangeland.

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

**Range lambing** Permitting females to drop their offspring on the rangeland under approximately natural conditions of shelter and forage.

**Rangeland** Land on which the historic climax plant community is predominantly grasses, grasslike 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

**Rangeland ecological site** A distinctive kind of land with specific physical characteristics which differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.

**Rangeland health** The degree to which the integrity of the soil, vegetation, water, and air as well as the ecological processes of the rangeland ecosystem is balanced and sustained. Integrity is defined as maintenance of the structure and functional attributes characteristic of a particular locale, including normal variability.

**Rangeland hydrology** The study of hydrological principles as applied to rangeland ecosystems.

**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 remote sensing** The detection, identification, and assessment of rangelands with a camera, or other imaging device, usually with the aid of aerial or satellite photography.

**Rangeland renovation** Improving rangeland by mechanical, chemical, or other means.

**Rangeland trend** The direction of change in an existing plant community relative to the historic climax plant community for the ecological site.

**Range management** The art and science of manipulating, using, and conserving native grazing land resources to benefit society.

**Range plan** Syn. management plan.

**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 resources** Syn. related resources.

**Range seeding** The process of establishing vegetation by the artificial dissemination of seed.

**Range suitability** The adaptability of a range to grazing by livestock and/or game animals.

**Re-entry interval** Time span that must pass after application of a pesticide before it is safe to enter the treated area. It applies to people and livestock.

**Reclaim** To make a site usable again for a particular land use or crop.

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

**Reconnaissance** A general examination or survey of a region with reference to its main features, usually as a preliminary to a more detailed survey.

**Recovery period** The length of time occurring between grazing periods on rotationally stocked pastures. Synonymous with rest period that is animal oriented terminology. Although relieved of grazing pressure, the forages are recovering their photosynthetic area early on, and near the end of the recovery period they are replenishing food reserves and resuming root growth.

**Recreation area** A land area reserved and managed for developed and/or undeveloped recreation.

**Rejuvenation (browse)** Treatments, such as mechanical, pyric, or even chemical, applied to woody plants to encourage new growth as sprouts or seedlings available for browsing.

**Related resources** Those resources that bear relationship to one another because of common location and interdependency, such as range, game, recreation, watershed, soil, or timber.

**Relative feed value (RFV)** An index that ranks hay crops relative to the digestible dry matter intake of full bloom alfalfa (RFV = 100).

**Remote sensing** The measurement or acquisition of information of some property of an object or phenomenon, by a recording device that is not in physical or intimate contact with the object or phenomenon under study. Often involves aerial photography or satellite imagery. See Rangeland remote sensing.

**Reseeding** Syn. range seeding.

**Resident species** Species common to an area without distinction as to being native or introduced.

**Residual stubble (grazing) height** The height of the forage stand after being grazed, whether intermittently or continuously. When grazed continuously, monitoring must be done regularly as it means at any moment in time under that stocking method.

**Resilience** (1) The ability of a native plant community to recover to its former state after it has been altered. (2) The ability of an agroecosystem to return to some previous state or other successional alternative following disturbance, such as fire, plow out, and drought.

**Resistance** (1) A measure of the amount of stress a native plant community can endure before it is displaced by a given type of disturbance. (2) Site immunity to being impacted by catastrophic events that have the potential of creating long-term declines in productivity. The basic components, climate and soil, dictate the brittleness of a land-based ecological community.

**Response unit (GLA)** A relatively homogeneous area within a management unit in GLA. Response units are defined by soils, range sites, range condition, slope classes, distance to water, barriers, brush densities, past practices resulting in different plant communities, and/or suitability groups.

**Rest** The absence of grazing by livestock to benefit plants for regrowth between grazing periods, for critical periods of plant growth and development, or for critical periods of plant establishment. Syn. deferment.

**Rest period** A period of deferment included as part of a grazing system.

**Restricted area** An area on which grazing tenure is limited.

**Rest-rotation** See Grazing system.

**Retrogression** Syn. rangeland degeneration.

**Revegetation** Establishing or re-establishing desirable plants in areas where the plant community is not adequate to meet management objectives by management techniques alone. See Range seeding.

**Rhizome** A horizontal underground stem that usually sends out roots and aboveground shoots from the nodes.

**Riparian** Area, zone, and/or habitat adjacent to streams, lakes, or other natural free water, which have a predominant influence on associated vegetation or biotic communities.

**Riparian community type** A repeating, classified, defined, and recognizable assemblage of riparian plant species.

**Riparian ecosystems** Ecosystems that occur along watercourses or waterbodies. They are distinctly different from the surrounding lands because of unique soil and vegetation characteristics that are strongly influenced by free or unbound water in the soil.

**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, therefore may also occur away from the riparian zone.

**Riparian vegetation** Plant communities in the riparian zone comprised of riparian species.

**Rock fragments** The unattached pieces of rock 2 millimeters or larger in diameter contained in or lying on the soil.

**Rodent** Any animal of the order Rodentia, and commonly includes the order Lagomorpha, many of which influence rangeland by such habits as grazing and burrowing. Important rangeland rodents include pocket gophers, prairie dogs, ground squirrels, certain terrestrial mice, kangaroo rats, jack rabbits, and marmots.

**Rodent control** Measures taken to reduce or control the rodent population of a given area. This may apply to a specific species or rodents in general.

**Rodenticides** Poisons used to control rats, mice, and other rodents.

**Roller conditioner** A machine that uses intermeshing and nonintermeshing steel or rubber rollers to crush and crack stems of cut legume forages. It was developed for use on legume hay crops to speed drying without shattering leaves.

**Rotary mower** A power takeoff driven machine that cuts and shreds plants with a horizontal revolving blade held underneath a metal shroud.

**Rotation fertilization method** Some nutrients are added in higher amounts than needed for the current crop in the crop rotation. They are later drawn down by a following crop to keep all nutrient levels within acceptable soil loading levels. Often, it expedites manure spreading and utilization of its nitrogen content.

**Rotation grazing** A type of grazing system and involves moving grazing animals from one pasture to another to achieve a desired management objective.

**Rough** (1) The accumulation of mature living and dead vegetation, especially grasses and forbs on rangeland. (2) May refer to land surface with uneven terrain.

**Roughage** Plant materials containing a low proportion of nutrients per unit of weight. Generally bulky and coarse, high in fiber, and low in total digestible nutrients. Roughage may be classed as either dry or green.

**Roundup** The purposeful gathering of animals from a specific area.

**Ruderal** A plant inhabiting disturbed sites.

**Rumen** The large, first compartment of the stomach of a ruminant from which ingestion is regurgitated for re-chewing and in which digestion is aided by symbiotic action of microbes.

**Ruminant** Even-toed, hoofed mammals that chew the cud and have a 4-chamber stomach; i.e., ruminantia.

**Runoff** The movement of water from a watershed including both surface and subsurface flow, usually expressed in acre-feet of water yield.

**Sacrifice area** (1) A portion of the range, irrespective of site, that is unavoidably overgrazed to obtain efficient overall use of the management area. The area is generally a small area adjacent to a feed trough, water trough, gate, etc. (2) A fenced-off, small portion of a grazing management unit intentionally overgrazed and heavily trafficked to prevent lasting damage to the entire unit. This is only done for short periods during extreme weather conditions. Site is then deferred from grazing until it recovers (includes reseeding if necessary).

**Saline soils** Soils with an electrical conductivity greater than 4 millimhos per centimeter that have less than 15 percent of the cation exchange capacity occupied by sodium ions and a pH below 8.5. See sodic soils for a comparison.

**Salt ground** An area where salt is placed for use by livestock or game; often relocated periodically to achieve improved animal distribution.

**Salt lick** Spots containing unusually large quantities of salts in the soil where animals consume the soil to obtain salt.

**Salting** (1) Providing salt as a mineral supplement for animals. (2) Placing salt on the range in such a manner as to improve distribution of livestock.

**Salvage value (GLA)** The value remaining in a piece of equipment or other asset at the end of its intended useful life.

**Sample** Part of a population taken to estimate a parameter of the whole population.

**Sand tank** A water development constructed by placing a dam in a rock-bound channel and bonded to bedrock and by using the sand/gravel trap above the dam for water storage.

**Saponins** Any of the various plant glycosides that form soapy colloidal solutions when mixed and agitated with water. When present in forages, the antiquality chemical depresses growth and intake of grazers and may worsen bloat in ruminants. However, they also impart resistance in forages to disease and insect pests.

**Savanna (Savannah)** A grassland with scattered trees, either as individuals or clumps; often a transitional type between true grassland and true forest.

**Scrub** Vegetation dominated by low growing woody plants, often forming a dense thicket.

**Seasonal distribution** (1) The progressive grazing in a sequence of moves from one part of a range to another as vegetation develops. (2) The normal occurrence of precipitation at different periods of the year.

**Seasonal distribution of growth or availability** The tabular or graphical display of monthly increments of total annual forage production available for grazing. It may record growing forage production throughout its growing season or the deferment and release later in the year of accumulated grazeable forage mass to grazing animals.

**Seasonal grazing** Grazing restricted to a specific season.

**Seasonal use** (1) Synonymous with seasonal grazing. (2) Seasonal preference of certain plant species by animals.

**Seasonal zone** An area of rangeland that livestock and wildlife prefer at certain seasons.

**Seed** A fertilized ripened ovule of a flowering plant.

**Seedbank** Seeds stored in the soil, generally as hard seed, that are viable and will germinate given the proper conditions. This seedbank is principally built up by seed produced by plants growing on or adjacent to the site over many years. Species long gone may still be represented if their seed is especially long-lived.

**Seedbed preparation** Soil treatment prior to seeding to: enhance soil surface layer for seed deposition and optimum opportunity for generation and seedling growth, reduce or eliminate existing vegetation, reduce the effective supply of weed seed, modify physical soil characteristics, and enhance temperature and water characteristics of the microenvironment.

**Seed certification** A system whereby seed of plant cultivars is produced, harvested, and marketed under authorized regulation to ensure seed of high quality and genetic purity.

**Seed, dormant** Live seed in a nongerminative condition because of internal inhibitions in the seed; i.e., hard seed, or unfavorable environmental conditions.

**Seed dribbler** A metering device that drops seed onto the track of a crawler tractor for the purpose of being carried forward and pressed into the ground as the tractor passes.

**Seed, hard** Live seed in a physiological condition that prevents or delays germination, even when a favorable environment exists.

**Seedhead** The inflorescence (flowering part) of a grass where the seed will develop.

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

**Seed purity** The percentage of the desired species in relation to the total quantity, including other species, weed seed, and foreign matter. See Pure live seed.

**Seed scarification** Mechanical or acid treatment of seedcoats to improve moisture absorption and enhance germination.

**Seedstock** (1) Livestock raised to refine the genetics of a particular breed and sold for breeding purposes primarily. (2) The label applied to a producer of such animals. See Commercial for contrasting term.

**Seep** Wet areas, normally not flowing, often created when the elevation of the lateral flow of underground water intersects ground level, as on a hillslope. Occasionally seeps occur from water arising from an underground source.

**Selective grazing** The grazing of certain plant species, individual plants, or plant parts on rangeland to the exclusion of others.

**Selectivity ratio** The fraction or decimal indicating the proportion of the diet contributed by a plant species, species group, or plant part; an expression of relative preference.

**Semiarid** A term applied to regions or climates where moisture is normally greater than under arid conditions, but still definitely limits the production of vegetation. The upper limit of average annual precipitation in the cold, semiarid regions is as low as 15 inches, whereas in warm, tropical regions it is as high as 45 to 50 inches.

**Sendero** A path or lane cut or dozed through brushy areas to provide access by livestock, pedestrians, or vehicles. A term commonly used in the Southwest.

**Senesce** The yellowing and withering of older, lower leaves of plants as they become shaded by higher, younger leaves. Nutrients in these older leaves are translocated to younger tissue.

**Seral** Refers to species or communities that are eventually replaced by other species or communities within a sere.

**Seral stages** The developmental stages of an ecological succession.

**Sere** All temporary communities in a successional sequence.

**Sex ratio** The ratio existing between the number of male and female animals within a given herd, band, or population.

**Shearing pens** A general term used to describe the buildings, machinery, pens, and other appurtenances of an establishment where animals are shorn.

**Shed lambing** Housing and feeding females during the time offspring are dropped.

**Shinnery** Range vegetation having dwarf oaks as dominants.

**Short-duration grazing** A grazing system with five or more pastures where the rest period is usually at least four times greater than the grazing period. See Grazing system.

**Shrink-swell** The action of soils that are high in montmorillinite clay content. When wet, the clays expand causing the soil to swell. When the soils dry, the clays shrink leaving cracks in the soil from 1 to 2 inches wide and commonly 6 to 20 inches deep. Expansion of the clays is even more pronounced in sodic soils.

**Shrub** A plant that has persistent, woody stems, a relatively low growth habit, and generally produces several basal shoots instead of a single bole. It differs from a tree by its low stature and non-arborescent form. Maximum height is generally 4 meters.

**Silage** Forage preserved in a succulent condition by organic acids (lactic acid primarily) produced by partial anaerobic fermentation of sugars in the forage.

**Similarity index** A similarity index is the percentage of a specific vegetation state plant community that is presently on the site.

**Sire (GLA)** The male parent of an animal.

**Site** See Ecological site.

**Skylining** The development of a line of uniform height of vegetation that gives an illusion of a horizon, usually associated with excessive use of browse. May refer to either top line or under line.

**Slope** A slant or incline of the land surface, measured in degrees from the horizontal, or in 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).

**Slugs** Terrestrial mollusks without a shell that prey on seedlings.

**Snow fence** A fence used to retard or alter the movement of snow by wind.

**Sod** Vegetation that grows to form a mat of soil and vegetation. Syn. turf.

**Sod grasses** Stoloniferous or rhizomatous grasses that form a sod or turf.

**Sodic soil (nonsaline)** A soil with an electrical conductivity of less than 4 millimhos per centimeter where exchangeable sodium occupies more than 15 percent of the total cation exchange capacity.

**Sodic soil (saline)** A soil with an electrical conductivity greater than 4 millimhos per centimeter where exchangeable sodium occupies more than 15 percent of the total cation exchange capacity.

**Sod seeding** Direct drilling of seed on sites on which no seedbed preparation had been made.

**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, producing soil, which differs from the material from which it was derived in many physical, chemical, biological, and morphological properties and characteristics.

**Soil aggregates** Granules formed from the arrangement of primary soil particles (sand, silt, and clay) by flocculation and cementation processes. Plant roots, especially fibrous root systems of grass forage crops, aid in their formation.

**Soil amendments** Any material, organic or inorganic, applied to the soil to make it more conducive to vigorous plant growth. Amendments may contain important fertilizer elements, but the term commonly refers to added materials other than fertilizer.

**Soil map unit** A map unit is a collection of soil areas or miscellaneous areas delineated in a soil survey. They may encompass one or more kinds of soil or one or more kinds of soil and a miscellaneous area, such as rock outcrop. They are identified by a unique map symbol in a survey area. There are four kinds of map units; consociations, complexes, associations, and undifferentiated groups.

**Soil map unit components** The components of a map unit are: (1) The named soil(s) or miscellaneous areas that are dominant and co-dominant in extent. (2) Similar soils or miscellaneous areas that may be extensive, but not as extensive as the named components. (3) Dissimilar soils or miscellaneous areas that are minor in extent. Soil map unit components are rated and assigned to forage suitability groups.

**Soil reaction** Numerical expression in pH units of the relative acidity or alkalinity of a soil. The range in soil pH is 1.8 to 11.0. A pH of 7.0 is neutral.

**Soil test** A chemical and physical analysis of a soil used to estimate its nutrient supplying power. It must use chemical extraction techniques appropriate for the elements being extracted and the soil being examined. For the results to be interpreted properly, the test procedures must also be calibrated against nutrient rate experiments in the field and in the greenhouse.

**Soluble powder** A dry pesticide formulation that dissolves readily in water and forms a true solution. It is not very common because few active ingredients are water soluble.

**Solution** A pesticide formulation where the active ingredient is very soluble in water. It is a liquid that contains the active ingredient and additives.

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

**Species allowable (GLA)** The maximum percent composition by weight that an individual plant species is expected to contribute to the total composition on a particular site.

**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 less intensely grazed.

**Spray drift** The movement of airborne spray particles from the intended area of application; i.e., horizontal displacement.

**Spreader dam** Syn. water spreader.

**Spring** Flowing water originating from an underground source.

**Spring development** Improving spring and seeps by excavating, cleaning, capping, or providing collection and storage facilities.

**Spring-fall range** Rangeland that is grazed primarily during the spring and fall.

**Stable** The condition of little or no perceived change in plant communities that are in relative equilibrium with existing environmental conditions; describes persistent, but not necessarily culminating stages (climax) in plant succession. Implies a high degree of resilience to minor perturbations.

**Stage of maturity (forage)** The developmental status of a forage crop used to describe a point in time in its progress towards maturity and assess its readiness for harvest as an edible forage or for its seed.

**Stand** (1) 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. (2) An acceptable level of new plants following a seeding or planting operation.

**Standing crop (GLA)** The amount of forage available to a target grazing animal at a given time.

**Standing crop** The total amount of plant material, in aboveground parts, per unit of space at a given time. It may be modified by the words dead or live to more accurately define the specific type of biomass.

**State** A condition of an ecological site's characteristics. As characteristics change, there is a transition to a new state. See Vegetation state and Transition pathway.

**Stem** The culm or branch of a plant.

**Stock** (1) Abbreviated word for livestock. (2) To place animals on a discrete unit of grazing land. The term graze is often erroneously used in place of stock where the animal is the object of the verb, not the subject.

**Stock driveway** Syn. driveway.

**Stocking** The human placement of animals onto a management unit so they can graze or browse the plant resource. The term grazing is often erroneously used in place of stocking. Cattle have only one grazing method, while people have devised several stocking methods. Some stocking methods actually prevent livestock from grazing certain areas for a time.

**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.

**Stocking plan** The number and kind of livestock assigned to one or more given management areas or units for a specified period.

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

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

**Stock pond** A water impoundment made by constructing a dam or by excavating a dugout or both, to provide water for livestock and/or wildlife.

**Stock trail** A trail constructed across a natural barrier to permit movement of livestock to otherwise inaccessible areas.

**Stock trails and walkways** A livestock trail or walkway constructed to improve grazing distribution and access to forage and water.

**Stock water development** Development of a new or improved source of stock water supply, such as well, spring, or pond, together with storage and delivery system.

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

**Strip grazing** Confining grazing animals to a specified portion of a grazing area for a limited time. Strip grazing usually refers to temporarily subdividing a grazing area into subunits with temporary fences so grazing for short periods, often 4 hours or less, can be achieved.

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

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

**Substitution ratio** Number of animals or animal-units of one kind or class that can be substituted for another kind or class to meet a specified management objective. Syn. animal-substitution ratio.

**Subunit** The subdivisions of a single grazing system. See Paddock and Pasture.

**Succession** The progressive replacement of plant communities on an ecological site that leads to the climax plant community. 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.

**Suitability** (1) The adaptability of an area to grazing by livestock or wildlife. (2) The adaptability of a particular plant or animal species to a given area.

**Suitable range** (1) Rangeland 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.

**Summer range** Rangeland, particularly in the mountainous Western States, that is grazed primarily during the summer growing season.

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

**Supplemental cropland pasture** An annual forage crop planted between two primary cultivated crops to provide supplemental grazing of enhanced nutritive quality during periods of low production and/or forage quality on other pastures or rangeland.

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

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

**Suspension fence** Nonwoven wire fence comprised of high tension wire supported by widely spaced posts to which the wire is firmly attached, but is loose against the post to allow the wire to move back-and-forth at the point of attachment.

**Sustained yield** Production of specified resources or commodities at a given rate for a designated unit of time.

**Swale** An area of low and sometimes wet land.

**Swath** A strip of cut herbage lying on the stubble left by the cutter bar, blade, flail, rotary drum, or disc blade setting of the mower, mower-conditioner, binder, swather, or small grain head on a combine.

**Synecology** A subdivision of ecology that deals with the study of groups or organisms associated as a unit; i.e., communities.

**Tag** (1) A label attached, usually to the animals, for identification. (2) A discolored and dirty part of a fleece.

**Tagging** (1) The process of attaching identifying tags to animals. See Brand and Marking. (2) Clipping manured and dirty locks from sheep.

**Tagging chute** A narrow enclosure (of board, pole, or steel construction) to hold animals during tagging.

**Tame pasture** Implies the forages growing on the land unit have been purposely cultivated by people as opposed to being wild growth of random origin. In permanent pastures it is often a combination of the two mechanisms and, therefore, a rather subjective and imprecise term. Synonymous with improved pasture.

**Tank** A reservoir of any construction for water storage.

**Tannin** An antiquality chemical consisting of a broad class of soluble polyphenols that occur naturally in many forage plants. They all condense with protein to form a leatherlike substance that is insoluble and of impaired digestibility. This can be good if it allows some protein to bypass the rumen and be digested in the lower digestive tract of ruminants. Excessive levels, however, interfere with digestion rate by reducing rumen microbial populations.

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

**Tedder** A machine used in very humid areas to aid forage drying. It stirs cut forage lying on a field with metal tines that rotate on a series of horizontally spinning rotors.

**Temporary license or permit** A document authorizing grazing of a certain number of livestock on public lands during an emergency or for a certain period, terminable at the end of such period and with no guarantee of renewal in whole or in part. See Grazing license or Permit.

**Term license or permit** A document authorizing grazing on public lands for a stated number of years as contrasted with an annual or temporary license or permit. See Grazing license or Permit.

**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.

**Theoretical length of cut** The length of cut set with the shear plate on a forage harvester. Setting is critical to ensure forage pieces will be small enough to ensure good compaction in a silo while preserving effective fiber length for good rumen function.

**Thermoneutral zone (comfort zone)** Within a certain range of ambient temperature the heat produced by nor mal metabolism of a resting animal is minimal and is enough to cover the heat loss.

**Tiller** (1) An erect shoot that arises from the crown of a grass. (2) A grass that is growing tillers. (3) The asexual development of a new plant from a meristematic region of the parent plant.

**Total annual production** The total annual production of all plant species of a plant community.

**Total digestible nutrients (TDN)** The total digested energy in a feedstuff expressed in units of weight or percent.

**Total digestible nutrients (TDN) (GLA)** The total digested energy of a feed expressed as a caloric value.

**Toxic plant species** A species of plant that may accumulate or produce a substance toxic to animals. See Poisonous plant.

**Toxicant** The chemical ingredient(s) that may injure or cause death in either plant or animal life exposed to it.

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

**Trafficability** The condition presented by the soil that influences the degree of ease of movement by livestock, humans, or machinery across its surface. This is influenced by the size and number of surface rock fragments, soil wetness, degree of plasticity, organic matter content of soils, and the climatic setting that drives those characteristics to affect ease of movement.

**Trail** A well-defined path created by repeated passage of animals.

**Trail herding** Directing and controlling the movement of a group of livestock on restricted overland routes.

**Trailing** (1) Controlled directional movement of livestock. (2) Natural trailing is the habit of livestock or wildlife repeatedly treading in the same line or path. See Drive.

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

**Transition pathway** Process(es) that cause a shift from one state to another on an ecological site.

**Translocated herbicide** A herbicide moved within the plant from the point of entry.

**Trap** A relatively small enclosure used as a temporary holding or catching area in the handling and management of livestock.

**Tree** A woody perennial, usually single stemmed plant that has a definite crown shape and reaches a mature height of at least 4 meters. The distinction between woody plants known as trees and those called shrubs is gradual. Some plants, such as oaks (Quercus spp.) may grow as either trees or shrubs.

**Trend** A rating of the direction of change occurring on an ecological site. See Rangeland trend and Planned trend.

**Trespass** Syn. grazing trespass.

**Trick tank** A modification of a guzzler in which the collection basin is elevated and the storage tank is located directly below.

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

**Trough** (1) A large container with necessary controls and valves that provides drinking water for livestock and wildlife. (2) A feeding container that holds livestock feed and/or minerals for consumption by livestock and some wildlife species.

**Turf** Syn. sod.

**Turnout** Act of turning livestock out on rangeland at the beginning of the grazing season.

**Type** Syn. Vegetation type.

**Type line** The boundary line that separates two distinctive vegetation types on a map or photograph.

**Unauthorized use** The grazing of livestock on a range area without proper authority.

**Unconsumed plant (GLA)** See Plant preference classification.

**Under grazing** The act of continued underuse.

**Under stocking** Placing a number of animals in 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.

**Underuse** A degree of use less than the desired use.

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

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

**Unsuitable range** Range that 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).

**Upright or tower silo, conventional** A cylindrical silo made of concrete staves, generally ranging from 12 to 30 feet in diameter and up to 80 feet in height. The staves are held together by steel rods that encircle them. It is usually unloaded from the top.

**Upright or tower silo, oxygen-limiting** A cylindrical silo made of steel with a glass fused coating on it. The steel panels are bolted together. The silos range in diameter from 20 to 27 feet and in height from 32 to 104 feet, are unloaded from the bottom, can be refilled at any time, and continue to unload oldest silage first.

**Usable forage** The portion of the standing forage crop that can be grazed off without damage to the forage plants. It varies by plant species, season of use, and companion plant species that need favoring to promote their continued existence in the stand. The pasture management section refers to it also as available forage.

**Usable forage production (GLA)** An entry method that allows you to enter an estimate of annual production that is consumable by the target livestock population.

**Use** (1) The proportion of current year's 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 land for a purpose, such as grazing, bedding, shelter, trailing, watering, watershed, recreation, forestry, and wildlife habitat.

**Utilization** Syn., use.

**Vapor drift** The movement of pesticidal vapors from the area of application.

**Variable cost (GLA)** Expenses that change with the number of animals in the herd. Examples of variable costs include supplemental feed, veterinary services and supplies, and labor.

**Variable rotational stocking** A stocking method that adjusts the recovery period between grazing periods to the variable growth rate of the forage species being grazed. It attempts to offer a uniform forage allowance to livestock each day of the grazing season through the allocation of forage by sequential grazing of paddocks.

**Variable stocking** The practice of varying the stocking rate through the plant growing season with the objective of utilizing forage at a rate similar to its growth rate. This can be done by either varying the number of animals on a set acreage or varying the acreage offered to a set number of animals.

**Vegetation states** The various plant communities produced by an ecological site within given site characteristics.

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

**Vegetative** Relating to nutritive and growth functions of plant life in contrast to sexual reproductive functions. (adj.) Of or relating to vegetation.

**Vegetative management practices** Practices that are directly concerned with the use and growth of plants. These include such practices as prescribed grazing and livestock exclusion.

**Vegetative production** Production of new plants by any asexual method.

**Vegetative state** Stage of maturity prior to the appearance of inflorescences. In grasses, it is prior to boot stage. In legumes, it is prior to the appearance of buds.

**Veld** The open temperate grassland areas of Southern Africa, typically containing scattered shrubs or trees.

**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.

**Volunteers** Plants not purposely planted germinating from seed laid down from imported plant residue or by parent plants growing on the site at some previous time. How distant the time is dependent on the longevity of the seed. These plants are aggressive enough to fill in voids in the plant canopy or grow after dormancy or harvest of the planted crop.

**Walkway** An earthen embankment constructed to improve the accessibility of marsh rangeland. See Stock trails and walkways.

**Warm-season plant** A plant that 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 C-4 photosynthetic pathway.

**Water budget** An irrigation tool that keeps track on a daily basis of the amount of plant available water in the soil over a 12 month period. It sums soil water depletion by evapotranspiration using one of the climatonomic estimators and deducts water inputs from precipitation or irrigation. This yields the amount of irrigation water needed to be applied to bring the soil back to field capacity within the root zone of the crop being irrigated. Water applications in excess of field capacity are assumed lost to percolation or runoff.

**Water gap** (1) A specially constructed fence across a drainage. The fence is easily moved by the forces of a flood, thus preventing damage to the permanent fence. (2) An opening or fenced area providing access to a developed or natural water supply permitting one watering facility to serve two or more pastures.

**Water potential** The thermodynamic state of the water in a cell, organism, or soil equal to the difference in free energy per unit volume between matrically bound, pressurized, or osmotically constrained, water and that of pure water.

**Water ram** A hydraulic pump that uses water power (flow rate or hydraulic head) to pump a small portion of the total water inflow through a pipe to a higher elevation.

**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.

**Water-soluble packet** Wettable powder or soluble powder formulations of low dosage, highly toxic pesticides packaged in soluble plastic bags. Packets are dropped into a sprayer tank where they dissolve and mix with the spray liquid.

**Water spreader** A terrace, dike, or other structure intended to collect and distribute surface-water runoff from natural channels, gullies, streams, or broad drainage areas. The purpose is to increase the area of infiltration.

**Waterway** A way or channel for water.

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

**Well** A water source developed by drilling vertically through soil, subsoil, and geological strata to intercept underground water storage or stream areas.

**Well horizontal** A water source developed by drilling horizontally into a hillside to intercept a perched water table or underground water source.

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

**Wetlands** Areas characterized by soils that are usually saturated or ponded; i.e., hydric soils, and that support mostly water-loving plants; i.e., hydrophytic plants.

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

**Wettable powder** Dry, finely ground formulation where the active ingredient is combined with a dry carrier, usually mineral clay, along with other ingredients that enhance suspension of the material in water. Very widely used. It is of lower toxicity than other formulations, but can be inhaled while dispensing and needs constant, effective agitation in the spray tank to avoid uneven application.

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

**Wildlife refuge** A land area reserved and managed for the benefit of one or more species of wildlife.

**Windrow** (1) Curing herbage dropped or raked into a narrow swath sized to be picked up easily by the head of a baler, combine, or forage harvester. (2) To cut or rake into windrows.

**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.

**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 1 year of age. A short yearling is from 9 to 12 months of age and a long yearling is from 12 to 18 months.

**Yearlong grazing** Continuous grazing for a calendar year.

**Yearlong range** Rangeland that is, or can be, grazed yearlong.

**Yield** (1) The quantity of a product in a given space and/or time. (2) The harvested portion of a product.

**Zoning (rural)** A means by which governmental authority is used to promote a specific use of land under certain circumstances. This power traditionally resides in the state, and the power to regulate land uses by zoning is usually delegated to minor units of government, such as towns, municipalities, and counties, through an enabling act that specifies powers granted and the conditions under which these are to be exercised.