

Alluvium: Sand, silt, or clay that has been deposited on land by streams.

Aquifer: A body of earth strata capable of transmitting water through its pores at a rate sufficient for water supply purposes.

Arroyo: A water-carved gully or channel in arid areas.

Aspect: The direction a slope faces; affects temperature, moisture (e.g., snow accumulation and retention), and wind exposure, and hence can dramatically influence vegetation.

Available water: The portion of water in a soil that can be absorbed by plant roots. The amount of water released by the soil when the equilibrium soil water matrix potential is decreased from field capacity to -15 bar.

Base flow: That portion of the stream discharge which is derived from groundwater outflow or other sources outside the net rainfall which created the surface runoff.

Bench: A thickness of overburden handled as a layer.

Browse: Palatable shrubs.

Calcareous: Soil containing sufficient free calcium carbonate or calcium magnesium carbonate to effervesce visibly when treated with cold 0.1 N hydrochloric acid.

Carrying capacity: The amount of livestock or wildlife use that an area is able to support; relates to forage production, water, shelter, etc.

Climax: The kind of community capable of perpetuation under the prevailing climatic and substrate conditions, assuming long-term absence of disturbance. See *Succession*.

Coulee: A drainageway that is steep-sided and normally is dry by late summer.

Cover (absolute): The percentage of the ground covered by above-ground portions of plants; may be expressed by species, lifeform, or totaled; values for litter, rock, and soil may be similarly reported.

Cover (relative): The proportion of the total absolute cover contributed by each plant species.

Crest-gage station (or Crest-stage gage station): A simple measuring device used to obtain a record of flood crests at sites where recording gages are not present.

Cumulative hydrologic impact assessment (CHIA): A determination of the probable additive impacts to surface and groundwaters associated with all existing and anticipated mining in an area.

Dancing ground: Small clearings and/or hilltops used by sharptail grouse for their breeding activities; also referred to more generically as a *lek*.

Dendritic: Branching or treelike forms.

Dip: The angle that a structure surface (i.e., bedding), makes with the horizontal measured perpendicular to the strike.

Discharge: In its simplest concept, discharge means outflow of water; therefore, the use of this term is not restricted as to course or location and it can be applied to describe the flow of water from a pipe, aquifer or from a drainage basin. Flow rates in canals or streams are often referred to as discharge rates. It is also correct to speak of the discharge of a canal or stream into a lake, stream, or ocean.

Dissected plateau: A flat topographic bench exhibiting one or more large erosion gullies or arroyos.

Diversity: The variation of heterogeneity of species or lifeforms within one plant community, which may incorporate "richness" (species or lifeform number) and "evenness" (comparative species or lifeform abundance).

Drainage basin: A part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Edge effect: The result of the overlap (ecotone) of two adjoining plant communities on the quantity and diversity of wildlife in the immediate vicinity.

Ephemeral stream: A stream that flows only in direct response to precipitation, and thus discontinues its flow during the dry seasons. Its channel is above the level of the water table.

Erosion: The group of processes whereby earth or rock material is loosened or dissolved and removed from any part of the earth's surface.

Escape cover: Floral cover thick enough to provide a visual or physical protective barrier for animals.

Flood plain: Nearly level land, consisting of stream sediments, that borders a stream and is subject to flooding unless protected artificially.

Forb: A nongrassy (i.e., broadleaf) herbaceous plant; includes many species commonly referred to as wildflowers or weeds.

Gaging station: A particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained.

Game animals: A group of animals legally protected under the various game laws of the States, usually taken for human consumption as regulated by hunting laws (e.g., deer, rabbits, ducks, etc.).

Geomorphology: That branch of both physiography and geology which deals with the form of the earth,

the general configuration of its surface, and the changes that take place in the evolution of land forms.

Grassland: An area of vegetation dominated by grasses, with other types of plants (e.g., shrubs) present in low numbers.

Habitat affinity: The expressed preference shown by a particular species for certain associations of physical and biotic features of the environment.

Herbaceous: A type of plant with no woody parts (e.g., *grasses* and forbs).

Highwall: The unexcavated face of exposed overburden and bedrock in a surface mine.

Hogback: A sharp-crested ridge formed by the outcropping edges of steeply inclined resistant rocks.

Hydraulic conductivity: Ratio of flow velocity to driving force for viscous flow under saturated conditions of groundwater in a porous medium.

Hydrography: A graph showing, for a given point on a stream or conduit, the stage, velocity of flow, available power, or other function of the discharge with respect to time.

Hydrostratigraphy: The study of the relationships between the occurrence and characteristics of groundwaters and the geologic features of the rock units forming aquifers.

Indicator species: A particular kind of animal which, by its mere presence in a given area, indicates the existence of a known associated habitat or habitat feature, lack of disturbance, or other condition; for example, aquatic invertebrates such as mayfly or stonefly larvae indicate unpolluted stream waters.

Infiltration rate: The rate at which water enters the soil; it has the dimensions of velocity.

Intermittent stream: One which flows only at certain times of the year when it receives water from springs or from some surface sources such as melting snow in mountainous areas.

Lek: An assembly area where birds, especially members of the grouse family, gather for display, courtship, and breeding activity.

Lenticular: Stratigraphic units that are discontinuous horizontally.

Lifeform: Structural categories of plant types, commonly set forth as annual grass, perennial grass, annual forb, perennial forb, subshrub, shrub, tree, etc.

Line intercept: A method of estimating plant cover by measurement of the interception of vertical projection of plant canopies or parts along a horizontal line.

Lithology: The physical character of a rock.

Litter: Undecomposed dead plant parts accumulated at the ground surface.

Morphological: Pertaining to shape or form.

Mycorrhiza: Literally "fungus root." The association, usually symbiotic, of specific fungi with the roots of higher plants.

Native rangeland: Grazingland dominated by naturally occurring plant species; generally requires low levels of active management other than controlling the intensity, season, and duration of use by livestock.

Nesting box: A structure built by man for the artificial replacement of cavity nesting habitat. Other nesting structures, such as platforms, are common management tools for aiding avifauna dependent on specific landscape features for nesting success.

Nurse crop: A short-lived plant cover (e.g., annual grains) sometimes planted in the initial year of revegetation to protect the seedlings of perennial species from desiccation by sun or wind. A related practice is mowing the annual plant cover in the fall prior to the perennials' planting, thereby producing a "stubble mulch."

Partial-record station: Particular site where limited streamflow or water-quality data, or both, are collected systematically during a period of years for use in hydrologic analysis.

Partings: Thin shale layers within the coal seam.

Pastureland: Grazing dominated by introduced ("tame") *grasses and* forbs (e.g., alfalfa, clover) that is highly productive but requires moderate to high levels of active management such as fertilizers, periodic reseeding, and weed control. Often rotated in use with hayland or allowed to periodically lie fallow.

Peak-discharge: Peak flow rate. The term is normally used in regard to the peak flow rate in a stream during a flood event.

Pedestaling: The process by which small pedestals form under stones through erosion.

Pedologic: Pertaining to soils.

Pedon: A three-dimensional body of soil with lateral dimensions large enough to permit the study of horizon shapes and relations. Its area ranges from 1 to 10 square meters.

Pellet group: The fecal material left by ungulates (deer family).

Perennial stream: A stream that flows at all times.

Piezometer: An instrument for measuring pressure head in a conduit, tank, soil, etc. It usually consists of a small pipe or tube tapped into the side of the container, the inside end being flush with, and normal to, the water face of the container, connected with a manometer pressure gage, mercury or water column, or other device for indicating pressure head. Certain wells can be used as piezometers to measure pressure heads in aquifers.

Playa: A shallow depression with no external drain-

age that dries up for part of the year. The occasional inundation and tendency for development of heavy clay soils results in distinctive vegetation tolerant of such conditions.

Point intercept: A method of estimating cover by the interception of above-ground plant parts (and litter, rock, or soil) by a vertically projected point, as defined by a sharp pin or by cross-hairs in a viewing device.

Point source: A single source of contamination to surface or groundwater. Point source also may refer to a highly localized area of surface or groundwater contamination.

Population estimates: Actual estimates of an animal's population numbers based on a sample of that population.

Population size indices: An index which identifies the relative size of a particular species' population without statistically sampling the actual population.

Potentiometric surface: Surface to which water in an aquifer would rise by hydrostatic pressure.

Prairie pothole: A regional term for the small wetlands commonly occurring in the glaciated portions of the Northern Great Plains.

Probable hydrologic consequences (PHC): The projected effects of a mining operation on the quality and quantity of surface and groundwater; depth to groundwater; surface and groundwater flow, timing and pattern; stream channel conditions; and aquatic habitat.

Production: The weight (usually oven dry) of annual growth of above-ground plant parts (i.e., "standing crop"); usually expressed as weight ("biomass") per unit land area.

Propagule: Plant tissue which, if separated from the plant, will give rise to a new individual (seeds, certain types of buds, etc.).

Quadrat: A plot of variable size, used to measure or estimate a vegetation parameter such as production or cover.

Range site: A vegetation unit traditionally defined as an area where the physical environment (topographic, soils, and climate) is sufficiently uniform to produce the same potential or climax vegetation.

Raptor: A bird of prey.

Refuge effect: The tendency for animals to congregate on coal mine properties due to the "no trespassing" and "no firearms" policies of many mines, which removes hunting and harassment pressures from big game.

Regolith: Loose, incoherent weathered rock below the soil.

Rider seams: Thin coal seams above the main coal.

Rimrock: Erosionally resistant rock of a plateau that outcrops to form a vertical face.

Riparian areas: Areas exhibiting plants associated with frequent surface or persistent subsurface water, such as along the banks of a stream.

Runoff: That part of the precipitation that appears in uncontrolled surface streams, drains, or sewers. It is the same as streamflow unaffected by artificial diversions, imports, storage, or other works of man in or on the stream channels.

Runoff hydrography: A graph showing, for a particular watershed, a time record of stream surface elevation or stream discharge at a given cross-section of the stream for a rainfall event.

Saline seeps: Spring water soluble salts accumulate at the ground surface.

Scat: Wildlife fecal matter.

Scoria: Rock material affected by the burning of underlying coal, also known as clinker.

Seasonality: In plant ecology, refers to the time of the growing season when maximum growth occurs; especially used to differentiate between cool-season grasses (peak growth in spring and fall) and warm-season grasses (peak growth in summer).

Sedimentation pond: A primary sediment-control structure designed, constructed, and maintained to slow down water runoff to allow sediment to settle out; includes barriers, dams, or excavated depressions.

Shelterbelt: A grouping of trees and shrubs usually planted perpendicular to prevailing winds to serve as a windbreak for buildings or to reduce soil erosion in croplands.

Shrub: A perennial woody plant, smaller than a tree and typically with more than one main stem, whose over-wintering buds are borne on twigs above the ground.

Shrub steppe: A broad floral community of the Western Great Plains and foothills of the Rocky Mountains typified by a shrub (usually sagebrush) overstory.

Sodium adsorption ratio (SAR): A relation between soluble sodium and soluble divalent cations which can be used to predict the exchangeable-sodium percentage of soil equilibrated with a given solution. It is defined as follows:

$$\text{SAR} = \frac{\text{sodium, mmol/liter}}{(\text{calcium} + \text{magnesium})^{1/2} (\text{mmol/liter})^{1/2}}$$

Soil: (1) The unconsolidated mineral 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 earth's surface that has been subjected to and influenced by genetic and environmental factors of: parent mate-

- rial, climate (e.g., moisture and temperature), macro- and micro-organisms, and topography, all acting over a period of time and producing a product—soil—that differs from the material from which it is derived in many physical, chemical, biological, and morphological properties and characteristics.
- Soil classification:** The systematic arrangement of soils into groups or categories on the basis of their characteristics. The USDA soil classification system (soil taxonomy) was adopted for use in publications by the National Cooperative Soil Survey.
- Soil horizon:** A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes.
- Soil phase:** A subdivision of a soil type or other unit of classification having characteristics that affect the use and management of the soil but which do not vary sufficiently to differentiate it as a separate type. A variation in a property or characteristic such as degree of slope, degree of erosion, content of stones, etc.
- Soil profile:** A vertical section of the soil through all its horizons and extending into the parent material.
- Soil series:** The basic unit of soil classification, being a subdivision of a family and consisting of soils which are essentially alike in all major profile characteristics except the texture of the A horizon.
- Soil structure:** The combination or arrangement of primary soil particles into secondary particles, units, or peals.
- Species diversity values:** A mathematically calculated index value that indicates the relative diversity of animals in a given habitat or area.
- State sensitive species (or sensitive species):** Non-game wildlife species which are rare or have very limited habitat in a particular State and are therefore afforded some degree of protection.
- Station:** Ground position at which a geophysical instrument is set up for observation in the field.
- Storage coefficient:** (1) For surface waters, a coefficient that expresses the relation of storage capacity in a reservoir, to the mean annual flow of a stream above the dam forming the reservoir. (2) For groundwaters, the cubic feet of water discharged from each vertical column 1 ft. square as the water level drops 1 ft.
- Stratigraphic correlations:** The process by which stratigraphic units in two or more separate areas are shown to be laterally similar in character or mutually correspondent in stratigraphic position.
- Stratigraphy:** The arrangement of strata.
- Streamflow:** The discharge that occurs in a natural channel. "Streamflow" is more general than runoff, as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.
- Strutting ground:** Small clearings and/or hilltops used by sage grouse for their breeding activities; also referred to more generically as a lek.
- Subshrub:** A perennial plant which is woody at its base and is either of small stature or dies back nearly to ground level (i.e., intermediate between a shrub and a forb).
- Subsoil:** The soil horizons underlying topsoil, typically the B and C horizons.
- Succession:** The natural progression of plant communities following partial or complete disturbance; theoretically culminates in the "climax" community.
- Surface soil:** The uppermost part of the soil, ordinarily moved in tillage or its equivalent in uncultivated soils and ranging in depth from 3 to 4 inches to 8 or 10. Frequently designated as the "plow layer," the "Ap layer," or the "Ap horizon."
- Suspended sediment:** The very fine soil particles which remain in suspension in water for a very considerable period of time without contact with the bottom.
- Swell factor:** The amount of expansion on excavation expressed as a multiple of one or a percent.
- Talus slope:** A slope covered with loose rock.
- Telemetry:** The wildlife management technique involving the attachment of a radio-transmitting collar to animals thereby facilitating their relocation with radio receivers.
- Threatened and endangered species:** Any species of animal or plant that falls under the protection of the Endangered Species Act and is listed in the Federal Register. Some States may also have listings that expand the Federal list.
- Till:** Unstratified glacial drift deposited directly by the ice and consisting of clay, sand, gravel, and boulders intermingled in any proportion.
- Tilth:** The physical condition of soil as related to its ease of tillage, fitness as a seed bed, and impedance to seedling emergence and root penetration.
- Time of concentration:** The time required for water to flow from the farthest point on the watershed to the gaging station or other point of interest.
- Topsoil:** (1) The surface horizons of a soil, typically A and E Horizons. (2) The materials used as a top dressing for soil reconstruction over regraded spoil.
- Total dissolved solids (TDS):** The total quantity of chemical constituents or elements in solution in ground or surface waters.
- Total suspended solids (TSS):** The velocity-weighted

concentration of suspended sediment expressed as milligrams of dry sediment per liter of water-sediment mixture.

Transect: A line or narrow belt along which ecologic data are collected, either continuously (e.g., total counts of trees) or periodically (e.g., periodic location of cover or production samples).

Transmissivity: The rate at which water of the prevailing kinematic viscosity is transmitted through a unit width of an aquifer under a unit hydraulic gradient. Commonly expressed in gallons per day per foot (gpd/ft).

Walrus scat: Popcorn.

watershed: All lands enclosed by a continuous hydrologic drainage divide and lying upslope from a specified point on a stream.

Wetlands: Land containing significant soil moisture and/or free-standing water; usually accompanied by a diverse community of riparian and emergent vegetation.

Woody draws: Broadleaf tree and shrub communities occurring along perennial or intermittent drainages, or bottoms, of more mesic draws and coulees; usually in reference to the Northern Great Plains wooded draws.

Woody plant: Any perennial plant that produces wood fibers in its above-ground parts and whose over-wintering buds are borne above the ground; includes trees, shrubs, and subshrubs.