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GLOSSARY OF TERMS FOR USE IN PLANT MATERIALS

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The following collection of technical and non-technical terms and definitions, although not complete, are to assist plant materials, field office, and state office staff to better understand papers and presentations on plant materials related issues and to enhance dialog with cooperators, peers, and plant scientists.

USDA-NRCS Conservationists have a need for enhanced dialog with cooperators on plant materials and native species issues. There is an increasing amount of research on plant materials and their ecology. This Technical Note compiles definitions of terms commonly used in reference to plant materials from several sources.

**GLOSSARY OF TERMS
FOR USE IN
PLANT MATERIALS**

Abiotic – Non-living components of an ecosystem; basic elements and compounds of the environment.

Absorption – The process by which a solution passes from one system to another.

Accession - Plant material (plant, seed, or vegetative part) collected and assigned a number to maintain its identity during evaluation, increase, and storage.

9 million numbers - NRCS numbers used to identify plant accessions; i.e., 9056783

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Achene – Small, dry, one seeded fruit.

Acid Mine Drainage - Water mixed with sulfuric acid and having a pH of less than 6.0. This mixture can be discharging from an active mine or abandoned mine. Ore or other minerals containing sulfides (iron pyrite) oxidate (when exposed to water, air, or other weathering processes) and form sulfuric acid. The sulfuric acid mixes with water and flows out of the mine into surrounding areas as acid mine drainage.

Acid Spoil/Waste - Spoil material containing sufficient pyrite so that weathering produces acid water and the pH of the soil determined by standard methods of soil analysis is between 4.0 and 6.9.

Acid equivalent - The theoretical yield of parent acid from an active ingredient.

Acid soil – Soil that has a pH below 6.6

Acid tolerance – Ability of a plant to tolerate acid soil

Active ingredient - The chemical compound in a product that is responsible for the chemical (i.e. herbicidal) affect.

Acuminate – Having a leaf tip whose sides are concave and tapering to an elongated point.

Acute – Leaf shape having margins tapered to a point.

Adsorption – The process by which an ion in a solution bonds to a charged surface.

Advanced evaluation - The more intensive testing of plants that have been selected as being superior in one or more attributes to the initial evaluation.

Adventitious bud – A bud that develops at the base of a needle cluster, on a root, or on a woody tissue on a branch or leader, when the end of the branch or leader is injured or cut off.

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

Age-class – A descriptive term to indicate the relative age of plants.

Aggressiveness - Seedling vigor related to ease of establishment. Also capacity of well-established plants to compete with or out-compete associated grasses, legumes, or woodies.

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.

Alien species - A species introduced and occurring in locations beyond its known historical range. This includes introductions from other continents, bioregions, and also those not native to the local geographic region. Executive Order (E.O.), Invasive Species, February 3, 1999, more narrowly defines an alien species and ties the definition to an occurrence outside a native.

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 grazing animals.

Allele - One member of a pair or series of genes occupying a specific position (locus) in a specific chromosome; one of the alternative forms of a gene. Normally an individual has only two alleles for any trait - one gene derived from its male parent, the other from its female parent.

Allelopathy – Chemical inhibition of one organism by another.

Allopolyploid - A polyploid containing genetically different sets of chromosomes; for example, sets from two or more species.

Alternate – Bud or leaf arrangement (singly) along a stem at spiraled intervals.

Amphidiploid - A polyploid whose chromosome complement is made up of the entire somatic complements of two species.

Aneuploid - An organism whose somatic number is not an even multiple of the haploid number.

Angle of Repose – The greatest angle to the horizontal that any loose or fragmented solid material will stand without sliding or come to rest when poured or dumped in a pile or on a slope.

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

Annual plant - A plant that completes its life cycle from seed in a single year or growing season.

Annual ring – The growth layer of one year, as viewed on the cross section of a stem, branches, or roots.

Anther – The pollen containing part of a stamen.

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

Apiculate – Ending abruptly in a short pointed leaf tip.

Apomixis - Reproduction in which sexual organs or related structures take part but fertilization does not occur, so that the resulting seed is vegetatively reproduced. Only a single parent contributes genes to the offspring.

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". See "Trend".

Appressed – Lying close and flattened against.

Approximate Original Contour - Backfilling and grading previously mined areas so that the mined area resembles the general surface configuration of the land and surrounding area prior to mining.

Arcuate venation – To arch or curve like veins in dogwood (*Cornus*)

Aspect – The predominate direction (north, south, east, west) of slope of the land.

Ascending – Rising somewhat obliquely and curving upward.

Assembly - A systematic collection of plants (seed or vegetative material) of one or more species to be evaluated for a planned purpose.

Astringent – Pungent, strong odor or taste.

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

Autopolyploid - A polyploid arising through multiplication of the complete haploid set of one species.

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.

Awl-shaped – Oval shaped, with sharp pointed end (e.g., juniper leaves).

Axillary – Pertaining to the area where the leaf petiole and stem are connected (the axil).

Backcross - The crossing of a hybrid with either of its parents. In genetics, the crossing of a heterozygote with a homozygous recessive.

Band treatment - An application to a continuous restricted area such as in or along a crop row, rather than over the entire field area.

Bare ground – All land surface not covered by vegetation, rock, litter, or cryptogam.

Bare-root - A plant harvested from a field without any soil on its roots.

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 ground level; larger woody plants are measured at breast or other designated height.

Basal treatment - Herbicide applied to the stems of woody plants at or just above the ground.

Biennial - A plant that completes its life cycle in 2 years. The first year it produces leaves and stores food. The second year it produces fruits and seed.

Bioengineering – see soil bioengineering

Biodiversity – (1) The total variability within and among species of living organisms and the ecological complexes that they inhabit. Biodiversity has three levels - ecosystem, species, and genetic diversity - reflected in the number of different species, the different combination of species, and the different combinations of genes within each species. (2) The totality of genes, species, and ecosystems in a region or the world.

Biological control – The use of organisms or viruses to control parasites, weeds, or other pests.

Biomass – The total amount of living plants and animals above/or below ground in an area at a given time.

Biotype - A group of individuals within a population occurring in nature, all with essentially the same genetic constitution. A species usually consists of many biotypes. See also “ecotype”.

Bipinnate – Twice pinnate (as in honey locust leaves).

Blade – The broad, flat, green part of the leaf.

Blend - A mixture of seed of known proportions of two or more lots or variation of the same species.

Blind cultivation - Cultivating before a seeded or planted crop emerges.

Bole – The main trunk of a tree.

Boot stage – Growth stage when the sheath of the upper most leaf encloses a grass reproductive seedhead.

Botanical variety - The botanical nomenclature division consisting of more or less recognizable entities within species that are not genetically isolated from each other, below the level of subspecies, and is indicated by the abbreviation “var.” in the scientific name; Usage: the abbreviation in roman type; the name in italics; no capitals. See also “variety”.

Bract – A modified leaf from the axil of which a flower or flower cluster arises.

Branching pattern – The pattern secondary woody limbs and stems grow from the main trunk or stem of a tree or shrub.

Branching density – The amount of branching per unit area often described in percent.

Breeder seed - Seed or vegetative propagating material which is directly controlled by the originating or, in some cases, the sponsoring plant breeder, institution, or firm, and which supplies the source for initial and recurring increase of foundation seed. See seed certification classes.

Breeder's rights - The assurance that the owner of a crop variety has exclusive control over the increase, distribution, and merchandising of a variety. The protection may be afforded by legislation and regulatory control by agreement among individuals concerned, or by biological factors inherent in the variety. The breeder is assured that his/her authorization must be obtained before the variety can be reproduced or sold by anyone else. See “Plant Variety Protection Act.”

Breeding system - A system of use to select or modify a plant to yield new progeny with desired characteristics.

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

Browse – That part of leaf and twig growth of shrubs, woody vines, and trees available for forage consumption.

Browseline – The uppermost limit on trees and tall shrubs to which livestock and/or wildlife graze.

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 layering – A soil bioengineering terracing technique using unrooted willow cuttings placed in layers with the ends buried going up the slope. These willow cuttings will sprout branches and roots to help stabilize the slope or bank. The technique can be used for upland or streambank erosion control.

Brush mattress – A soil bioengineering technique that uses a wall or mat of willow cuttings placed vertically up the slope of an eroding bank. This mat will sprout branches and roots to help stabilize the bank. This technique is equal to rock riprap in terms of streambank protection.

Brush trench – A soil bioengineering technique using unrooted branches of willows and other woody material buried upright in a trench placed along the top of an eroding bank. The willow cuttings will sprout branches and roots to help decrease rill, gully, and concentrated flow erosion.

Bunchgrass – A grass so-called because of its characteristic growth habit of forming a bunch.

Business Plan - A document to indicate how the PMC resources are to be used and action items to be completed. It should be brief, flexible, realistic, and open-ended. It should be consistent with NRCS guidelines.

Buttressed – Broadened base or arched root flare of the tree trunk.

C-3 plants - Species having a photosynthetic pathway that results in 3-carbon compounds as initial products of photosynthesis. Includes most legumes, forbs and cool season grasses, as well as most trees and shrubs. Usually significantly less efficient users of soil and water nitrogen than are C-4 plants. Optimum temperature for photosynthesis and growth is 18 to 25° Celsius (64 to 77° Fahrenheit). See also “photosynthesis”.

C-4 plants - Species having a photosynthetic pathway which results in 4-carbon compounds as initial products of photosynthesis. Includes most warm season grasses, tropical grasses, a few forbs, and at least one shrub. Usually significantly more efficient users of soil nitrogen and water than are C-3 plants. Total biomass production is generally substantially greater than plants with other photosynthetic pathways. Optimum temperature for photosynthesis and growth is in the range of 27 to 35° Celsius (84 to 100° Fahrenheit). See also “photosynthesis”.

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

CAM plants - Abbr. for “Crassulacean Acid Metabolism”. Species whose photosynthetic pathway primarily involves fixation of carbon dioxide during the dark period. Includes desert succulent plants such as cactus. Under good moisture and temperature conditions, carbon fixation may occur in the light via either C-3 or C-4 pathways. Generally the least productive of the three photosynthetic pathways. See also “photosynthesis”.

Calcareous soil – Soil containing sufficient free calcium carbonate (lime) or calcium magnesium carbonate (dolomite) to effervesce visibly when treated with cold 0.1 M HCl in water. Excess level may affect plant growth and/or which plants may grow.

Calyx – Outermost whorl of modified leaves in a flower, usually green, but sometimes-showy colors.

Cambium – The layer of cells between the inner bark and wood of a tree or shrub where cell division takes place.

Candle – The new bright green and tender shoot growth all conifers produce in the spring.

Canopy – The vertical projection downward of the aerial portion of vegetation, usually expressed as a percent of the ground so occupied. 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 canopy are included.

Capsule – A fruit structure consisting of two or more chambers.

Carrier - A liquid or solid material added to a chemical compound or seed to facilitate its application in the field.

Catkin – A scaly-bracted spike of unisexual flowers.

Center of diversity - The geographic region in which the greatest variability of a species occurs. A primary center of diversity is the region of true origin and secondary centers of diversity are regions of subsequent spread of a species.

Center of origin - The geographic region containing a concentration of genetic diversity of one or more species; also called a gene center.

Certified seed - The progeny of Breeder, Foundation, or Registered seed that is so handled as to maintain satisfactory genetic identity and purity and that has been approved and certified by the certifying agency. Certified tree seed is defined as seed from trees of proven genetic superiority, as defined by the certifying agency, produced so as to assure genetic identity. See also “seed certification classes”.

Chaining (Cabling) - The use of a large cable or chain pulled between two large tractors (usually crawler tractors) to pull down or uproot brush. Chaining uses a large ship anchor chain with each chain link weighing 80 to 100 pounds.

Chasmogamous – Plant type in which the perianth of flowers opens for pollination to occur. See also “cleistogamous”.

Chlorosis – A leaf symptom due to mineral deficiencies where the leaf will remain green next to the veins and become yellow from the margins inward.

Chlorophyll – The green photosynthetic substance in plants which allows the capture of solar energy.

Ciliate – Fringed with hairs on the margin.

Cleistogamous – plant type in which flowers self-pollinate inside the closed buds.

Climax (climax plant community) – (1) The final or stable biotic community in a successional series that is self-perpetuating and in dynamic equilibrium with the physical habitat; (2) the assumed end in succession. See also “historic climax plant community”.

Cline – a gradual morphological or physiological change in a group of related organisms across their range, usually associated with environmental or geographic transition.

Clone - A group of genetically identical plants produced by vegetatively propagating a single plant over one or more vegetative generations.

Clump planting – A soil bioengineering technique commonly using large equipment to dig and transplant both root clump and top growth of willow and other live woody plants from one location to another to protect an eroding bank.

Cold stratification – Keeping seed in a cool, moist environment for a period time to simulate over-wintering thereby reducing dormancy and increasing seed germination.

Combining ability – In general, the average performance of a strain in a series of crosses. More specifically, deviation from performance predicted on the basis of general combining ability.

Commercial seed - Seed produced by commercial industry; may or may not be recognized improved varieties of seed.

Common seed - Non-certified seed. Such seed may be a named variety but are not grown under the certification program. Also a term applied to seed that cannot be identified as to variety; sometimes used to denote local strains resulting from natural selection.

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

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 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 along with another crop; used particularly for small grain with which a forage crop is sown. Companion crop is preferred to the term “nurse crop.”

Compatible - Compounds or formulations that can be mixed and applied together without undesirably altering their separate effects. This term can be applied also to species mixtures.

Competition – A process of struggling between 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.

Compound – A leaf that is made up of more than one leaf blade, termed leaflets.

Composite - The combining of genetic material from several sources. This is one of the alternatives of the mass selection technique and should not be confused with a polycross. See also “mass selection” and “polycross”.

Concentration - The amount of active ingredient or acid equivalent in a given volume of liquid or in a given weight of dry material.

Conical – Cone shaped.

Conifer – A tree belonging to the Order *Coniferales* which is usually evergreen, cone-bearing and with needle, awl or scale-like leaves such as pine, spruce, fir, and cedar. Often referred to as “softwood.”

Coniferous – Cone bearing trees and shrubs.

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, uses, and development within its boundaries. Often called Soil Conservation District, Soil and Water Conservation District, or Resource Conservation District.

Conservation Field Trial - Identified in the NRCS General Manual 450-403 as a tool for evaluating new technology, species, or plant releases that address local soil and water resource problems; type of study used by many disciplines; in the PM program may be used to develop new technology, evaluate releases, and promote PM products; typically coordinated by the PMS; qualitative or quantitative data may be collected.

Constructed Wetland System – A series of wetland cells designed and constructed to remove pollutants such as sediment and nutrients from surface water using wetland plants. Cells may include a sediment basin, primary vegetative filter, shallow wetland, deep-water pond and/or vegetative polishing filter.

Contact herbicide - A herbicide that kills a plant primarily by contact with plant tissue rather than by translocation.

Containerized stock - Plant materials grown in containers.

Convex – Curved like outer surface of a sphere.

Cool-season plant - A plant that makes its major growth during the cool part of the year, mainly in spring but in some localities in the fall or winter (C-3 plant).

Cooperative Agreement - A written document evidencing the intent of two or more parties to cooperate in an undertaking that will result in mutual benefit to the parties concerned. The parties work jointly in the undertaking -- not each working within its own sphere of work and authority as under a memorandum of understanding relationship. The cooperative agreement is a fiscal document, and the period of time covered must not exceed the period for which funds are available for obligation.

Coppice – To regrowth wholly or mainly from sprouts.

Corymb – Flat-topped or convex flower cluster, outer flowers opening first.

Cover crop – Close-growing crop grown primarily for the purpose of protecting and improving soil between periods of regular crop production.

Cover type - The existing vegetation of an area.

Crenate – Toothed with round, shallow teeth.

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

Cross pollination - The transfer of pollen from one flower (artificially or naturally) to the stigma of another; may occur on the same plants or on different plants, depending on the species and other conditions.

Crossing-over - The exchange of corresponding segments between chromatids of homologous chromosomes during meiotic prophase. The genetic consequence is the recombination of linked genes.

Crown – The branches and foliage of a tree, the upper portion of a tree.

Crown Cover – The canopy of green leaves and branches formed by the crowns of all trees present in a forest.

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

Crude Protein – A calculated portion from the nitrogen content of a feed, both true and nonprotein nitrogen such as free amino acids, amides of amino acids, and ammonium salts or urea.

Cryptogam – A plant in any of the groups Thallophytes, Bryophytes, Pteridiophytes – mosses, lichens, and ferns.

Culm – The stem of a grass that has elongated internodes between nodes (joints).

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 - The international term cultivar denotes an assemblage of cultivated plants that is clearly distinguished by any characters (morphological, physiological, cytological, chemical, or others) and when reproduced (sexually or asexually), retains its distinguishing characters. The term is derived from “cultivated variety”, or their etymological equivalents in other languages. For cultivated plants, the term cultivar is the equivalent of a botanical variety, in accordance with the International Code of Nomenclature of Cultivated Plants 1980. Usage: cultivar names are not italicized, and are indicated by single quotes at first use, or the word cultivar (but not both). The abbreviation cv. is properly used only with a binomial name: Genus species cv. cultivar name. Omit the abbreviation if single quotes are used: Genus species ‘cultivar name’.

Cultural evaluation - Studies designed to obtain information regarding establishment, management and production of plant materials. They may be conducted on or off the center at any stage of the evaluation process.

Cultural practices – The practices commonly performed to prepare a site for seeding or planting.

Cuneate – Wedge shaped.

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

Cutting – A soil bioengineering technique using unrooted branches from 18-70 inches (or longer) long of live willow, cottonwood, dogwood, or other species. These cuttings are placed into the soil resulting in sprouting and rooting of the material to stabilize a bank.

Cyme – Flat-topped flower cluster, central flower opens first.

Damping off – The rapid rotting of seed 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, a common tree measurement.

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

Decurrent – Spreading branches, lacking a central leader.

Defoliation – The loss of leaves or foliage on a plant or tree.

Defoliant - A compound that causes the leaves or foliage to drop from a plant.

Dehiscent – Splitting open along seed capsule or pod to emit individual seeds

Demonstration plantings - A planting used primarily to promote use and acceptance of new technology or releases; commonly no evaluations are completed and no data is collected.

Dentate – Teeth along leaf margins are pointed outward.

Den tree – A hollow tree used as a home by a mammal.

Deposition tolerance – A plants ability to tolerate burying by soil commonly silt via flooding or sand via wind deposition.

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.

Desiccant - A compound that promotes dehydration or removal of moisture from plant tissue.

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

Dicotyledon (dicot) – A member of the *Dicotyledonae*; one of two classes of angiosperms usually characterized by the following: two seed leaves (cotyledons), leaves with net venation.

Dieback – The progressive dying, from tip downward, of twigs, branches or tops.

Diluent - Any liquid or solid material serving to dilute an active ingredient in the preparation of a formulation.

Dioecious - Having staminate and pistillate flowers occurring on different plants, that is, having distinct male and female plants (e.g. buffalograss). Male and female flowers on separate plants.

Diploid - Having two chromosomes of each kind. Having the basic chromosome number doubled.

Direct application - Method of applying chemicals or fertilizers directly to a restricted area, such as a row or a bed at base of plants.

District Seed Increase (DSI) – Providing plant material center Foundation seed through a conservation district to a district cooperator for the increase of that seed. Commonly used for new releases to speed the availability of seed on the commercial market.

Disturbed Area - An area that has been disturbed by mining or other activities. This includes the area from which overburden, vegetation, topsoil, tailings, waste materials, minerals, or coal have been removed and placed. It also includes tailings ponds, waste dumps, roads, conveyor systems, leach dumps and all similar excavations or coverings that have resulted from mining operations.

Diversity - The distribution and abundance of different plants and animal communities within an area. Also a measure of the number of species and their relative abundance within a given association of organisms. Areas of high diversity are characterized by a great variety of species; usually relatively few individuals represent any one species. Areas with low diversity are characterized by a few species; often relatively large numbers of individuals represent each species.

Dominant vegetation – 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.

Dormancy – (1) An internal condition of the chemistry or stage of development of a viable seed that prevents its germination, although temperature and moisture are adequate for growth. (2) A living plant that is not actively growing aerial shoots.

Dormant seeding - Planting seed during late fall or early winter after temperatures become too low so that seed germination occurs the following spring.

Doubly serrate – Many large and small serrations's along the leaf margin.

Drift – Vegetative material moved and deposited by wind and water.

Drill seeding – Planting directly into the soil with a machine in rows, usually 6 to 48 inches apart.

Drought tolerance – The ability of a plant to withstand lack of rainfall for a portion of the year or for extended periods, sometimes multiple years.

Drupe – Fleshy fruit with a pit or stone.

Dry matter – The amount of biomass (i.e. feed or clippings) remaining after all free moisture is evaporated out. The biomass may be artificially dried in an oven at 100 – 105⁰ C.

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

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

Ecocline - Series of biotypes within a species that shows a genetic gradient correlated with a gradual environmental gradient.

Ecological niche - Role of an organism in an ecological system. Includes the physical space in a habitat occupied by an organism; its functional role in the community (e.g., its trophic position); and its position in environmental gradients of temperature, moisture, pH, soil, and other conditions of existence.

Ecological optimum - The most favorable conditions in the environment for the growth and reproduction of an organism.

Ecological race - Group of local populations within a species in which individuals have similar environmental tolerances. Wide-ranging species may consist of many ecological races.

Ecological response unit - A unit of land that is homogeneous in character such that similar units will respond in the same way to disturbance or manipulation. Syn. ecological site, ecological type.

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

Ecological status - (1) The present state of vegetation and soil protection of an ecological site in relation to the potential natural community for the site. Vegetation status is the expression of the relative degree of which the kinds, proportions, and amounts of plants in a community resemble

that of the potential natural community. If classes or ratings are used, they should be described in ecological rather than utilization terms. For example, some agencies are utilizing four classes of ecological status ratings (early seral, midseral, late-seral, potential natural community) of vegetation corresponding to 0-25%, 26-50%, 51-75%, and 76-100% of the potential natural community standard. Soil status is a measure of present vegetation and litter cover relative to the amount of cover needed on the site to prevent accelerated erosion. This term is not used by all agencies. (2) The present state of vegetation and soil protection of an ecological site in relation to the historic climax plant community for the site. Vegetation status is the expression of the relative degree of which the kinds, proportions, and amounts of plants in a community resemble that of the historic climax plant community. If classes or ratings are used, they should be described in ecological rather than utilization terms.

Ecological system - See “ecosystem”.

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

Ecophene - Plants differing in appearance, especially in the size of vegetative parts, numbers of stems, erectness, and reproductive vigor but belonging to essentially homogeneous genetic stock. Their distinctness is due entirely to environmental influences, for when different ecophenes are transplanted into the same habitat these differences disappear.

Ecosystem - Energy-driven complex of one or more organisms and their environment. Organisms together with their abiotic environment, forming an interacting system, inhabiting an identifiable space. The whole system, in the sense of physics, including not only the organism complex, but also the whole complex of physical factors forming what we call the environment. The complex of living and nonliving components in a specified location that comprise a stable system in which the exchange of material follows a circular path such as a biome. A community of organisms and the environment in which they live. A system of ecological relationships in a local environment, including relationships between organisms, and between the organisms and the environment itself. Syn.: ecological system.

Ecotone - Transitional zone between two vegetational types or vegetational regions. A transition area of vegetation between two communities, having characteristics of both kinds of neighboring vegetation as well as characteristics of its own. Varies width depending on site and climatic factors. A transition line or strip of vegetation between two communities, having characteristics of both kinds of neighboring vegetation as well as characteristics of own.

Ecotype - (1) A population of plants that has become genetically differentiated in response to the conditions of a particular habitat. The plants may vary in growth habit, maturity, and other characteristics such as pubescence and flower color. Sometimes referred to as a geographical race. (2) A transition area of vegetation between two communities, having characteristics of both kinds of neighboring vegetation as well as characteristics of its own. Width varies depending on site and climatic factors. Transition zone between two vegetation types or vegetation-type regions. (3) A transition line or strip of vegetation between two communities,

having characteristics of both kinds of neighboring vegetation as well as characteristics of own. (4) A locally adapted population within a species which has certain genetically determined characteristics; interbreeding between ecotypes is not restricted. (5) A variety or strain within a given species that maintains its distinct identity by adaptation to a specific environment. (6) A locally adapted population of a species which has a distinctive limit of tolerance to environmental factors. (7) A variant type within an ecospecies.

Ecovar - The offspring of native species that have been developed from original plant material collected from a specific ecological region. Selection is done with minor emphasis on improving agronomic characteristics, and major emphasis on maintaining genetic diversity. See also “ecotype”.

Educational Plantings – Plantings designed to introduce the establishment and uses of new or potential releases to the public. Educational plantings show one or more conservation practice uses for the plant material, possibly in comparison to a standard cultivar or species; plantings may be established on or off-center. See also “demonstration plantings”.

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 the adjoining communities on the population structure within the margin zone.

Elliptic – Longer than wide with rounded ends.

Emulsifying agent - A surface-active material that facilitates the suspension of one liquid in another.

Emulsion - The suspension of one liquid as minute globules in another liquid; for example, oil dispersed in water.

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

Endocarp – The inner layer of the pericarp of a seed, e.g. stone fruit.

Entire margin – Unbroken, without teeth or lobes.

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

Environmental range - Range of environmental conditions in which, at a given time, the members of a species live.

Epicormic branching – Branches which grow out of the main stem of a tree, arising from buds under the bark. Increases knottiness, thus reducing the quality of sawn lumber.

Epinasty - Increased growth on the upper surface of a plant organ or part (especially leaves) that causes it to head downward.

Epithet - The final word or combination of words in a name that denotes an individual taxon.

Erose – Irregularly toothed or eroded.

Evapotranspiration – The actual 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, commonly on a two to three year cycle.

Excurrent – Tree growth is pyramidal, similar to spruce tree, central leader.

Exfoliate – The natural habit of trees for the bark to peel off in shreds or thin layers.

Exotic – (1) A term describing an organism introduced from another country or continent. (2) An organism or species that is not native to the region in which it is found.

Exposure – see aspect.

Facine – see willow bundle.

Facultative weed - Weed found growing both wild and in association with human activity.

Fascicle – A small bundle, e.g., 2 to 5 needles per cluster in pines.

Fiberschine – A soil bioengineering technique using coconut-fiber filled rolls that are planted with wetland plant plugs and hardwood cuttings. The fiberschine is placed at the toe of the slope to protect and stabilize an eroding.

Fibrous root system – A plant root system having a large number of small, finely divided, widely spreading roots, but no taproots. Typified by grass roots.

Field Evaluation Planting (FEP) - Old name for off-center evaluations; term not currently used by the PM program. See “off-center evaluations”.

Field Plantings (FP) - Final stage of technology development or plant selection; plantings used primarily by Plant Materials Specialists to develop new methods or technology or evaluate the adaptability of new releases; data is collected and analyzed statistically.

Field-Scale increase - The reproduction of plant materials for use in field plantings and by cooperating agencies to obtain the final data needed to determine the feasibility of a variety release.

Filament – Portion of the stamen composing the stalk.

Fireblight – Bacterial disease causing leaves of susceptible plants to blacken but remain attached to the twigs. Affects pear, apple, crabapple, cotoneaster, and mountain ash.

Firm seed - Seed, other than hard seed, that neither germinates or decays during a prescribed test period under prescribed test conditions. Firm ungerminated seed may be alive or dead.

Fissures – Pertains to furrows created in bark as the tree grows.

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

Flood tolerance – A plants ability to withstand water inundation for periods ranging from days to months.

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

Foliage – The green or live leaves of plants.

Foliar cover – The percentage of ground covered by the verticle 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.

Follicle – A dry, dehiscent fruit developed from a simple ovary and splitting along one suture.

Food reserves – The excess carbohydrates in plants produced during photosynthesis and stored in a readily available form in the various plant parts. Depending on forage species, they may be stored in the roots, stem bases, stolons, or rhizomes. Often erroneously called root reserves.

Forage – All browse and herbage that is available and acceptable to grazing animals, or that may be harvested for feed purposes.

Forb - Any non-woody plant that is not a grass, sedge, or rush.

Forestland – Land on which the historic climax plant community is dominated by trees.

Foundation seed – The progeny of breeder seed that is so handled as to most nearly maintain specific genetic identity and purity. Production may be carefully supervised by the originating agency and approved by the certifying agency, the agricultural experiment station, or both. See also “seed certification classes”.

Frost crack – A verticle split in wood of a tree, generally near the base of the bole, from internal stresses and low temperatures.

Frost-free period - The period, number of days or both between the last frost in spring and the first frost in fall.

Fruit – The ripened ovary or ovaries of a seed bearing plant, along with its accessory parts, containing the seeds and occurring in numerous forms.

Furrowed – Having longitudinal grooves or fissures.

Gall – A pronounced swelling or outgrowth on a plant.

Gene bank - A storage facility where germplasm is stored in the form of seeds, pollen, or in vitro culture, or in the case of a field gene bank, as plants growing in the field.

Gene flow - The transfer of genes from one population to another. See also “genetic flow”.

Gene frequency - The relative frequency with which a particular gene is present in a particular population of a species or other group.

Gene pool - The total stock of genes in a breeding population, with each gene representing a number of alleles. See also “genetic pool”.

Genetic diversity - The total amount of genetic variation present in a population or species. Having a heterogeneous constitution, reacting differently to diverse external condition. (Applied to a breeding population, variety, or species.). The genetic constitution of an individual or group.

Genetic drift - Chance occurrences in small populations, which lead to, changes in gene frequencies from generation to generation. The tendency, within small interbreeding populations, for heterozygous gene pairs to become homozygous for one allele or the other by chance rather than by selection. A change in gene frequency that occurs in small populations as a result of random sampling error during reproduction. The fluctuation in gene frequency occurring in an isolated population, presumably due to random variations from generation to generation.

Genetic engineering - The use of in vitro techniques to produce DNA molecules containing novel combinations of genes or other sequences in living cells that make them capable of producing new substances or performing new functions. Usage: A popular term for such technologies as a whole.

Genetic erosion - The loss of genetic diversity between and within populations of the same species over time; or a reduction of the genetic base of a species due to human intervention, environmental changes, etc.

Genetic flow - The exchange of genes between different populations. Also termed migration, it is considered to be a source of genetic variation. A single introduction of genes into a new population is known as gene exchange. If gene migration is constant and recurrent it is known as gene flow. The closer populations are related spatially and genetically, the more likely the chances of gene flow.

Genetic pool - The totality of genes and gene complexes of a given population at a given time. The sum of all genetic information carried by all individuals of an interbreeding population. All of the alleles of all the genes in a population.

Genetic shift - A change in the germplasm balance of a cross-pollinated variety, usually caused by environmental selection pressures.

Genetic vulnerability - Having a narrow range of genetic diversity and reacting uniformly to diverse external conditions. (Applied to breeding populations of varieties or species).

Genotype - The genetic constitution of an individual or group of plants. Individual plants may vary in appearance (phenotypically), but they must have the genetic characteristics of the

genotype. The genetic constitution, latent or expressed, of an organism, as contrasted with the phenotype. The sum total of all genes present in an individual.

Geographic range - Geographic limits of the ecological range; geographic extent of actual occurrences of a species.

Germination - The initiation of growth by the embryo and development of a young plant from seed.

Germplasm – Genetic material that determines the morphological and physiological characteristics of a species.

Glabrescent – Becoming hairless at maturity.

Glabrate – Nearly glabrous or becoming glabrous with age.

Glabrous – Without hair, smooth.

Glandular – Small, usually shiny bumps on the surface.

Glaucous – slightly glaucous.

Glaucous – Covered with a waxy bloom or whitish material that rubs off readily.

Globose – Spherical.

Graminoid – Grass or grass-like plants.

Grass – A member of the family Poaceae (Gramineae)

Grassland – Land on which the vegetation is dominated by grasses, grass-like plants, and/or forbs.

Grass-like plant – A plant of the Cyperaceae or Juncaceae families that vegetatively resembles a true grass of the Gramineae family.

Grex - A collective term applies to the progeny of an artificial cross from known parents; each and every crossing of any two parents belonging to different taxa that bear the same pair of specific, intraspecific, interspecific, grex, or cultivar epithets.

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

Green manure crop – A crop that is plowed under while still living to increase organic matter in soil.

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

Growing season - (1) The period, number of days, or both between the last frost in spring and the first freeze threshold temperature of the crop or other designated temperature threshold. (2) The amount of time a plant is able to actively grow.

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

Growth rate – The volume, value, or other types of increase in plants, e.g., trees and shrubs expressed in terms of number of rings per inch.

Growth rings – The layers of wood laid down each growing season (annual rings).

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

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

Hardiness – The ability to survive exposure to harsh conditions.

Hard wood – A term used to describe broadleaf, usually deciduous, trees such as oaks, maples, ashes, elms, etc. It does not necessarily refer to the hardness of the wood.

Hard seed – See Seed, hard.

Heartwood – The inner core of a woody stem, wholly composed of nonliving cells and usually differentiated from the outer enveloping layer (sapwood) by its darker color.

Hedging – The persistent browsing of terminal buds of browse species causing excessive lateral branching and a reduction in main stem growth. Also resulting in highlining in some species where buds no longer grow and are above the level available to browsing animals.

Heel-in – To store young trees prior to planting by placing them in a trench and covering the roots or rooting portions with soil.

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

Herbaceous - A vascular plant that does not develop woody tissue.

Herbage – Total above ground biomass of plants including shrubs regardless of grazing preference or availability.

Herbicide – A chemical which kills herbaceous (non-woody) plants.

Heritability - The proportion of observed variability due to heredity; the remainder is due to environmental causes.

Heterosis - Hybrid vigor such that the F₁ hybrid falls outside the range of the parents with respect to some character or characters.

Heterozygous - Having unlike alleles at one or more corresponding loci (such as Yy).

Hispid – Covered with bristly hairs.

Historic climax plant community – (1) The original natural plant community that represents the final or highest stable level in a successional series that is in dynamic equilibrium with ecosystem components - soils, vegetation, climate, etc. The assumed end point in primary as well as secondary succession. (2) 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. Synonym-Climax Plant Community. See Climax.

Homozygous - Having alike alleles (such as YY). An organism may be described as homozygous at one, several or all loci.

Horizontal bundles – A soil bioengineering technique using bundles of willow cuttings placed in a horizontal trench along the toe of an eroding slope. Approximately half of the bundle is placed in the ground and the other half is exposed to the water and air. These bundles will protect the toe of the streambank and if planted properly, sprout branches and roots to help stabilize the bank.

Horticultural annual - A biennial or perennial, which may be treated as an annual in parts of the country where the usually persistent plant parts do not survive more than one growing season.

Humus layer – The top portion of the soil that owes its characteristic features to its content of organic matter.

Hybrid - offspring of a cross between genetically dissimilar individuals. First-generation progeny resulting from the controlled cross-fertilization between individuals that differ in one or more genes.

Hybrid vigor – the increased performance (rate of growth/gain) associated with F1 cross-breeding.

Ice-cream species – A slang term used to indicate obvious grazing preference by grazing animals. Such species are the first grazed and are often over-utilized by a grazing animal.

Imbricate – Overlapping, like shingles on a roof.

Imperfect flower type – Lacking stamens or pistils, but not both.

Impressed – Bent inward, furrowed as if by pressure.

Improved pasture – Grazing land permanently producing introduced or domesticated native forage species that receives varying degrees of cultural treatment to enhance forage quality and yields.

Inconspicuous – Small, not readily noticed by the naked eye.

Increase plantings – Production of seed or other reproductive parts of plant material to be made available for use in evaluations, field plantings, demonstration plantings, educational plantings or for distribution. See also “initial increase”.

Incurved – Curved inward.

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.

Indigenous - Born, growing, or produced naturally (native) in a specified area, region, or country.

Infestation – Invasion by large numbers of parasites, pests, weeds or other unwanted species.

Infiltration – The downward entry of water into the soil. This is distinct from percolation, which is movement of water through soil layers or material.

Initial Evaluation (IE) - The evaluation of the characteristics and comparative performance of an assembly of plants under controlled conditions so that promising plants can be selected for further evaluation.

Initial increase - The production of small quantities of seed or other reproductive parts of materials selected from initial or advanced evaluations to be used for further evaluation and exchange.

Insecticide – Any chemical used to destroy insects and other small invertebrates.

Insipid – lacking taste, smell or quality; dull.

Inter-Center Strain Trial (ICST) - Controlled, repeatable evaluations where scientific methods and experimental designs are used to study plants and techniques. Used to determine state and regional plant performance and adaptation.

Internode – Part of stem between two nodes.

Interplant – To set young trees among existing forest growth of similar age and/or size, planted natural, to bring the stand to a fully stocked condition.

Interseeding - Seeding into established vegetation cover. Often involves planting seeds into the center of narrow seedbed strips, commonly of variable spacing prepared by mechanical or chemical methods.

Introduced - A species not part of the original fauna or flora of the area in question, but introduced from another geographical region through human activity. Syn.: exotic. Introduced is not synonymous and should not be confused with the term “invasive species”.

Invader - (1) Plants not a part of the original plant community that invade an area due to disturbance and/or plant community deterioration. (2) Plant species that were absent in undisturbed portions of the original vegetation of a specific range site and will invade or increase following disturbance or continued heavy grazing.

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

Invasive plants – plants that reproduce rapidly and spread aggressively from the area in which they originally occurred or were planted, posing a threat to natural area diversity or managed / agricultural area productivity. See also “Invasive Species”.

Invasive species - A species that demonstrates rapid growth and spread, invades habitats, and displaces other species. Species that are prolific seed producers, have high seed germination rates, easily propagated asexually by root or stem fragments, and/or rapidly mature predispose a plant to being an invasive. Example: The hybrid cattail (*Typha x glauca*), a cross between native cattails is extremely aggressive and out-competes its parents and other native species when established. Introduced species that are predisposed to invasiveness have the added advantage of being relatively free from predators (herbivores, parasites, and disease) and can therefore, expand more energy for growth and reproduction. Invasive species should not be confused with “Introduced Species”.

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

Kind - One or more related species or subspecies that singly or collectively is known by one common name; for example, wheat, vetch and sweetclover.

Lanceolate – Lance shaped, broadest at base of leaf blade. Much longer than broad, tapers to the leaf tip.

Lateral bud – Those buds below the terminal buds where side branches arise.

Layering – A method of propagation in which adventitious roots form on a stem while it is still attached to the parent plant. Occurs naturally with some species, i.e. dogwood species.

Leader – A terminal leader is the uppermost branch or vertical tip of the tree. It eventually becomes the tree stem or trunk.

Leaf area index – Sum of leaf area expressed as a percentage of ground surface. Leaf area index may exceed 100 percent.

Leaflet – A single segment of a compound leaf.

Leaf margin – Refers to the leaf edge.

Leaf scar – The mark that remains where a leaf falls off a twig.

Leggy – Pertains to over growth of trees or shrubs where stem growth is lengthened and weak. Devoid of lateral branches.

Lenticel – A breathing pore in young bark, appearing as a light colored, often lens shaped, dot, e.g. birch.

Life form – Characteristic form or appearance of a species at maturity, e.g., tree, shrub, forb, grass, etc.

Limited generations - A restriction placed by the developer on the number of generations through which a variety may be sold by variety name.

Line - A group of individuals of common ancestry. Genetically, a more narrowly defined group than a strain or a variety.

Liner - Plant material which is grown in one location and then “lined-out” in another location for finishing off. Plants may be started in seedbeds and lifted bare-root or grown in containers. Either type of these liners may be finish their production cycle in the ground or in containers.

Linkage - Association of genetic factors; the genes are in the same chromosome.

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

Local native - A genetically local source that originated at or within the same seed zone and elevation band as the project site (planned planting). See also “range site” and “woodland site”.

Local population - Group of individuals of the same species growing near enough to each other to interbreed and exchange genes.

Long Range Plan (LRP) - A plan, which directs plant materials activities of the PMC or within a state or the PMC service area.

Main Stem – The portion of a tree between ground level and the division into major branches, usually referred to as the bole.

Major Land Resource Areas (MLRA) – A system of land classification composed of geographically associated land resource units; MLRAs are important in agricultural and other types of regional planning. Land resource units are geographic areas, usually several thousand acres in extent that are characterized by a particular pattern of soils, climate, water resources and land uses.

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

Marsh – A flat, wet, treeless area usually covered by standing water at least part of the year and supporting, grasses, grass-like, water loving forbs.

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

Mass selection - Selection of individual plants and propagation of the next generation from the aggregates of that seed.

Meadow – An area of perennial herbaceous vegetation, usually grasses or grass-like, used primarily for hay production.

Mesa – A flat-topped mountain, or other elevation bounded on at least one side by steep cliff.

Memorandum of Understanding - A written instrument evidencing the intent of two or more parties to cooperate in carrying out an undertaking that will result in mutual benefit to the parties concerned. Each party works within its own sphere of work and authority. It is not a fiscal document used as a basis for obligating funds. It may run for an indefinite time or be limited.

Mineral - Any ore, rock, or substance (other than oil, gas, or uranium) that is taken from below the surface or from the surface of the earth for the purpose of milling, concentration, refinement, smelting, manufacturing, or other use or for stockpiling for future use.

Miscible liquids - Two or more liquids capable of being mixed; they will remain mixed under normal conditions.

Mixture - More than one kind of seed or variety; each is present in excess of 3 percent of the whole.

Monocotyledon (monocot) – A member of Monocotyledonae; one of two classes of angiosperms, usually characterized by: one seed leaf (cotyledon), leaves with parallel venation, root systems arising adventitiously and usually diffuse (fibrous).

Monoecious - Staminate and pistillate flowers borne separately on the same plant.

Morphology - A branch of biology dealing with the form and structure of organisms.

Mott – A group of trees and/or shrubs.

Mottled – An irregular spotting or alternating color on leaves, stems, and other plant parts.

Mucronate – Abruptly terminated by a short, sharp leaf tip.

Mulch – (1) A layer of dead plant material on the soil surface. (2) An artificial layer of material, such as plastic or paper, on the ground surface. (3) Cultural practice of placing rock, straw, paper, plastic, or other material on the soil surface. Commonly used to improve surface conditions to establish desired vegetation.

Native grazing land - Land used primarily for production of native forage plants maintained or manipulated primarily through grazing management. Native grazing land includes grazed rangeland, grazed forestland, and native and naturalized pasture, individually or collectively.

Native plant - See “native species”.

Native species – (1) A species which is a part of the original fauna or flora of the area in question. (2) A native plant species is one that occurs naturally in a particular region, state, ecosystem, and habitat without direct or indirect human actions. Climate, soil, and biotic factors determine its presence and evolution in an area. Synonyms of native include indigenous, endemic, aboriginal.

Natural potential - Occasionally used as synonym for climax with reference to range vegetation.

Naturalized plant - A plant introduced from other areas that has become established in and more or less adapted to a region by long, continued growth. See also “naturalized species”.

Naturalized species - A species introduced from other areas that has become established in and more or less adapted to a region by long, continued growth there. Does not require artificial inputs for survival and reproduction, and has established a stable or expanding population. Examples: cheatgrass, Kentucky bluegrass, starling, etc.

Needle – Elongate, linear, sharp-pointed leaf.

Node – Joint on a stem, represented by point of origin of a leaf or bud.

Nonselective herbicide - A chemical that is toxic to plants, generally without regard to species.

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 (see noxious weed).

Noxious weed - A weed arbitrarily defined by law 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. Definition varies according to legal interpretations.

Nurse crops - See “companion crop”.

Oblique – Lop-sided, one side of leaf base is larger, wider or more rounded than the other.

Oblong – Two-three times longer than broad.

Obovate – Inversely ovate.

Obovoid – Leaf shape that is inversely egg-shaped or obovate.

Obtuse – Rounded, approaching semi-circular.

Off-Center Evaluations - Plantings used by PMCs to evaluate releases or technology off the center; data is collected and analyzed statistically; was previously named “field evaluation planting.”

On-Center Evaluations - Plantings done on the PMC to evaluate new technology or new plant selections; data is collected and analyzed statistically.

Open pollination - Natural, as opposed to controlled, pollination. Open pollinated seed contrasts with hybrid seed.

Opposite – Buds or leaves growing in pairs but separated by a stem.

Oval – Twice as long as broad, widest at the middle, both ends rounded.

Ovate – Egg shaped in outline, narrower at the tip.

Overstory – The canopy in a stand of trees. In contrast to the understory, which is low growing woody or herbaceous vegetation, forming a layer beneath the overstory.

Ovoid – Three dimensional, egg shaped.

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

Palmate – With three or more lobes, veins or leaflets arising from one point, often five to seven.

Panicles – Loose, irregular compound flower clusters.

Pasture – Grazing land comprised of introduced or domesticated native forage species that are used primarily for the production of livestock. They receive periodic renovation and/or cultural treatment such as tillage, fertilization, mowing, weed control, and may be irrigated.

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

Pectinate – Like a comb, with many or few narrow pinnate divisions.

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

Peduncle – Primary flower stalk.

Pendulous – Hanging down, drooping.

Perennial - A plant that lives more than 2 years.

Perfect (flower type) – Having both functional stamens and pistils.

Pericarp – Sometimes used to designate a fruit, technically the ovary wall.

Performance Trial – A planting designed to test a potential plant release for reliability in a particular conservation application. May require multiple plantings and/or off-center sites. Standards for comparison are to be included if available.

Persistent – Hanging on through winter or long period of time, e.g. plant parts: fruit, seeds, leaves, etc.

Petiole – The stalk of a leaf.

pH – The measure of the acidity or alkalinity of soil. Descriptive terms commonly associated with certain ranges in pH are: extremely acid <4.5; very strongly acid 4.5-5.0; strongly acid 5.1-5.5; moderately acid 5.6-6.0; slightly acid 6.1-6.5; neutral 6.6-7.3; slightly alkaline 7.4-7.8; moderately alkaline 7.9-8.4; strongly alkaline 8.5-9.0; and very strongly alkaline >9.1.

Phenology - A branch of science dealing with the relationship between climate and periodic biological phenomena. Also dates or sequence of occurrence of different growth stages of plants.

Phenotype - (1) The external appearance or discernible characteristics of an organism, resulting from interaction between an organism's genetic makeup (genotype) and the environment. A group of individual plants may appear alike (phenotypically) but not have the same genotype, or they may vary in appearance and have the same genotype. (2) Observable characteristics.

Phloem – The tissue in higher plants which transports organic nutrients manufactured in leaves to other portions of the plant.

Photosynthesis - The metabolic pathway by which plants produce food. See also “C-3 plants”, “C-4 plants”, and “CAM plants”.

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

Pilose – Long, soft hairs.

Pinnate – Compound leaf with leaflets on either side of central axis.

Pioneer species - The first species or community to colonize or recolonize a barren or disturbed area in primary or secondary succession.

Pith – Spongy center of a twig; if it has crosswalls, it is called chambered.

Pitting - Making shallow pits or basins of suitable capacity and distribution on range to reduce overland flow from rainfall and snowmelt. Also used in seedbed preparation to aid in collecting water to aid in seed germination and plant establishment.

Plain – A broad stretch of relatively level treeless land.

Plan of Operations (PO) - see 'Business Plan'.

Plantation – An artificially reforested area established by planting or direct seeding.

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

Plant code or symbol – A four or more character code system for identifying either the plant common or scientific name.

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 – The percent growth occurring at a specific location expressed as a monthly percent of total annual production. Growth curves reflect differences in ecological condition.

Plant growth regulator - A substance used for controlling or modifying plant growth processes without severe phytotoxicity.

Plant moisture content – The percent of plant weight that is water.

Plant Variety Protection Act (PVPA) - Approved December 23, 1970, the PVPA offers legal protection to developers of new releases or varieties of plants that reproduce sexually, that is, through seed. Developers of plants that reproduce asexually have received protection from the U.S. Patent Office since 1930. The law states that protection will be extended to a “novel variety” if it has these three qualifications: Distinctness - The variety must differ from all known prior varieties by one or more identifiable morphological, physiological, or other characteristic; Uniformity - If any variations exist in the variety, they must be describable, predictable, and commercially acceptable; and Stability - When sexually reproduced, the variety must remain unchanged in its essential and distinctive characteristics to a degree expected of similarly developed varieties.

Plant vigor – See vigor.

Plumed – Feathery.

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

Polycross - Open-pollination of a group of genotypes (generally selected) in isolation from other compatible genotypes in such a way that each of the original selections has an equal opportunity at pollinating, or being pollinated by, any of the others.

Polygamo-dioecious – Part of flowers are perfect and part are unisexual with male and female flowers on separate plants.

Polygamo-monoecious – Sexual condition in which some perfect and staminate flowers are on the same plant.

Pome – Fleshy fruit with a core, such as an apple.

Population - (1) The aggregate of organisms which inhabit a particular area or region; (2) a (specified) portion of such an aggregate, usually a group of organisms of the same kind occupying an area small enough to allow interbreeding.

Population genetics - A branch of genetics dealing with the frequency and distribution of genes, mutants, genotypes, etc. among populations of organisms. Population genetics is now based upon an increasing input of laboratory and field observations under an array of environments; much of this work involves the documentation and interpretation of genetic variability in natural populations.

Post-emergence - After the emergence of a specified weed or crop.

Post planting – A soil bioengineering technique using large diameter cuttings, normally cottonwood or willow species, to revegetate an eroding bank. These cuttings are placed into the soil resulting in sprouting and rooting of the material to stabilize the bank.

Potential Natural Community - The biotic community that would become established on an ecological site if all successional sequences were completed without interference by man under the present environmental conditions. Natural disturbances are inherent in its development.

Precipitation – Rainfall including snow, hail and sleet.

Pre-emergence - Before the emergence of a specified weed or crop.

Pre-planting - Any time before the crop is planted.

Pristine - A state of ecological stability or condition existing in the absence of direct disturbances by modern man. See also “relict”.

Project - A national PM activity that is broad in nature and serves as an umbrella for PMC studies. Refer to Part 540.51 of the NPMM for more information on PM projects.

Project Statement - A document that outlines the details of a National PM Project. Refer to Part 540.51 of the NPMM for more information on PM project statements.

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

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 a site. Proper use varies with time and system of grazing.

Pruning – The removal of live or dead branches from standing trees.

Prussic acid – A poison, hydrocyanic acid, released when forages contain cyanogenic glycosides and the proper enzymes are chewed by a grazing animal.

Pubescent – Covered with short, soft hairs.

Pure line - Succession of generations of organisms homozygous for all genes.

Pure Live Seed (PLS) - The product of the percentage of germination plus the hard seed and the percentage of pure seed divided by 100.

Purity - (1) The name or names of the kind, type, or varieties and the percentage or percentages thereof. (2) The percentage of other agricultural seed or crop seed; the percentage of inert matters. (3) The percentage of weed seed, including noxious weed seed, and the names of the noxious weed seed and the rate of occurrence of each. **Seed Purity** is the percentage of the desired species in relation to the total quantity, including other species, weed seed, and foreign matter.

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

Race - A term sometimes used to denote ecotypes.

Racemes – Pedicled flowers along one stem.

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

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

Range Condition Class - Confusion has existed regarding both definition and use of this term. The following definition fits the thinking expressed in the definition Range Condition: one of a series of arbitrary categories used to either classify ecological status of a specific range site in relation to its potential (early, mid, late, or potential natural community) or classify management-oriented value categories for specific potentials, e.g., good condition spring cattle range.

Range degradation - The degeneration of a site caused by biotic or abiotic factors, which results in a lowered successional status to the point that ecological potential is changed. See also “Range Site Degeneration”.

Range retrogression - The degradation of a site caused by biotic or abiotic factors which results in movement of the site to a lower successional status within the same ecological potential.

Range seeding - The process of establishing vegetation by the artificial dissemination of seed. Establishing adapted plant species on ranges by means other than natural revegetation. See also “Reseeding”.

Range site - An area of rangeland having the potential to produce distinctive kinds and amounts of vegetation, resulting in a characteristic plant community under its particular combination of environmental factors, especially soils and climate. Each range site is typified by an association of species that differ from that of other range sites in the kind or proportions of species, or in total production. Synonymous with ecological site when referring to rangeland. Some agencies use range site based on the climax concept, not potential natural community. Syn.: Ecological Site.

Range site degeneration - The degradation of a site caused by biotic or abiotic factors which results in an ecological shift to a lower successional status and possibly a lower ecological potential for production. Syn.: retrogression. See also “range degradation”.

Reciprocal cross - A second cross involving the same characters as the first but with the sex of the parents interchanged.

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 objectives or stated goals. The construction of plant, soil, and topographic conditions, after disturbance, which permits the disturbed site to function adequately within its ecosystem. However, the constructed conditions may not be identical to predisturbance conditions. The process of reconverting disturbed lands to their former uses or other productive uses.

Recovery - The rate or amount of regrowth following harvesting of a forage species or following a dormant season.

Recurrent selection - A method of breeding designed to concentrate favorable genes scattered among a number of individuals by selecting in each generation among the progeny produced by intermating of the selected individuals of the previous generation.

Registered seed - The progeny of Foundation seed that is so handled as to maintain satisfactory genetic identity and purity and that has been approved and certified by the certifying agency. This class of seed should be of a quality suitable for production of certified seed. See also “seed certification classes”.

Registered variety - (1) For grasses and agricultural species: A variety accepted, numbered, and registered as a recognized improved variety by the Committee on Varietal Standardization and Registration of the Crop Science Society of America. (2) For other species: A variety, which has been registered with the appropriate International Species Registrar.

Rehabilitation - Return of land to a form and productivity that conforms with a prior land use plan, including a stable ecological state that does not contribute substantially to environmental deterioration and is consistent with surrounding aesthetic values. Improving a site to a more desired condition than previously existed, usually as result of a major disturbance. Implies that the land will be returned to a form and productivity in conformity with a prior land use plan, including a stable ecological state that does not contribute substantially to environmental deterioration and is consistent with surrounding aesthetic values. Synonymous with reclamation.

Rejuvenation – Restore to healthy vigorous growth, often through weed control, pruning, fertilization, irrigation, or treatment for insects and diseases.

Release – To free trees from competition by cutting or otherwise removing or killing nearby vegetation and branches.

Released variety - A new variety of proved value that is made available to the public, according to ESCOP standards, for a conservation purpose. See also “variety”.

Relict - A remnant or fragment of the climax plant community that remains from a former period when it was more widely distributed. See also “pristine”.

Reseeding - A crop variety or inbred line that has been evaluated and made available to the public. To make available to the public. To seed again, usually soon after an initial seeding has failed to achieve satisfactory turf establishment.

Resinous – Sticky with resin.

Restoration – (1) The process of restoring site conditions as they were before land disturbance. Returning a disturbed site to precisely the same state it was prior to the disturbance. This may require rebuilding the soil, precise placement of trees and rocks, and use of only native plants and animals to repopulate the site. (2) The process of restoring site conditions as they were before the land disturbance. Note: restoration involves restoring a site to a specific point in time.

Reticulate – Like a net, netted venation.

Revegetation – (1) Establishing or re-establishing desirable plants in areas where desirable plants are absent or of inadequate density, by management alone (natural revegetation) or by seeding or transplanting (artificial revegetation). Planting reclaimed land with grasses, flowers, shrubs, and trees. (2) The reestablishment or improvement of vegetation through management practices or chemical or mechanical means. (3) To provide a site with vegetation again. Implies that original amounts and types of vegetation of the site are not required. (4) Plants or growth, which replaces original ground cover, following land disturbance. (5) Establishing or re-establishing desirable plants in areas where the plant community is not adequate to meet management objectives by management techniques alone. A general term for renewing the vegetation on a project site. Refers to the vegetation construction phase of reclamation.

Revolute – Stem or leaf rolled lengthwise so as to expose the top side and conceal the bottom side.

Rhizome – A horizontal underground stem that usually sends out roots and above ground shoots from the nodes.

Rhombic – With four nearly equal sides, but unequal angles.

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 recurring, classified, defined and recognizable assemblage of riparian plant species.

Riparian ecosystems - (1) Those assemblages of plants, animals, and aquatic communities whose presence can be either directly or indirectly attributed to factors that are water-influenced or related. (2) Interacting system between aquatic and terrestrial situations, identified by soil characteristics, and distinctive vegetation that requires or tolerates free or unbound water.

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.

Roots – The portion of a plant which is generally underground and which functions in nutrient absorption, anchorage, and storage of food and waste products.

Root wad – a mass of roots with a 12-20 feet length of trunk that is placed into a streambank perpendicular to the flow of the stream with roots in the water. A series of root wads are placed adjacent to each other around a bend to reduce stream velocity, bank erosion and to provide fish habitat. Generally the root wads are dead materials and will not sprout.

Rugose – Rough, covered with wrinkles.

Rufous – reddish brown.

Saline soil – A soil condition in which soluble salts are present in the soil in sufficient quantities to affect the ability of plants to absorb water from the soil. Measured in deciSiemens per meter (dS/M) or millimhos per centimeter (mmhos/cm) the following quantifies the ranges of salinity: <2 not saline; 2-4 very slightly saline; 4-8 slightly saline; 8-16 moderately saline; and >16 strongly saline.

Salt tolerance - Relative ability of a plant to reproduce and grow under saline conditions.

Samara – Dry, one-seeded fruit with a membranous wing.

Scale – Bud covering or tiny, blunt leaf.

Scalping - Removal of vegetation before mining.

Schizocarp – Winged, paired samara-like fruits, e.g. maples.

Scurfy – Scaly or flaky on the surface.

Seed – A fertilized ripened ovule of a flowering plant.

Seed, dormant – Live seed in a non-germinative condition because of internal inhibitions in the seed; i.e., hard seed, or unfavorable environmental conditions.

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

Seedbank – Seed stored in the soil, generally as hard or dormant seed, which are viable and will germinate given 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 germination 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 (and pre-varietal releases) is produced, harvested and marketed under authorized regulation to insure seed of high quality and genetic purity.

Seed certification classes - Classes of seed produced by a grower to ensure the purity of the genetic material. Seed, which undergoes the certification process, is typically inspected during the growing season or at harvest and the seed is tested. Certification classes include: Breeder, Foundation, Registered, Certified, and Common. See also “Breeder seed”, “Foundation seed”, “Registered seed”, “Certified seed”, and “common seed”.

Seed Certifying Agency - General term for the state or other agency responsible for the release and certification of crop varieties and for inspecting and approving seed produced under one of the seed certification classes. Most seed certification agencies are members of the Association of Official Seed Certifying Agencies (AOSCA).

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 lot - A definite quantity of seed identified by a lot number, every portion or bag of which is uniform, within permitted tolerances, for the factors that appear on the labeling.

Seed purity – The percentage of the desired species in relation to the total quality, 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.

Selected Class Release - (1) Seed that is the progeny of rigidly selected seed or stands of untested parentage that has promise but not proof of genetic superiority, and for which geographic source and elevation shall be stated on the certification label. (2) One of the classes of pre-varietal releases recognized by AOSCA.

Selection - Selecting an accession or accessions from an assembly, or individuals from within an accession, to obtain the plants having the best characteristics for a particular conservation use.

Selective herbicide - A chemical that is more toxic to some plant species than to others.

Self pollination - The transfer of pollen from the anther of a flower to the stigma of the same flower, or different flowers on the same plant.

Senesce – The yellowing and withering of older, lower leaves of plants as higher, younger leaves shade them. Nutrients in the older leaves are translocated to younger tissue.

Senescence – Refers to old age, decline in health.

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

Seral community - One of a series of biotic communities that follow one another in time on any given area. Syn. successional community.

Seral stages - The developmental stages of an ecological succession.

Sere - All temporary communities in a successional sequence. The complete series of ecological communities occupying a given area over hundreds or thousands of years from the initial to the final or climax stage.

Serrate – Fine, sharp teeth that point upward or forward along the leaf margin.

Serrulate – Finely saw-toothed leaf margin.

Setose – Leaf margins are covered with bristles.

Sessile – With no stalk or petiole.

Shade tolerance – Relative ability of a plant to reproduce and grow under shade.

Showy – Attractive, pertaining to aesthetic value.

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.

Sinus – The space between lobes.

Slope – A term of measurement in percent indicating the increase in height over distance measured. An increase of one foot over a distance of 5 feet is expressed as a 20 percent slope.

Snag – A standing dead tree used by many species of birds and mammals for feeding, nesting, and cover.

Sod – Vegetation that grows to form a mat of soil and vegetation, i.e., turf.

Sodic soil – A soil with pH >8.5 that contains sufficient sodium to adversely affect plant growth, plant production, and soil structure. Sodic soils may be associated with saline soils.

Sod grass – Stoloniferous or rhizomatous grasses that form a sod or turf.

Sod seeding - Direct drilling of seed into sod of existing vegetation with no mechanical seedbed preparation.

Softwood – Generally, one of the botanical groups of trees that in most cases have needle or scale-like leaves; the conifers; also, the wood produced by such trees.

Soil application - Chemical applied mainly to the soil surface rather than to vegetation.

Soil bioengineering – integrating living woody and herbaceous materials with organic and inorganic materials to increase the strength and structure of the soil.

Soil incorporation - Mechanical mixing of a chemical with the soil.

Soil injection - Mechanical placement of a chemical beneath the soil surface with a minimum of mixing or stirring.

Soil sterilant - A biocide that prevents the growth of plants and kills all living organisms when present in the soil. Soil sterilization effects may be temporary or permanent.

Soil texture – The relative portion of sand, silt, and clay in the soil.

Source-Identified Seed - (1) Source identified propagating materials are seed, seedlings, or other propagating materials collected from natural stands, seed production areas, seed fields, or orchards where no selection or testing of the parent population has been made. (2) One of the classes of pre-varietal releases recognized by AOSCA.

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.

Spoil - Overburden material disturbed or removed from its natural state, or non-ore material removed in gaining access to the ore or mineral material during the mining process. Spoil and mining waste materials are disposed of or piled in waste dumps and/or spoil piles. Spoil is specific to coal mining and Overburden to more specific to hard rock mining.

Sprout – A tree or shrub that grows from the stump or root sucker of a parent plant (not of seed origin).

Spur – A saclike or tubular projection on sepal or petal, or a very short fruiting branchlet on apple, pear, or other woody plants.

Stage of maturity – The development of a forage used to describe a point in time in its progress toward maturity and readiness for harvest of forage, hay, or seed.

Stalked bud - Bud whose outer scales are attached to stalk above the base of the bud axis.

Stamen – Male organ in the flower, pollen bearing.

Stand - (1) A population of plants. (2) Density of population or number of individuals per unit area.

Standard plant - (1) A commonly used species or, if available, variety for the use of which an evaluation is being made. (2) A plant which serves as the standard for comparison.

Stem – The portion of a plant that supports the branches; in trees also called the bole.

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

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

Stomata – Minute openings on the surface of leaves and stems through which gases (e.g., oxygen, carbon dioxide, water vapor) and some dissolved minerals pass into and out of plants.

Stomatiferous – Many pores on the epidermis of a leaf and appearing as many white dots or nodes.

Stone – A hard, one-seeded endocarp of a drupe.

Strain - (1) A group of organisms of common origin having one or more definite morphological or physiological characteristics that are heritable. (2) A term to include breed differences within a species, or as a group of plants differing little, if any, in morphology yet physiologically distinct in some additional quality such as yield or vigor: i.e., the northern and southern strains of smooth brome. Strain also means variety, ecotype, biotype, type, or a group of these.

Striate – With fine longitudinal lines or ridges.

Strobili – Inflorescence marked by scales as in a cone.

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

Study - An activity at a PMC that develops a product to address a conservation need identified in the PMC LRP. A PMC study must be outlined in a study plan and be identified in the PMC Business Plan and Workload Analysis. Refer to Part 540.52 of the NPMM for more information on PMC studies.

Study Plan - A comprehensive document that outlines the details of a PMC study. Refer to Part 540.52 of the NPMM for more information on PMC study plans.

Subcordate – Nearly heart shaped.

Subglobose – Somewhat or nearly round.

Subopposite – A bud/leaf arrangement in which they are close to being opposite from each other, but one is slightly lower than the other.

Subsessile – Nearly stalkless.

Subshrub – A woody or somewhat woody, perennial, winter hardy plant. The stems of which annually die back partially or wholly to ground level. Resprouts every spring.

Subspecies - A grouping within a species used to describe geographically isolated variants, a category above “variety”, and is indicated by the abbreviation “ssp.” in the scientific name.

Succession - (1) The progressive replacement of plant communities on a site which leads to the potential natural plant community, i.e., attaining stability. Primary succession entails simultaneous successions of soil from parent material and vegetation. Secondary succession occurs following disturbances on sites that previously supported vegetation, and entails plant succession on a more mature soil. (2) The progressive development of vegetation toward its highest ecological expression, the climax replacement of one plant community by another.

Sucker (suckering) – A shoot arising from a root or lower part of the stem of a plant. Synonymous with sprout.

Sulfate - A chemical compound containing the sulfate (SO₄) radical. Sulfates are salts or esters of sulfuric acid formed by replacing one or both of the hydrogens with a metal (e.g., sodium) or a radical (e.g., ammonium or ethyl). Sulfates are widely distributed in nature. Barium sulfate occurs as barite; calcium sulfate is found as gypsum, alabaster, and selenite; and Epsom salts is magnesium sulfate.

Sulfide - A mineral compound characterized by the linkage of sulfur with a metal. Some examples of sulfides include galena (with lead), chalcopyrite (with copper), and pyrite (with iron).

Sunscald – A type of winter injury in which the bark on the southwest side of a stem, branch, or trunk is killed.

Suppressed – The condition of a plant characterized by low growth rate and low vigor due to competition.

Surfactant - A material that facilitates and accentuates the emulsifying, dispersing, spreading, wetting, and other surface-modifying properties of herbicide formulation.

Suspension - A system consisting of very finely divided solid particles dispersed in a solid, liquid, or gas.

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

Synergism - Cooperative action of different chemicals or organisms such that the total effect is greater than the sum of the independent effects.

Synthetic variety - Advanced generation progenies of a number of clones or lines (or of hybrids among them) obtained by open-pollination.

Tacking/Tackifying - The process of binding mulch fibers together by the addition of a sprayed natural or artificial chemical agent.

Tailings/Tailing Impoundment - The refuse material resulting from washing, concentrating, or treating ground/crushed ore that is discharged from a mill.

Tailing pond/tailing dam is a pond of water with a constraining wall or dam into which mill effluents (tailings) are deposited.

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

Terminal bud – Bud at the tip or distal end.

Testcross - A cross of a double or multiple heterozygote to the corresponding multiple recessive to test for homozygosity or linkage.

Tested Seed - (1) Seeds or plants which have been through additional testing on more than one generation which will include testing on multiple sites with replicated plots to verify performance and heritability of desirable traits. The material has proven genetic superiority or possesses distinctive traits for which heritability is stable as defined by the certifying agency. (2) One of the classes of pre-varietal releases recognized by AOSCA.

Tetraploid - An organism having four basic sets of chromosomes.

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.

Tomentose – Densely woolly, soft hairs and matted

Topsoil - The upper surface layer of soil, usually darker and richer than the subsoil that is naturally present and necessary for the growth and regeneration of vegetation on the surface of the earth.

Topcross progeny - Progeny from outcrossed seed of selections, clones or lines crossed with a single variety or line that serves as a common pollen parent.

Total annual production – The annual production of a single species or all plant species of a plant community.

Toxic Spoil/Waste - See Acid Spoil. Includes acid spoil with pH below 4.0. Also refers to soil or water having amounts of toxic heavy metals in excess of EPA standards and usually have adverse effects on plant growth. Heavy metals include metals such as aluminum, arsenic, copper, lead, iron, and manganese.

Translocated herbicide - A herbicide that is distributed throughout the plant from the point of entry. Syn. Systemic herbicide.

Transplant – A plant, which has been removed from its original seedbed and replanted one or more times (common in nurseries).

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 grow as either trees or shrubs.

Tree or brush revetment – A soil bioengineering technique using whole trees or shrubs attached together to form a porous barrier to the toe of an eroding bank. The revetment slows the streams current, diverts the current away from the bank, traps sediment from the stream, and reduces sloughing of the eroding bank. Generally the trees or shrubs are dead and will not sprout.

Trend - The direction of change in ecological status or resource value rating observed over time. Trend in ecological status should be described as toward, or away from the potential natural community, or as not apparent. Trend in a resource value rating for a specific use should be described as up, down or not apparent. Trends in resource value ratings for several uses on the same site at a given time may be in different directions, and there is no necessary correlation between trends in resource value ratings and trend in ecological status. Some agencies use trend only in the context of ecological status. Syn. range condition trend. See and “apparent trend”.

Trifoliate - Three leaflets per leaf.

Trilobed – Three lobed, e.g., leaves or fruits.

Trunk – Main stem or bole of a tree.

Truncate – Shape of leaf base that attaches to the petiole, ends abruptly, as if cut off.

Tuber – A short, thickened organ; e.g., potato.

Two ranked – Appearing to come from only two sides of a twig; not equally distributed around the twig, e.g., elm.

Type - A group of varieties so nearly similar that the individual varieties cannot be clearly differentiated except under special conditions. For further information, refer to the Federal Seed Act Rules and Regulations.

Umbel – Flower cluster with peduncles springing from same point.

Understory – Plants growing beneath the canopy of other plants. Usually refers to grasses, forbs, and low shrubs under tree or tall shrub canopy.

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

Usable forage – The portion of the standing forage crop that can be grazed without damage to the forage plant. It varies by species, season of use, and companion plant species.

Use Groups - The artificial grouping for the comparative testing of plant materials having similar uses.

Valvate – Edges coming together without overlapping.

Variety - (1a) The botanical nomenclature division consisting of more or less recognizable entities within species that are not genetically isolated from each other, below the level of subspecies, and is indicated by the abbreviation “var.” in the scientific name (see “botanical variety”); (1b) The rank of taxa below subspecies but above forma; a plant which retains most of the characteristics of the species, but differs in some way such as flower or leaf color, size of mature plant, etc. A variety is added to the specific binomial and preceded by "var.", such as *saxatilis* in the epithet *Juniperus communis* var. *saxatilis*. (2) Term used in some national and international legislation to denominate one clearly distinguishable taxon from another; equivalent to “cultivar”. (Note: the Plant Materials Program does not recognize the terms “variety” and “cultivar” as equivalent.)

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

Venation – Pertaining to the vein pattern in the leaf blades.

Verticle bundle – A soil bioengineering technique using bundles of willow cuttings, placed in verticle trenches along an eroding bank. These cutting bundles extend from the streambed to the top of the bank. The bundles are covered with soil and staked into the bank. The bundles will sprout branches and roots that will help stabilize the bank. This technique allows the planting of woody plant materials in areas where digging is difficult or impractical.

Vesicular – Arbuscular Mycorrhizae Fungi (VAM) or Vesicular Mycorrhizae (VM):
These are symbiotic fungi that live within a plant’s root system. The term “mycorrhiza” means fungus-root. Mycorrhizal fungi produce hyphae (small filament like tubes) that grow within plant roots and extend out into the soil. Also, the fungi produce spores that function as dispersal mechanisms and long term survival agents. The plant provides carbohydrates and other essential nutrients to the fungus that the fungus cannot produce and the fungus provides immobile nutrients such as phosphorus (P), iron (Fe), zinc (Zn) and copper (Cu) as well as mobile nutrients such as nitrogen (N) and calcium (Ca) to the plant.

Vigor – Relates to the relative robustness of a plant in comparison to other individuals of the same or similar species. Primarily the size and perhaps color of a plant and its parts in relation to its age and the environment in which it is growing reflect it.

Warm-season plant - A plant that completes most of its growth during the warm part of the year, generally late in spring and summer (C-4 plant).

Water table – The highest point in a soil profile where water continually saturates the soil on a seasonal or permanent basis.

Water tolerance - Relative ability of a plant to reproduce and grow under saturated or flooded conditions.

Wattle – see willow bundle.

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

Weed barrier material – A weaved carbon based material, commonly used in windbreak and shelterbelt applications to retard or reduce weed growth, weed competition, and to enhance moist retention through reduction in evaporation and competitive use by other plants.

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.

Whorl – A group of three or more leaves at a node.

Wildlife habitat – The environment of an animal, ideally providing all elements required for life and growth; food, water, cover and space.

Wildlife value – A rating value of woody plants to wildlife species.

Willow bundle – A bundle of willows used in a number of soil bioengineering techniques. When the bundles are placed in the soil, they will sprout branches and roots to help stabilize the bank. See horizontal bundle and verticle bundle.

Windbreak – One or more wind barrier rows of living trees and shrubs maintained for the purpose of protecting fields, crops, feedlots, roadways, homes, gardens, orchards, etc.

Windbreak suitability group – A guide for selecting the species best suited for different types of soil and for predicting height growth and performance on those soils.

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.

Wolf plant – (1) An individual plant that is generally considered palatable, but is not grazed by livestock. (2) An isolated plant growing to extraordinary sizes, 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.

Xylem – The tissue in higher plants which transports water, dissolved salts, minerals and other materials (e.g., pesticides) from roots to aerial portions of the plant.

Yield – (1) The quantity of a product in a given space and/or time. (2) the harvested portion of a product.

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