## Part 542.1 Terms Commonly Used in Plant Materials Work (Glossary)

The following list of terms, although not complete, defines some terms commonly used by plant scientists.

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

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

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

**Active Ingredient** - The chemical compound in a product that is responsible for the herbicidal (or other chemical) affect.

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

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

**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.

**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.

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

**Amphidiploid** - A polyploid whose chromosome compliment 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.

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

**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”.

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

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

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

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

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

**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.

**Biodiversity** - 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.

**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”.

**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.

**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”.

**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 also ”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.

**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.

**C-3 Plants** - Species having a photosynthetic pathway which 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”.

**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”.

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

**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”.

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

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

**Climax** – (1) The final or stable biotic community in a successional series that is selfperpetuating 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.

**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 mat 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.

**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.

**Conservation Field Trial** - Is 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.

**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.

**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.

**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.

**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.

**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.

**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.

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

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

**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.

**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).

**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.

**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.

**Dormancy** - 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.

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

**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 ina 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 025%, 2650%, 5175%, 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 which is more specific than a phase of a habitat type. Ecological types are commonly used to differentiate habitat phases into categories of land which differ in their ability to produce vegetation or their response to management. Syn. ecological response unit, ecological site.

**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 in 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 form 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”.

**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.

**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.

**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.

**Exotic** - A term describing an organism introduced from another country or continent.

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

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

**Field Plantings** - Final stage of technology development or plant selection; plantings used primarily by PMSs 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.

**Firm Seed** - Seed, other than hard seed, that neither germinates nor decays during a prescribed test period under prescribed test conditions. Firm ungerminated seed may be alive or dead.

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

**Foundation Seed** – The progeny of breeder or foundation 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-Free Period** - The period, number of days or both between the last frost in spring and the first frost in fall.

**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 crosspollinated 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.

**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 Manure Crop** – A crop that is plowed under while still living to increase organic matter in soil.

**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.

**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.

**Hard Seed** - Seeds that remain hard at the end of a prescribed germination test because they have not absorbed water due to an impermeable seed coat.

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

**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).

**Historic Climax Plant Community** - 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. 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.

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

**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.

**Increase Plantings** –P 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”.

**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.

**Initial Evaluation** - 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.

**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.

**Interseeding** - Seeding into an 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. Example: Nepal (*Microstegium vimineum*), introduced from Asia, displaces native vegetation in floodplains and other moist environments creating a monoculture in the herbaceous layer. *Microstegium* now occurs in 21 states and Puerto Rico, ranging from Texas to Florida in the south and north into New York State and Illinois. Invasive species should not be confused with “Introduced Species”.

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

**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.

**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** -A plan which directs plant materials activities of the PMC or within a state or the PMC service area.

**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.

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

**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.

**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.

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

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

**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** - A native plant species is one that occurs naturally in a particular region, state, ecosystem, and habitat without direct or indirect human actions. Its presence and evolution in an area are determined by climate, soil, and biotic factors. 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.

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

**Noxious Weed** - A weed arbitrarily defined by law as being especially undesirable, troublesome, and difficult to control. Definition varies according to legal interpretations.

**Nurse Crop** - See “companion crop”.

**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.

**Perennial** - A plant that lives more than 2 years.

**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.

**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.

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

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

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

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

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

**Plant 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.

**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.

**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.

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

**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.

**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.

**Race** - A term sometimes used to denote ecotypes.

**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.

**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 project site to a more desired condition than previously existed, usually as result of a major disturbance. Synonymous with reclamation.

**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.

**Restoration** - The process of restoring site conditions as they were before land disturbance.

**Revegetation** - 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). A general term for renewing the vegetation on a project site, which include restoration and rehabilitation. Refers to the vegetation construction phase of reclamation.

**Riparian Community Type** - A recurring, classified, defined and recognizable assemblage of riparian plant species. A repeating, 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 waterinfluenced 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.

**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).

**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.

**Selected Class Release** - (1) Seed that is the progeny of rigidly selected seed or stands of untested parentage that have promise but not proof of genetic superiority, and for whichgeographic 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.

**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.

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

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

**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.

**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.

**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.

**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.

**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.

**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.

**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.

**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.

**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.

**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.

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

**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”.

**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.

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

**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.

**Warm-Season Plant** - A plant that completes most of its growth during the warm part of the year, generally late in spring and in summer. Commonly a C-4 plant photosynthetic pathway.

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