

## VII. GLOSSARY

(where a definition is a direct quotation, quotation marks are omitted but the source is cited)

**active lek** We primarily adopt the Connelly et al. (2000c) definition of an active lek as an open area that has been attended by  $\geq 2$  male sage-grouse in  $\geq 2$  of the previous 5 years. However, this definition is derived mainly from observations of leks in large, stable populations and may not be appropriate for small populations with reduced numbers of males attending leks in fragmented sagebrush communities. Therefore, for smaller populations (e.g., Meeker - White River) that are isolated or disjunct from larger, more stable populations, an active lek is defined as an open area where 1 or more sage-grouse have been observed on more than 1 occasion, engaging in courtship or breeding behavior. An area used by displaying males in the last 5 years is considered an active lek.

**additive mortality** Occurs when a factor causes mortality in a population in addition to natural mortality caused by predators, disease, etc.

**adult** A sage-grouse that is at least 15 months of age and has entered or is about to enter its second breeding season (Connelly et al. 2003c).

**adulticide** An insecticide that specifically targets the adult form of an insect species.

**age structure** The distribution of ages of individuals of a population (EverythingBio 2007).

**air sacs** A part of the respiratory system unique to birds; a thin-walled structure through which air flows during respiration. With the lungs, the air sacs allow air to flow along a one-way route so that newly inhaled air does not mix with older air in the system, unlike the dead-end respiration system of mammals (Elphick et al. 2001). Male sage-grouse inflate and “pop” their air sacs during their mating display.

**alien (plant species)** A species that is not native to a region. See also “exotic”, “nonnative”.

**allele** Any one of the alternative forms of a given gene (EverythingBio 2007).

**allele frequency** Also called “gene frequency”; a measure of how common a given allele is in a population.

**ameliorate** To improve or make better.

**antibody** A protein (immunoglobulin) molecule, produced by the immune system, that recognizes a particular foreign antigen and binds to it; if the antigen is on the surface of a cell, this binding leads to cell aggregation and subsequent destruction (Science Dictionary 2007).

**antigen** A molecule whose shape triggers the production of antibodies (immunoglobulins) that will bind to the antigen. A foreign substance capable of triggering an immune response in an organism (Science Dictionary 2007).

**arena** An area where sage-grouse display.

**aspergillosis** A respiratory tract infection caused by fungi of the genus *Aspergillus*, of which *A. fumigatus* is the primary species responsible for infections in wild birds (Friend and Franson 1999).

**augmentation** Also “population augmentation”; adding individuals of a species to a given population, usually to increase its viability, from either or both a demographic or genetic perspective.

**backfire** A technique used in controlling wildfires and prescribed burns; an area (usually on the downwind perimeter) is purposely burned so that when wildfire or prescribed fire approaches that area, it stops.

**banding** Marking individual birds by placing metal or plastic rings (bands) on the legs, making the birds individually identifiable when recaptured (Elphick et al. 2001).

**best management practice** Methods that have been determined to be the most effective, practical means of maintaining or reaching a habitat management goal.

**bioaccumulant** Substance that increases in concentration in living organisms as they take in contaminated air, water, or food because the substances are very slowly metabolized or excreted (Science Dictionary 2007).

**biotic diversity** (or biodiversity) Refers to the variety among living organisms and the complexity of the ecological systems in which they live. Diversity is defined by the number of different types of items in a system and the relative frequency of these different types (Decker et al. 1991).

**biological control** The management of a pest species by the introduction of a natural enemy or predator.

**bottleneck** A reduction of a population, typically by a natural disaster, such that the surviving population is no longer genetically representative of the original population (Campbell et al. 1999).

**breeding habitat** If this seasonal habitat is not mapped and field-validated, it should be designated by 2 concentric circles around active leks (see Appendix B, “GrSG Disturbance Guidelines”, Fig. B-1). The first circle has a radius of 0.6 miles (“Lek Habitat” portion of the Breeding Habitat), and the second has a radius of 4.0 miles, which encompasses the nesting and early-brood-rearing habitat and summer – fall habitat (Fig. B-1). Generally, breeding habitat is considered to be sagebrush communities within the 4-mile radius.

**contiguous** Adjoining, or adjacent.

**brooding** A behavior in which parents warm nestlings or young that cannot maintain their own body temperatures. While young are still in the nest, a brooding adult may appear to be incubating eggs (Elphick et al. 2001).

**brushbeat** A management practice that is used to “thin” sagebrush areas that are too thick (do not allow for enough under-story for sage-grouse habitat).

**burnout (operations)** A wildfire fighting technique in which a fire is deliberately set to reduce the fuel available to the main fire.

**candidate species** A species that will be or is being considered for listing as endangered or threatened by the Endangered Species Act.

**canopy cover** a) The percentage of the ground included in a vertical projection of imaginary polygons drawn about the total natural spread of foliage of the individuals of a species (usually used for the herbaceous plants); or b) The percentage of the ground covered by a projection of the crown, stems, and leaves of the plant onto the ground surface (usually used for shrubs) (Connelly et al. 2003b).

**carrying capacity** The theoretical maximum number of individuals an environment can support (EverythingBio 2007). Also denoted by “K”.

**census** A complete count of a species in a given area (Patton 1992)

**chick** A sage-grouse up to 10 weeks of age (Connelly et al. 2003b).

**chaining** A mechanical method of removing vegetation (especially piñon-juniper) from a landscape where a heavy chain is dragged across the landscape between 2 bulldozers.

**chronology** the order of occurrence of a sequence of events

**chronic wasting disease** A wildlife disease (akin to bovine spongiform encephalitis) that affects deer and elk.

**climax (community)** The final stage of succession in an ecosystem. Also, a community that reached a steady state under a particular set of environmental conditions (Science Dictionary 2007).

**clutch size** The number of eggs laid by an individual female.

**cohort** A group of individuals from the same generation.

**compensatory mortality** Occurs when another factor is a replacement for the natural mortality caused by predators, disease, and so forth (Patton 1992).

**consensus (approach)** Using an approach where unanimity is required for decisions.

**conservation easement** A legal agreement which places a restriction upon the use of land, which advances conservation goals.

**Conservation Reserve Program** A program, created in the Food Security Act of 1985, to retire from production up to 45 million acres of highly erodible and environmentally sensitive farmland. Landowners who sign contracts agree to keep retired lands in approved conserving uses for 10-15 years. In exchange, the landowner receives an annual rental payment, cost-share payments to establish permanent vegetative cover and technical assistance. The CRP reportedly has reduced erosion by up to 700 million tons per year. The FAIR Act of 1996 extends authorization to enroll land through 2002 and caps maximum CRP acreage at 36.4 million acres, its 1995 level. The Act also makes the program spending mandatory and finances it through the Commodity Credit Corporation. (Science Dictionary 2007).

**conservation strategy** An approach for protecting a particular species, habitat, or ecosystem.

**contiguous** touching; meeting or joining at the surface or border (McKechnie 1983).

**cool season (plants)** Plant species that thrive at temperatures below 60-70° F, and become dormant in hot weather.

**corridor** A more or less continuous connection between land masses or habitats. In terms of conservation biology, a connection between habitat fragments in a fragmented landscape (Science Dictionary 2007).

**corvid** A bird species belonging to the taxonomic family Corvidae, which includes crows, ravens, jays and magpies.

**cover** An indication of the relative amount of shelter or protection of all vegetation at a given point; normally used to assess nesting habitat (Connelly et al. 2003b).

**crude protein** The approximate amount of protein in foods that is calculated from the determined nitrogen content by multiplying by a factor (as 6.25 for many foods and 5.7 for wheat) derived from the average percentage of nitrogen in the food proteins and that may contain an appreciable error if the nitrogen is derived from nonprotein material or from a protein of unusual composition.

**cruising radius** The maximum distance that a male sage-grouse travels on and around a lek during lekking season.

**cryptic** Appearance that allows something to match its background.

**curtailment** Reduction in extent or quantity; imposition of a restriction.

**defoliation** Process in which a plant loses its leaves.

**deleterious (allele)** An form of a gene that confers a harmful effect on the organism.

**demographic inertia** The tendency for current population parameters, such as growth rate, to continue for a period of time; there is often a delayed population response to gradual changes in birth and mortality rates.

**demographic (parameters, processes, rates)** The specific properties of a population regarding birth rates, death rates, age distributions, sex ratios, and size of population (Wilson 1992).

**demographic stochasticity** The natural variation in the characteristics of a population (e.g., growth rate, mortality rate, etc.).

**density dependent** Having influence on individuals in a population that varies with the degree of crowding in the population (Ricklefs 1979).

**density independent** Having influence on individuals in a population that does not vary with the degree of crowding in the population (Ricklefs 1979).

**depauperate** Poor, incomplete, lacking.

**depredated** The act of a nest being destroyed by a predator.

**dermal absorption** To assimilate or take in a substance through the skin.

**desiccate** To become dry.

**determinate layer** A bird species that will not continue to lay eggs indefinitely if eggs are removed or disappear from the nest.

**deterministic** Referring to events that have no random or probabilistic aspects but proceed in a fixed predictable fashion (EverythingBio 2007).

**dimorphic** Having 2 forms; in sexually dimorphic species the male and female have different appearances.

**directional drilling** A technique used in drilling for oil and/or natural gas in which some of the bore path is oriented at least partially horizontally; this allows for multiple wells to be drilled from a single surface site.

**discrete generation** An age cohort that is individually separate and distinct from all others.

**dispersal** Movement of individuals to new living areas. Includes both the initial movements from the place of birth to the first site at which the bird will attempt to breed (natal dispersal) and subsequent movement from one breeding location to another (adult dispersal). Also, wandering by individuals away from the breeding range and habitats in late summer, especially in herons and related species (postbreeding dispersal) (Elphick et al. 2001).

**display** A ritualized signal intended to convey a specific message (Elphick et al. 2001).

**distribution** The area or range over which a species is found (Elphick et al. 2001).

**diversity** Variety, or a range of different things.

**dixie harrow** A particular piece of equipment used to thin older sagebrush stands in an effort to stimulate understory growth of forbs and grasses.

**dominant males** The males of a lek who obtain the most area of the lek, who win wing fights, facing pasts, and chases, and, typically, mates more than other males on the lek. Also see Schroeder et al. (1999).

**dryland farming** A method of farming in semiarid areas without the aid of irrigation, using drought-resistant crops and conserving moisture.

**ecoregion** Any geographical region characterized by distinctive flora or fauna (such as a biome or a province (Science Dictionary 2007)).

**ecosystem** A biological community of interacting organisms and their physical environment.

**ectoparasite** An organism that lives on the exterior of its host and contributes nothing to the host's survival.

**effective population size** The number of individuals that would give rise to the calculated loss of heterozygosity, inbreeding or variance in allele frequencies if they behaved in the manner of an idealized population (Frankham et al. 2002). Also termed "genetic effective population size".

**efficacy** Effectiveness.

**empirical** Originating in or based upon observation or experience; capable of being verified or disproved by observation or experiment (Science Dictionary 2007).

**encroaching (plants)** Species that invade a given habitat and gradually replace the plants and community that existed there previously.

**endangered species** An organism in imminent danger of extinction throughout all or a significant portion of its range (Elphick et al. 2001).

**endocrinological** Relating to the system of hormone-secreting glands in an organism.

**environmental stochasticity** The variation in demographic parameters that is a response to variation in the environment (e.g., weather, disease, food, competitors).

**epidemiology** Study of the distribution of disease.

**epizootic** A temporary outbreak of disease among animals.

**evolutionary potential** The ability or potential of a species or group of organisms to respond evolutionarily to changing environments.

**exotic (annual; disease; plant; species; weed)** A species that is not native to a region. See also “alien” and “non-native”.

**extant** Still existing; not extinct.

**extinction** The state or process of ceasing or causing something to cease to exist: the state or process of a species, family, or larger group being or becoming extinct.

**extinction vortex** A small population incurs inbreeding and random genetic drift which leads to the loss of genetic variability, then a reduction in individual fitness and population adaptability, which leads to lower reproduction and higher mortality, ending with a smaller population.

**extirpated** Eradicated, or exterminated from a given region.

**extrapolate** In statistics to estimate or infer (a value, etc.) on the basis of certain variables within the known range (McKechnie 1983).

**extrinsic** Not inherent; acting from the outside.

**exurban** Having to do with a region beyond the suburbs of a city or town.

**fecundity** The potential reproductive capacity of an organism or population (Science Dictionary 2007).

**federal (grazing) allotment** Federally owned land upon which private individuals graze livestock, by permit.

**federal recovery plan** A document that will be referred to for guidelines for maintaining, protecting, and preserving a species and its habitat if the species is listed as threatened or endangered by the USFWS.

**fee-title acquisition** The acquiring of land in fee title through donation, bargain sale, or outright purchase.

**fire return interval** A measure of how frequently wildfire occurs in a given area.

**filoplume** Specialized feather; in sage-grouse, long black feathers arising at the back of the neck

**fire suppression** When natural or prescribed burning is not allowed.

**fitness (Darwinian, individual, or reproductive)** A measure of the relative contribution of an individual to the gene pool of the next generation (Campbell et al. 1999).

**forb** An herbaceous plant which is not a grass (Science Dictionary 2007).

**fuel load** Refers to the amount of combustible material. When used in reference to prescribed burning, fuel load generally refers to dry herbaceous material or leaf litter (Gee 1998).

**functional response** One way that predator populations may respond to an increase in prey populations: each individual predator consumes more prey (see also “numerical response”).

**gallinaceous** Belonging or pertaining to the Order Galliformes, comprising the grouse, pheasants, turkeys, partridges, domestic fowls, etc. (Cooperrider et al. 1986).

**gene flow** The movement of genes from one population to another by way of interbreeding of individuals in the two populations (Science Dictionary 2007).

**genetic** Of or relating to genes or heredity.

**genetic distance** An estimate of the number of electrophoretically detectable amino acid (codon) differences between homologous proteins (genes) in different species. (Ricklefs 1979).

**genetic diversity (or variation)** The variation that exists in a given set of genes, whether in an organism or a population. The ability of a population to provide the hereditary mechanisms needed for adaptive change and dynamic evolution to future breeding individuals of the species (Emmel 1976).

**genetic drift** Change in the gene pool as a result of chance and not as a result of selection, mutation, or migration (Keeton and Gould 1986).

**genetic effective population size** The number of individuals that would give rise to the calculated loss of heterozygosity, inbreeding or variance in allele frequencies if they behaved in the manner of an idealized population (Frankham et al. 2002).

**genetic isolation** Occurs when the genetic makeup of two or more groups becomes different enough to serve as a barrier to successful breeding between the groups.

**genetic stochasticity** The natural variation in the genetic makeup of a group, unrelated to outside forces.

**genetically discrete units** A group or population that is more genetically similar to themselves than any other group.

**genotype** The specific allelic composition of a cell, either of the entire cell or more commonly for a certain gene or a set of genes. The genes that an organism possesses (Science Dictionary 2007).



**Geographic Information System (GIS)** A system of spatially referenced information, including computer programs that acquire, store, manipulate, analyze, and display spatial data in a geographic context. (Science Dictionary 2007).

**geographic isolation** When a group of individuals within a population becomes separated by man-made or natural barriers can no longer mate with individuals outside of the population. No individual is able to enter or exit the population without being born there or dying.

**geographically closed (population)** A population that is separated by some physical barrier from other populations, and which has no dispersal with any other population of the same species.

**grass bank** A conservation management tool whereby a value is assigned to healthy grasslands and that value can be used, traded, and saved.

**habitat** Place where an animal normally lives or where individuals of a population live (Lindzey 2001).

**habitat configuration** The arrangement of a particular type of habitat, and its relationship to other nearby habitat types (includes size of the patch of habitat, distance to the next same type of habitat patch).

**(habitat) connectivity** A measurement of how habitat areas are spatially arranged relative to each other.

**(habitat) degradation** Decline in the quality of a habitat.

**habitat fragmentation** The breaking up of a habitat into unconnected patches interspersed with other habitat which may or may not be inhabitable by species occupying the habitat that was broken up. The breaking up is usually by human action, as, for example, the clearing of forest or grassland for agriculture, or residential development (Science Dictionary 2007).

**(habitat) linkage** Areas between existing habitat patches, that, if made into suitable habitat, will increase movement between populations and will decrease the probability of extinction of the species by stabilizing population dynamics.

**habitat parameter** A measurable variable of a given habitat type (e.g., grass height, forb cover).

**(habitat) polygon** In a GIS, a separate patch of a given habitat.

**(habitat) treatment** An action that alters a given habitat, usually to improve its quality.

**haplotype** A set of closely linked genetic markers present on one chromosome which tend to be inherited together (not easily separable by recombination). Some haplotypes may be in linkage disequilibrium (Science Dictionary 2007).

**hatching success** The proportion or percentage of eggs that successfully hatch from a clutch.

**herbaceous (vegetation)** Having characteristics of an herb; a plant with no persistent woody stem above ground (Science Dictionary 2007).

**herbicide** A chemical pesticide designed to control or destroy plants, weeds, or grasses (Science Dictionary 2007).

**herbivory** The consumption of non-woody vegetation.

**heritability** A measure of how much of the variability in a trait (e.g., eye color) is due to genetic causes.

**heterogeneous** Being composed of differing components; not uniform.

**heterozygote advantage** A mechanism that preserves variation in eukaryotic gene pools by conferring greater reproductive success on heterozygotes over individuals homozygous for any one of the associated alleles (Campbell et al. 1999).

**heterozygous** Having two different alleles for a given genetic character (Campbell et al. 1999).

**historic habitat** Areas where viable populations have not occurred within five years or more.

**historic lek** A formerly active lek that has not been utilized for display or breeding within the last 10 years (Colorado Division of Wildlife 2004a).

**homozygous** Having two copies of the same allele at the same gene site.

**horizontal cover** An average calculation/estimation of the vegetation that provides aerial cover to the ground.

**horizontal structure** The type of plants that actually provide the horizontal cover to the ground (e.g., sagebrush, bitterbrush, rabbitbrush, greasewood).

**hydroaxe** Hydraulic powered mower that can mulch large diameter woody species.

**imprint(ing)** Period of rapid and usually stable learning during a critical period of early development of a member of a social species, involving recognition of its own species; may involve attraction to the first moving object seen (Lindzey 2001).

**in situ** Refers to something being at its original site; undisturbed.

**inactive lek** To be considered inactive for a given season, a lek must have zero males in attendance for at least two count periods. For the official status of a lek to be considered Inactive, a lek needs to be seasonally Inactive for five consecutive years (Colorado Division of Wildlife 2004a).

**inbreeding** Mating with a related individual.

**inbreeding coefficient** The probability of homozygosity by descent (having common ancestors). The probability that a zygote obtains copies of the same ancestral gene from both its parents because they are related (Science Dictionary 2007).

**inbreeding depression** A decline in reproductive fitness due to mating of related individuals.

**incubate** The natural or artificial heating of an egg that has been laid. Incubation is required for embryo development.

**index** A relative measure used as an indicator of the true state of nature (Thompson et al. 1998).

**inference** A conclusion derived from reasoning.

**insecticide** A pesticide compound specifically used to kill or prevent the growth of insects (Science Dictionary 2007).

**instar** The form or stage of an insect between various molts.

**inter-lek** Area or distance between leks.

**intrinsic** Inherent; a quality or characteristic of something that is not dependent on external forces.

**invasive (plant, species)** A species capable of asserting itself in communities where it did not naturally occur (EverythingBio 2007).

**juvenile** A sage-grouse that is more than 10 weeks of age but has not entered into its first breeding season (Connelly et al. 2003b).

**kerogen** A fossilized material in shale and other sedimentary rock that yields oil upon heating.

**late seral (stage)** A vegetation community that occurs late in the ecological succession sequence.

**larvicide** Insecticide that specifically targets the larval stage of an insect species.

**lease stipulations** Legally binding requirements that are made a part of oil, gas, and mining leases, often to mitigate or avoid environmental impacts.

**lek** An arena where male sage-grouse display for the purpose of gaining breeding territories and attracting females. These arenas are usually open areas with short vegetation within sagebrush habitats, usually on broad ridges, benches, or valley floors where visibility and hearing acuity are excellent. Also called “strutting ground”.

**lek count** The high count of males from all lek sites on the same day; which are taken at 7-10 day intervals between late March and mid-May.

**life cycle** The entire lifespan of an organism from the moment it is conceived (usually at fertilization) to the time it reproduces (Wilson 1992).

**life history** The significant features of the life cycle through which an organism passes, with particular reference to strategies influencing survival and reproduction (Science Dictionary 2007).

**limiting factor** A condition whose absence or excessive concentration, is incompatible with the needs or tolerance of a species or population and which may have a negative influence on their ability to thrive (Science Dictionary 2007).

**lipid** A small water-insoluble biomolecule generally containing fatty acids, sterols, or isoprenoid compounds (Science Dictionary 2007).

**local conservation plan** A document, prepared by landowners, stakeholders and (non-federal) government agencies to address conservation concerns for a given species in a given area.

**local work group** In the case of GrSG, a group formed to address GrSG conservation concerns and to write a local conservation plan.

**major histocompatibility complex** A group of highly polymorphic genes whose products appear on the surface of cells imparting the property of self (belonging to that organism). A genetic region found in all mammals whose products are primarily responsible for the rapid rejection of tissue grafts between individuals (Science Dictionary 2007).

**mark-resight** Estimating the number of individuals in a population by capturing, marking, and re-capturing individuals. This assumes that there is not birth, death, immigration, or emigration within the population (White et al. 1982).

**mean** The arithmetic average; the sum of the data divided by the sample size (Science Dictionary 2007).

**mechanical fuels treatment** Any method of removing combustible material (other than burning it), usually to reduce the risk of wildfire.

**median** A statistical measure of data that is the midpoint of a data set: half of the data fall above it and half below.

**Meleagridinae** The subfamily of turkey species.

**mesic** Referring to habitats with plentiful rainfall and well-drained soils (Ricklefs 1979).

**mesopredator** Lower trophic level predator (as opposed to dominant predator).

**metapopulation** A set of local populations within some larger area, where typically migration from one local population to at least some other patches is possible” (Hanski and Simberloff 1997).

**microsatellite** Any of numerous short segments of DNA that are distributed throughout the genome, that consist of repeated sequences of usually 2 to 5 nucleotides, and that are often useful markers in studies of genetic linkage because they tend to vary from one individual to another.

**mitigation** Actions taken to avoid, reduce, or compensate for the effects of human-induced environmental damage (Science Dictionary 2007).

**mitochondrial DNA** The genetic material found in mitochondria, the organelles that generate energy for the cell. Not inherited in the same fashion as nucleic DNA (EverythingBio 2007).

**model** A simplified representation of a real system.

**Monte Carlo (model)** A population modeling method in which a large quantity of randomly generated numbers are studied using a problematic model to find an approximate solution to a numerical problem that would be difficult to solve by other methods.

**monoterpene** A volatile organic compound emitted by some plant species.

**morphological** The physical make up of the species. One of the characteristics that makes species unique.

**mutation** A rare change in DNA of genes that ultimately creates genetic diversity (Campbell et al. 1999).

**native** A species that naturally occurred in the area prior to inter-continental travel by people (EverythingBio 2007).

**natural selection** The process in nature whereby individuals with a given genetic composition leave more offspring than other individuals, because the genetic makeup confers some type of survival or reproductive advantage.

**nest success** A measurement of the success (completion of the laying, incubating, and hatching process) of a nest, even if the chicks do not live beyond hatching.

**nonnative (plant)** A species that is not indigenous to a region (Science Dictionary 2007). Also called “alien” or “exotic”.

**nuclear markers** A genetic element which can be readily detected by phenotype, cytological or molecular techniques, and used to follow a nuclear chromosome or chromosomal segment during genetic analysis (EverythingBio 2007).

**numerical response** One way that predator populations may respond to an increase in prey populations: predator populations also increase (see also “functional response”).

**obligate** Essential, necessary; unable to exist in any other state, mode, or relationship; restricted to one particularly characteristic mode of life (Science Dictionary 2007).

**occupied habitat** As defined for mapping used in the CCP: Areas of suitable habitat known to be used by GrSG within the last 10 years from the date of mapping. Areas of suitable habitat contiguous with areas of known use, which do not have effective barriers to sage-grouse movement from known use areas, are mapped as occupied habitat unless specific information exists that documents the lack of sage-grouse use. This category can be delineated from any combination of telemetry locations, sightings of sage-grouse or sage-grouse sign, local biological expertise, GIS analysis, or other data sources (see pg. 66).

**olfactory cues** Signals transmitted by odor.

**outbreeding depression** Refers to instances when the offspring of individuals who breed with others from different areas or populations have lower measures of fitness (e.g., survival, reproduction).

**overburden** Rock and soil cleared away before mining (Science Dictionary 2007).

**paradigm** A model or pattern.

**parameter** A variable, measurable property (Science Dictionary 2007).

**parameterization** The process of assigning values to parameters or variables to be used in a model.

**parasite load** A measure of the number of parasites carried by an organism.

**patchy** A distribution that is not continuous.

**perennial** Refers to a plant species that lives for more than 2 seasons, often flowering annually.

**pesticide** Substance or mixture intended for preventing, destroying, repelling, or mitigating any pest. Also, any substance or mixture intended for use as a plant regulator, defoliant, or desiccant (Science Dictionary 2007).

**petitioner** In the case of this plan, a person or entity who petitions the USFWS to have a species considered for endangered or threatened status under the ESA.

**phased (energy) development** A scenario in which development in a given area occurs sequentially, rather than simultaneously.

**phenotypic expression** The observable manifestation of a specific genetic makeup; those observable properties of structure and function of an organism as modified by genetic structure in conjunction with the environment (Science Dictionary 2007).

**pheromone** A chemical signal, analogous to a hormone, that passes information between individuals (Science Dictionary 2007).

**photoperiod** The length of time an organism is daily exposed to light, especially with regard to how that exposure affects growth and development (Science Dictionary 2007).

**physiography** Landform; physical geography (Science Dictionary 2007).

**piñon-juniper** A vegetation community that contains both *Pinus* spp. and *Juniperus* spp.

**polygamous** Having a mating system in which one male mates with more than one female (polygyny) or one female mates with more than one male (polyandry).

**(demographic) population** A biological unit at the level of ecological integration where it is meaningful to speak of a birth rate, a death rate, a sex ratio and an age structure in describing the properties of the unit (Emmel 1976).

**(genetic) population** A group of sexually interbreeding individuals (Strickberger 1985).

**population augmentation** adding individuals of a species to a given population, usually to increase its viability, from either or both a demographic or genetic perspective.

**population bottleneck** A brief reduction in size of a population which usually leads to random genetic drift (change in the gene pool) (Science Dictionary 2007).

**population trend** An important average change in magnitude and direction of some population parameter within a specified area across multiple time intervals (Thompson et al. 1998).

**potentially suitable habitat** As defined for mapping used in the CCP: Unoccupied habitats that could be suitable for occupation of sage-grouse if practical restoration were applied. Soils or other historic information (photos, maps, reports, etc.) indicate sagebrush communities occupied these areas. As examples, these sites could include areas overtaken by piñon-juniper or converted to rangeland (pg. 66).

**precocial** Pertaining to birds and mammals born with their eyes and ears open, covered by down or fur, and able to run about shortly after hatching or birth (Lindzey 2001).

**prescribed burn (or fire)** A fire set intentionally, with specific vegetation and weather prescriptions, in order to achieve a specific resource objective.

**presettlement (habitat)** Habitat that existed prior to European settlement in North America.

**proventriculus** The division of the stomach in birds that secretes digestive enzymes and passes food from the crop to the gizzard.

**pyrethroid** Any of several synthetic compounds similar to pyrethrin, used as an insecticide.

**quantitative** Capable of being measured (McKechnie 1983).

**radiotelemetry** A technique used to study wildlife by attaching a radio transmitter to an animal. Also called “radio-marking” or “telemetry”.

**range** The geographic area or spatial distribution in which a species is normally found (Elphick et al. 2001).

**rangeland** A habitat in which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs. This includes lands revegetated naturally or artificially when routine management of the vegetation is through manipulation of grazing. Rangelands include natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

**rangewide** In this case, it includes all of the populations of GrSG found throughout North America.

**recessive** An allele that is not expressed in the heterozygous condition (Science Dictionary 2007).

**recruitment** The influx of new members into a population by reproduction or immigration (Science Dictionary 2007).

**renest** Any nesting attempt that follows the loss of an initial nest (Connelly et al. 2003b).

**reproductive success** A measure of the production of offspring.

**ribonucleic acid** A molecule that carries the genetic message from DNA to a cellular protein-producing mechanism (Science Dictionary 2007).

**riparian (habitat)** Areas adjacent to rivers and streams with a different density, diversity, and productivity of plant and animal species relative to nearby uplands (Science Dictionary 2007).

**roost** Rest or sleep. Also a place where birds rest or sleep.

**sagebrush obligate** A species that is wholly dependent upon sagebrush habitat for survival.

**sagebrush steppe ecosystem** A steppe ecosystem dominated by various species of sagebrush (Taylor 1992).



**satellite lek** A relatively small lek (usually less than 15 males) that develops near a large lek during years with relatively high grouse populations (Connelly et al. 2003*b*).

**seral (stage)** A stage that occurs as a habitat succeeds from one community type to another.

**sex ratio** The ratio of one gender to another within a given population (usually expressed as the ratio of males to females).

**sexual dimorphism** The phenomenon when males and females in a species have different appearances.

**shrub-steppe** Temperate zone vegetation with the understory dominated by grasses and a conspicuous shrub element providing a relatively open understory above the grass layer (Connelly et al. 2003*b*).

**spatially explicit population model** A population model that includes information on the spatial structure of habitat.

**species** A taxon that is a subset of a genus and that may contain one or more subspecies (races) (Connelly et al. 2003*b*).

**species richness** The absolute number of species in an assemblage or community (Science Dictionary 2007). Also called “species diversity”.

**split estate** A situation where the land (or surface rights) is owned by one party but the subsurface (e.g., mining, oil extraction) rights are owned by another.

**stakeholder** An individual who has an interest in a particular issue or topic.

**steppe** A non-forested region dominated by grasses and low shrubs (Taylor 1992).

**stipulations** In BLM management of energy development, measures added to the terms of a lease that are designed to mitigate impacts of energy development on other on-site resources.

**stochasticity** the quality of lacking any predictable order or plan .

**strutting ground** An arena where male sage-grouse display for the purpose of gaining breeding territories and attracting females. These arenas are usually open areas with short vegetation within sagebrush habitats, usually on broad ridges, benches, or valley floors where visibility and hearing acuity are excellent. Also called “lek”.

**succession** The chronological sequence of vegetation and associated animals in an area; or, continuous colonization, extinction, and replacement of species' populations at a particular site, due either to environmental changes or to the intrinsic properties of the plants and animals (Science Dictionary 2007).

**summer – fall habitat** If these seasonal habitats are not mapped and field-validated, they should be designated by a circle around active leks (see Appendix B, “GrSG Disturbance Guidelines”, Fig. B-1). The circle has a radius of 4.0 miles, which encompasses the nesting and early-brood-rearing habitat and summer – fall habitat (Fig. B-1). Summer-fall habitat includes sagebrush communities, wet meadows, and agricultural fields within the 4-mile radius.

**sundry notice** a standard form to notify of or approve well operations subsequent to an Application for Permit to Drill, in accordance with Forest Service or BLM regulations.

**synergy** The combined or coordinated action of more than one force.

**systemic organophosphate** Any of several organic compounds containing phosphorus, some of which are used as fertilizers and pesticides.

**talus** A slope of rock fragments.

**taxonomic status** The assigned classification of a species or group of organisms.

**taxonomy** Classification, especially of animals and plants into phyla, species, etc. (McKechnie 1983).

**tenet** A principle or dogma.

**threatened species** An organism likely to become endangered within the foreseeable future throughout all or a significant portion of its range (Elphick et al. 2001).

**topography** The surface features of an area.

**total utilization** The percent of current annual vegetative production that is removed as a result of grazing.

**trajectory** The curved path of something; for example, the path of a line on a graph in a population model.

**translocate** To move from one location to another; in wildlife management this generally means moving individuals of a species to a given area, to augment existing populations, reintroduce the species to the area, or introduce a new species to the area.

**trophic level** Position in the food chain determined by the number of energy-transfer steps to that level (Ricklefs 1979)

**understory** The vegetation layer between the overstory or canopy and the groundcover of a forest community, usually formed by shade tolerant or young individuals of emergent species. May also refer to the groundcover if no trees or shrub layer is present (Science Dictionary 2007).

**ungulate** Any four-footed, hoofed, grazing mammal (such as a ruminant, swine, camel, hippopotamus, horse, tapir, rhinoceros, elephant, or hyrax) that is adapted for running but is not necessarily related to other ungulates (Science Dictionary 2007).

**upland** A general term for nonwetland; elevated land above low areas along streams or between hills; any elevated region from which rivers gather drainage (Science Dictionary 2007).

**vacant/unknown habitat** As defined for mapping used in the CCP: Suitable habitat for sage-grouse that is separated (not contiguous) from occupied habitats that either (1) has not been adequately inventoried, or (2) has not had documentation of grouse presence in the past 10 years (pg. 66).

**variable** A property that may have different values in various cases (Science Dictionary 2007).

**variance** In statistics, a measure of the variation around the central class of a distribution; the average squared deviation of the observations from their mean value (Science Dictionary 2007).

**variation** The differences among parents and their offspring or among individuals in a population (Science Dictionary 2007).

**whirling disease** An infectious, often fatal disease of salmonid fish (as trout and salmon) that is caused by a protozoan (*Myxobolus cerebralis* syn. *Myxosoma cerebralis*) of the order Myxosporidia which attacks cartilage of the head and spinal cord especially of young fish and that causes the fish to swim in circles and is marked by skeletal deformities.

**wing barrel** A barrel or other container placed in areas frequented by bird hunters and used as a collection site for wings from hunter-harvested birds (Connelly et al. 2003b).

**wing data** Information resulting from samples collected from wing barrels.

**wing receipts** The samples collected in wing barrels.

**winter habitat** If winter habitat is not delineated, then the following guidance should be used (see Appendix B, “GrSG Disturbance Guidelines”). Winter habitat is highly variable and varies from year to year, depending upon winter conditions (especially snow depth). Because winter habitat use data is regionally specific, this plan defines winter habitat as sagebrush areas (Connelly et al. 2000c) within currently occupied habitat that (1) has sagebrush available above the snow for GrSG to use in average and extreme winters; and (2) meets the structural habitat guidelines in Appendix A, “GrSG Habitat Structural Guidelines”.

**xeric** Of, characterized by, or adapted to a relatively dry habitat.

**yearling** A sage-grouse that has entered its first breeding season but not completed its second summer molt, normally between 10 and 17 months of age (Connelly et al. 2003b).