

GLOSSARY FOR MAMMALS, FISH, AMPHIBIANS, REPTILES (Glossary for Arthropods follows on page 9)

Since the Docent Reference Notebook contains some words that may be unfamiliar to you this glossary has been compiled. Please submit any words that you feel should be included to the Education Office.

ACCOMMODATION - adaptation or adjustment of the lens of the eye to permit focusing of images at different distances.

ADAPTATION - genetically determined physical or behavioral traits that help an animal survive and make the most of its habitat.

AESTIVATE - to spend the hot or dry months in a sleep-like state with a reduction in body temperature, heart rate, and breathing (e.g. snails, snakes). (See **HIBERNATION**)

AGONISTIC BEHAVIOR - social interaction between members of a species, involving aggression or threat and conciliation or retreat (e.g., across territorial boundaries).

ALBINISM - absence of pigment in skin, hair, eyes, feathers, etc. In plants, a lack of chlorophyll or normal plant pigments.

ALLANTOIS - embryonic, fluid-filled membrane having respiratory, nutritive, or excretory functions and found in reptiles, birds, and mammals.

ALTRICIAL - the condition in which an animal is born underdeveloped and helpless requiring care during growth and development. (See **PRECOCIAL**)

AMBUSH - to attack while hiding from and lying in wait (e.g., leopard, puma).

AMNION - a thin, fluid filled membrane forming a sac around the embryo of reptiles, birds, and mammals.

AMNIOTE EGG - egg that carries its own water supply; similar to bird's egg in design: large yolk, abundant albumin, semi-permeable membranes (amnion, chorion, allantois) which allow exchange of gases. Reptiles were first to evolve this adaptation and so could lay their eggs on land. Mammalian embryos develop inside the above membranes as well.

ANTERIOR - the front end of an organism (opposite of **caudal**); in human anatomy, the ventral surface. (See **DORSAL, POSTERIOR, VENTRAL**)

ANTHROPOID - a higher primate: monkeys, apes, and man. (See **PROSIMIAN, HOMINID, PONGID**)

ANTHROPOMORPHISM - assignment of human characteristics, abilities or feelings to non-human organisms.

ANTLER - a solid, generally branched bony outgrowth that is shed and renewed annually. (See **HORN**)

AQUATIC - living, growing or taking place in or on the water.

ARBOREAL - of or like a tree. 2. Living in trees or adapted for living in trees.

ARCHAEOLOGY - study of life and culture of ancient peoples.

ARRHYTHMIC - lack of rhythm.

ASEXUAL REPRODUCTION - any reproductive process that does not require the union of a male and female of the species.

AUDITORY - of or related to hearing.

AUTONOMIC - self-controlling, independent of outside influences (e.g., autonomic nervous system).

AVIAN - of or relating to birds.

BACHELOR HERD - a group formed of young male animals and males without territories; common among many kinds of hooved animals.

BIOLOGICAL CLOCK - an internal system in organisms that regulates behavior to certain rhythms and appears to be set by environmental conditions.

BIOME - a major regional ecological community characterized by distinctive life forms and principal plant species (if terrestrial). (See **CHAPARRAL, DESERT, GRASSLAND, MARSH, SAVANNA, TAIGA, TUNDRA**)

BIOTA - the flora and fauna of a given region.

BIOTIC - of or relating to life.

BIPEDAL - locomotion using two legs, feet, mostly only primates

BLASTOCYST - the stage of early mammal embryo which consists of an outer hollow sphere of cells and an inner solid mass of cells.

BLUBBER - fat which lies between the skin and muscular flesh of whales and other large marine mammals and serves as an insulating layer.

BRACHIATION - locomotion by swinging by the forelimbs from one hold to another (e.g., gibbons).

BROWSER - an animal who feeds on twigs, shoots, or leaves of trees or shrubs. (See **GRAZE**)

BRUMATION - dormancy in reptiles that is similar to hibernation. Reptiles can go for months without food but they often wake up to drink water and return to "sleep". Brumation is triggered by lack of heat and the decrease in the hours of daylight in winter.

BRUSH - a growth of small trees or shrubs.

BUSH - an area covered with low shrubby plants; wild or uncleared country.

CAECUM - the pouch which is the first part of the large intestine. Also, a cavity open at one end. (Also **CECUM**.)

CAMOUFLAGE - a disguise, such as body coloring, pattern, or shape, that helps an animal blend with its surroundings making it less visible to predator or prey.

CANINE - of or relating to dogs or to the family canidae including dogs, wolves, jackals, and foxes. 2. of or designating one of the conical eyeteeth located between the incisors and the premolars.

CARNASSIAL - of or relating to the teeth, premolars and molars, of certain carnivores adapted for cutting flesh.

CARNIVORE - any of the order Carnivora, flesh-eating mammals.

CARNIVOROUS - generally subsisting or feeding on animal tissues.

CARTILAGE - the skeletal connective tissue of vertebrates; forms much of the skeleton of adult lower vertebrates and immature higher vertebrates.

CASTING - See **PELLET**

CATARRHINE - a division of Anthroidea comprising the Old World monkeys, higher apes and man, all having the nostrils close together and directed downward, 32 teeth, often cheek pouches and ischial callosities, and the tail, if present, never prehensile.

CECUM - See **CAECUM**

CELL - the structural unit of living organisms, composed of cytoplasm and one or more nuclei and surrounded by a membrane.

CERVICAL - of or relating to the cervix or neck, especially the back part of the neck. 2. The neck-like part of another organ.

CETACEAN - any of the order Cetacea, aquatic, mostly marine mammals with fishlike, nearly hairless body, and paddle-shaped forelimbs. (e.g., whales, porpoises, and dolphins).

CHAPARRAL - regions with mild, rainy winters and long, hot, dry summers, such as the southern coast of California; dominated by small trees or often by spiny shrubs with hard, thick, evergreen leaves.

CHEMORECEPTIVE - senses receptive to scent or taste.

CHORION - the outermost of the fluid-filled membranes surrounding the embryo of reptiles, birds and mammals.

CIRCADIAN - pertaining to events which occur at approximately 24 hour intervals, such as certain physiological phenomena.

CLIMAX COMMUNITY - the last stable step in the progression of an ecosystem as it changes with time. (e.g., a pond may silt up, become a marsh, then a meadow, and finally a forest).

CLOACA - the exit chamber from the digestive system; also may serve as exit for the reproductive system and urinary system.

CLUTCH - a set of eggs from one laying that are brooded by one female simultaneously.

COMMENSALISM - the living together of two species in which one lives on or with the other without conferring either benefit or harm. (See **PARASITE**, **SYMBIOSIS**)

COMMUNITY - the organisms inhabiting a common environment and interacting with one another.

COMPETITION - interaction between members of the same population or of two or more populations resulting from a greater demand for their supply of a mutually required resource.

CONSPECIFIC - belonging to the same species.

CONTINENTS - seven great divisions of land on the globe: Asia, Africa, North America, South America, Europe, Australia, and Antarctica.

CONVERGENT EVOLUTION - the independent development of similar structures in forms of life that are unrelated; often found in organisms living in similar environments, such as porpoises and sharks. (See **HOMOLOGY**)

COPE - (v.) self grooming of the bill of birds by chewing, grinding or rubbing. 2. To cut or shape.

CRECHE - a group of young animals which have left their nest; nursery area.

CREPUSCULAR - active during twilight hours; of dawn or dusk.

CRYPTIC COLORATION - tending to conceal or camouflage by special coloration (e.g., chameleon). (See **CAMOUFLAGE**, **MIMICRY**)

CUD - a wad of partly chewed and digested food brought up to the mouth from the stomach of certain hoofed animals classified as ruminants.

CURSorial - strongly adapted for running across open terrain as in ungulates and some carnivores.

CUSP - a sharp pointed prominence on the biting surface of a tooth.

DELAYED IMPLANTATION - the fertilized egg suspends its development at approximately the blastocyst stage and remains dormant in the fallopian tube until stimulated by hormones to resume the trip down to the uterus where the usual implantation and continued development occur. This allows mating, gestation and birth to occur at optimum times.

DEN - (n.) a hollow space or burrow that an animal uses as a place to live, hide, or to bear young (e.g., foxes, bears); said also to den-up. (See **NEST**, **LYING-UP SPOT**)

DENTITION - the kind, arrangement and number of teeth in an animal.

DENTAL FORMULA - a formula used in describing the dentition of a Mammal to show the number and distribution of the different kinds of teeth in the jaws. Example: 1-, C-, P-, M- =32, which lists only half of the jaw: upper and lower incisors, canines, premolars, and molars. May be shown indicating only one tooth (e.g., P means premolar #2 on the top jaw and M means molar #1 on the bottom jaw).

DESERT - areas of falling, warming air and little rainfall (less than 10" per year), located at latitudes of about 30-degrees north and south; characterized by little water vapor, rapid drop in nighttime temperature (30°C) and organisms adapted to these conditions.

DEWCLAWS - clawed or hoofed remnants of side toes in many carnivores and ungulates, located just above the main functional digits.

DIGITIGRADE - walking on the digits with the posterior of the foot more or less raised, such as cats. As opposed to **PLANTIGRADE**.

DIGITS - one of the divisions in which the limbs of amphibians and all higher vertebrates terminate, which are typically five in number but may be reduced (as in a horse).

DIMORPHISM - the existence of two different forms of a species in the same population such as different color or size in sexual dimorphism in animals and birds.

DISPLAYS - actions that serve as signals to other animals, and used to attract the opposite sex, also to help ward off enemies, and to show how important or strong an animal is to the other animals in its group.

DIURNAL - of or relating to activity occurring during the daylight hours.

DIVERGENCE - the acquisition of dissimilar characters or traits by related organisms; divergent evolution.

DORSAL - pertaining to or situated near the back; opposite of **VENTRAL**.

ECHOLOCATION - a system by which an animal sends out beeps or pulses of high-pitched sounds and listens for the echoes that bounce back when the sounds hit an object. Bats, porpoises, whales, and some shrews use echolocation to find their way, avoid obstacles, and to detect prey.

ECO - prefix, meaning "house" or "home".

ECOLOGICAL SUCCESSION - the process by which a natural community goes through a number of temporary developmental stages, each characterized by a different species composition, before reaching a more stable condition. (See **CLIMAX COMMUNITY**)

ECOLOGY - the science which studies the relationships between organisms, and between organisms and their environments.

ECOSPHERE - portions of the universe in which life can exist.

ECOSYSTEM - all organisms in a community plus the associated environmental factors with which they interact. (See **COMMUNITY**)

ECTOTHERM - (See **POIKILOTHERM**)

EGG TOOTH - bony tooth-like projection on the tip of the upper bill present in some birds to assist in cracking the egg from the inside at hatching; the egg tooth is lost during post-hatching development.

EMBRYO - the early developmental stage of an organism produced from a fertilized egg; a young organism before it emerges from the seed, egg, or the body of its mother.

EMBRYONIC DIAPAUSE - the blastocyst imbeds into the uterus and then becomes dormant. This occurs during times of drought or famine and resumes development when environment returns to normal.

ENDANGERED - threatened with species extinction.

ENDEMIC - native to a certain area

ENDOTHERM - (See **HOMIOTHERM**)

ENVIRONMENT - surroundings, including air, land, water, and living things. (See **ECOSYSTEM**)

EPIDERMIS - the outer layers of skin, the outermost of which may be dead and horny.

ESTIVATE - (See **AESTIVATE**)

ESTRUS - a regularly recurrent state of sexual excitability during which the female of most mammals will accept the male and is capable of conceiving.

ESTUARY - any semi-closed coastal water, open to the sea, having high fresh water drainage and marked with cyclical fluctuations of salinity; usually the mouth of a river.

ETHOLOGY - the study of animal behavior, especially in the wild.

EVOLUTION - any genetic change in organisms from generation to generation; the process by which, through a series of genetic changes or mutations, any living organism or a group of organisms acquires the characteristics that distinguish it from other organisms.

EXOSKELETON - a skeleton, or hard shell, covering the outside of the body; common in arthropods.

EXTINCT - no longer existing.

FECUND - producing offspring; fruitful; proliferating (e.g., opossum).

FECUNDITY - the potential reproduction capacity of an organism or population (as opposed to **FERTILITY**, which is the actual reproductive performance).

FELINE - of or relating to cats or the cat family, Felidae.

FENESTRATED - having a network of irregular perforations or holes.

FERAL - of or relating to a domesticated animal which has reverted to the wild.

FETUS - an unborn or unhatched vertebrate that has passed through the earliest developmental stages; in humans from about the third month after conception until birth.

FLEDGED - when young birds have left the nest and are on their own.

FLEHMAN - a behavioral response of many male mammals, especially antelopes and other artiodactyls, consisting of lip curling and head raising after sniffing a female's urine.

FLIPPER - a broad, flat limb used for swimming.

FLUKES - tail fins or the flattened parts of a whale's tail.

FOOD CHAIN - a sequence of plants and animals that provide food and energy for the next trophic level member of a community, e.g., grass may be eaten by a mouse, the mouse may be eaten by a weasel, the weasel by a hawk, etc.

FOSSIL - the remains of an organism, or direct evidence of its presence (such as tracks). May be tooth, bone, wood, or altered soft parts.

FOSSORIAL - adapted for an underground mode of life and burrowing habit (e.g., moles and gophers).

FOVEAL VISION - especially acute vision. Animals with foveal vision can focus on objects and maintain eye contact.

FUSIFORM - shaped like a spindle; tapering toward each end.

GENE - a unit of heredity which is transmitted in the chromosome and which controls the development of the individual; capable of self replication.

GENE POOL - all of genes in all the individuals in a population.

GENERIC - relating to or characteristic of a whole group or class; adjective of genus.

GESTATION - period of pregnancy, from conception to birth, delayed or active.

GLOBULAR - globe-like, spherical.

GONAD - organ producing sex cells, ovum or sperm, in an organism; ovary or testis.

GRASSLAND - an area in which grasses and herbs are dominant plants, usually in the interior of continents where there is not enough rainfall to support trees, characterized by periodic droughts and rolling to flat terrain (e.g., prairies of North America, steppes of Russia, veld of South Africa, pampas of Argentina).

GRAVIPORTAL - having the body supports adapted to the bearing of great weights (e.g., elephant).

GRAZE - to feed on grass and herbs. (See **BROWSER**)

GREGARIOUS - tending to associate with others of ones kind; social, marked by or indicating a liking for companionship; sociable.

GROOM - the act of cleaning and tidying the body surface to remove foreign matter and parasitic organisms. For many animals, grooming one another (**allogrooming**) is important in maintaining close social relations (e.g., primates). (See **PREEN**)

GUARD HAIR - the prominent, coarse hair in the pelage of mammals: spines, bristles, and mane-hairs (e.g., musk ox)

GULAR POUCH - a pouch that is situated on the upper front of the neck next to the chin.

HABITAT - the place or type of site where a plant or animal naturally or normally lives and grows; the place where something is commonly found.

HALLUX - the first digit on either hind leg of a mammal (great toe in humans). 2. The hind toe of a bird.

HAREM - a group of females controlled by one male, usual of polygamous animals.

HAULING GROUND - an area where male seals congregate during breeding season.

HERBIVORE - an animal which relies chiefly or solely on vegetation for its food (e.g., ungulates, rodents).

HERD - a congregation of gregarious wild or domestic animals.

HETERDONT - a dentition in which there are teeth of different forms (e.g., incisors, canines, premolars, and molars); characterizes Mammalia.

HETEROTHERMAL - when body temperature changes with environment, i.e. giant anteater's body temperature drops when cold.

HIBERNATION - a period of dormancy and inactivity, varying in length depending on the organism and occurring in cold seasons; metabolic processes are greatly slowed and, in mammals, body temperature may drop (e.g., some squirrels and bears). (See **AESTIVATE**)

HOLARCTIC - zoogeographic region comprising the nearctic and palearctic regions.

HOMEOSTASIS - the maintaining of a relatively stable internal physiological environment or equilibrium in an organism, population, or ecosystem.

HOME RANGE - the area over which an animal normally travels in search of food. (See **TERRITORY**)

HOMINID - related to the family of humans and their ancestors (Homo spp.)

HOMODONT - dentition in which the teeth closely resemble one another (e.g., the teeth of porpoises and reptiles).

HOMIOTHERM - organism capable of maintaining a uniform body temperature independent of the environment; endotherm (e.g., birds and mammals).

HOMOLOGY - similarity in structure resulting from a common ancestry, regardless of function, such as the wing of a bird and the foreleg of a mammal. (See **CONVERGENT EVOLUTION**)

HOOF - keratinized projection of the tips of digits that completely encase the tip of the phalanx, of certain mammals, such as horses and deer.

HORMONE - a chemical substance secreted, usually in minute amounts, in one part of an organism and transported to another part of that organism where it has a specific effect.

HORN - usually paired bony processes that arise from the head of many mammals, though typically found in the Bovidae; hollow sheaths of keratin that function chiefly for defense and arise from a bony core anchored to the skull. Horns are permanent; unlike antlers they do not fall off and grow back each year. (See **ANTLER**)

HOST - an organism on or in which a parasite lives.

HUSBANDRY - the control or judicious use of resources; the cultivation or production of plants and animals.

HYOID BONE - small, u-shaped bone at the base of the tongue in higher Mammalia.

HYPERTHERMIA - increase in normal body temperature usually caused by external temperature.

HYPOTHERMIA - decrease in normal body temperature usually caused by external temperature.

IMPRINTING - a rapid and extremely narrow form of learning which occurs during a very short period in the early life of an organism, such as the following response in certain birds.

INBREEDING - the mating of individuals closely related genetically.

INCUBATE - to sit or hatch eggs with body heat. 2. To keep organisms in a favorable environment for hatching or development.

INFLECTED - bent inward or medially.

INSTINCT - a genetically determined pattern of behavior or response not based on the previous experience of the individual. (See **INNATE**, **LEARNING**)

INTRASPECIFIC - within a species; between individuals or populations of the same species.

INVERTEBRATES - animals without backbones, such as jellyfish, snails, worms, spiders, and insects.

ISCHIAL CALLOSITIES - specialized pads on the rump of some Old World primates that make it possible for them to sit comfortably for long periods of time, especially during night resting.

KERATIN - one of a group of tough, fibrous proteins; a horny tissue formed by certain epidermal tissues, especially abundant in skin, claws, hair, feathers, and hooves.

KRILL - small, shrimp-like animals found most abundantly in cold waters, and which are the main food of baleen whales and many other sea creatures.

K-SELECTION - a generalized tendency of natural selection that favors a low reproductive rate, slow development, late reproduction, large body size and repeated reproductive cycles. (See **R-SELECTION**)

LACTATION - production of milk by mammary glands; the period of secretion.

LARVA (pl. **LARVAE**) - wormlike form that hatches from the egg of many kinds of insects.

LEARNING - the process that produces adaptive change in individual behavior as a result of experience. (See **INSTINCT**)

LEK - an assembly area for communal courtship display and where displays may involve ritualized contests between competitors. (e.g., grouse)

LIFE SPAN - the average or recorded length of time that an individual lives, in the wild or in captivity; longevity.

LITTER - all animals produced at a multiple birth.

LOCOMOTION - the act of moving or the ability to move from place to place.

LYING-UP SPOT - a typical resting place for an animal, usually in concealment, said of cheetahs, et al. (See **DEN**, **NEST**)

MAMMA (pl. **MAMMAE**) - mammary gland.

MAMMAL - a warm blooded vertebrate that feeds its young with milk from special glands in the mother's body. All mammals, except monotremes, give birth to living young. All mammals have some hair on their bodies. (See **HOMIOOTHERMIC**)

MARINE - of, existing in, or produced by the sea.

MARSH - an area of wet land covered with plants, such as grasses, cattails, and rushes; can be fresh or salt water. Salt marshes are subject to tidal influences. (See **ESTUARY**)

MARSUPIAL - any of the order Marsupialia of mammals comprising kangaroos, wombats, bandicoots, opossums, and related animals that, with few exceptions, develop no placenta and have a pouch, or marsupium, on the abdomen of the female containing the teats and serving to carry the young.

MATING SEASON - the time of year when males and females of the same species breed.

MELANISM - an increased amount of black or nearly black pigmentation of skin, feathers, or hair of an individual or kind of organism (e.g., black leopard).

MENSTRUATION - in certain primates, the periodic discharge of blood and disintegrated uterine lining out of the body.

METABOLISM - the sum of all physical and chemical changes that take place within an organism.

MICROSYSTEM - the ecosystem of a laboratory culture.

MIGRATION - the seasonal movement of animals from one place to another.

MIMICRY - the superficial resemblance in form, color, or behavior of certain organisms to other more powerful or more protective ones, resulting in protection, concealment, or some other advantage for mimic.

MOLT - to shed or cast off hair, feathers, shell, horn, or an outer layer of skin in a process of growth or periodic renewal with the cast off parts replaced by new growth; said especially of birds. May be complete or only in certain areas. Also applies to the period during which molting occurs.

MONESTROUS - having a single estrus cycle during the breeding season.

MUSTH (or **MUST**) - a periodic state of frenzy of the bull elephant usually connected with the rutting season.

MUTATION - a variation or change in some inheritable characteristic of an individual. The change is in a specific location on the chromosomes which control the growth and development of the individual.

NAIL - keratinized projection at the tips of the digits, usually short, flat and blunt; indicative of primates. **NATURAL SELECTION** - the non-random recombination of genes resulting from interactions among a variety of individuals and the environment.

NEARCTIC REGION - zoogeographic region comprising North America, including northern Mexico, and Greenland.

NEOTROPICAL REGION - zoogeographic region comprising South America, Central America south of the Mexican Plateau, and the West Indies.

NEST - the bed, receptacle or location prepared by a bird for the laying of eggs and raising of young. 2.

The nightly prepared rest spot for an animal (e.g., gorillas). (See **DEN**, **LYING-UP SPOT**)

NICHE - the place or role occupied by a species in the community structure of which it is a part; the way in which an organism utilizes the resources of its ecosystem.

NIVAL - pertaining to snow (as might be said of polar bears, et al).

NOCTURNAL - of, related to, or occurring in the night; active at night. (See **DIURNAL**)

NURSE - to feed young with milk from special glands in the mother's body. (See **MAMMA**)

NURSERY HERD - a group formed by female animals and their young. Such herds are common among many kinds of hoofed animals.

OCCIPITAL - of or pertaining to the occiput, or back part of the skull of vertebrates, as in the occipital crest. (See gorilla or tiger skull).

OCCLUSAL - referring to the crown, orbiting surface of teeth where contact is made as the jaws are closed (i.e., when upper and lower teeth occlude).

OFFSPRING - the young of an animal.

OLFACTION - 1. the sense of smell. 2. The act or process of smelling.

OLFACTORY - of, relating to, or connected with the sense of smell.

OMNIVOROUS - feeding on a variety of different foodstuffs, both animal and vegetable.

ONTOGENY - the course of growth and development of an individual organism to maturity. (See **PHYLOGENY**)

OPPORTUNISTIC - having the characteristics of an opportunist; taking advantage of opportunities or circumstances.

OPPOSABLE - one finger or toe capable of being placed against one or more of the remaining digits; used to grasp in the manner of a human thumb.

ORBIT - the eye cavity of the skull.

ORDER - a scientific classification that groups together animals that share certain characteristics. An order is divided into families, genera, and species.

ORGANISM - any living entity: animal, plant, fungus, protistan or prokaryote.

OVA (pl. **OVUM**) - unfertilized egg cell, female counterpart to the sperm.

OVIDUCT - duct or tube in animals that transports ova from the ovary to the outside.

OVIPAROUS - producing eggs which are hatched outside the body. (See **VIVIPAROUS**)

PALMIGRADE - walking with the palm of the hand down on the ground (e.g., apes).

PALEARCTIC - zoogeographic region comprising Europe, northern Africa, western Asia, Siberia, northern China, and Japan.

PALEONTOLOGY - the study of the life of past geologic times, principally by means of fossils.

PARASITE - an organism that lives on or in an organism of a different species and derives nutrients from it. (See **COMMENSALISM**, **HOST**, **SYMBIOSIS**)

PEDICEL - a small, stalk-like structure on an organism. In the Cervidae, it supports the antlers of some deer, is an extension of the skull and is permanent (e.g., muntjac).

PELAGE - hair, fur, coat.

PELLET - an agglomeration of the undigested portions of a bird's food that is regurgitated and ejected via the mouth, especially birds of prey; sometimes called a **CASTING**.

PHYLOGENY - the evolutionary history of a group or lineage. (See **ONTOGENY**)

PINNA (pl. **PINNAE**) - the fleshy skin flap that surrounds the external ear opening.

PINNIPED - any of the order Pinnipedia, aquatic carnivorous mammals with all four limbs modified into flippers. (e.g., seal or walrus)

PLACENTA - uterine structure composed of both a maternal and a fetal component, evolved to permit the exchange of nutritive material between the female circulatory system and the developing fetus.

PLANKTON - all those organisms suspended in an aquatic environment and affected by current; usually microscopic and commonly including bacteria, algae, protozoans, rotifers, larvae, and small crustaceans.

PLANTIGRADE - walking on the sole with the heel touching the ground such as man. As opposed to **DIGITIGRADE**.

PLATEAU - a large, flat, elevated area of land. A plateau is higher than the surrounding land on at least one side.

PLATYRRHINE - a division of Anthroidea comprising the new-world monkeys all which have a broad nasal septum, usually 36 teeth and often a prehensile tail.

PNEUMATIC - having air cavities; said of the bones of birds.

POACHER - a person that hunts illegally.

POIKILOTHERM - organism whose body temperature is determined primarily by the temperature of the environment; ectotherm.

POLLEX - the first digit on either forelimb. (i.e., thumb in humans).

POLYESTROUS - having more than one estrus cycle during a breeding season.

POLYGAMOUS - having more than one mate at the same time.

PONGID - related to the family of apes (not monkeys or humans).

POPULATION - any group of individuals of one species; in genetic terms, an interbreeding group of organisms.

POSTERIOR - the rear or caudal end of a quadruped; in human anatomy, the dorsal surface. (See **VENTRAL**, **DORSAL**, **ANTERIOR**)

PRAIRIE - see **GRASSLAND**.

PRECOCIAL - capable of a high degree of independent activity from birth. (See **ALTRICIAL**)

PREDATOR - animals that obtain their food primarily by killing and eating other animals.

PREEN - to trim or dress with the beak or tongue; especially the grooming of the feathers by the beak of the bird.

PREHENSILE - adapted for seizing or grasping, especially by wrapping around (e.g., tail of some New

World monkeys).

PREY - animals taken by predators as food.

PRIDE - a social grouping of lions. The largest pride ever sighted consisted of 23 individuals.

PRIMATE - any member of the order Primate which includes the monkeys, apes, lemurs, tarsiers, lorises, man, and sometimes tree shrews. All have similar characteristics such as fingernails, foveal vision, adaptation to arboreal habitat, generalized dentition and diet, and altricial young.

PROCUMBENT - slanting forward of the incisors in some mammals, notably many marsupials, insectivores, and primates (e.g., incisors of hippos).

PROSIMIAN - a lower primate, includes lemurs, lorises, tarsiers, tree shrews, as well as many fossil forms. (See **ANTHROPOID**).

QUADRUPEDAL - locomotion using four legs or two legs, two forearms, i.e. river otters, elephants

RAIN FOREST - a tropical area having a heavy annual rainfall. Rain forests have broad-leaved evergreen trees.

RANGE - the geographical region throughout which a species of plant or animal naturally lives or occurs.

RAPTOR - an order of birds comprising Falconiformes and Strigiformes. (e.g., hawks, eagles, falcons, and owls).

REPRODUCTION - the process, sexual or asexual by which animals and plants produce new individuals.

REPTILES - air-breathing, poikilothermic vertebrates with a three-chambered heart, such as snakes, turtles, and lizards, that are usually covered with scales or bony plates. The first evolving animal to be completely freed from the water due to the amniote egg, an egg that carries its own water supply and so can survive on land.

RESOLUTION - the physiological ability of the eye to separate or clarify an image into constituent parts.

RESPIRATION - the exchange of gases between an organism and its surrounding environment; breathing. 2. Intracellular oxidation of organic molecules to release energy.

RETICULATE - having the structure or appearance of a network (e.g., reticulated giraffe).

RETRACTILE - capable of drawing in or back (e.g., claws of most cats).

RHAMPHOTHECA - the horny covering of the bill of a bird.

RHINARIUM - hairless area of roughened skin at the tip of the snout of a mammal.

RIPARIAN - referring to the vegetation located on the bank of a watercourse (river, stream or lake)

R-SELECTION - a generalized tendency of natural selection that favors a high reproductive rate, rapid development, early reproduction, small body size and one brood in a lifetime. (See **K-SELECTION**)

RUMINANT - of, or relating to, a sub-order (Ruminantia) of even-toed hoofed mammals (Artiodactyla), such as sheep, giraffes, deer, camels, and bison that have complex three or four chambered stomachs. They regurgitate partially chewed grasses, or foods, from the rumen to be thoroughly chewed and then digested.

RUT - a period of sexual excitement in a mammal, especially said of ungulates.

SACCULATED - furnished with or formed with a sac; having a series of sac-like expansions.

SAGITTAL - of or pertaining to the suture between the parietal bones of the skull, along the midline at the top of the skull, as in sagittal crest (see tiger skull).

SALTATORIAL - pertaining to, or adapted for, leaping or bounding locomotion (e.g., kangaroos, rabbits).

SAVANNA - tropical grasslands that differ from their temperate counterparts in having wet-dry annual cycles rather than warm-cold cycles; dominated by grasses and some scattered trees, best known in Africa.

SCANSORIAL - climbing or adapted for climbing. (See **ARBOREAL**)

SCAT - an animal's fecal droppings.

SCAVENGER - an animal that feeds on the remains of dead animals.

SCENT GLANDS - glands in the bodies of some animals that produce a substance that is often strong smelling.

SCENT MARKS - marks made by an animal rubbing its scent glands against an object. Scent marks or scent posts may also be made by spraying urine. Animals often use marks to announce their presence and to help find mates.

SCRUBLAND - an area covered with shrubs and stunted trees.

SECONDARY SEX CHARACTERISTICS - external characteristics that distinguish between the two sexes but which have no direct role in reproduction, such as the rooster's comb.

SOCIAL DOMINANCE - a hierarchical pattern of physical domination by some members of a group by other members in a relatively orderly and long-lasting pattern.

SPECIES (pl. **SPECIES**) - a group of animals of the same kind that can mate and produce young like themselves and are reproductively isolated.

SPECIFIC - pertaining to a particular species.

SPERM - mature male sex cell, usually motile (able to move) and smaller than the female counterpart.

STALK - to pursue or approach game stealthily, using available cover, usually ending in a run for prey (e.g., cats). (See **AMBUSH**)

STEPPES - See **GRASSLAND**.

STEREOSCOPIC - seeing objects in three dimensions.

SUCCESSION - see **ECOLOGICAL SUCCESSION**.

SWAMP - an area of wet, spongy land which may be covered with trees and shrubs.

SYMBIOSIS - an intimate, protracted, and dependent relationship between two or more organisms of different species. (See **PARASITE**, **COMMENSALISM**)

SYNDACTYL - having two or more digits wholly or partially united.

TACTILE - of, or relating to, sense of touch.

TAIGA - northern coniferous forest, characterized by severe winters and a constant cover of winter snow; composed chiefly of evergreen needle-leaf trees such as pine, fir, spruce, and hemlock.

TAPETUM LUCIDUM - a layer of reflective cells lying behind the retina of the eye of nocturnal or deep-sea vertebrates which reflects light back onto the retina, thus improving visual sensitivity at the expense of acuity.

TAXONOMY - the science of the classification of organisms.

TERRESTRIAL - of, or relating to, land, as distinct from air or water. Living on, or in, or growing from land.

TERRITORY - an area or space occupied by an individual or a group, trespassers into which are attacked (and usually defeated); may be the site of breeding, nesting, and food-gathering or any combination thereof.

TORPOR - a dormant state (e.g., frogs). (See **AESTIVATE**, **HIBERNATION**)

TROOP - in primates, a social group of animals including varied numbers of individuals led by a dominant animal (e.g., baboons). 2. A flock or assemblage of birds or mammals.

TULE - large bulrushes of southwestern U.S. and Mexico, especially in the central valley of California; found near waterways.

TUNDRA - a form of grassland that occupies one-tenth of the Earth's land surface, characterized by a climate too cold and dry even for hardy conifers; forms the permafrost, a layer of permanently frozen soil, the top few inches of which thaw in the summer.

TUSKS - the large teeth of an animal that usually stick out when its mouth is closed. Elephants, walruses, wild boars, narwhals, and male musk deer have tusks.

UNDERFUR - soft, often woolly, insulative hairs in the pelage of mammals. It provides the bulk of hair covering in most species.

UNGUICULATE - having nails, claws, or talons instead of hoofs.

UNGULATE - any of the group consisting of the hoofed mammals of which most are herbivorous' and many are homed.

UNGULIGRADE - walking on the tips of the hoofs or toenails.

UTERUS (pl. **UTERI**) - in female mammals, excluding monotremes, a muscular expansion of the reproductive tract in which the embryo and fetus develop; womb.

VENTRAL - pertaining to the undersurface of an animal that moves on all fours (quadrupedal); to the front surface of an animal that holds its body erect. (See **ANTERIOR**, **DORSAL**, **POSTERIOR**)

VESTIGIAL - a small and degenerate or imperfectly developed body part or organ that remains from one more fully developed in an earlier stage of the individual, in a past generation, or in closely related forms.

VERTEBRATES - animals with backbones of bone or cartilage (e.g., fishes, amphibians, reptiles, birds, and mammals).

VIBRISSE - long whiskers specialized as tactile receptors, commonly located in the facial region (e.g., pinnipeds).

VIVIPAROUS - producing living young, as with most mammals. (See **OVIPAROUS**)

WATER HOLE - a pool where animals gather to drink.

WEAN - to accustom an animal to the loss of mother's milk.

WINGSPAN - the distance from one wing tip to the other, when both wings are extended.

ZONATION - reflects differences in altitude, temperature, water supply and other similar factors.

ZYGODACTYL - having the toes arranged in two opposed pairs, two forward and two back (e.g., parrots).

(Rev. 10/01)

GLOSSARY: ARTHROPODS

ABDOMEN – the third or posterior part of the insect body, attached and behind the thorax; in insects comprising up to 10 segments

ANAL – toward the posterior end or side

ANTENNAE – paired, usually segmented, sensory appendages located on the head

ANTERIOR – toward the head

APPENDAGE – any limb or articulated outgrowth of the body such as antennae or wings

ARTHROPOD – “jointed-limbed” invertebrate with a hardened cuticle (exoskeleton), a condition believed to have evolved independently on several occasions – hence the separate phyla of “arthropods.”

BIOLUMINESCENCE – the emission of light from a living organism as a result of external oxidative changes, but does not give off heat

CATERPILLAR – the immature stage or larval form of butterflies and moths

CERCI – paired, articulated appendages at the posterior end of the abdomen, believed to be sensory in function; may be modified for grasping

CHELICERA – a type of pincer-like mouthparts in front of the mouth opening; found in arachnids, horseshoe crabs and sea spiders

CHELIPED – a pincer-like claw-like leg in crustacea

CHEMORECEPTOR – any sense organ responding to chemical stimuli, usually located on antennae of insects

CHITIN – a component of the exoskeleton that is very tough, flexible, and has some degree of resistance to most chemicals

CHRYSLIS – the pupal stage in moths and butterflies; often enclosed in a silk cocoon

CLASPERS – a pair of pincer-like appendages of the male genitalia of insects which clasp the female during copulation

COCOON – a protective covering for developing pupa of moths and butterflies which is spun from silk fibers produced by the larvae; also covering for the eggs of spiders

COMPOUND EYE – a pair of visual organs, one on each side of an arthropod’s head, each composed of few to several thousand photoreceptive units radiating outward and terminating in a lens, all of which are joined to form facets of the eye

CROP – an enlargement of the foregut in insects, in which food is stored

CUTICLE – the non-cellular external layer formed of **chitin**, which is excreted by the **epidermis** and acts as the **exoskeleton** and a barrier limiting water loss and preventing entry of microorganisms

DIAPAUSE – a period of dormancy; a period of arrested development and reduced metabolic rate during which growth, differentiation, and metamorphosis cease; usually passed in the pupal stage and often occurring in winter but not always.

DORSAL – situated at, or related to, the back of the body, i.e., the side that is generally directed upward

ECDYSIS – the process of shedding the exoskeleton; molting

ECDYSONE – a hormone that influences ecdysis

ENTOMOLOGY – The branch of zoology devoted to the study of insects

EPIDERMIS – the layer of living cells that underlie and secrete the arthropod’s cuticle

EXCRETION – the act of getting rid of metabolic waste products, though not necessarily eliminating them

EXOSKELETON – an external, waterproof, protective body covering, composed of chitin, **sclerotin**, and waxes, which houses and supports the internal organs, muscles, and other tissues

FACET – the external surface of an individual unit of a compound eye

FOOD CHAIN – an hierarchical array of organisms which feed on the next lowest organism(s) or trophic level, e.g. leaf \Leftarrow weevil \Leftarrow robberfly \Leftarrow bird \Leftarrow hawk

FRASS – the word for insect waste material, feces

GENITALIA – the terminal, hard parts of an arthropod’s reproductive system, which are engaged during copulation

HEMOLYMPH – the blood of arthropods

HORMONE – a chemical produced in small quantities by a gland in one part of an animal’s body, which enters the blood stream and has a physiological effect on other glands or parts of the body

INSTAR – a stage of insect development between molts. The first instar is the stage between hatching from the egg and the first molt

IMAGO – an adult, sexually mature insect

LABIAL PALPI – a pair of sensory appendages associated with the labium (lower lip)

LABIUM – the lower lip in insects comprising the paired mouthparts of one segment fused in the midline

LATERAL – pertaining to the side of a structure or animal

MANDIBLE – a pair of insect mouthparts, analogous to jaws, and normally used for chewing

METAMORPHOSIS – transformation of a larva, nymph, or naiad into an adult

❑ **Complete** – in which the insect passes through four distinct stages in its life cycle (egg, larva, pupa, and adult), and the immature stages do not resemble adults (also called holometabolous development)

❑ **Incomplete** – in which immature nymphs resemble adults of the species as soon as they hatch from the eggs. Their size increases with successive molts, as do the development of wings and sexual organs (also called hemimetabolous development)

MOLT (or MOULT) – the shedding of the entire exoskeleton; all arthropods do this during growth and metamorphosis; the technical term is **ecdysis**

MYRIAPOD – many legged arthropods, e.g. centipedes and millipedes

NAIAD – the immature form of an aquatic insect which matures via incomplete metamorphosis

NECTAR – sweet liquid produced by plants to attract pollinators; bees collect this and use it for food

NYMPH – the immature form of a terrestrial insect which matures via incomplete metamorphosis

OCELLI – simple eyes with a single lens that can detect varying degrees of light intensity but most probably cannot discern images; adults usually have three (3) arranged in a triangle

VIDUCT – the duct through which arthropod eggs pass from the female

OVIPOSITOR – the egg-laying appendage located at the posterior end of female insects

PALPI – paired sensory appendages of mouthparts

PARTHENOGENESIS – asexual reproduction, in which eggs develop without being fertilized by sperm; capable of producing viable eggs without sexual reproduction and occurs in conditions where rapid colonization is important and/or there is an absence or only a small number of males in the population

PEROMONE – a substance given off by one individual that causes a specific reaction by other individuals of the same species, such as sex attractants, alarm, aggregation, and feeding

POSTERIOR – away from the head

PROBOSCIS – elongated, extended, tube-like mouthparts, adapted for consuming liquids

PROVENTRICULUS – the “stomach” or gizzard of arthropods, with thick, muscular walls lined with chitinous teeth

PUPA (also spelled **PUPAE**), **PUPAL STAGE** – the third, inactive stage of insects during which the larva transforms into the adult form

ROSTRUM – the beak-like piercing and such mouthparts of true bugs

SCLEROTIN – a complex mix of protein substances which gives strength and hardness to the exoskeleton of an arthropod; similar to the constituents of our hair and nails

SEGMENT – repeating unit of a body (or of an appendage) with a structure basically similar to that of other segments

SPERMATHECA – a sac-like structure in the vagina in the female insect in which sperm are received from the male and often stored

SPERMATOPHORE – packet of sperm

SPIRACLE – a breathing hole, usually on the abdominal surface, through which gases enter and leave an arthropod's respiratory system

STRIDULATION – the making of a sound by rubbing two specialized body surfaces together, as in crickets and grasshoppers, cicadas

THORAX – the middle section of an arthropod behind the head and in front of the abdomen; the legs and wings are attached to the thorax; it can be further divided into the prothorax, mesothorax and metathorax.

TRACHEA – a system of tubes which distribute oxygen throughout the body which terminate on the body surface in the **spiracles**; the finer branches or endings of the trachea are called tracheoles

TYMPANUM – an auditory organ consisting of a vibration-sensitive membrane on the abdomen or forelegs of grasshoppers, cicadas, and some moths

VENTRAL – pertaining to the side of the body opposite the back, usually the lower surface

(12/08/00)