

## Glossary of Terms

**acid deposition:** a complex chemical and atmospheric phenomenon that occurs when emissions of sulfur and nitrogen compounds and other substances are transformed by chemical processes in the atmosphere, often far from the original sources, and then deposited on earth in either a wet or dry form. The wet forms, popularly called “acid rain” can fall as rain, snow, or fog. The dry forms are acidic gases or particulates. (U.S. EPA 2000)

**acid mine drainage:** metal-rich, acidic runoff formed from chemical reactions between water and mine rocks containing sulfur-bearing minerals. This runoff releases a number of metals such as iron, aluminum, and manganese into streams. (U.S. EPA 2000)

**adaptive capacity:** the ability of a species to cope and persist under changing conditions through local or regional acclimation, dispersal or migration, adaptation, and/or evolution (Dawson 2011)

**adaptive management:** a sequential, iterative decision-making process that uses monitoring data to improve management planning, actions, and evaluation

**aquaculture:** also called aquafarming, the cultivation of fish, shellfish, and aquatic plants under controlled conditions

**amphibians:** a class of carnivorous ectotherms (body temperature regulated by outside heat sources) whose living members have a moist, glandular skin that is permeable to water and gases. Most amphibians have a well-defined aquatic, larval stage in their life cycle and then undergo metamorphosis into adults. Depending on the species, adults may occupy aquatic or terrestrial habitats. Frogs, toads, and salamanders are examples. (USFWS 2011)

**anadromous:** a life history strategy of fishes that includes migration between fresh- and saltwater. Reproduction occurs in freshwater while growth occurs in the ocean.

**anthropogenic:** of human origin; caused or influenced by human activities

**atmospheric:** of or relating to the conditions of the air and gases surrounding the earth; may refer to general environmental surroundings

**avifauna:** the birds or the kinds of birds of a region, period, or environment

**benthic:** living in or on the bottom of a body of water

**best management practices (BMPs):** practices selected as effective and practical means to achieve an objective, given available resources

**biodiversity:** includes genetic diversity within species, species diversity within a community, and diversity in a full range of biological communities. An area is considered biologically diverse when it includes rich and stable populations of native species that are naturally distributed across the landscape. (NPS 2015)

**biological disturbance:** a discrete or ongoing event in which the proliferation of a plant, animal, or disease organism profoundly alters the functioning of a natural community; may also refer to the effects of herbivory on vegetation (Perlman & Milder 2004)



**BioNET:** a digital map (GIS shapefile) that prioritizes areas for terrestrial and freshwater biodiversity conservation. It was developed as an additional tool for the Natural Heritage Program and its conservation partners to use for proactive land conservation activities, such as targeting for acquisitions and easements, locating appropriate areas for project mitigation or habitat restoration, and planning for areas that require management to sustain dwindling species and habitats

**Biotics:** an integrated, web-enabled platform for tabular and spatial data management, utilized by MD DNR and similar statewide Natural Heritage programs

**blue infrastructure:** Maryland's aquatic resources, which provide shelter for a variety of wildlife species, access to recreational activities, and benefit local economies, and which require care and investment from community members

**bog:** soggy, moist, spongy, or otherwise wet areas with peat soils; the partially or incompletely decomposed remains of dead plants and some animals. A type of peatland. (USFWS 2013)

**brackish:** referring to habitats which have salinity less than a normal marine environment; salinity usually less than two percent (Little & Jones 1980)

**buffer strip:** small area of permanent vegetation designed to mitigate the effects of run-off containing pollutants, nutrients, and sediment while fostering a biodiverse natural community. Buffers are often installed near waterways (riparian buffers) and near agricultural fields, where run-off of pesticides and other nutrients is a concern.

**bunchgrasses:** a perennial grass that grows in clumps in meadows, grasslands, wetlands, and forests (Pacific Northwest National Laboratory 2014)

**canopy:** the cover or horizontal projection of the vegetation of a plant formed by its leaves, branches, etc (Little & Jones 1980)

**carcinogens:** cancer-causing substances or agents

**catadromous:** a life history strategy of fishes that includes migration between fresh- and saltwater. Reproduction occurs in saltwater while growth occurs in freshwater.

**collateral benefit:** intentional or unintentional benefit gained by a species or habitat as a result of action(s) aimed at a different species or habitat

**colonial waterbirds:** birds that gather together in dense colonies for security during the nesting season, usually at predator-free sites such as remote islands. Maryland colonial waterbirds include pelicans, cormorants, gulls, terns, egrets, herons, and ibis.

**coniferous:** referring to the Coniferinae, one of the four classes of gymnosperms; a cone-bearing tree or shrub (e.g., pine, fir, spruce, juniper, cypress) (Little & Jones 1980)

**connectivity (landscape or habitat):** the extent to which a landscape facilitates the movement of organisms and their genes. Loss of connectivity can reduce the size and quality of available habitat, impede and disrupt movement (including dispersal) to new habitats, and affect seasonal migration patterns. (Rudnick et al. 2012)



**coordinated data management:** the practice of integrating data about the same subject from many different sources, in order to better evaluate trends in parameters across a variety of geographic scales

**conservation action:** the measures taken to conserve, protect, and manage Species of Greatest Conservation Need and their key wildlife habitats

**consumptive use (of wildlife):** human use of wildlife resources involving the extraction of wildlife from its habitat; activities such as hunting, fishing, and trapping; consumptive use entails the assigning of recreational or economic value to the extracted wildlife resource (Shuhmann & Schwabe 2000)

**cover type:** a vegetation classification depicting a genus, species, group of species, or life form of tree, shrub, grass, or sedge of an area (USFS 2010)

**deciduous:** referring to those plants (trees or shrubs) that drop their leaves at the end of each growing season (Little & Jones 1980)

**detritus:** litter formed from fragments of decomposed organic material

**dissolved oxygen:** concentration of oxygen dissolved in water, expressed as milligrams per liter or as a percent of saturation

**dispersal:** the movement of individuals of a species away from areas of origin or high population density

**distribution:** the spatial arrangement of a taxon or species; may be portrayed on a species range map

**early successional:** relating to the initial stages of the process by which vegetation is either re-established following a disturbance or by which it initially develops in an unvegetated site. Early successional vegetation is dominated by grasses, forbs, and shrubs. (NPS 2015)

**ecoregion (The Nature Conservancy-terrestrial):** regional landscape that supports recognizably distinctive groupings of plants, animals, and natural communities due to regional patterns of climate, landform, soil, and hydrology

**ecosystem:** any complex of living organisms interacting with abiotic components that form and function as a natural environmental unit

**ectotherm:** an animal that is dependent on sources of heat outside its body

**effectiveness measures:** measures that provide short-term, intermediate, and long-term indications of the progress of projects; in the case of SWAP, effectiveness measures assess progress at key points throughout the life of the project to show whether or not the conservation action achieved the desired impact, why it succeeded or failed, and how implementation of the action can be improved over time under different conditions

**effluent:** the discharge to a body of water from a defined or point source, generally consisting of a mixture of waste and water from industrial or municipal facilities (U.S. EPA 2000)

**emergent marsh:** a community of plants that are rooted under water but grow above the surface of the water, such as cattails and wild rice



**endangered species:** any species of fish, wildlife, or plants which have been designated as such by regulation by the Secretary of the Department of Natural Resources. Designation occurs when the continued existence of these species as viable components of the State’s resources is determined to be in jeopardy. This includes any species determined to be an “endangered” species pursuant to the federal Endangered Species Act.

**Endangered Species Act:** Federal legislation signed into law in 1973 with the purpose of protecting and recovering imperiled species and the ecosystems upon which they depend. It is administered by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (NMFS). Species may be listed as either endangered (in danger of extinction throughout all or a significant portion of its range) or threatened (likely to become endangered within the foreseeable future). Protected species are prohibited from being harassed, harmed, pursued, hunted, shot, wounded, killed, trapped, captured, or collected, and protections are strictly enforced (NOAA NMFS 2014).

**endotherm:** an animal that is capable of producing its own body heat

**epibenthic:** living or existing on top of the bottom layer of sediment on the seabed

**erosion:** process of weathering away of streambanks and adjacent land slopes by water, ice, wind, or other factors

**estuarine:** of or related to a semi-enclosed body of water where saltwater mixes with fresh water, such as the Chesapeake Bay

**eutrophication:** process through which excessive organismal growth, typically algae, is induced by excess nutrient input. Also a natural process of maturing in a body of water.

**exotic:** a species that was not present in a given ecosystem before a given time: usually the date of European settlement

**exposure:** the character, magnitude, and rate of change a species experiences, including both direct and indirect impacts of climate change

**extinction:** the act of a species ceasing to exist (no individuals or breeding pairs left)

**extirpation:** the localized extinction of a species that is no longer found in a locality or country, but still exists elsewhere in the world (USFWS 2013)

**fauna:** the animal life of a given region, environment, or time period

**federally listed species:** a species listed either as endangered, threatened, or at risk (formerly a “candidate” species) under the Endangered Species Act of 1973 (USFWS 2013)

**fen:** a unique wetland type, possessing a water source that originates from alkaline ground water. Typically fens possess unique wetland vegetation such as grasses and sedges that are adapted to saturated alkaline growing conditions. (NPS 2015)

**feral:** wild; the return of a domesticated animal or cultivated plant to a wild state

**flashiness:** how quickly flow in a river or stream increases or decreases during a storm



**floodplain:** area adjoining a water body that becomes inundated during periods of overbank flooding and that is given rigorous legal definitions in regulatory programs. The land bordering a stream channel that is formed by alluvial deposition.

**flora:** the plant life of a given region, environment, or time period

**fluvial:** the presence or interaction of a river within an area or landform (NPS 2015)

**forecast:** a prediction used exclusively in predicting short-term (i.e., days to weeks) weather

**forest composition:** the makeup of the forest in terms of the living organisms or groups of organisms and non-living components present in the forest; all of the tree species that are found in the forest (Wisconsin DNR 2000)

**forest matrix:** the open, developed, and/or agricultural areas that separate patches of forest in cases of forest fragmentation

**fragmentation (habitat):** the partitioning of larger habitats into smaller, more isolated parcels, usually as a result of development. Fragmentation of habitat can negatively affect the abundance and diversity of plants and animals in an area. (NPS 2015)

**geographic information system (GIS):** a unique assemblage of hardware, software, and personnel that integrates digital databases, spatial technologies, and analytical methods in order to capture, store, edit, analyze, and display geographic data (NPS 2015)

**geomorphology:** the study of the origin and evolution of topographic features created through physical, chemical, and biological processes on land and on the ocean floor

**global warming:** an increase in the near surface temperature of the Earth; most often used to refer to the warming predicted to occur as a result of increased emissions of greenhouse gases (NASA 2015)

**grassed waterways:** constructed graded channels that are seeded with grass or vegetation. The vegetation slows the water and the grassed waterway conveys the water to a stable outlet, reducing channel erosion (Natural Resources Conservation Service 2012)

**grasslands:** an area where vegetation is primarily perennial grasses

**habitat:** the place or environment in which a plant or animal naturally lives, grows, reproduces, and obtains resources

**habitat specialists:** species that require very specific habitats and resources (e.g., narrow range of food sources or cover types) to thrive and reproduce

**herpetofauna:** the reptiles and amphibians of a particular region, environment, or time period

**human disturbance:** human-caused events that alter the structure, composition, or function of terrestrial or aquatic habitats. Human disturbances include, among others, actions such as timber harvest, livestock grazing, roads, and the introduction of exotic species (USFS 2010)



**hydraulic fracturing:** a well stimulation process of injecting pressurized fluids (usually water, sand, and chemicals) into the subsurface to initiate or propagate fractures in rock (target geologic formations) to enhance production of natural gas and/or oil (USFS 2014a)

**hydrologic unit code (HUC):** a cataloging system developed by the U.S. Geological Survey and the Natural Resource Conservation Service to identify watersheds and to standardize hydrological unit delineations for geographic description and data storage purposes (USFS 2014a)

**hydrology:** the science dealing with the properties, distribution, and circulation of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere (NPS 2015)

**Important Bird Area (IBA):** a global initiative of BirdLife international, implemented by Audubon and local partners in the United States, the Important Bird Areas Program (IBA) is an effort to identify and conserve areas that are vital to birds and other biodiversity (National Audubon Society 2015)

**impairment:** the state of being diminished, weakened, or damaged

**imperiled:** in danger

**impervious surface:** an area covered with solid material or that is compacted to the point where water cannot infiltrate underlying soils (e.g. parking lots, roads, houses, patios, swimming pools, tennis courts, etc.). Stormwater runoff velocity and volume can increase in areas covered by impervious surfaces.

**impoundment:** natural or artificial body of water that is confined by a structure such as a dam to retain water

**indigenous:** native to or naturally occurring in a particular region or environment

**insectivore:** a carnivorous plant or animal species which consumes mainly insects

**intertidal:** of, or relating to, the portion of shoreline that lies between the high and low tide marks

**invasive species:** species that are not native to an area and that cause ecological, environmental, or economic harm when accidentally or intentionally introduced. These species may displace native species and adversely affect wildlife habitat, water quality, recreation, and biological diversity by crowding out beneficial native species.

**invertebrate:** an animal without a backbone such as an insect, spider, snail, crab, worm, or shrimp

**IUCN category of threats:** a hierarchical classification of the broadest range of species according to their global extinction risk adopted originally in 1994 and later revised in 2000 by the International Union for Conservation of Nature

**lacustrine:** related to or associated with lakes (e.g. lacustrine wetlands)

**landscape capability (LC):** potential capability of the landscape in a given region to provide habitat for a particular species based on approximate environmental conditions

**life zone:** ocean zones characterized based on physical and biological features. Horizontal life zones extend from land out toward sea, vertical life zones range from the surface of the water to the depths of the ocean, and the benthic life zone includes the habitats on the sea floor.



**listserv:** an electronic mailing list that delivers emails to subscribed addresses

**maritime:** of, relating to, or bordering on the sea

**marsh accretion:** vertical growth of marsh caused by deposition of organic and inorganic sediments onto marsh during inundation or when marsh plants grow and decompose (Schuerch et al. 2012)

**Maryland Natural Areas:** a coordinated statewide system that recognizes and seeks to conserve the best remaining examples of Maryland’s native landscapes for future generations. Voluntary recognition as a Natural Area carries a commitment to sustainable management of a given area to conserve the natural features that the area was established to recognize and protect. In most cases, current management practices have maintained the exceptional natural features that distinguish these sites.

**Maryland Seed Tree Law:** a Maryland law that promotes replacement of harvested pine trees with seed pine trees

**Master Naturalist Program:** a volunteer program coordinated by University of Maryland Extension that trains volunteer citizens who want to learn about and share knowledge of Maryland’s nature

**mean sea level:** the average height of the sea surface, based upon hourly observation of the tide height on the open coast or in adjacent waters that have free access to the sea. In the United States, it is defined as the average height of the sea surface for all stages of the tide over a nineteen year period. (NASA 2015)

**migratory:** relating to the movement of animals from one geographic area to another during different times of the year

**movement corridor:** a strip or clump of land that provides habitat and a safe passageway for wildlife to move among nearby habitats

**native (species):** species that originated in and occur naturally in a particular region

**natural community:** combination of native plants and animals repeatedly occurring together in a particular natural environment that has experienced minimal human-caused disturbance or has recovered from that disturbance

**natural succession:** the natural, orderly sequence of changes in an ecological community that is characterized by gradual shifts in plant and animal population diversity (e.g., natural succession takes place as an abandoned farm field gradually transitions to a forest as grasses, forbs, and small shrubs are displaced by trees and large woody shrubs)

**natural system modifications:** threats from actions that convert or degrade habitat in service of “managing” natural or seminatural systems, often to improve human welfare (e.g., suppression of fire; Salafsky et. al. 2008)

**non-consumptive use:** any non-hunting or non-extractive use of wildlife. Examples include bird watching, wildlife observation, and wildlife photography

**nonpoint source pollution:** pollutants entering a water body in a diffuse pattern rather than from a single location. Includes land runoff, atmospheric deposition, or percolation.



**Nor'easter:** cool/cold season coastal storms (Christensen 2013)

**Northeast region:** the region of the U.S. defined by the Northeast Fish and Wildlife Diversity Technical Committee and used to define the Northeast region in Maryland's SWAP. The approximately 263,000 square mile region encompasses 13 U.S. states as well as Washington, D.C.

**odonate:** belonging to the carnivorous insect order Odonata, which includes dragonflies and damselflies

**oligohaline:** describes water with low salinity

**oligotrophic:** environments that offer few nutrients for species survival; lakes or other bodies of water that are low in nutrients and organic matter (Little & Jones 1980)

**palustrine:** relating to vegetated wetlands (e.g., marsh, swamp, fen, bogs) and small, shallow ponds (NPS 2015)

**pathogen:** a microorganism that can cause disease

**pelagic:** living to or occurring in the open ocean water column

**performance measures:** a quantifiable indicator of how well an organization is achieving its objectives; in the case of SWAP, measures success of conservation actions through indicators such as acres of conserved land, number of restoration projects, or numbers of surveys focused on species of concern

**phenological mismatch:** the phenomenon of food and habitat being available at different times than those to which the species was formerly cued; may be related to climate change

**phenology:** the study of how the biological world times natural events in accordance with the climate; natural events impacted by sunlight, temperature, and precipitation (collectively climate) include breeding, flowering, migration, hibernation, and metamorphosis (National Wildlife Federation 2015)

**plant community:** an assemblage of plant species living together and interacting with each other in a common environment; a group of plant populations of different species that live in the same ecosystem (Little & Jones 1980)

**pollinator:** an animal that transfers pollen between the male and female parts of plants, thereby assisting in plant fruiting and reproduction. Pollinators may include insects such as bees, wasps, butterflies, beetles, ants, moths, birds, bats, other mammals or even reptiles.

**prediction:** a statement describing what will happen assuming one particular scenario plays out.

**prioritization criteria:** factors used to make decisions about which projects or actions are of highest priority given present circumstances

**projection:** an assemblage of multiple predictions showing a range of what could happen based on a range of future scenarios.

**purchase of development rights:** an incentive based, voluntary program with the intent of permanently protecting productive, sensitive, or aesthetic landscapes, yet retaining private ownership and management. In this program, a landowner sells the development rights of a parcel of land to a public agency, land trust



or unit of government. A conservation easement is recorded on the title of the property that limits development permanently (Miskowiak & Stoll 2005)

**Ranavirus:** a genus of viruses that are highly infectious to amphibians and reptiles

**refugium (plural refugia):** a sheltering area in which animals can survive unfavorable conditions

**regional linkage:** connection of habitats, wildlife corridors, or greenways in a given region to facilitate wildlife migration, breeding, and dispersal

**reptile:** a class of vertebrates whose skin is dry, lacking in glands, and covered with scales. Claws are present and skull, limb bones, vertebrae, muscles, and so forth are stronger and more advanced than those of amphibians. Egg fertilization is internal, there is no larval stage, and eggs have a protective, hard shell. (USFWS 2011)

**results chain:** diagram that connects desired outcomes to strategies, by way of objectives and measurable goals

**riparian:** related to a geographic area encompassing an aquatic ecosystem and the land and vegetation directly around it; the area bordering a stream, river, lake, wetland, or tidal waterway

**riparian buffer:** small area of permanent vegetation located adjacent to a body of water and designed to mitigate the effects of run-off containing pollutants, nutrients, and sediment while fostering a biodiverse natural community

**runoff:** the nutrient-loaded water that flows across land, picking up pollutants and excess chemicals, and eventually enters a body of water

**salinity:** the dissolved salt content in a body of water; may be given in ppm, ppt, mg/L, or similar

**sedimentation:** the settling-out or deposition of suspended materials (USFWS 2011)

**sensitivity:** a descriptor indicating the degree to which a species or habitat is likely to be affected, and is linked to its dependence on current environmental and ecological conditions. Sensitivity factors could include temperature requirements or dependence on a specific hydrological regime

**sex ratio:** the ratio of male individuals to female individuals in a given population

**shade tree:** a tree grown specifically to provide shade

**silviculture:** the science of controlling the establishment, growth, composition, health, and quality of forests to sustainably meet the needs of landowners and industry (USFS 2014b)

**smolt:** a young fish (<2 years) in the stage of its first migration to the sea

**Species of Greatest Conservation Need (SGCN):** those animals, both aquatic and terrestrial, that are at risk or are declining in Maryland. They include threatened and endangered species, as well as many other species whose populations are of concern in the state.

**species of concern:** species not federally listed as threatened or endangered, but about which there is a concern for conservation



**sprawl (urban or suburban):** the expansion of human communities away from urban centers and into previously undeveloped areas, often necessitating the increased use of transportation

**stakeholder:** a person or group with independent interest in a project

**storm surge:** the rapid rise of sea level associated with tropical storms. During extreme precipitation events, coastal areas are at an elevated risk of flooding from storm surges that raise the sea much higher than the mean level.

**stranding:** when an animal is beached on shore or in shallow water and unable to return itself to deeper water (e.g., a whale stranding)

**sub-canopy:** plant layer below the top canopy (treetops)

**subtidal:** the zone of the shoreline that is below low tide and is always covered by water

**successional habitat:** community made up of shrubs, sapling trees, and other low-lying plants that colonize an area after a major disturbance alters an older community

**synergism:** the interaction of multiple parts to create an effect that is greater than the sum of the parts

**taxa:** taxonomic units into which living organisms are classified (e.g. family, genus, species); plural of taxon (Little & Jones 1980)

**terrestrial:** living or growing on land or in the soil

**tidal regime:** the range of elevations in a wetland that experience inundation with the tide

**topography:** the contours and height of the earth's surface including both natural and man-made features

**Total Industrial Output (TIO):** the total value of all goods and services produced in an economy

**Total Maximum Daily Load (TMDL):** a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that load among the various sources of that pollutant (U.S. EPA 2013)

**tropical cyclone:** warm season coastal storms (Knutson 2010)

**vernal pool:** a temporary wetland that fills up with water from snow melt in late winter and early spring. Due to their temporary nature, vernal pools serve as breeding refuges for a multitude of amphibian species because fish cannot establish in them.

**vulnerability assessment (e.g., Climate Change Vulnerability Assessment):** tools structured to determine the level of vulnerability (sensitivity, exposure, adaptive capacity) to climate change

**watch list species:** animal or plant species selected for listing by an organization focused on conservation of at-risk species on the grounds that the species requires additional attention and/or conservation action. Examples of watch lists referenced in Maryland's SWAP include the Audubon Birds Watch List and the American Bird Conservancy Watch List.



**watershed:** the entire area of land whose runoff of water, sediments, and dissolved materials (e.g., nutrients, contaminants) drain into a river, lake, estuary, or ocean (U.S. EPA 2000)

**white-nose syndrome (WNS):** a disease caused by the fungus *Pseudogymnoascus destructans* that has been associated with millions of bat deaths in North America.

**windbreak:** linear plantings of trees and shrubs designed to enhance crop production, protect people and livestock, and benefit soil and water conservation (National Agroforestry Center 2015)

**wind turbine:** structures that convert energy from the wind into electricity as the propeller blades rotate with wind movement

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