Glossary

These selective glossary entries are adapted from several sources, including the glossaries in Anderson et al. 1999 and Groves et al 2000.

Alliance: A level in the US National Vegetation Classification, defined as a group of plant associations sharing one or more diagnostic species (dominant, differential, indicator, or character), which, as a rule, are found in the uppermost strata of the vegetation. Aquatic alliances correspond spatially to macrohabitats.

Amphidromous: Refers to migratory fish species that may spawn and grow in either freshwater or saltwater, but migrate briefly to the opposite habitat for feeding. See also Diadromous, Catadromous, Potamodromous, Anadromous.

Anadromous: Refers to migratory fish species that spawn in freshwater and grow primarily in saltwater. See also Diadromous, Catadromous, Potamodromous, Amphidromous.

Aquatic Ecological System (AES): Dynamic spatial assemblages of ecological communities that 1) occur together in an aquatic landscape with similar geomorphological patterns; 2) are tied together by similar ecological processes (e.g., hydrologic and nutrients, access to floodplains and other lateral environments) or environmental gradients (e.g., temperature, chemical and habitat volume); and 3) form a robust, cohesive and distinguishable unit on a hydrography map.

Association or Plant Association: The finest level of biological community organization in the US National Vegetation Classification, defined as a plant community with a definite floristic composition, uniform habitat conditions, and uniform physiognomy. With the exception of a few associations that are restricted to specific and unusual environmental conditions, associations generally repeat across the landscape. They also occur at variable spatial scales depending on the steepness of environmental gradients and the patterns of disturbances.

Biological Diversity: The variety of living organisms considered at all levels of organization including the genetic, species, and higher taxonomic levels. Biological diversity also includes the variety of habitats, ecosystems, and natural processes occurring therein.

Block (or Matrix Block): The method used to delineate matrix community examples in all Northeast plans was based on roads and land cover, using GIS tools and data. The entire ecoregion was tiled into discrete polygons referred to as blocks. Each block represented an area bounded on all sides by roads, transmission lines, or major shorelines (lake and river polygons) from USGS 1:100,000 vector data. All roads from class 1 (major interstates) to class 4 (logging road and hiking trails) were used as boundaries. See also Matrix Community.

Catadromous: Refers to migratory fish species that spawn in saltwater and grow primarily in freshwater. See also Diadromous, Anadromous, Potamodromous, Amphidromous.

Coarse Filter Approach: The term coarse filter refers to conservation targets at the community or ecosystem level of biological organization. Coarse-filter targets can be used as surrogates for species conservation in areas where little is known about species

patterns or ecological processes. Conservation of the majority of common and uncommon species (fine-filter targets depends on carefully selecting those examples of natural communities that most likely contain a full complement of their associated flora and fauna.

Community: Terrestrial or plant communities are community types of definite floristic composition, uniform habitat conditions, and uniform physiognomy. Terrestrial communities are defined by the finest level of classification, the "plant association" level of the National Vegetation Classification. Like ecological systems, terrestrial communities are characterized by both a biotic and abiotic component. Even though they are classified based upon dominant vegetation, we use them as inclusive conservation units that include all component species (plant and animal) and the ecological processes that support them.

Connectivity: Community examples and conservation reserves have permeable boundaries and thus are subject to inflows and outflows from the surrounding landscape. Connectivity in the selection and design of nature reserves relates to the ability of species to move across the landscape to meet basic habitat requirements. Natural connecting features within the ecoregion may include river channels, riparian corridors, ridgelines, or migratory pathways.

Conservation Focus: Those targets that are being protected and the scale at which they are protected (local scale species and small patch communities; intermediate scale species and large patch communities; coarse scale species and matrix communities; and regional scale species).

Conservation Goal: In ecoregional planning, the number and spatial distribution of on-the-ground examples of targeted species, communities, and ecological systems that are needed to adequately conserve the target in an ecoregion.

Conservation Status: Usually refers to the category assigned to a conservation target such as threatened, endangered, imperiled, vulnerable, and so on.

Conservation Target: see Target.

Diadromous: Refers to migratory fish species that move between freshwater and saltwater. See also Anadromous, Catadromous, Potamodromous, Amphidromous.

Disjunct: Disjunct species have populations that are geographically isolated from that of other populations.

Distribution Pattern: The overall pattern of occurrence for a particular conservation target. In ecoregional planning projects, often referred to as the relative proportion of the target's natural range occurring within a given ecoregion (e.g. endemic, limited, widespread, disjunct, peripheral).

Ecological Drainage Unit (EDU): Aggregates of watersheds that share ecological and biological characteristics. Ecological drainage units contain sets of aquatic systems with similar patterns of hydrologic process, gradient, drainage density, and species distribution. Used to spatially stratify ecoregions according to environmental variables that determine regional patterns of aquatic biodiversity and ecological system characteristics.

Ecological Land Unit (ELU):Mapping units used in large-scale conservation planning projects that are typically defined by two or more environmental variables such as elevation, geological type, and landform (e.g., cliff, stream, summit). Biophysical or environmental analyses combining ELUs with land cover types and satellite imagery can be useful tools for predicting locations of communities or ecological systems when such information is lacking, and capturing ecological variation based upon environmental factors.

Ecological System (ecosystem): Dynamic assemblages of communities that occur together on the landscape at some spatial scale of resolution, are tied together by similar ecological processes, and form a cohesive, distinguishable unit on the ground. Examples are spruce-fir forest, Great Lakes dune and swale complex, Mojave desert riparian shrublands.

Ecoregion: Relatively large unit of land and water covering tens of thousands of square miles and sharing common features of vegetation, soil type, climate, flora, and fauna. Ecoregions were defined by Robert Bailey (Bailey et al 1994) as major ecosystems resulting from large-scale predictable patterns of solar radiation and moisture, which in turn affect the kinds of local ecosystems and animals and plant found within.

Element : A term originating from the methodology of the Natural Heritage Network that refers to species, communities, and other entities (e.g., migratory bird stopovers) of biodiversity that serve as both conservation targets and as units for organizing and tracking information.

Element Occurrence (EO) : A term originating from methodology of the Natural Heritage Network that refers to a unit of land or water on which a population of a species or example of an ecological community occurs. For communities, these EOs represent a defined area that contains a characteristic species composition and structure.

Endangered Species: A species that is federally listed or proposed for listing as Endangered by the U.S. Fish and Wildlife Service under the Endangered Species Act.

Endemic: Species that are restricted to an ecoregion (or a small geographic area within an ecoregion), depend entirely on a single area for survival, and are therefore often more vulnerable.

Feasibility: A principle used in ecoregional planning to select Action Sites by evaluating the staff capacity of TNC and partners to abate threats, the probability of success, and the financial costs of implementation.

Fine Filter Approach: To ensure that the coarse filter–fine filter strategy adequately captures all viable, native species and ecological communities, ecoregional planning teams also target species that cannot be reliably conserved through the coarse-filter approach and may require individual attention through the fine filter approach. Wide-ranging, very rare, extremely localized, narrowly endemic, or keystone species are all likely to need fine-filter strategies.

Floristics: Essentially synonymous with species composition, referring to levels of a vegetation classification that are defined by the species or floristic composition as contrasted with physiognomic features that are also often used to classify vegetation.

Fragmentation: Process by which habitats are increasingly subdivided into smaller units, resulting in their increased insularity as well as losses of total habitat area. Fragmentation may be caused by humans (such as development of a road) or by natural processes (such as a tornado).

GAP (National Gap Analysis Program): Gap analysis is a scientific method for identifying the degree to which native animal species and natural communities are represented in our present-day mix of conservation lands. Those species and communities not adequately represented in the existing network of conservation lands constitute conservation "gaps." The purpose of the Gap Analysis Program (GAP) is to provide broad geographic information on the status of ordinary species (those not threatened with extinction or naturally rare) and their habitats in order to provide land managers, planners, scientists, and policy makers with the information they need to make better-informed decisions.

GIS (Geographic Information System): A computerized system of organizing and analyzing any spatial array of data and information.

Global Rank: A numerical assessment of a biological element's relative imperilment and conservation status across its range of distribution ranging from G1 (critically imperiled) to G5 (secure). Assigned by the Natural Heritage Network, global ranks for communities are determined primarily by the number of occurrences and total area of coverage (communities only), modified by other factors such as condition, historic trend in distribution or condition, vulnerability, and threats.

Goal: see Conservation Goal.

Habitat: The place or type of site where species and species assemblages are typically found and/or are successfully reproducing. In addition, marine communities and systems are referred to as habitats. They are named according to the features that provide the underlying structural basis for the community.

Heritage Inventory: A term used loosely to describe the efforts of the Network of Natural Heritage Programs and Conservation Data Centers to inventory geographic areas for occurrences of elements of biodiversity, or to describe the standardized methodologies used by Heritage Programs to store and manage data collected by inventory efforts.

Heritage: A term used loosely to describe the Network of Natural Heritage Programs and Conservation Data Centers or to describe the standardized methodologies used by these programs.

Herptile: A term encompassing reptiles and amphibians.

Imperiled Species: Species which have a global rank of G1–G2 assigned by Natural Heritage Programs or Conservation Data Centers. Regularly reviewed and updated by experts, these ranks take into account number of occurrences, quality and condition of occurrences, population size, range of distribution, threats and protection status.

Indicator Species: A species used as a gauge for the condition of a particular habitat, community, or ecosystem. A characteristic or surrogate species for a community or ecosystem.

Indigenous: A species that is naturally occurring in a given area and elsewhere.

Integration: A portfolio assembly principle where sites that contain high-quality occurrences of both aquatic and terrestrial targets are given priority.

Irreplaceable: The single most outstanding example of a target species, community, or system, or a population that is critical to a species remaining extant and not going extinct.

Keystone Species: A species whose impacts on its community or ecosystem are large; much larger than would be expected from its abundance.

Landscape: A heterogeneous land area composed of a cluster of interacting ecosystems that are repeated in similar form throughout.

Large Patch: Communities that form large areas of interrupted cover. Individual occurrences of this community patch type typically range in size from 50 to 2,000 hectares. Large patch communities are associated with environmental conditions that are more specific than those of matrix communities, and that are less common or less extensive in the landscape. Like matrix communities, large-patch communities are also influenced by large-scale processes, but these tend to be modified by specific site features that influence the community.

Legacies (or Biological Legacies): Features of an ecosystem that include vegetation structure and all the accumulating organic materials that stabilize a system and link it historically to a place. These features, collectively termed biological legacies, include coarse woody debris, seed banks, soil nutrient reservoirs and extensive fungal networks — essentially the by-products of previous or current residents.

Linear Communities : Communities that occur as linear strips are often, but not always, transition zones between terrestrial and aquatic systems. Examples include coastal beach strands, bedrock lakeshores, and narrow riparian communities. Similar to small patch communities, linear communities occur in very specific conditions, and the aggregate of all linear communities covers, or historically covered, only a small percentage of the natural vegetation of the ecoregion. They also tend to support a specific and restricted set of associated flora and fauna. Linear communities differ from small patch communities in that both local scale and large-scale processes strongly influence community structure and function.

Macrohabitats: Macrohabitats are the finest-scale biophysical classification unit used as conservation targets. Examples are lakes and stream/river segments that are delineated, mapped, and classified according to the environmental factors that determine the types and distributions of aquatic species assemblages.

Matrix-forming (or Matrix Community) : Communities that form extensive and contiguous cover may be categorized as matrix (or matrix-forming) community types. Matrix communities occur on the most extensive landforms and typically have wide ecological tolerances. They may be characterized by a complex mosaic of successional stages resulting from characteristic disturbance processes (e.g. New England northern hardwood-conifer forests). Individual occurrences of the matrix type typically range in size from 2000 to 500,000 hectares. In a typical ecoregion, the aggregate of all matrix communities covers, or historically covered, as much as 75-80% of the natural vegetation of the ecoregion. Matrix community types are often influenced by large-scale

processes (e.g., climate patterns, fire), and are important habitat for wide-ranging or large area-dependent fauna, such as large herbivores or birds.

Metadata: Metadata documents the content, source, reliability, and other characteristics of data. Federal standards for spatial metadata (from the FGDC, or Federal Geographic Data Committee) are incorporated in the GIS tools used for ecoregional planning in TNC.

Minimum Dynamic Area : The area needed to insure survival or re-colonization of a site following a natural disturbance that removes most or all individuals. This is determined by the ability of some number of individuals or patches to survive, and the size and severity of stochastic (random) events.

Mosaic : An interconnected patchwork of distinct vegetation types.

Native: Those species and communities that were not introduced accidentally or purposefully by people but that are found naturally in an area. Native communities are those characterized by native species and maintained by natural processes. Native includes both endemic and indigenous species.

Network of Conservation Sites: A reserve system connecting multiple nodes and corridors into a landscape that allows material and energy to flow among the various components.

Occurrence: Spatially referenced examples of species, communities, or ecological systems. May be equivalent to Heritage Element Occurrences, or may be more loosely defined locations delineated through 1) the definition and mapping of other spatial data or 2) the identification of areas by experts.

Patch Community: Communities nested within matrix communities and maintained primarily by specific environmental features rather than disturbance processes.

Population Viability Analysis (PVA): A collection of quantitative tools and methods for predicting the likely future status (e.g., likelihood of extinction or persistence) of a population or collection of populations of conservation concern.

Portfolio: The suite or network of areas or natural reserves within an ecoregion that would collectively conserve the native species and communities of the ecoregion. Equivalent to the collection of all conservation targets selected for the portfolio (see Target).

Portfolio Occurrence: see Occurrence.

Potamodromous: Refers to migratory fish species that move entirely within freshwater. See also Diadromous, Catadromous, Anadromous, Amphidromous.

Rangewide: Referring to the entire distribution of a species, community, or ecological system.

Rapid Ecological Assessment (REA): Technique for using remote sensing information combined with on-the-ground selected biological surveys to relatively quickly assess the presence and quality of conservation targets, especially at the community and ecosystem level.

Representativeness: Captures multiple examples of all conservation targets across the diversity of environmental gradients appropriate to the ecoregion (e.g., ecoregional section or subsection, ecological land unit (ELU), or some other physical gradient).

Section : Areas of similar physiography within an ecoregional province; a hierarchical level within the USDA Forest Service ECOMAP framework for mapping and classifying ecosystems at multiple geographic scales.

Shifting Mosaic: An interconnected patchwork of distinct vegetation types that may shift across the land surface as a result of dynamic ecosystem processes, such as periodic wildfire or flooding.

Site (or Conservation Site, or Portfolio Site) : Areas that are defined by the presence of conservation targets, are the focus of conservation action, and are the locus for measuring conservation success.

SLOSS : Acronym standing for "single large or several small" referring to a long-running debate in ecology and conservation biology as to whether it is more effective for biodiversity conservation to have a single large reserve or several small reserves.

Small Patch: Communities that form small, discrete areas of vegetation cover. Individual occurrences of this community type typically range in size from 1 to 50 hectares. Small patch communities occur in very specific ecological settings, such as on specialized landform types or in unusual microhabitats. The specialized conditions of small patch communities, however, are often dependent on the maintenance of ecological processes in the surrounding matrix and large patch communities. In many ecoregions, small patch communities contain a disproportionately large percentage of the total flora, and also support a specific and restricted set of associated fauna (e.g., invertebrates or amphibians and reptiles) dependent on specialized conditions.

Spatial Pattern: Within an ecoregion, natural terrestrial communities may be categorized into three functional groups on the basis of their current or historical patterns of occurrence, as correlated with the distribution and extent of landscape features and ecological processes. These groups are identified as matrix communities, large patch communities, and small patch communities.

Stratification: A hierarchical division of an ecoregion into nested, progressively smaller geographic units. Spatial stratification is used to represent each conservation target across its range of variation (in internal composition and landscape setting) within the ecoregion, to ensure long-term viability of the type by buffering against degradation in one portion of its range, and to allow for possible geographic variation.

Stream Order: A hierarchical ordering of streams based on the degree of branching. A first-order stream is an unforked or unbranched stream. Two first orders flow together to make a second order; two second orders combine to make a third-order stream.

Stress: Something which impairs or degrades the size, condition, or landscape context of a conservation target, resulting in reduced viability.

Subsection : Areas of similar geologic substrates, soils and vegetation within an ecoregional section; a level within the USDA Forest Service ECOMAP framework for mapping and classifying ecosystems at multiple geographic scales.

Surrogate: In conservation planning, surrogates are generally referred to as any conservation target being used to capture or represent targets or elements of biological diversity (both known and unknown) that occur at finer scales of spatial resolution or finer levels of biological organization. For example, communities and ecological systems (coarse filters) are often labeled as surrogate measures of biodiversity as they are intended to represent the many species that occur within these types of targets.

Target: An element of biodiversity selected as a focus for conservation planning or action. The two principal types of targets in Conservancy planning projects are species and ecological communities or ecosystems.

Terrestrial Ecological Systems (ecosystems): Dynamic spatial assemblages of ecological communities that 1) occur together on the landscape; 2) are tied together by similar ecological processes (e.g., fire, hydrology), underlying environmental features (e.g., soils, geology) or environmental gradients (e.g., elevation, hydrologically-related zones); and 3) form a robust, cohesive, and distinguishable unit on the ground. Ecological systems are characterized by both biotic and abiotic (environmental) components.

Threatened Species: Species federally listed or proposed for listing as Threatened by the U.S. Fish and Wildlife Service under the Endangered Species Act.

Threat: The combined concept of ecological stresses to a target and the sources of that stress to the target.

Viability: The ability of a species to persist for many generations or a community to persist over some time period. An assessment of viability will often focus on the minimum area and number of examples or occurrences necessary for persistence. However, conservation goals should not be restricted to the minimum but rather should extend to the size, distribution and number of occurrences necessary for a community to support its full complement of native species.