BioMap2

Guiding Land Conservation for Biodiversity in Massachusetts

Stockbridge

This report and associated maps provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is not intended for use in state regulations.

Produced by:
Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries and Wildlife

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Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries and Wildlife
1 Rabbit Hill, Westborough, MA 01581
Tel: (508) 389-6360 Fax: (508) 389-7891
http://www.nhesp.org

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BioMap2: Guiding Land Conservation for Biodiversity in Massachusetts

Stockbridge

Stockbridge is located in west-central Berkshire County and falls completely within the Housatonic River watershed. The Housatonic flows west from Lee and passes through the southern part of Stockbridge. Along a course distinguished by dramatic bends and oxbows, the river winds through Stockbridge village near the bases of Beartown Hills and Monument Mountain, which rise towards Stockbridge's boundary with Great Barrington to the south. The Housatonic then turns sharply south around the west side of Monument Mountain and enters Great Barrington. The landscape of northern Stockbridge is characterized mainly by Stockbridge Bowl, the large impoundment of Larrywaug Brook, which is the longest tributary to the Housatonic River in the town. Larrywaug Brook flows south out of the Bowl and enters the Housatonic at Stockbridge village. Other Housatonic River tributary streams, including Konkapot and Mohawk Lake Brooks, also join the river along its course in Stockbridge. Small ponds and lakes are scattered throughout the town, including waterbodies such as Lily Pond, Lake Averic, Clark Pond, and Mohawk Lake. Highlands to the west of the town's central valley roughly mark Stockbridge's boundary with West Stockbridge. Lee lies to the east, beyond Rattlesnake Hill, while Lenox and Richmond are situated to the north.

Compared to other towns in the Berkshires region, Stockbridge is moderately populated and developed. It lacks the industrial and commercial establishments found in towns like Pittsfield and Lee; yet much of its landscape has still been shaped by people. Most developed lands are centered in and around Stockbridge village, particularly along the Housatonic River. Residential areas also occur around the recreational center of Stockbridge Bowl, as well as land north of the Bowl in the vicinity of Tanglewood and Route 183. Stockbridge also contains some agricultural lands, particularly between Hill Road and Prospect Hill Road. The town is bisected by the Massachusetts Turnpike, which runs east-west through its center, north of Stockbridge village. State Routes 7, 183, and 102 all traverse the town as well, as does the Housatonic Railroad line, while a network of parallel and interconnecting transportation routes fills the central valley.

Stockbridge contains a wealth of native ecological and biological diversity in its forests, floodplains, wetlands, fields, and waterways. The town lies primarily within the Western New England Marble Valleys ecoregion (see

Stockbridge at a Glance

- Total area: 15,155 acres or 23.7 square miles
- Human Population in 2009: 2,195 people
- Open space protected in perpetuity: 3,280 acres, or 21.6% of total area*

BioMap2 Components

Core Habitat

- 8 Aquatic Cores: 1,737 acres
- 4 Forest Cores: 2,013 acres
- 10 Wetland Cores: 1,041 acres
- 6 occurrences of 4 Exemplary and Priority Natural Community: 339 acres

Species of Conservation Concern**

- 1 snail, 6 insects, 2 fish, 4 amphibians, 1 reptile, 4 birds, 24 plants

Critical Natural Landscape

- 8 Upland Buffers of Aquatic Cores: 2,626 acres
- 13 Upland Buffers of Wetland Cores: 1,719 acres
- 5 Landscape Blocks: 5,668 acres

*calculated using MassGIS data layer "Protected and Recreational Open Space—November 2010"
**see next page for complete list of species, natural communities, and other biodiversity elements

Species of Conservation Concern, Priority and Exemplary Natural Communities, and Other Elements of Biodiversity in Stockbridge

Invertebrates (non-insect)
- **Freshwater Molluscs**
  - Triangle Floater (*Alasmidonta undulata*), Special Concern
  - Creeper (*Strophitus undulatus*), Special Concern
- **Snails**
  - Boreal Marstonia (*Marstonia lustrica*), Endangered

Insects
- **Dragonflies**
  - Arrow Clubtail (*Stylurus spiniceps*), Threatened
  - Brook Snaketail (*Ophiogomphus aspersus*), Special Concern
  - Skillet Clubtail (*Gomphus ventricosus*), Special Concern
  - Stygian Shadowdragon (*Neurocordulia yamaskanensis*), Special Concern
  - Zebra Clubtail (*Stylurus scudderi*), Special Concern
- **Butterflies**
  - Dion Skipper (*Euphyes dion*), Threatened

Fish
- Bridle Shiner (*Notropis bifrenatus*), Special Concern
- Longnose Sucker (*Catostomus catostomus*), Special Concern

Amphibians
- Four-toed Salamander (*Hemidactylium scutatum*), SWAP
- Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern
- Marbled Salamander (*Ambystoma opacum*), Threatened
- Northern Leopard Frog (*Rana pipiens*), SWAP

Reptiles
- Eastern Ribbon Snake (*Thamnophis sauritus*), SWAP

Birds
- American Bittern (*Botaurus lentiginosus*), Endangered
- Common Moorhen (*Gallinula chloropus*), Special Concern
- Sedge Wren (*Cistothorus platensis*), Endangered
- Sora (*Porzana carolina*), SWAP

Plants
- Bristly Black Currant (*Ribes lacustre*), Special Concern
- Bur Oak (*Quercus macrocarpa*), Special Concern
- Climbing Fumitory (*Adlumia fungosa*), Special Concern
- Comb Water-milfoil (*Myriophyllum verticillatum*), Endangered
- Downy Arrowwood (*Viburnum rafinesquianum*), Endangered
- Dwarf Scouring-rush (*Equisetum scirpoides*), Special Concern
- Fen Cuckoo Flower (*Cardamine pratensis* var. *palustris*), Threatened
- Few-flowered Spike-sedge (*Eleocharis quinqueflora*), Endangered
- Great Blue Lobelia (*Lobelia siphilitica*), Endangered
- Handsome Sedge (*Carex formosa*), Threatened
- Hemlock Parsley (*Conioselinum chinense*), Special Concern
- Hill's Pondweed (*Potamogeton hillii*), Special Concern
- Labrador Bedstraw (*Galium labradoricum*), Threatened
- Large-bracted Tick-trefoil (*Desmodium cuspidatum*), Threatened
- Long-leaved Bluet, (*Houstonia longifolia*), Endangered
- Long-styled Sanicle (*Sanicula odorata*), Threatened
- Lyre-leaved Rock-cress (*Arabidopsis lyrata*), Endangered
- Ogden's Pondweed (*Potamogeton ogdenii*), Endangered
- Purple Clematis (*Clematis occidentalis*), Special Concern
- Slender Cottongrass (*Eriophorum gracile*), Threatened
- Small Bur-reed (*Sparganium natans*), Endangered
- Smooth Rock-cress (*Boechera laevigata*), Threatened
- Swamp Birch (*Betula pumila*), Endangered
- Tuckerman's Sedge (*Carex tuckermanii*), Endangered

Exemplary Natural Communities
- Deep Emergent Marsh (Secure)
- Hemlock – Hardwood Swamp (Secure)

Priority Natural Communities
- Black Ash – Red Maple – Tamarack Calcareous Seepage Swamp (Imperiled)
- Calcareous Basin Fen (Critically Imperiled)

Other BioMap2 Components
- Aquatic Cores
- Forest Cores
- Landscape Blocks
- Upland Buffers of Aquatic Cores
- Upland Buffers of Wetland Cores
- Wetland Cores

Figure 1). Stretching from northwest Connecticut up through sections of the watersheds of the Hudson River and Lake Champlain, this ecoregion is one of the most distinct and biologically rich areas in both Massachusetts and New England in general. Its underlying calcareous geology and nutrient-rich soils support a remarkably diverse suite of plants, animals, and natural communities. In Stockbridge, calcareous wetland ecosystems occur all along Lily, Larrywaug, Kampoosa, and Konkapot Brooks, as well as along the Housatonic River itself. These habitats are infrequent in the state, and support uncommon plants such as Labrador Bedstraw, Slender Cottongrass, and Swamp Birch. These wetlands also contain breeding and nesting habitat for marshbirds like the American Bittern. In the rivers themselves, aquatic larvae of dragonflies like the Brook Snaketail burrow in streambottom sediments, while terrestrial adults fly in nearby floodplains, forests, and fields. Higher elevation areas at the edges of town lie within the Berkshire Highlands and Taconic Mountains ecoregions. These areas support a different suite of species, including plants like the Lyre-leaved Rock-cress, which grows in thin soils and crevices of calcareous rock outcrops and ledges, and animals such as Jefferson Salamanders, which breed in vernal pools.

BIODIVERSITY CONSERVATION TARGETS IN STOCKBRIDGE: CORE HABITAT, CRITICAL NATURAL LANDSCAPE, & PRIORITY CONSERVATION AREAS

Overview

In this section, we outline areas in Stockbridge that warrant special focus of conservation efforts locally, region-

Biodiversity Studies in Massachusetts and the Housatonic River Watershed

BioMap2 is a statewide biodiversity conservation plan produced in 2010 by MassWildlife's Natural Heritage & Endangered Species Program and The Nature Conservancy. It is designed to guide strategic biodiversity conservation in Massachusetts over the next decade by focusing land protection and stewardship on the areas that are most critical for ensuring the long-term persistence of state-listed and other native species and their habitats, Priority Natural Communities, and a diversity of ecosystems. BioMap2 is also designed to include the habitats and Species of Conservation Concern identified in the State Wildlife Action Plan (SWAP).

BioMap2 identifies two complementary spatial layers, Core Habitat and Critical Natural Landscape. Core Habitat identifies key areas that are critical for the long-term persistence of rare species and other Species of Conservation Concern, as well as a wide diversity of natural communities and intact ecosystems across the Commonwealth. Protection of Core Habitats will contribute to the conservation of specific elements of biodiversity. Critical Natural Landscape identifies large Landscape Blocks that are minimally impacted by development. If protected, these areas will provide habitat for wide-ranging native species, support intact ecological processes, maintain connectivity among habitats, and enhance ecological resilience to natural and anthropogenic disturbances in a rapidly changing world. Areas delineated as Critical Natural Landscape also include buffering upland around wetland, coastal, and aquatic Core Habitats to help ensure their long-term integrity.

In 2008 and 2009, field surveys were carried out to improve knowledge of the region's biodiversity resources in towns in the Housatonic River watershed in western Massachusetts. During these surveys, coordinated by the Natural Heritage and Endangered Species Program (NHESP) with funds from the Natural Resources Damage Assessment and Restoration (NRD) Program, researchers collected important information about state-listed species and Priority Natural Communities of 19 towns in the region. Surveys were conducted by NHESP staff, expert consultants, academic researchers, and graduate students. Information on the surveys' findings was added to the NHESP database, combined with other NHESP data, and incorporated into Core Habitat of BioMap2. BioMap2 data layers, complete with these data and other information, are now available for use in conservation planning at the town, regional, and state levels.

ally, and throughout the state. Components of the Natural Heritage & Endangered Species Program's (NHESP's) statewide BioMap2 project, which incorporates NHESP data and includes findings of studies funded by the Natural Resource Damages Assessment and Restoration Program (NRD) conducted in 2008 and 2009 as part of its Core Habitat and Critical Natural Landscape, were used to delineate and map these areas. The areas range in size from fewer than 10 acres to several thousand acres. Areas of Core Habitat, each called a BioMap2 Core (BC), and areas of Critical Natural Landscape (CNL), along with their associated components, are illustrated in Figures 3 and 4 and outlined in detail below. BioMap2 components described in this report are those that occur only in Stockbridge, although a given area of Core Habitat or Critical Natural Landscape listed here may extend outside of the town boundaries of Stockbridge and contain additional components.

To facilitate land protection and stewardship, NHESP further prioritized areas in each of the towns in the watershed using habitat size, habitat conditions, and other biodiversity indicators. Priority Conservation Areas (PCAs) were considered to be of high biodiversity value if they contained concentrations of state-listed species or Priority Natural Communities, or large areas of intact habitat. In each town, a total of one to six Town PCAs were selected. Each Town PCA contains part of at least one BioMap2 Core; in Stockbridge, three Town PCAs were designated. Figure 4 illustrates how BioMap2 Core Habitat and Critical Natural Landscape relate to the distribution of Town PCAs in Stockbridge.

A larger scale prioritization was also conducted to select Regional PCAs of the highest conservation and stewardship value among all towns in Massachusetts' portion of the Housatonic River watershed. Regional PCAs often cross town boundaries and are quite large, ranging from 373 acres to more than 25,000 acres. Ecological connectivity within these Regional PCAs is important to biodiversity conservation, and these large units often include select Town PCAs that are of particular ecological significance to both the town and the region. In this way, biodiversity can be conserved at two scales: locally within each town and within a broader regional context. All three of Stockbridge's Town PCAs are part of three larger Regional PCAs: Regional PCA 2, 6, and 8.

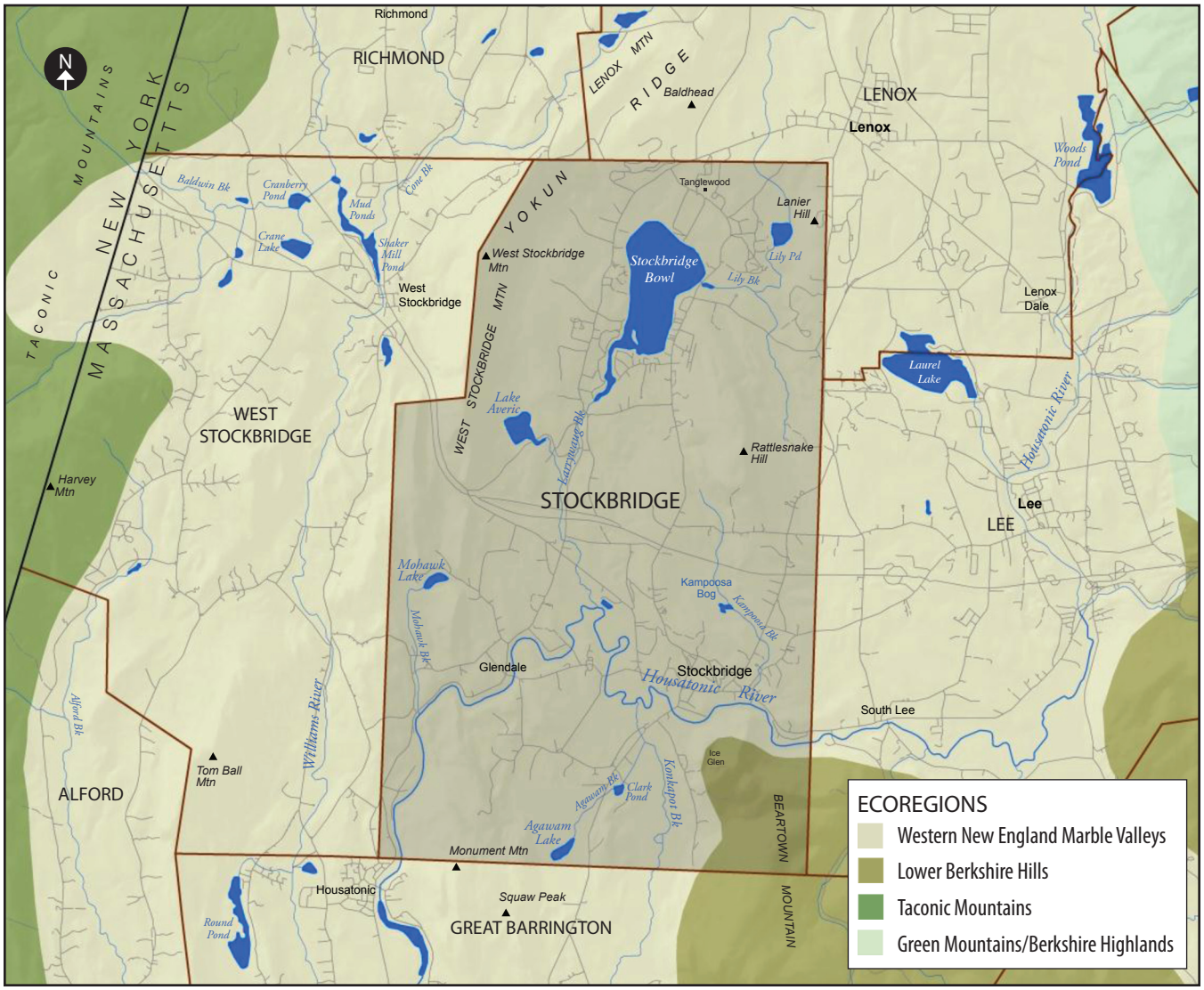


Figure 1. Stockbridge is mostly part of the Western New England Marble Valleys ecoregion, although its southeast corner is part of the Lower Berkshire Hills. The Housatonic River flows through town from east to west, and then south.

Core Habitat and Critical Natural Landscape Components in Stockbridge

Areas of Core Habitat in Stockbridge, called BioMap2 Cores (BCs), are summarized here, as are the various components of each BC, which may include Species of Conservation Concern, Exemplary and Priority Natural Communities, or Aquatic, Forest, Vernal Pool, or Wetland Cores. Components of Critical Natural Landscape (CNL) associated with each BC are also provided. These include Upland Buffers of both Aquatic and Wetland Cores, as well as Landscape Blocks.

BC1653 (no CNL)

BC1653 comprises 45 acres in southwestern Stockbridge and supports a state-listed salamander species.

Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern: Adults and juveniles of this species inhabit upland forest during most of the year, where they reside in small-mammal burrows and other subsurface retreats. Adults migrate during late winter or early spring to breed in vernal pools and areas of swamps, marshes, or similar wetlands free of fish that would prey on eggs and young salamanders. Larvae metamorphose in late summer or early fall and then disperse into upland forests.

BC1655 and CNL842

BC1655 is located in southeastern Stockbridge and its boundaries are defined by and coincident with an Aquatic Core. It supports a state-listed plant species and is surrounded by an Upland Buffer of CNL842.

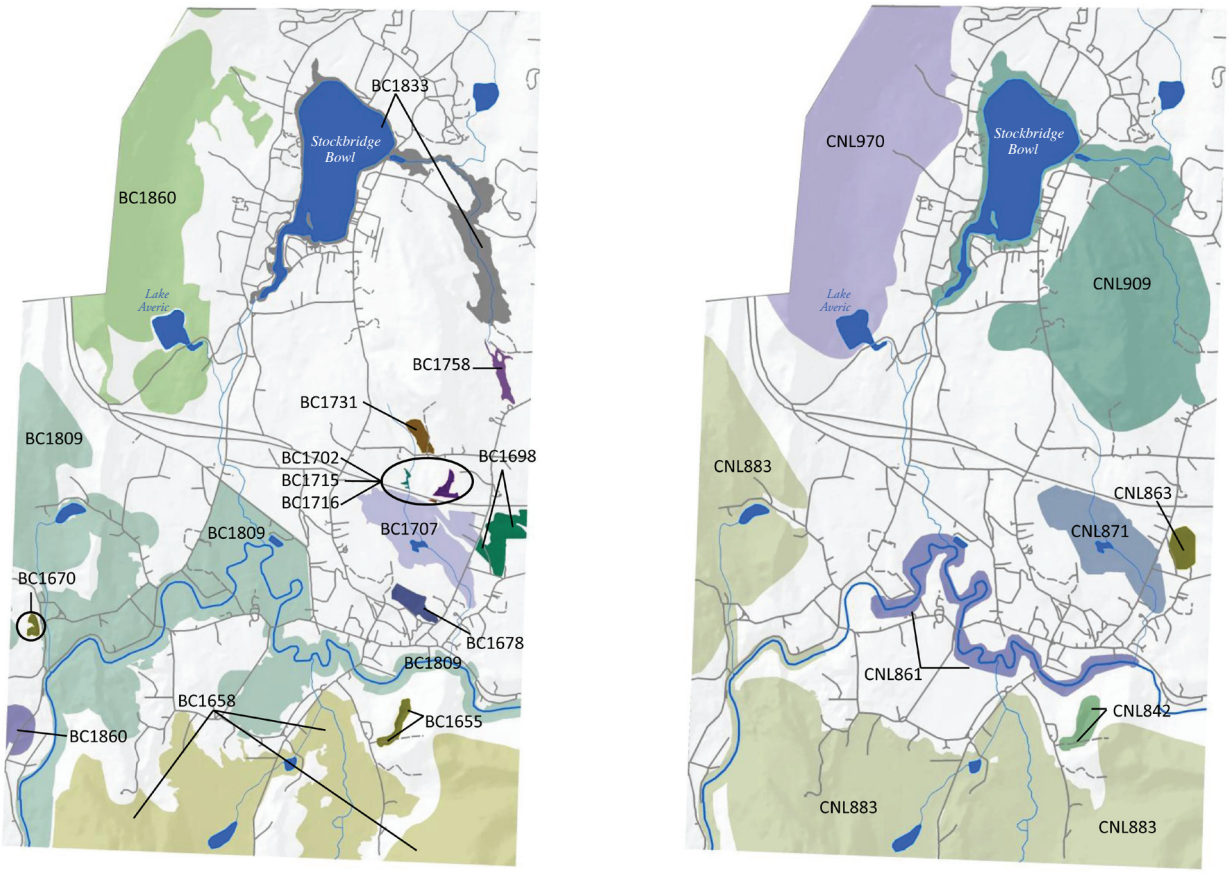


Figure 2. Stockbridge includes a total of 15 BioMap2 Cores (BCs; left) and 7 areas of Critical Natural Landscape (CNL; right).

Tuckerman's Sedge (*Carex tuckermanii*), Endangered: This species is a perennial grass-like plant that grows in nutrient-rich soils of oxbows and other depressions within river floodplains.

BC1658 and CNL883

This BC contains over 9,000 acres in southern Stockbridge, as well as parts of Great Barrington, Lee, Tyringham, and Monterey. It includes three areas of Forest Core (nearly 4,000 acres in total). It also contains Aquatic Cores around Agawam, Konkapot, East, and West Brooks, and three Wetland Cores, all of which are surrounded by Upland Buffers of CNL883. As a whole, BC1658 is part of a Landscape Block of the same CNL. The Stockbridge portion of BC1658 makes up nearly 1,500 acres along Beartown Mountain in the southern part of town. BC1658 also contains nearly 800 acres of Forest Core, and more than 500 acres of Aquatic Core along Konkapot and Agawam Brooks. It supports many uncommon species and Exemplary and Priority Natural Communities.

Plants

Bur Oak (*Quercus macrocarpa*), Special Concern: This broadly-distributed tree species reaches its eastern limit in western Massachusetts, where it is restricted to wetlands near limestone hills or outcrops.

Climbing Fumitory (*Adlumia fungosa*), Special Concern: This herbaceous vine grows on rock ledges within moist, shady woods, often climbing over talus at the base of steep cliffs.

Dwarf Scouring-rush (*Equisetum scirpoides*), Special Concern: This perennial, evergreen fern-ally grows in a variety of cool, usually wet habitats, including hummocks in swamps, moist stream banks, and seeps associated with conifer tree species.

Hemlock Parsley (*Conioselinum chinense*), Special Concern: This is a perennial herbaceous plant of forested swamps with sparse canopy cover. It generally grows in enriched soils overlying calcareous bedrock.

Ogden's Pondweed (*Potamogeton ogdenii*), Endangered: This annual aquatic herbaceous plant with submersed leaves grows in shallow and alkaline waters that are still or very slow-moving.

Purple Clematis (*Clematis occidentalis*), Special Concern: This perennial woody vine occurs on semi-shaded slopes with soils that are either calcareous or have neutral pH. It can grow in woodlands with mostly deciduous trees, or areas where deciduous and evergreen conifers are mixed.

Swamp Birch (*Betula pumila*), Endangered: This short shrub grows in open and forested wetlands that are influenced by calcareous groundwater seepage.

Insects

Dion Skipper (*Euphyes dion*), Threatened: This butterfly inhabits sedge wetlands, including calcareous fens, riparian marshes, and wet meadows, and sedge areas of shrub swamps, where their larvae feed on various sedges (*Carex* species). Adults feed on the flower nectar of species such as Common Milkweed (*Asclepias syriaca*) in nearby upland fields.

Reptiles

Eastern Ribbon Snake (*Thamnophis sauritus*), SWAP: This species is known to occur in several parts of BC1658. It lives in wetlands and near the edges of open water. It typically feeds on amphibians and fish.

Birds

American Bittern (*Botaurus lentiginosus*), Endangered: This mottled brown, heron-like bird feeds and nests primarily in large cattail, tussock, or shrub marshes, and is very sensitive to disturbance. Its coloring and unique behavior of pointing its bill skyward when threatened, sometimes swaying to mimic movement of grasses in the wind, make it well-camouflaged in marsh habitat.

Common Moorhen (*Gallinula chloropus*), Special Concern: This duck-like marshbird inhabits shallow freshwater marshes and typically nests in dense cattail beds that are adjacent to open water.

Sedge Wren (*Cistothorus platensis*), Endangered: This perching bird nests in large wet meadows or shallow marshlands with sedge and grass vegetation. It is sensitive to the loss of wet meadow habitat due to some agricultural practices, as well as disturbances such as the arrival of invasive plant species in its native habitat.

Exemplary Natural Communities

Deep Emergent Marsh (Secure): This rather common natural community type is a broadly-defined grass, sedge and/or cattail wetland that occurs in saturated and mucky mineral soils. It is inundated seasonally and retains standing water throughout the year. It generally forms in broad, flat areas bordering slow rivers, or along pond margins that grade into shrub swamps.

Hemlock-Hardwood Swamp (Secure): This fairly common natural community type is an acidic forested swamp with Hemlock as a dominant tree canopy species. It occurs on saturated soils in poorly drained basins throughout the state.

Priority Natural Communities

Black Ash – Red Maple – Tamarack Calcareous Seepage Swamp (Imperiled): This is a mixed deciduous-coniferous forested swamp that occurs in areas with calcium-rich groundwater seepage. It supports many uncommon, calcium-loving plant species. A 45-acre area containing this community lies just west of Agawam Lake and Agawam Brook, near the boundary of Stockbridge and Great Barrington.

Calcareous Basin Fen (Critically Imperiled): This Priority Natural Community is a type of sedge-shrub peatland found in well-defined basins with calcareous water inputs. An example with high species and habitat diversity occurs around the perimeter of Lake Agawam.

BC1670 and CNL883

This seven-acre BC in western Stockbridge supports a state-listed plant species and is part of a Landscape Block of CNL883.

BC1678, BC1702, BC1715, and BC1716 (no CNL); BC1731 and CNL909

Each of these small BCs is less than 30 acres, and all lie in east-central Stockbridge. BC1678 is just northeast of Stockbridge village; BC1702, BC1715, and BC1716 are to the north near the Massachusetts Turnpike. BC1731 is along Marsh Brook just north of Rattlesnake Mountain Road. BC1731 is the only one associated with a CNL; it falls partially within a Landscape Block of CNL909. These BCs collectively support several state-listed plant species:

Handsome Sedge (*Carex Formosa*), Threatened: This slender, grass-like perennial sedge grows in clumps at the transition zone between wetlands and uplands, and requires alkaline soil that is moist but not fully saturated.

Large-bracted Tick-trefoil (*Desmodium cuspidatum*), Threatened: This plant species is a perennial legume that occurs in open, relatively dry deciduous woodlands, on talus slopes, and at forest edges.

Great Blue Lobelia (*Lobelia siphilitica*), Endangered: This tall perennial plant with showy flowers occurs in open circumneutral wetlands.

BC1698 and CNL863

This 66-acre BC lies along the boundary between Stockbridge and Lee; 60 acres of it are in Stockbridge. It contains wetlands and associated areas of open water just southeast of the intersection of Route 7 and the Massachusetts Turnpike that are part of an Aquatic Core. Its wetlands support two state-listed species: one butterfly and one marshbird. BC1698 is surrounded by an Upland Buffer of CNL863.

Dion Skipper (*Euphyes dion*), Threatened: These butterflies typically inhabit sedge wetlands, including calcareous fens, wet meadows and riparian areas, and shrub

swamps, as their larvae feed on sedge, or plants of the genus *Carex*. Adults nectar in nearby upland fields.

Common Moorhen (*Gallinula chloropus*), Special Concern: This is duck-like marshbird that inhabits shallow freshwater marshes and typically nests in dense cattail beds adjacent to open water.

BC1707 and CNL871

This BC makes up nearly 250 acres that include Kampoosa Bog and lie along Kampoosa Brook west of Route 7 and south of the Massachusetts Turnpike. BC1707 contains two important Priority Natural Communities that are quite uncommon in Massachusetts, and in turn support a variety of state-listed plants and other species. Upland Buffers of CNL871 surround the Wetland and Aquatic Cores of BC1707.

Plants

Comb Water-milfoil (*Myriophyllum verticillatum*), Endangered: This aquatic plant grows underwater in shallow, still, and alkaline lakes and ponds.

Fen Cuckoo Flower (*Cardamine pratensis var. palustris*), Threatened: This species is a perennial herbaceous plant of calcium-rich seepage swamps.

Few-flowered Spike-sedge (*Eleocharis quinqueflora*), Endangered: This perennial sedge has clustered stems and grows on wet calcareous open shores or peatlands.

Labrador Bedstraw (*Galium labradoricum*), Threatened: In Massachusetts, this slender perennial herbaceous plant of the madder family (Rubiaceae) is only known to occur in calcareous fens, wet meadows, and swamps within the upper Housatonic River watershed.

Large-bracted Tick-trefoil (*Desmodium cuspidatum*), Threatened: This plant species is a perennial legume that occurs in open and relatively dry, deciduous woodlands, on talus slopes, and at forest edges.

Slender Cottongrass (*Eriophorum gracile*), Threatened: This peatland species is a colonial perennial sedge that requires open habitats but can tolerate a wide range of water chemistry.

Small Bur-reed (*Sparganium natans*), Endangered: This floating aquatic plant usually grows in rich, organic, non-acidic, and quiet waters of ponds, streams, and ditches.

Smooth Rock-cress (*Boechera laevigata*), Threatened: This plant is a perennial herbaceous mustard of rocky woods, floodplains, and thickets.

Swamp Birch (*Betula pumila*), Endangered: This is a short shrub that grows in open and forested wetlands influenced by calcareous groundwater seepage.

Insects

Dion Skipper (*Euphyes dion*), Threatened: This butterfly typically inhabits sedge wetlands, including calcareous fens, wet meadows and riparian areas (and shrub swamps), as their larvae feed on sedge, or plants of the genus *Carex*. Adults nectar in nearby upland fields.

Amphibians

Four-toed Salamander (*Hemidactylium scutatum*), SWAP: These are the smallest salamanders in the state. They live in forested habitats surrounding swamps, bogs, marshes, vernal pools, and other fish-free waters that are used as breeding sites. Most breeding sites in Massachusetts are characterized by pit-and-mound topography with significant Sphagnum moss cover. Eggs are typically laid in mounds or patches of moss that overhang water. Upon hatching, the larvae wriggle through the moss and drop into the water, where they develop for several weeks prior to metamorphosis.

Birds

American Bittern (*Botaurus lentiginosus*), Endangered: This mottled brown heron-like bird feeds and nests primarily in large cattail, tussock, or shrub marshes, and is very sensitive to disturbance. Its coloring and unique behavior of pointing its bill skyward when threatened, sometimes swaying to mimic movement of grasses in the wind, allow it to be well-camouflaged in marsh habitat.

Priority Natural Communities

Black Ash – Red Maple – Tamarack Calcareous Seepage Swamp (Imperiled): This Priority Natural Community is a mixed deciduous-coniferous forested swamp found in areas with calcium-rich groundwater seepage. The nutrient enrichment supports many uncommon, calcium-loving plant species. Despite the presence of some invasive species, this occurrence of Black Ash – Red Maple – Tamarack Calcareous Seepage Swamp is one of the highest quality ones in the state due to its large size (111 acres), its extensive natural buffer, and the many state-listed species it supports.

Calcareous Basin Fen (Critically Imperiled): This Priority Natural Community is a sedge-shrub peatland found in well-defined basins with calcareous water inputs. This occurrence is very large (27 acres) and in very good condition. It has exceptional species diversity and a large buffer of natural vegetation. Exotic species here are under intensive management.

BC1758 and CNL909

This BC consists of a 20-acre Wetland Core located along the upper reaches of Lily Brook, southeast and upstream of Stockbridge Bowl, along the east side of Rattlesnake Hill. It is surrounded by an Upland Buffer of CNL909.

BC1809 and CNL861, CNL883, and CNL898

BC1809 is very large – more than 11,000 acres total – and stretches along the Housatonic River mainstem and its

floodplains in Stockbridge and Lee, as well as along several tributaries, including Hop Brook in Tyringham, Mohawk Lake Brook in Stockbridge, and the Williams River in West Stockbridge. In Stockbridge, BC1809 encompasses approximately 1,800 acres along the Housatonic River and tributaries such as Mohawk Lake Brook and Larrywaug Brook. These lowland areas contain Aquatic and Wetland Cores that are surrounded by Upland Buffers of CNL861. BC1809 also includes 420 acres of Forest Core along the highland ridges near the town's boundary with West Stockbridge. This western part of BC1809 is in the Landscape Block of CNL898. The southwestern part of BC1809 is in the Landscape Block of CNL883 and the Aquatic Core there is surrounded by Upland Buffer of CNL883. A large proportion of Stockbridge's uncommon plants and animals are associated with the instream, floodplain, and higher elevation habitats of BC1809.

Plants

Bristly Black Currant (*Ribes lacustre*), Special Concern: This short shrub grows at fairly high elevations near streams, seeps, ledges, and swamps in somewhat rich, cool, and moist woods.

Bur Oak (*Quercus macrocarpa*), Special Concern: This broadly distributed tree species reaches its eastern limit in western Massachusetts, where it is restricted to wetlands near limestone hills or outcrops.

Dwarf Scouring-rush (*Equisetum scirpoides*), Special Concern: This perennial, evergreen fern-ally grows in the herbaceous layer in a variety of cool, usually wet habitats, including hummocks in swamps, moist stream banks, and seepy areas under conifers.

Great Blue Lobelia (*Lobelia siphilitica*), Endangered: This tall perennial plant with showy flowers occurs in open circumneutral wetlands.

Long-styled Sanicle (*Sanicula odorata*), Threatened: This perennial herbaceous plant is found in a variety of deciduous forest types, usually on mesic slopes in stream valleys or along lake margins.

Smooth Rock-cress (*Boechera laevigata*), Threatened: This plant is a perennial herbaceous mustard of rocky woods, floodplains, and thickets.

Insects

Arrow Clubtail (*Stylurus spiniceps*), Threatened: This dragonfly is part of the diverse Gomphidae family. Nymphs, or larvae, are aquatic and live on bottoms of swift-flowing, sandy rivers and some lakes, while adults are terrestrial and inhabit riparian and upland areas.

Brook Snaketail (*Ophiogomphus asperses*), Special Concern: Aquatic larvae of this dragonfly can be found in clear, sand-bottomed streams (with intermittent rapids) in dense woodlands. Adults dwell in nearby uplands.

Skillet Clubtail (*Gomphus ventricosus*), Special Concern: Skillet Clubtail nymphs are aquatic, living in the sandy bottoms of rivers of various sizes.

Stygian Shadowdragon (*Neurocordulia yamaskanensis*), Special Concern: This dragonfly species is part of a family known as emeralds (Corduliidae). It is a dull brown color, unlike most other emeralds, which are generally characterized by brilliant green eyes and metallic green highlights on the face, thorax, and abdomen. It is elusive, usually appearing only for a short time after sunset and before dark. It occurs along lakes with rocky shores and medium to large rivers that are relatively unvegetated. Like other dragonflies, it has both an aquatic larval phase and a terrestrial adult phase.

Zebra Clubtail (*Stylurus scudderi*), Special Concern: This dragonfly species inhabits lakes or mid-sized forested streams that are sandy-bottomed and have slow to moderate stream flows with intermittent rapids. Its larvae are aquatic and live on stream bottoms, while adults are terrestrial and inhabit nearby uplands.

Freshwater Molluscs

Creeper (*Strophitus undulatus*), Special Concern: Like most freshwater mussels, the Creeper burrows in stream bottoms, filters algae and bacteria from the water, and uses a fish host to transform from young larvae into juvenile mussels. It can use more than 20 fish host species, while other mussel species often rely on fish of only one or two species. The Creeper occurs in various reaches of the Housatonic River mainstem and most animals found here are older individuals whose reproduction may be limited.

Triangle Floater (*Alasmidonta undulata*), Special Concern: When found, this freshwater mussel is usually in low-gradient river reaches with sand and gravel substrates and low to moderate water velocities, although it can occupy habitats with a variety of substrate and flow types. No young animals were found in this moderate-sized population, indicating reproduction may be limited.

Fish

Longnose Sucker (*Catostomus catostomus*), Special Concern: This torpedo-shaped fish has a snout extending beyond its downturned mouth. It is typically found in cool, higher elevation sections of streams and rivers with rocky substrates. These fish may swim miles to deposit their eggs on clean and well oxygenated gravel substrates. In Massachusetts, they only occur in the western part of the state.

Amphibians

Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern: Adult and juvenile Jefferson Salamanders inhabit upland forest during most of the year, where they

reside in small-mammal burrows and other subsurface retreats. Adults migrate during late winter or early spring to breed in vernal pools and areas of swamps, marshes, or similar wetlands that are free of fish that would prey on eggs and young salamanders. Larvae metamorphose in late summer or early fall and then disperse into upland forests.

Marbled Salamander (*Ambystoma opacum*), Threatened: This salamander species inhabits upland forest during most of the year, where individuals reside in small-mammal burrows and other subsurface retreats. Adults migrate during late summer or early fall to breed in dried portions of vernal pools, swamps, marshes, and other predominantly fish-free wetlands. Eggs are deposited under logs, leaf-litter, or grass tussocks, and hatch after being inundated by fall rains. Larvae metamorphose during late spring, whereupon they disperse into upland forests. This population was the first found in the Housatonic watershed.

Northern Leopard Frog (*Rana pipiens*), SWAP: Adult frogs of this species are found in marshes, wet meadows, and peatlands, often in the narrow transition zone between open water and uplands; they retreat to the water of ponds and small streams when threatened. Their tadpoles are herbivorous and require open water to develop. The Housatonic watershed provides some of the best habitat in the state and many populations are present.

BC1833 and CNL909

This BC includes Stockbridge Bowl and its immediate uplands, as well as riparian areas and wetlands associated with Lily Brook, which drains into Stockbridge Bowl from the east. BC1833 is 649 acres in total size, and most of this area is designated as Aquatic Core. BC1833 also contains a Wetland Core along Lily Brook and supports several state-listed species. The entire BC is surrounded by Upland Buffers of CNL909; the upper reaches of Lily Brook are also part of a Landscape Block of the same CNL.

Hill's Pondweed (*Potamogeton hillii*), Special Concern: This submersed aquatic plant grows best in the muddy substrates of cold, shallow, slow-moving, and clean alkaline waterbodies.

Boreal Marstonia (*Marstonia lustrica*), Endangered: This is a small snail with a translucent shell that has a light greenish or brownish color. Individuals inhabit lakes that are well-vegetated with submersed aquatic plants and rich in nutrients, especially calcium and magnesium. Lakes with extensive vegetated shallow zones are especially suitable for this species.

Bridle Shiner (*Notropis bifrenatus*), Special Concern: This fish is a small, straw-colored minnow with a distinct dark lateral band that runs from the tip of the snout to the base of the tail. It is typically found in clear water in slack areas of streams and rivers, as well as in lakes and ponds, and is sensitive to turbidity, invasive plant species, and severe changes in flow regime. This fish is generally associated with submerged aquatic vegetation, but also schools in areas of open water.

American Bittern (*Botaurus lentiginosus*), Endangered: This mottled brown, heron-like bird feeds and nests primarily in large cattail, tussock, or shrub marshes, and is very sensitive to disturbance. Its coloring and unique behavior of pointing its bill skyward when threatened, sometimes swaying to mimic movement of grasses in the wind, make it well-camouflaged in marsh habitat.

BC1860 and CNL970

This BC encompasses a total of 1,761 acres in Stockbridge, West Stockbridge, and small part of southern Richmond. In Stockbridge, it includes a large Forest core, a small Aquatic Core just northwest of Stockbridge Bowl, and several Wetland Cores. Both the Aquatic and Wetland Cores are surrounded by Upland Buffers of CNL970, and BC1860 as a whole is part of a Landscape Block of the same CNL. It also supports several uncommon plants, a salamander and a marshbird.

Plants

Downy Arrowwood (*Viburnum rafinesquianum*), Endangered: In Massachusetts, this plant species is found on open rocky ridgelines, lightly wooded summits, and dry rocky slopes, and is restricted to southern Berkshire County. The population in BC1860 is one of the state's few occurrences.

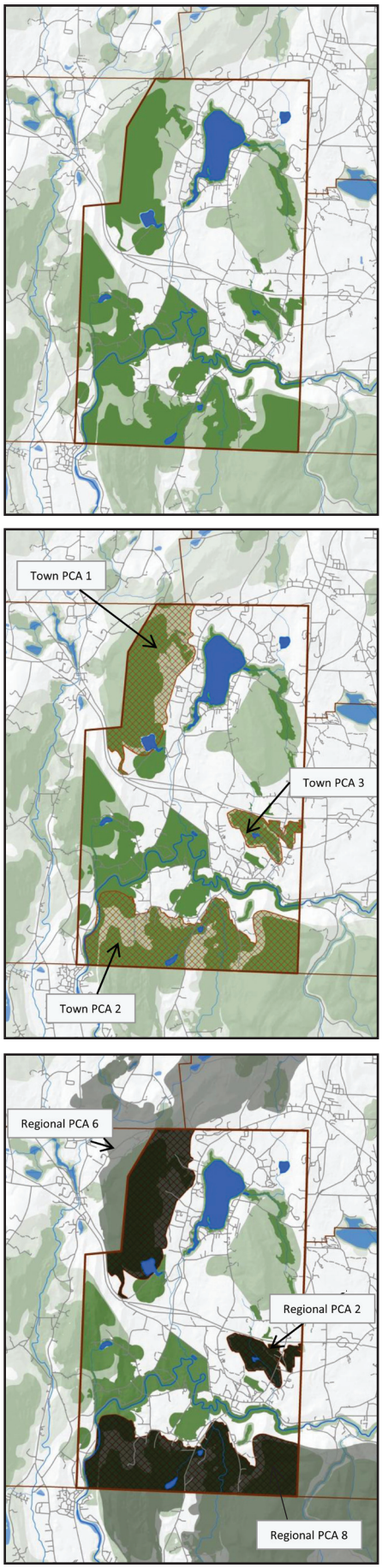
Hill's Pondweed (*Potamogeton hillii*), Special Concern: This submersed aquatic plant grows best in the muddy substrates of cold, shallow, clean, and rather still waterbodies that are also alkaline.

Long-leaved Bluet (*Houstonia longifolia*), Endangered: This plant is a small perennial species of dry, rocky openings in non-acidic, deciduous woodlands.

Lyre-leaved Rock-cress (*Arabidopsis lyrata*), Endangered: This small, herbaceous perennial inhabits thin soils and crevices of calcareous rocky cliffs, outcrops, and ledges, and is found in full to filtered sun.

Amphibians

Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern: Adult and juvenile Jefferson Salamanders inhabit upland forest during most of the year, where they reside in small-mammal burrows and other subsurface retreats. Adults migrate during late winter or early spring to breed in vernal pools and areas of swamps, marshes,



or similar wetlands that are free of fish that would prey on eggs and young salamanders. Larvae metamorphose in late summer or early fall and then disperse into upland forests.

Birds

Sora (*Porzana carolina*), SWAP: This secretive marshbird typically nests in dense cattail marshes, adjacent to areas of open water.

Priority Conservation Areas in Stockbridge

The town of Stockbridge contains three Priority Conservation Areas (PCAs) identified by NHESP. All three are considered Town PCAs; two of these are part of larger Regional PCAs, while the third shares exact boundaries with a small Regional PCA that lies within the boundaries of Stockbridge.

Town PCA 1/Regional PCA 6: Town PCA 1 is part of Regional PCA 6, which is an 8,927-acre area that extends from south-central Pittsfield, first along the boundary between Lenox and Richmond, then along the boundary between Stockbridge and West Stockbridge. Regional PCA 6 reaches its southern limit in those latter two towns, just north of the Massachusetts Turnpike. The Stockbridge portion, which is also Town PCA 1, contains a segment of highlands in the northwestern part of town. This area contains many acres of relatively undisturbed forest habitat as well as several forested wetlands, and supports uncommon plant, amphibian, and bird species associated with those habitats.

Town PCA 2/Regional PCA 8: Town PCA 2 is part of the larger Regional PCA 8, which as a whole includes nearly 20,000 acres in parts of Pittsfield, Washington, Lee, and Lenox as well as Stockbridge, and encompasses highland areas and headwater streams to the Housatonic River throughout this region. In Stockbridge, Town PCA 2 comprises nearly the full width of the town within a mile of its southern boundary, and contains extensive areas of Forest Core. The area stretches east from the Housatonic River in southwestern Stockbridge, and includes parts of Monument and Beartown Mountains, as well as reaches of Konkapot

Figure 3. Core habitat (dark green), Critical Natural Landscape (light green), Town Priority Conservation Areas (PCAs; reddish-brown grid), and Regional Priority Conservation Areas (dark grey) in Stockbridge. Town PCAs make up 4,312 acres in Stockbridge, or 28.5 percent of the town's total area. Regional PCAs constitute approximately the same area: 4,315 acres.

Brook. Large wetland areas span parts of this PCA and support species like Ogden's Pondweed and Swamp Birch. State-listed marshbirds, including the American Bittern and Common Moorhen, are also found here, as is the Priority Natural Community called Calcareous Basin Fen.

Town PCA 3/Regional PCA 2: Town PCA 3 shares the same boundaries as Regional PCA 2. This relatively small area (374 acres) in east-central Stockbridge lies along the Massachusetts Turnpike near the town's boundary with Lee. It supports a great diversity of species and natural communities that are associated with BC1698 and BC1707, and are within the Kampoosa Brook watershed. Wetland areas in this PCA support many state-listed plant species, including Slender Cottongrass and Labrador Bedstraw. This area contains an example of the very rare Priority Natural Community known as a Calcareous Basin Fen, and also provides habitat for amphibians such as the Four-toed Salamander. The eastern part of this PCA, located along a tributary to Kampoosa Brook, supports the marshbird Common Moorhen.

Glossary

Aquatic Cores (in BioMap2, a component of Core Habitat) include intact river corridors within which important physical and ecological processes of the river or stream occur, delineated using integrated and functional ecosystems for fish species and other aquatic Species of Conservation Concern. To identify those areas integrally connected to each river and stream, each river segment was buffered 30 meters. All wetlands wholly or partially contained within this buffer were then included, and the combination of the river channel, the adjacent buffer, and the connected wetlands make up this riverine Core Habitat.

BioMap2 Cores (BCs) (called Core Habitats in BioMap2) identify key areas that are critical for the long-term persistence of rare species and other Species of Conservation Concern, as well as a wide diversity of natural communities and intact ecosystems across the Commonwealth. Protection of Core Habitats will contribute to the conservation of specific elements of biodiversity.

Certified Vernal Pools are temporary ponds or other fishless wetlands that meet certain biological and physical criteria to be classified as essential breeding habitat for a number of amphibian and invertebrate species, such as Wood Frog, Spotted Salamander, Blue-spotted Salamander, Jefferson Salamander, Marbled Salamander, and Intricate Fairy Shrimp. The certification of vernal pool habitat in The Commonwealth is administered by the Natural Heritage & Endangered Species Program. A number of regulations incorporate protections for certified vernal pools (please see http://www.mass.gov/dfwele/dfw/nhesp/vernal_pools/pdf/vpcert.pdf for more information).

Critical Natural Landscape (CNL) (part of BioMap2) identifies large natural landscape areas that are minimally impacted by development. If protected, these areas will provide habitat for wide-ranging native species, support intact ecological processes, maintain connectivity among habitats, and enhance ecological resilience to natural and anthropogenic disturbances in a rapidly changing world. Areas delineated as Critical Natural Landscape also include buffering upland around wetland, coastal, and aquatic Core Habitats to help ensure their long-term integrity.

Cobbles are small hills or rocky knolls made of marble and quartzite. The alkaline soils derived from the calcareous rocks support a distinct and diverse flora. Examples include Bartholomew's Cobble in southern Sheffield and Tyringham Cobble in Tyringham.

Critically Imperiled natural communities typically have five or fewer documented sites or have very few remaining acres in the state. Natural Community types ranked as Critically Imperiled are in the Priority Natural Communities category.

Disturbance, in an ecological sense, is an event that disrupts the normal structure and function of an ecosystem. Disturbances often produce bare soil and openings in forests where rapidly growing, sun-loving species, including invasive exotic species, can grow. Human activities have accelerated the number and types of disturbances in many ecosystems.

Ecoregions are areas of relatively homogeneous ecological systems, including vegetation, soils, climate, geology, and patterns of human uses.

Endangered species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts. Endangered is a category of state-listed species defined in the Massachusetts Endangered Species Act (M.G.L. c.131A) and listed in its regulations (321 CMR 10.00).

Exemplary Natural Communities are the best examples documented of relatively common (Secure) types of natural communities.

Forest Cores (in BioMap2, a component of Core Habitat) identify the best examples of large, intact forests that are least impacted by roads and development, providing critical "forest interior" habitat for numerous woodland species.

Fragmented Landscape, in ecological and conservation terms, refers to the idea that a large spatial area (the landscape) that in the past might have had connected habitats (for example, unbroken forest, continuous river, or undisrupted grasslands) have become interspersed with artifacts of human development that alter habitat and ecological processes – or that the human influence has come to dominate the land leaving patches, or fragments, of natural habitat surrounded by development.

Imperiled communities typically have 6-20 sites or few remaining acres in the state. Natural Community types ranked as Imperiled are included in the Priority Natural Communities category.

Landscape Blocks (component of BioMap2 Critical Natural Landscape), the primary component of Critical Natural Landscape, are large areas of intact and predominately natural vegetation, consisting of contiguous forests, wetland, rivers, lakes, and ponds, as well as coastal habitats such as

barrier beaches and salt marshes. Pastures and power-line right-of-way, which are less intensively altered than most developed areas, were also included since they provide habitat and connectivity for many species.

Landscape Context refers to taking the broadest view of the ability of ecosystems or species populations to maintain themselves where they are by considering the siting within the larger area. For example, a wooded area within a city park has a very different, urban context than a wooded area on a farm.

MESA (Massachusetts Endangered Species Act) (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00) provide regulatory protection of rare species and their habitats. MESA protects rare species and their habitats by prohibiting the "Take" of any plant or animal species listed as Endangered, Threatened, or Special Concern by the MA Division of Fisheries & Wildlife.

Natural Communities are assemblages of species that occur together in space and time. These groups of plants and animals are found in recurring patterns that are classified and described by their dominant biological and physical features.

Nymphs, sometimes informally referred to as larvae, are the young, immature form of dragonflies and some other invertebrates. Dragonfly nymphs are aquatic. On maturing, they change into the flying terrestrial adults that are seen along rivers and lakes, and nearby uplands.

Priority Natural Communities include types of natural communities with limited distribution, or relatively few occurrences, and/or low acreages in Massachusetts.

Protected in Perpetuity refers to land owned as conservation land by a public entity in Massachusetts whose lands come under the authority of Massachusetts Constitution Article 97, or federal land owned by a federal conservation agency, or by a non-profit dedicated to land conservation; or for which the conservation values have been protected by legal restrictions on the deed or by a conservation easement (conservation restriction).

Secure types of natural communities typically have over 100 sites or abundant acreage across the state; excellent examples are identified as Core Habitat to ensure continued protection and are referred to as Exemplary Natural Communities.

Special Concern species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts. Special Concern is a category of state-listed species defined in the Massachusetts Endangered Species Act (M.G.L. c.131A) and listed in its regulations (321 CMR 10.00).

Species of Conservation Concern (in BioMap2, a component of Core Habitat) include those species that meet the criteria for listing under the Massachusetts Endangered Species Act, as well as a number of species that do not meet these criteria for listing, but are considered to be of conservation concern within Massachusetts, such as inclusion in the State Wildlife Action Plan (SWAP).

State-listed Species are species listed under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its regulations (321 CMR 10.00). – that is, Endangered, Threatened, or Special Concern species.

SWAP (State Wildlife Action Plan), approved in 2006, the Massachusetts Division of Fisheries and Wildlife's State Wildlife Conservation Strategy, most often referred to as the State Wildlife Action Plan (SWAP), is a comprehensive document to help guide wildlife conservation decision making for Massachusetts' wildlife for many years.

SWAP Species were identified as being those in greatest need of conservation in the Massachusetts Division of Fisheries and Wildlife' State Wildlife Conservation Strategy, most often referred to as the State Wildlife Action Plan (SWAP).

Threatened species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range. Threatened is a category of state-listed species defined in the Massachusetts Endangered Species Act (M.G.L. c.131A) and listed in its regulations (321 CMR 10.00).

Upland Buffers of Aquatic Cores (component of BioMap2's Critical Natural Landscape) identify protective upland areas adjacent to all Aquatic Cores. A variable width buffer, that extends deeper into surrounding unfragmented habitats than into developed areas, was used to include the most intact areas around Aquatic Cores. The conservation of wetland buffers will support habitats and functionality of each aquatic area, and also include adjacent uplands that are important for many species that move between habitat types.

Upland Buffer of Wetland Cores (component of BioMap2's Critical Natural Landscape) identify protective upland areas adjacent to all Wetland Cores. A variable-width buffer, that extends deeper into surrounding unfragmented habitats than into developed areas, was used to include the most intact areas around the Wetland Cores. The conservation of wetland buffers will support habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

Variant of a natural community refers to a named subtype of a more broadly defined type of community. In Massachusetts the term is not a formal designation, but rather is intended as an aid for understanding community relationships.

Vernal Pools, also known as ephemeral pools, autumnal pools, and temporary woodland ponds, typically fill with water in the autumn or winter due to rainfall and rising groundwater and remain ponded through the spring and into summer. They usually dry completely by the middle or end of summer each year. Vernal pools are unique wildlife habitats best known for the amphibians and invertebrate animals that use them to breed.

Vernal Pool Cores (BioMap2, component of Core Habitat) identify, based on a GIS model, the highest quality most interconnected clusters of Potential Vernal Pools (a dataset of likely vernal pools identified from interpretation of aerial photographs) and the habitat between them.

Vulnerable communities typically have 21-100 sites or limited acreage across the state. Natural Community types ranked as Vulnerable are in the Priority Natural Communities category.

Wetland Cores (BioMap2, component of Core Habitat) identify, based on a GIS model, the least disturbed wetlands within undeveloped landscapes—those with intact buffers and little fragmentation or other stressors associated development. These wetlands are most likely to support critical wetland functions (i.e. natural hydrologic conditions, diverse plant and animal habitats, etc.) and are most likely to maintain these functions into the future.

Help Save Endangered Wildlife!

Please contribute on your Massachusetts income tax form or directly to the

Natural Heritage &
Endangered Species Fund

To learn more about the Natural Heritage & Endangered Species Program and the Commonwealth's rare species, visit our web site at: www.nhesp.org.