

# BioMap2

## Guiding Land Conservation for Biodiversity in Massachusetts

# West 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**

**Commonwealth of Massachusetts**

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[http://www.mass.gov/dfwele/dfw/nhesp/land\\_protection/biomap/biomap2\\_summary\\_report.pdf](http://www.mass.gov/dfwele/dfw/nhesp/land_protection/biomap/biomap2_summary_report.pdf)

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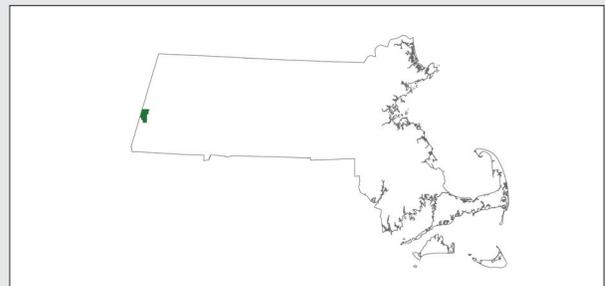
## West Stockbridge

West Stockbridge is located in central Berkshire County along the New York border where the Western New England Marble Valleys meet the Taconic Mountains, and falls within the Housatonic River watershed. The Williams River, a tributary to the Housatonic River, flows south through the eastern portion of West Stockbridge and eventually meets the mainstem Housatonic to the south and east in Great Barrington. Several smaller tributaries converge at Muds Pond in the village of West Stockbridge in the northeast part of town to form the Williams River; these include Furnace Brook and Cone Brook in southern Richmond and Flat Brook in northwestern West Stockbridge. The Taconic Mountains form the town's western boundary, and at their base are small marshy streams, including tributaries to Flat Brook and the Williams River, and other streams that flow to Alford Brook in the southwest. In the middle of the town is Maple Hill, which separates the valley and small streams at the base of the Taconic Mountains from the Williams River in the east. Further east of the Williams River is the neighboring town of Stockbridge, which lies within the lowlands of the marble valleys close to the mainstem of the Housatonic River.

Development is concentrated near West Stockbridge village in the northeast part of town. The Massachusetts Turnpike passes through here, and residential areas line Route 102 and nearby roads on its northeast side. More scattered areas of residential development follow Route 41 south of where it passes over the turnpike, as well as along Center Road west of Maple Hill. In the past, West Stockbridge had more prominent industrial operations; grist mills, lime kilns, and iron furnaces were found throughout the town, impacting its lowland stream and marsh ecosystems. Much of this industrial development is now gone, leaving West Stockbridge considerably less developed at present than nearby towns along the mainstem Housatonic River, such as Lee and Pittsfield. The Williams River now supports diverse ecosystems with native plant and wildlife species. Some small industrial operations still remain; for example, one large lime quarry is

located just west of Route 41 less than a mile south of West Stockbridge village.

The lowlands of West Stockbridge, where the Williams River and other small tributaries flow south toward the Housatonic River mainstem in Great Barrington, are part of the Western New England Marble Valleys ecologi-



### West Stockbridge at a Glance

- Total area: 11,938 acres (18.7 square miles)
- Human Population in 2009: 1,431 people
- Open space protected in perpetuity: 766 acres, or 6.4% of total area\*

### BioMap2 Components

#### Core Habitat

- 8 Aquatic Cores: 406 acres
- 5 Forest Cores: 2,699 acres
- 11 Wetland Cores: 117 acres
- 6 Exemplary and Priority Natural Communities: 140 acres

#### Species of Conservation Concern\*\*

- 1 insect, 1 fish, 4 salamanders, 1 turtle, 2 birds, 20 plants

#### Critical Natural Landscape

- 8 Upland Buffers of Aquatic Cores: 699 acres
- 2 Upland Buffers of Wetland Cores: 297 acres
- 3 Landscape Blocks: 6,665 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 West Stockbridge

### Dragonflies

Harpoon Clubtail (*Gomphus desertus*), Endangered

### Fish

Bridle Shiner (*Notropis bifrenatus*), Special Concern

### Amphibians

Four-toed Salamander (*Hemidactylum scutatum*), SWAP  
Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern  
Marbled Salamander (*Ambystoma opacum*), Threatened  
Spring Salamander (*Gyrinophilus porphyriticus*), SWAP

### Reptiles

Wood Turtle (*Glyptemys insculpta*), Special Concern

### Birds

American Bittern (*Botaurus lentiginosus*), Endangered  
Sora (*Porzana carolina*), SWAP

### Plants

Bristly Black Currant (*Ribes lacustre*), Special Concern  
Bush's Sedge (*Carex bushii*), Endangered  
Dioecious Sedge (*Carex sterilis*), Threatened  
Downy Arrowwood (*Viburnum rafinesquianum*), Endangered  
Downy Wood-mint (*Blephilia ciliata*), Endangered  
Fen Sedge (*Carex tetanica*), Special Concern  
Fries' Pondweed (*Potamogeton friesii*), Endangered  
Hairy Wood-mint (*Blephilia hirsuta*), Endangered  
Hill's Pondweed (*Potamogeton hillii*), Special Concern

Hitchcock's Sedge (*Carex hitchcockiana*), Special Concern  
Intermediate Spike-sedge (*Eleocharis intermedia*), Threatened  
Labrador Bedstraw (*Galium labradoricum*), Threatened  
Long-leaved Bluet (*Houstonia longifolia*), Endangered  
Long-styled Sanicle (*Sanicula odorata*), Threatened  
Lyre-leaved Rock-cress (*Arabidopsis lyrata*), Endangered  
Nantucket Shadbush (*Amelanchier nantucketensis*), Special Concern  
Purple Clematis (*Clematis occidentalis*), Special Concern  
Slender Cottongrass (*Eriophorum gracile*), Threatened  
Smooth Rock-cress (*Boechera laevigata*), Threatened  
Woodland Millet (*Milium effusum*), Threatened

### Exemplary Natural Communities

Acidic Rocky Summit/Rock Outcrop (Secure)  
Hemlock Ravine (Secure)  
Ridgetop Chestnut Oak Forest/Woodland (Secure)

### Priority Natural Communities

Hickory – Hop Hornbeam Forest/Woodland (Imperiled)  
Rich, Mesic Forest (Vulnerable)  
Ridgetop Pitch Pine – Scrub Oak Community (Imperiled)

### Other BioMap2 Components

Aquatic Cores  
Forest Cores  
Landscape Blocks  
Upland Buffers of Aquatic Cores  
Upland Buffers of Wetland Cores  
Wetland Cores

cal region (see Figure 1). This is one of the most distinct and biologically rich ecoregions both in Massachusetts and throughout New England, stretching from northwest Connecticut up through sections of the Hudson River and Lake Champlain watersheds. The marble valleys support an impressively high percentage of Massachusetts' state-listed species and Priority Natural Communities, some of which are restricted to the ecoregion while others are more widespread. In West Stockbridge, marshlands along the Williams River provide habitat for Wood Turtles, which nest in upland areas and burrow in the stream bottoms and banks to hibernate through winter. Areas of Rich, Mesic Forest are found here; this is a Priority Natural Community with moist soils and abundant nutrients, often supporting state-listed plant species, like Hairy Wood-mint and Downy Wood-mint, which are restricted to this community type. Just west of West Stockbridge village, calcareous marshlands along Flat Brook and its floodplains provide breeding habitat for the state-endangered American Bittern, a marsh bird of the heron family.

Highland areas in West Stockbridge lack the ecological diversity of the valleys, but they do support distinct rock outcrop communities along mountain ridges, and contain vernal pools that provide breeding habitat for state-listed amphibians like the Jefferson Salamander.

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

### Overview

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

## **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.

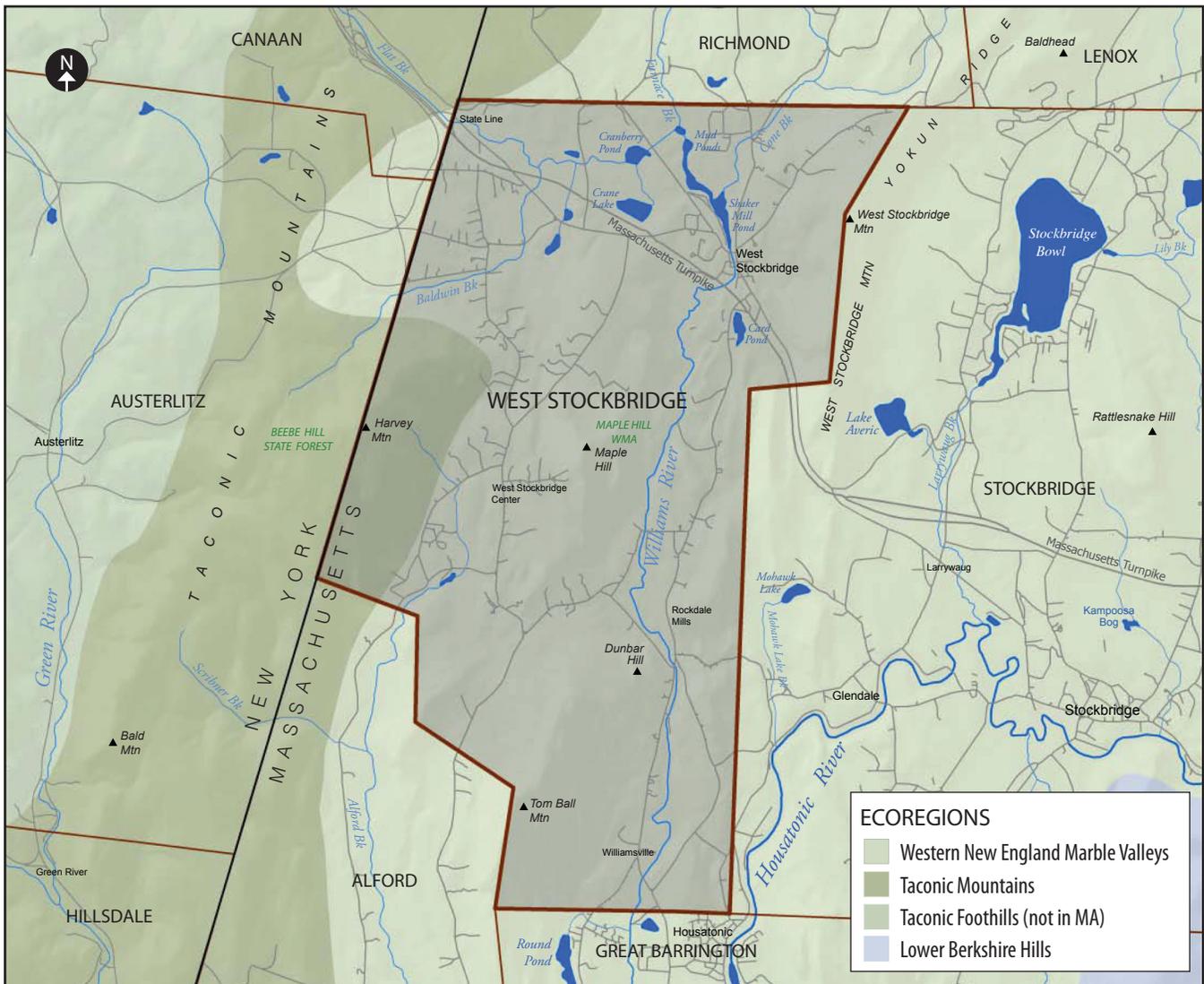
part of its Core Habitat and Critical Natural Landscape, were used to delineate and map these areas. The areas range in size from fewer than 10 acres to several thousand acres. Areas of Core Habitat, each called a BioMap2 Core (BC), and areas of Critical Natural Landscape (CNL), along with their associated components, are illustrated in Figure 2 and outlined in detail below. BioMap2 components described in this report are those that occur only in West Stockbridge, although a given area of Core Habitat or Critical Natural Landscape listed here may extend outside of the town boundaries of West 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, up to six Town PCAs were selected. Each Town PCA contains part of at least one BioMap2 Core; in West Stockbridge, five Town PCAs were selected. Figure 3 illustrates how BioMap2 Core Habitat and Critical Natural Landscape relate to the distribution of Town PCAs.

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. Parts of one Regional PCA, Regional PCA 6, fall within West Stockbridge. This means that land protection and management efforts in West Stockbridge aim to conserve biodiversity in areas where protection would help maintain biodiversity in perpetuity both within the town itself and in the surrounding region.

### **Core Habitat and Critical Natural Landscape Components in West Stockbridge**

Areas of Core Habitat in West Stockbridge, called BioMap2 Cores (BCs), are summarized here, as are the vari-



**Figure 1.** West Stockbridge is part of two ecoregions: the Western New England Marble Valleys and the Taconic Mountains. It lies in the upper reaches of the Housatonic River watershed.

ous components of each BC, which may include Species of Conservation Concern, Exemplary and Priority Natural Communities, and Aquatic, Forest, Vernal Pool, or Wetland Cores. Components of Critical Natural Landscape (CNL) associated with each BC are also listed. These include Upland Buffers of both Aquatic and Wetland Cores, as well as Landscape Blocks.

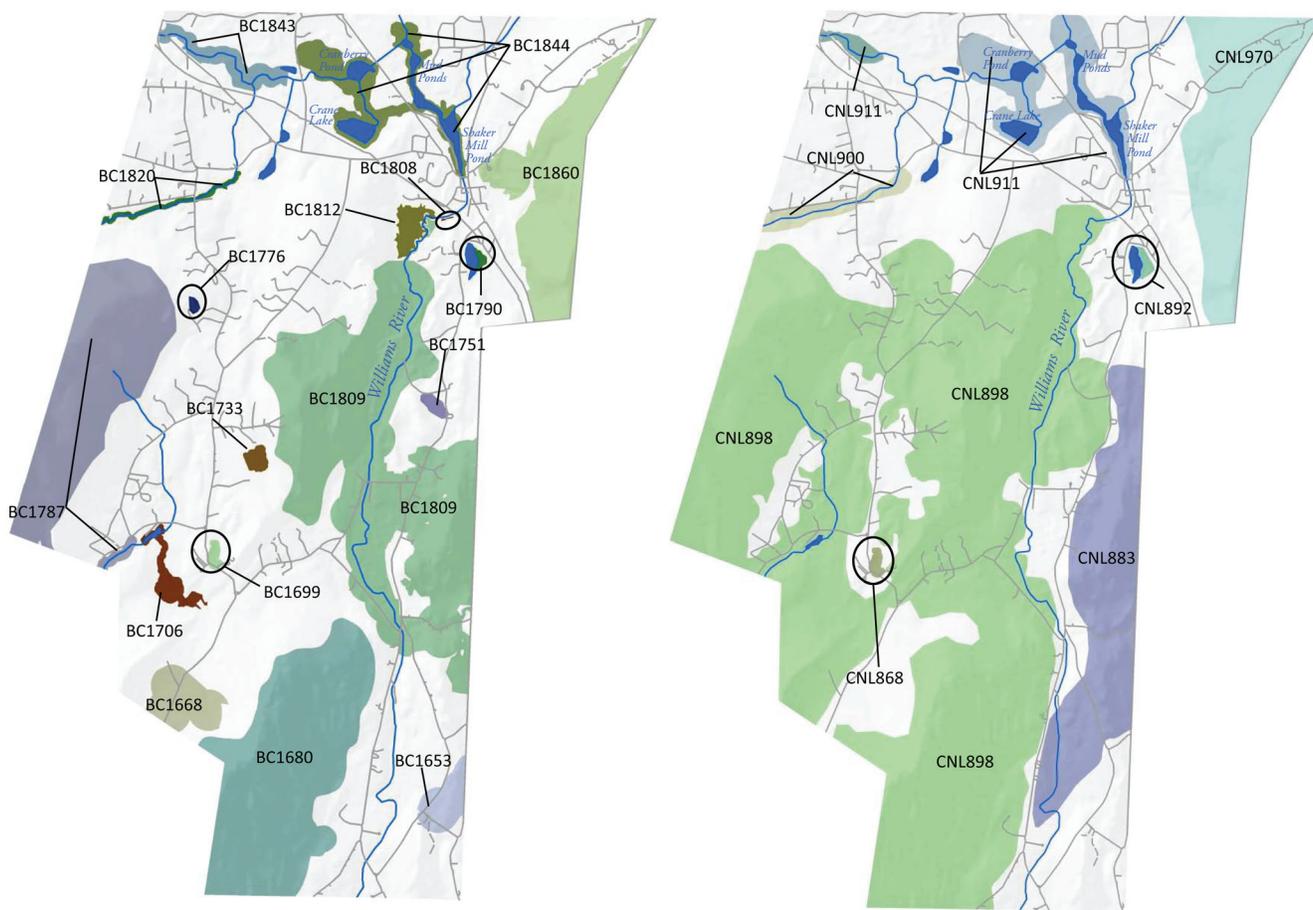
**BC1653 (no CNL)**

This 121-acre core lies along the boundary between Stockbridge and West Stockbridge in the southern parts of both towns; 76 acres fall within West Stockbridge. This area is forested and includes vernal pools that are used during spring breeding periods by various amphibians, including one state-listed species:

**Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern:** This salamander inhabits upland forests during most of the year, where it resides in small-mammal burrows and other subsurface retreats. Adults migrate during late winter or early spring to breed in vernal pools and fish-free areas of swamps, marshes, or similar wetlands. Larvae metamorphose in late summer or early fall, then disperse into upland forest.

**BC1668 in CNL898**

BC1668 is shared with the neighboring town of Alford, and parts are within the large Landscape Block of CNL898. Its 121 acres in the southwest part of West Stockbridge (of 209 total) contain habitat for one state-listed plant and one state-listed amphibian:



**Figure 2.** West Stockbridge includes a total of 17 BioMap2 Cores (BCs; left), all part of BioMap2 Core Habitat, and eight areas of Critical Natural Landscape (CNL; right). Overlap between these layers is shown in Figure 3.

**Bush's Sedge (*Carex bushii*), Endangered:** This plant is a slender, grass-like perennial that occurs in open meadows or fields. It seems to benefit from grazing or mowing.

**Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern:** This salamander species inhabits upland forests during most of the year, where it resides in small-mammal burrows and other subsurface retreats. Adults migrate during late winter or early spring to breed in vernal pools and fish-free areas of swamps, marshes, or similar wetlands. Larvae metamorphose in late summer or early fall, and then disperse into upland forest.

#### BC1680 in CNL898

BC1680 is a large core totaling over 1,800 acres and covers areas near the joint town boundary of Alford, Great Barrington, and West Stockbridge. Its boundaries are largely coincident with a Forest Core that is embedded in Landscape Block of CNL898. In West Stockbridge, BC1680 supports two tracked species; one state-listed plant and one non-listed salamander that remains a conservation

priority under SWAP. It also supports occurrences of three Exemplary Natural Communities and one Priority Natural Community type.

#### Plants

**Nantucket Shadbush (*Amelanchier nantucketensis*), Special Concern:** This shrub of the rose family was recently found to be more abundant than previously thought. It was considered to be primarily a coastal plain species, but is also found inland – in Massachusetts it occurs both near the coast and also on rock outcrops in the western part of the state.

#### Amphibians

**Four-toed Salamander (*Hemidactylum scutum*), SWAP:** This salamander lives 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 mossy mounds or patch-

es of moss that overhang water. Upon hatching, the larvae wriggle through the moss and enter the water, where they will develop for several weeks before metamorphosing into immature adults.

#### Exemplary Natural Communities

**Acidic Rocky Summit/Rock Outcrop (Secure):** This widespread natural community type is an open area of shrubs, scattered grasses, mosses, lichens, and occasional trees found on exposed rocky summits. It is dry and contains little soil, and is often found as patches within other ridgetop communities. This exemplary occurrence in BC1680 constitutes 11 acres in the mountains above the Williams River, near the boundary of West Stockbridge and Alford. Four acres fall within West Stockbridge.

**Hemlock Ravine (Secure):** This rather common natural community type is an evergreen forest composed primarily of dense, nearly closed canopies of hemlocks that cast deep shade, such that very few plants grow below. It occurs on moist, north-facing slopes, or along north-facing ravines. This 100-acre occurrence of Hemlock Ravine is a mature forest within a large, roadless block of land.

**Ridgetop Chestnut Oak Forest/Woodland (Secure):** This fairly widespread natural community is an open forest that occurs along dry ridgetops and is dominated by chestnut oak. It often has a dense shrub understory, and occupies sites with thin soil over acidic bedrock on ridges and slopes. In BC1680, natural fires have kept the 40-acre Ridgetop Chestnut Oak Forest/Woodland in relatively open condition, with fewer trees than some other forest types. This occurrence is Exemplary, occurring within a large roadless block and having appropriate native diversity and no exotic invasives.

#### Priority Natural Communities

**Ridgetop Pitch Pine – Scrub Oak Community (Imperiled):** This Priority Natural Community occurs on acidic bedrock along mountain ridges, often in a mosaic with other rocky summit community types. Ridgetop Pitch Pine – Scrub Oak Communities are dependent on fire to maintain their natural structures and ecosystem functions, and are also tolerant of extremely severe growing conditions. This example is only one acre in size and shows some impacts of recreational use, but is otherwise in good condition. There is evidence that important natural processes, such as fire, have recently occurred in this community in BC1680.

#### BC1699 and CNL868

BC1699 is a small, 11-acre BC that occurs in a wetland area at the base of Maple Hill along Center Road. It includes an Aquatic Core that is surrounded by an Upland Buffer of CNL868, and is located in close proximity to a

large Landscape Block of CNL898. This BC supports two state-listed plant species:

**Dioecious Sedge (*Carex sterilis*), Threatened:** This species is a slender, grass-like perennial that is restricted to open calcareous wetlands.

**Fen Sedge (*Carex tetanica*), Special Concern:** This is a narrow-leaved perennial sedge of open calcareous fens.

#### BC1706 and CNL898

BC1706 is 47 acres core and is part of a large Landscape Block of CNL898. This BC is part of a complex of calcareous wetlands, which are uncommon in Massachusetts. It includes an Aquatic Core and Wetland Core, and is surrounded by an Upland Buffer of CNL898. BC1706 supports one state-listed plant species:

**Hill's Pondweed (*Potamogeton hillii*), Special Concern:** This plant is a submersed aquatic species that grows best cold, shallow, slow-moving, clean, and alkaline bodies of water. It often grows in areas with muddy substrates.

#### BC1733 and CNL898

BC1733 is 17 acres and is located at the base of Maple Hill. It is surrounded by an Upland Buffer and is within a Landscape Block of CNL898. An alder beaver swamp near agricultural fields provides habitat for one marshbird species:

**American Bittern (*Botaurus lentiginosus*), Endangered:** This is a mottled brown heron-like bird that 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.

#### BC1751 and CNL898

BC1751 consists of Aquatic Core and is surrounded by an Upland Buffer and is within a Landscape Block of CNL898. It is located between the Williams River and Route 41 near Quarry Road, and supports a population of one state-listed plant.

**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.

#### BC1776 and CNL898

BC1766 is a small core that lies within a Landscape Block

of CNL898 on the north side of Harvey Mountain. It supports one Exemplary Natural Community:

**Acidic Rocky Summit/Rock Outcrop (Secure):** This is a common natural community type that consists of open areas of shrubs, scattered grasses, mosses, and lichens, and occasionally trees. It is usually found on exposed rocky summits. These communities are dry and contain little soil, and are often found as patches within other ridgetop communities. This moderate-sized occurrence is found on a very steep rock slope; plants grow in cracks and on ledges. It contains no exotic species or significant human disturbances.

### **BC1787 and CNL898**

BC1787 is a large core that totals over 1,600 acres and includes both Aquatic and Forest Cores, although it contains no Aquatic Cores in West Stockbridge. It stretches along the Taconic Mountains in the headwaters of Alford Brook in West Stockbridge, then follows Alford Brook south through the central part of the town of Alford. Just over 700 acres of BC1787 are in West Stockbridge. All of this BC is embedded in a Landscape Block of CNL898. BC1787 includes one state-listed plant species, one non-listed salamander of conservation concern under SWAP, and one Priority Natural Community:

**Woodland Millet (*Milium effusum*), Threatened:** This plant is a tall, conspicuous grass that grows in mesic (or moist) soils on calcareous wooded slopes, often in open, glade-like habitats.

**Spring Salamander (*Gyrinophilus porphyriticus*), SWAP:** Spring Salamander adults inhabit clean, cold, high-gradient brooks and headwater seeps in forest habitat, usually at elevations above 300 feet. Larvae are entirely aquatic and largely nocturnal, spending daylight hours buried below the streambed or hidden under stones. Adults are semi-aquatic and spend most of their time under cover objects along the margins of brooks, springs, and seeps; however, they will venture into upland forest during rainy weather.

**Hickory – Hop Hornbeam Forest/Woodland (Imperiled):** This Priority Natural Community is an open hardwood forest that is dominated by various hickory species and has significant numbers of Hop Hornbeam trees in the subcanopy. It is characterized by a sparse shrub layer and a nearly continuous cover of grasses and sedges. The small (2 acre) patch of Hickory – Hop Hornbeam Forest/Woodland in BC1787 occurs within a very large roadless block of land, surrounded by an intact oak-dominated forest.

### **BC1790 and CNL892**

BC1790 is a small, 9-acre core that includes the eastern part of Card Pond, between Great Barrington Road and the Massachusetts Turnpike. It consists of an Aquatic Core and is surrounded by an Upland Buffer of CNL892. It supports a population of one state-listed plant species.

### **BC1808 and CNL898**

BC1808 lies along the Williams River just downstream of the Massachusetts Turnpike. It includes a Wetland Core and is surrounded by an Upland Buffer of CNL898.

### **BC1809, CNL898, and CNL883**

BC1809 is very large – totaling more than 11,000 acres – and stretches along the Housatonic River 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 West Stockbridge, BC1809 includes nearly 1,600 acres along the Williams River valley in the central part of town, as well as in the highlands east of the river, and to the west on Maple Hill, that drain directly to the Williams River. This part of the core contains over 700 acres of a Forest Core in the highlands, an Aquatic Core and associated CNL Upland Buffer along the Williams River, and Wetland Cores and Upland Buffers in the river floodplains. All of these elements occur within Landscape Blocks of CNL898 and CNL883. The West Stockbridge portion of BC1809 supports many state-listed plant species:

#### **Plants**

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

**Downy Wood-mint (*Blephilia ciliata*), Endangered:** This is an herbaceous perennial that is usually found in areas of filtered light within moist or dry regenerating woods, thickets, and openings.

**Hairy Wood-mint (*Blephilia hirsuta*), Endangered:** This plant is an herbaceous perennial that grows in dark, moist soils typical of mature Rich, Mesic Forests.

**Hitchcock's Sedge (*Carex hitchcockiana*), Special Concern:** This is a perennial woodland sedge that occurs in Rich, Mesic Forests, either on or at the base of slopes.

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

**Long-styled Sanicle (*Sanicula odorata*), Threatened:** This is an herbaceous perennial plant that occurs in small openings, either in shade or filtered light, on rich, mesic substrate such as floodplain terraces.

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

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

**Woodland Millet (*Milium effusum*), Threatened:** This plant is a tall, conspicuous grass that grows in mesic calcareous wooded slopes, often in glade-like habitats.

#### Amphibians

**Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern:** This salamander inhabits upland forests during most of the year, where it resides in small-mammal burrows and other subsurface retreats. Adults migrate during late winter or early spring to breed in vernal pools and fish-free areas of swamps, marshes, or similar wetlands. Larvae metamorphose in late summer or early fall, then disperse into upland forest.

**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 forest. This recently-discovered population is the western-most known population in Massachusetts.

#### Reptile

**Wood Turtle (*Glyptemys insculpta*), Special Concern:** This is a medium-sized turtle with a sculpted upper shell and orange coloration on its feet and neck. Ideal habitat for this species includes streams and rivers with long corridors of undeveloped, connected uplands.

#### Bird

**Sora (*Porzana carolina*), SWAP:** This is a secretive marshbird that typically nests in cattail marshes where dense vegetation is interspersed with areas open water. They are known to breed in BC1809.

#### Priority Natural Community

**Rich, Mesic Forest (Vulnerable):** This Priority Natural Community is a variant of northern hardwood forests that is dominated by sugar maple trees. Rich, Mesic Forests have moist and nutrient-rich soils, and support diverse herbaceous plants along the forest floor, including many spring wild flowers. The occurrence of this community in BC1809 is recovering well from past logging disturbance.

#### BC1812 and CNL898

BC1812 includes a Wetland Core along the Williams River just south of West Stockbridge village, and is surrounded by an Upland Buffer of CNL898.

#### BC1820 and CNL900

BC1820 is found along Baldwin Brook and its riparian areas upstream of West Center Road. It includes an Aquatic Core, and is surrounded by an Upland Buffer of CNL900.

#### BC1843 and CNL911

BC1843 is a long, narrow, 92-acre core along Flat Brook in northwestern West Stockbridge. It includes Aquatic Core and two state-listed species – one dragonfly and one fish. An Upland Buffer of CNL911 surrounds the Aquatic Core.

**Harpoon Clubtail (*Gomphus descriptus*), Endangered:** This dragonfly is a member of the Gomphidae – one of the most diverse dragonfly families, known to have more than 100 species. It generally inhabits clear, cold streams with intermittent sections of rocks and rapids. Streams with occasional pools provide burrowing habitat for nymphs (aquatic larvae) of this species; adults dwell in nearby uplands.

**Bridle Shiner (*Notropis bifrenatus*), Special Concern:** The Bridle Shiner 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.

#### BC1844 and CNL913

BC1844 includes open waters of Crane Lake, Cranberry Lake, and Muds Pond, as well as adjacent streams and wetlands, all near the village of West Stockbridge. It includes 262 acres of Aquatic Core, surrounded by an Upland Buffer of CNL913. BC1844 supports three state-listed aquatic and semi-aquatic plant species, as well as one marshbird.

#### Plants

**Fries' Pondweed (*Potamogeton friesii*), Endangered:** This is an herbaceous aquatic plant with submersed leaves. It occurs in alkaline ponds and slow-moving streams.

**Hill's Pondweed (*Potamogeton hillii*), Special Concern:** This species is a submersed aquatic plant that grows best in cold, shallow, slow-moving, clean, and alkaline bodies of water over muddy substrates.

**Intermediate Spike-sedge (*Eleocharis intermedia*), Threatened:** This densely tufted, grass-like annual is found on muddy, alkaline riverbanks and pondshores, usually visible during periods of low water when mud is exposed.

**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.

**BC1860 and CNL970**

Boundaries of BC1860 are largely defined by a 305-acre Forest Core in the northeast part of West Stockbridge that lies within a Landscape Block of CNL970, both of which extend east into Stockbridge. This core includes several state-listed plant species and one state-listed salamander:

**Plants**

**Downy Arrowwood (*Viburnum rafinesquianum*), Endangered:** This plant species is a shrub that occurs on open rocky ridgelines, lightly wooded summits, and dry rocky slopes in open northern hardwood stands.

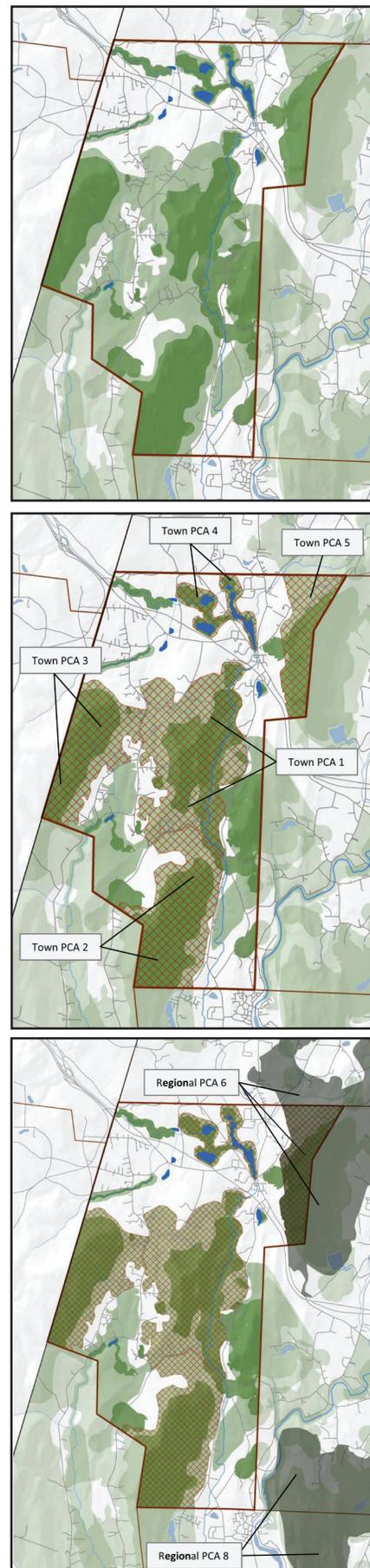
**Long-leaved Bluet, (*Houstonia longifolia*), Endangered:** This plant is a small perennial species of dry, rocky openings in non-acidic deciduous woodlands.

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

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

**Amphibian**

**Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern:** This salamander inhabits upland forests during most of the year, where it resides in small-mammal burrows and other subsurface retreats. Adults migrate during late winter or early spring to breed in vernal pools and fish-free areas of swamps, marshes, or similar



**Figure 3.** Core habitat (dark green), Critical Natural Landscape (light green), Town Priority Conservation Areas (PCAs; reddish-brown grid), and Regional Priority Conservation Areas (transparent grey) in West Stockbridge. Town PCAs make up 5,803 acres in West Stockbridge, or 48.6 percent of the town’s total land area. The section of Regional PCA 6 constitutes 715 acres, or 6.0 percent of the town’s total area.

wetlands. Larvae metamorphose in late summer or early fall, then disperse into upland forest.

corner of West Stockbridge. It supports several state-listed plant species, has populations of the Jefferson Salamander, and includes a large area of Forest Core.

### **Priority Conservation Areas in West Stockbridge**

West Stockbridge contains five areas designated as Town Priority Conservation Areas (PCAs). All five are Town PCAs; one is part of Regional PCA 6.

**Town PCA 1:** This 2,130-acre PCA is in central West Stockbridge along the Williams River and stretches west across Maple Hill to West Center Road. It includes much of the large core BC1809, as well as smaller cores such as BC1812 and BC1733. This area supports the Priority Natural Community called Rich, Mesic Forest, as well as associated plants like the Downy Wood-mint (*Blephilia ciliata*). Wood Turtles (*Glyptemys insculpta*) inhabit the streams and uplands, and the marshbird Sora (*Porzana carolina*) feeds and nests in wetlands here.

**Town PCA 2:** This nearly 1,500-acre PCA is the southernmost PCA in West Stockbridge, and consists of the large area of Forest Core west of the Williams River. This area includes habitat for state-listed salamanders along the town boundary with Alford, as well as a 25-acre area of the Priority Natural Community called Ridgetop Chestnut Oak Forest/Woodland.

**Town PCA 3:** This PCA is in western West Stockbridge and includes approximately 1,000 acres along the eastern edge of the Taconic Mountains. It contains habitat for the Spring Salamander (*Gyrinophilus porphyriticus*) and state-listed plants such as the Woodland Millet (*Milium effusum*), and supports a small patch of the natural communities called Hickory – Hop Hornbeam Forest/Woodland and Acidic Rock Summit/Rock Outcrop.

**Town PCA 4:** Town PCA 4 is the smallest of the five present in West Stockbridge, encompassing 376 acres. It shares the boundaries of CNL913, which contains BC1844. This PCA supports several aquatic and semi-aquatic plants, and provides nesting and feeding habitat for the marshbird American Bittern (*Botaurus lentiginosus*).

**Town PCA 5/Regional PCA 6:** Town PCA 5 in West Stockbridge 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 these latter two towns, just north of the Massachusetts Turnpike. Town PCA 5 falls within Regional PCA 6 in the northeast

# 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](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 remain-

ing 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 undisturbed 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](http://www.nhesp.org).