CONSERVING THE BIODIVERSITY OF MASSACHUSETTS IN A CHANGING WORLD

Attleboro

Produced in 2012

This report and associated map 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.
Table of Contents

Introduction

What is BioMap2 – Purpose and applications

One plan, two components

Understanding Core Habitat and its components

Understanding Critical Natural Landscape and its components

Understanding Core Habitat and Critical Natural Landscape Summaries

Sources of Additional Information

Attleboro Overview

Core Habitat and Critical Natural Landscape Summaries

Elements of BioMap2 Cores

Core Habitat Summaries

Elements of BioMap2 Critical Natural Landscapes

Critical Natural Landscape Summaries
Introduction

The Massachusetts Department of Fish & Game, through the Division of Fisheries and Wildlife’s Natural Heritage & Endangered Species Program (NHESP), and The Nature Conservancy’s Massachusetts Program developed BioMap2 to protect the state’s biodiversity in the context of climate change.

BioMap2 combines NHESP’s 30 years of rigorously documented rare species and natural community data with spatial data identifying wildlife species and habitats that were the focus of the Division of Fisheries and Wildlife’s 2005 State Wildlife Action Plan (SWAP). BioMap2 also integrates The Nature Conservancy’s assessment of large, well-connected, and intact ecosystems and landscapes across the Commonwealth, incorporating concepts of ecosystem resilience to address anticipated climate change impacts.

Protection and stewardship of BioMap2 Core Habitat and Critical Natural Landscape is essential to safeguard the diversity of species and their habitats, intact ecosystems, and resilient natural landscapes across Massachusetts.

What Does Status Mean?

The Division of Fisheries and Wildlife determines a status category for each rare species listed under the Massachusetts Endangered Species Act (MESA), M.G.L. c.131A, and its implementing regulations 321 CMR 10.00. Rare species are categorized as Endangered, Threatened or of Special Concern according to the following:

- **Endangered species** are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- **Threatened species** are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- **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.

In addition NHESP maintains an unofficial watch list of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated by any law or regulations, but they can help to identify...
ecologically important areas that are worthy of protection. The status of natural communities reflects the documented number and acreages of each community type in the state:

- Critically Imperiled communities typically have 5 or fewer documented good sites or have very few remaining acres in the state.
- Imperiled communities typically have 6-20 good sites or few remaining acres in the state.
- Vulnerable communities typically have 21-100 good sites or limited acreage across the state.
- Secure communities typically have over 100 sites or abundant acreage across the state; however, excellent examples are identified as Core Habit to ensure continued protection.

In 2005 the Massachusetts Division of Fisheries and Wildlife completed a comprehensive State Wildlife Action Plan (SWAP) documenting the status of Massachusetts wildlife and providing recommendations to help guide wildlife conservation decision-making. SWAP includes all the wildlife species listed under the Massachusetts Endangered Species Act (MESA), as well as more than 80 species that need conservation attention but do not meet the requirements for inclusion under MESA. The SWAP document is organized around habitat types in need of conservation within the Commonwealth. While the original BioMap focused primarily on rare species protected under MESA, BioMap2 also addresses other Species of Conservation Concern, their habitats, and the ecosystems that support them to create a spatial representation of most of the elements of SWAP.

**BioMap2: One Plan, Two Components**

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 natural 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.

The long-term persistence of Massachusetts biological resources requires a determined commitment to land and water conservation. Protection and stewardship of both Critical Natural Landscapes and Core Habitats are needed to realize the biodiversity conservation vision of BioMap2.

**Components of Core Habitat**

Core Habitat identifies specific areas necessary to promote the long-term persistence of rare species, other Species of Conservation Concern, exemplary natural communities, and intact ecosystems.

**Rare Species**

There are 432 native plant and animal species listed as Endangered, Threatened or Special Concern under the Massachusetts Endangered Species Act (MESA) based on their rarity, population trends, and threats to survival. For
Table 1. Species of Conservation Concern described in the State Wildlife Action Plan and/or included on the MESA List and for which habitat was mapped in BioMap2. Note that plants are not included in SWAP, and that marine species such as whales and sea turtles are not included in BioMap2.

<table>
<thead>
<tr>
<th>Taxonomic Group</th>
<th>MESA-listed Species</th>
<th>Non-listed Species of Conservation Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammals</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Birds</td>
<td>27</td>
<td>23</td>
</tr>
<tr>
<td>Reptiles</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Amphibians</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Fish</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Invertebrates</td>
<td>102</td>
<td>9</td>
</tr>
<tr>
<td>Plants</td>
<td>256</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>413</strong></td>
<td><strong>62</strong></td>
</tr>
</tbody>
</table>

BioMap2, NHESP staff identified the highest quality habitat sites for each non-marine species based on size, condition, and landscape context.

Other Species of Conservation Concern

In addition to species on the MESA List described previously, the State Wildlife Action Plan (SWAP) identifies 257 wildlife species and 22 natural habitats most in need of conservation within the Commonwealth. BioMap2 includes species-specific habitat areas for 45 of these species and habitat for 17 additional species which was mapped with other coarse-filter and fine-filter approaches.

Priority Natural Communities

Natural communities are assemblages of plant and animal species that share a common environment and occur together repeatedly on the landscape. BioMap2 gives conservation priority to natural communities with limited distribution and to the best examples of more common types.

Vernal Pools

Vernal pools are small, seasonal wetlands that provide important wildlife habitat, especially for amphibians and invertebrate animals that use them to breed. BioMap2 identifies the top 5 percent most interconnected clusters of Potential Vernal Pools in the state.

Forest Cores

In BioMap2, Core Habitat includes the best examples of large, intact forests that are least impacted by roads and development, providing critical habitat for numerous woodland species. For example, the interior forest habitat defined by Forest Cores supports many bird species sensitive to the impacts of roads and development, such as the Black-throated Green Warbler, and helps maintain ecological processes found only in unfragmented forest patches.

Wetland Cores

BioMap2 used an assessment of Ecological Integrity to identify the least disturbed wetlands in the state within undeveloped landscapes—those with intact buffers and little fragmentation or other stressors associated with 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.

Aquatic Cores

To delineate integrated and functional ecosystems for fish species and other aquatic
Species of Conservation Concern, beyond the species and exemplary habitats described above, BioMap2 identifies intact river corridors within which important physical and ecological processes of the river or stream occur.

Components of Critical Natural Landscape

Critical Natural Landscape identifies intact landscapes in Massachusetts that are better able to support ecological processes and disturbance regimes, and a wide array of species and habitats over long time frames.

Landscape Blocks

BioMap2 identifies the most intact large areas of predominately natural vegetation, consisting of contiguous forests, wetlands, rivers, lakes, and ponds, as well as coastal habitats such as barrier beaches and salt marshes.

Upland Buffers of Wetland and Aquatic Cores

A variety of analyses were used to identify protective upland buffers around wetlands and rivers.

Upland Habitat to Support Coastal Adaptation

BioMap2 identifies undeveloped lands adjacent to and up to one and a half meters above existing salt marshes as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

The conservation areas identified by BioMap2 are based on breadth and depth of data, scientific expertise, and understanding of Massachusetts’ biodiversity. The numerous sources of information and analyses used to create Core Habitat and Critical Natural Landscape are complementary, and outline a comprehensive conservation vision for Massachusetts, from rare species to intact landscapes. In total, these robust analyses define a suite of priority lands and waters that, if permanently protected, will support Massachusetts’ natural systems for generations to come.

Legal Protection of Biodiversity

BioMap2 presents a powerful vision of what Massachusetts would look like with full protection of the land most important for supporting the Commonwealth’s biodiversity. While BioMap2 is a planning tool with no regulatory function, all state-listed species enjoy legal protection under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Wetland habitat of state-listed wildlife is also protected under the Wetlands Protection Act Regulations (310 CMR 10.00). The Natural Heritage Atlas contains maps of Priority Habitats and Estimated Habitats, which are used, respectively, for regulation under the Massachusetts Endangered Species Act and the Wetlands Protection Act. For more information on rare species regulations, and to view Priority and Estimated Habitat maps, please see the Regulatory Review page at http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/.

BioMap2 is a conservation planning tool that does not, in any way, supplant the Estimated and Priority Habitat Maps which have regulatory significance. Unless and until the BioMap2 vision is fully realized, we must continue to protect our most imperiled species and their habitats.
Understanding Core Habitat Summaries

Following the Town Overview, there is a descriptive summary of each Core Habitat and Critical Natural Landscape that occurs in your city or town. These summaries highlight some of the outstanding characteristics of each Core Habitat and Critical Natural Landscape, and will help you learn more about your city or town’s biodiversity. You can find out more information about many of these species and natural communities by looking at specific fact sheets at www.mass.gov/nhesp.

Additional Information

For copies of the full BioMap2 report, the Technical Report, and an interactive mapping tool, visit the BioMap2 website via the Land Protection and Planning tab at www.mass.gov/nhesp. If you have any questions about this report, or if you need help protecting land for biodiversity in your community, the Natural Heritage & Endangered Species Program staff looks forward to working with you.

Contact the Natural Heritage & Endangered Species Program

By phone 508-389-6360
By fax 508-389-7890
By email natural.heritage@state.ma.us
By Mail 100 Hartwell Street, Suite 230
West Boylston, MA 01583

The GIS datalayers of BioMap2 are available for download from MassGIS at www.mass.gov/mgis.
Town Overview

Attleboro lies within the Bristol Lowland/Narragansett Lowland Ecoregion, an area of flat, gently rolling plains. Forests are mostly central hardwoods and some elm-ash-red maple and red and white pine. There are numerous wetlands, some cropland/pasture, and many cranberry bogs. Many rivers drain this area.

Attleboro at a Glance

- Total Area: 17,773 acres (27.8 square miles)
- Human Population in 2010: 43,593
- Open space protected in perpetuity: 1,862 acres, or 10.5% percent of total area*
- BioMap2 Core Habitat: 2,877 acres
- BioMap2 Core Habitat Protected: 777 acres or 27.0%
- BioMap2 Critical Natural Landscape: 1,789 acres
- BioMap2 Critical Natural Landscape Protected: 615 acres or 34.4%.

BioMap2 Components

Core Habitat

- 1 Exemplary or Priority Natural Community
- 6 Wetland Cores
- 4 Aquatic Cores
- 5 Vernal Pool Cores
- 5 Species of Conservation Concern Cores**
  ○ 3 reptiles, 2 amphibians, 1 insect, 2 plants

Critical Natural Landscape

- 1 Landscape Block
- 7 Wetland Core Buffers
- 4 Aquatic Core Buffers

* Calculated using MassGIS data layer “Protected and Recreational Open Space—March, 2012”.

** See next pages for complete list of species, natural communities and other biodiversity elements.
BioMap2 Core Habitat and Critical Natural Landscape in Attleboro

- BioMap2 Core Habitat
- BioMap2 Critical Natural Landscape

1 Mile

For more information on rare species and natural communities, please see our fact sheets online at [www.mass.gov/nhesp](http://www.mass.gov/nhesp).
Species of Conservation Concern, Priority and Exemplary Natural Communities, and Other Elements of Biodiversity in Attleboro

Insects

**Damselflies**
- New England Bluet, (*Enallagma laterale*), Non-listed SWAP species

**Amphibians**
- Marbled Salamander, (*Ambystoma opacum*), T
- Four-toed Salamander, (*Hemidactylium scutatum*), Non-listed SWAP

**Reptiles**
- Blanding’s Turtle, (*Emydoidea blandingii*), T
- Smooth Green Snake, (*Opheodrys vernalis*), Non-listed SWAP
- Spotted Turtle, (*Clemmys guttata*), Non-listed SWAP

**Plants**
- Pale Green Orchis, (*Platanthera flava var. herbiola*), T
- Tiny-flowered Buttercup, (*Ranunculus micranthus*), E

**Priority Natural Communities**
- Alluvial Atlantic White Cedar Swamp, S2

**Other BioMap2 Components**
- Aquatic Core
- Wetland Core
- Vernal Pool Core
- Landscape Block
- Aquatic Core Buffer
- Wetland Core Buffer

**Code Key**
- **E** = Endangered
- **T** = Threatened
- **SC** = Special Concern
- **S1** = Critically Imperiled communities, typically 5 or fewer documented sites or very few remaining acres in the state.
- **S2** = Imperiled communities, typically 6-20 sites or few remaining acres in the state.
- **S3** = Vulnerable communities, typically have 21-100 sites or limited acreage across the state.

For more information on rare species and natural communities, please see our fact sheets online at [www.mass.gov/nhesp](http://www.mass.gov/nhesp).
BioMap2 Core Habitat in Attleboro

Core IDs correspond with the following element lists and summaries.
Elements of BioMap2 Cores

This section lists all elements of BioMap2 Cores that fall entirely or partially within Attleboro. The elements listed here may not occur within the bounds of Attleboro.

Core 675
Aquatic Core

Core 681
Wetland Core

Core 691
Vernal Pool Core

Core 700
Species of Conservation Concern
New England Bluet Enallagma laterale Non-listed SWAP

Core 710
Aquatic Core

Core 714
Vernal Pool Core

Core 715
Wetland Core
Vernal Pool Core
Species of Conservation Concern
Four-toed Salamander Hemidactylium scutatum Non-listed SWAP

Core 730
Wetland Core
Vernal Pool Core

Core 746
Aquatic Core
Species of Conservation Concern
Pale Green Orchis Platanthera flava var. herbiola T
Tiny-flowered Buttercup Ranunculus micranthus E
Marbled Salamander Ambystoma opacum T
Core 748

Species of Conservation Concern
Smooth Green Snake  *Opheodrys vernalis*  Non-listed SWAP

Core 751

Wetland Core
Vernal Pool Core
Species of Conservation Concern
Four-toed Salamander  *Hemidactylium scutatum*  Non-listed SWAP
Marbled Salamander  *Ambystoma opacum*  T
Blanding’s Turtle  *Emydoidea blandingii*  T

Core 770

Priority & Exemplary Natural Communities
Alluvial Atlantic White Cedar Swamp  S2

Core 808

Aquatic Core
Priority & Exemplary Natural Communities
Alluvial Atlantic White Cedar Swamp  S2

Core 810

Wetland Core
Species of Conservation Concern
Four-toed Salamander  *Hemidactylium scutatum*  Non-listed SWAP
Northern Black Racer  *Coluber constrictor*  Non-listed SWAP
Spotted Turtle  *Clemmys guttata*  Non-listed SWAP

For more information on rare species and natural communities, please see our fact sheets online at [www.mass.gov/nhesp](http://www.mass.gov/nhesp).
Core Habitat Summaries

Core 675
A 5-acre Core Habitat featuring Aquatic Core.
Aquatic Cores are intact river corridors within which important physical and ecological processes of the river or stream occur. They delineate integrated and functional ecosystems for fish species and other aquatic Species of Conservation Concern.

Core 681
A 72-acre Core Habitat featuring Wetland Core.
Wetland Cores are the least disturbed wetlands in the state within undeveloped landscapes — those with intact buffers and little fragmentation or other stressors associated with 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.

Core 691
A 201-acre Core Habitat featuring Vernal Pool Core.
Vernal pools are small, seasonal wetlands that provide important wildlife habitat, especially for amphibians and invertebrate animals that use them to breed. BioMap2 identifies the top 5 percent most interconnected clusters of Potential Vernal Pools in the state.

Core 700
A 146-acre Core Habitat featuring a Species of Conservation Concern.
New England Bluets are damselflies whose habitat includes coastal plain ponds, open water in swamps, and other ponds and lakes. It occurs only in the northeastern United States and is most common from eastern Massachusetts into Connecticut.

Core 710
A 123-acre Core Habitat featuring Aquatic Core.
Aquatic Cores are intact river corridors within which important physical and ecological processes of the river or stream occur. They delineate integrated and functional ecosystems for fish species and other aquatic Species of Conservation Concern.

Core 714
A 333-acre Core Habitat featuring Vernal Pool Core.
Vernal pools are small, seasonal wetlands that provide important wildlife habitat, especially for amphibians and invertebrate animals that use them to breed. BioMap2 identifies the top 5 percent most interconnected clusters of Potential Vernal Pools in the state.

**Core 715**

A 725-acre Core Habitat featuring Wetland Core, Vernal Pool Core, and a Species of Conservation Concern.

Wetland Cores are the least disturbed wetlands in the state within undeveloped landscapes—those with intact buffers and little fragmentation or other stressors associated with 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.

The 548-acre Wetland Core is among the largest 20% of Wetland Cores statewide and in this ecoregion.

Vernal pools are small, seasonal wetlands that provide important wildlife habitat, especially for amphibians and invertebrate animals that use them to breed. BioMap2 identifies the top 5 percent most interconnected clusters of Potential Vernal Pools in the state.

Four-toed Salamanders 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 MA are characterized by pit-and-mound topography with significant sphagnum-moss cover. Eggs are typically laid in mounds or patches of sphagnum moss that overhang water. Upon hatching, the larvae wriggle through the moss and drop into the water, where they will develop for several weeks prior to metamorphosis.

**Core 730**

A 147-acre Core Habitat featuring Wetland Core and Vernal Pool Core.

Wetland Cores are the least disturbed wetlands in the state within undeveloped landscapes—those with intact buffers and little fragmentation or other stressors associated with 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.

The 96-acre Wetland Core is among the largest 20% of Wetland Cores statewide.

Vernal pools are small, seasonal wetlands that provide important wildlife habitat, especially for amphibians and invertebrate animals that use them to breed. BioMap2 identifies the top 5 percent most interconnected clusters of Potential Vernal Pools in the state.

**Core 746**

A 355-acre Core Habitat featuring Aquatic Core and Species of Conservation Concern.
Aquatic Cores are intact river corridors within which important physical and ecological processes of the river or stream occur. They delineate integrated and functional ecosystems for fish species and other aquatic Species of Conservation Concern.

In Massachusetts, Pale Green Orchis inhabits open to semi-shaded habitats in rich, moderately acidic, wet areas subject to seepage, intermittent flooding, or water level fluctuation.

Tiny-flowered Buttercup is a small inconspicuous member of the Buttercup family which grows to about 8 inches tall. It bears one to several tiny yellow-petaled flowers that are 5-6 mm across. This species blooms early in the spring and cannot be found by mid-summer. In Massachusetts, it is known from shelves and crevices of circumneutral low rocky ledges.

Adult and juvenile Marbled Salamanders inhabit upland forests during most of the year, where they 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.

**Core 748**

A 39-acre Core Habitat featuring a Species of Conservation Concern.

A small to medium-sized snake, adult Smooth Green Snakes are 14-20 inches long with a uniform light green back and yellow to white venter. The Smooth Green Snake is found in moist open or lightly forested habitat where grasses and shrubs are abundant (edges of marshes, wet meadows, fields, and forest edges or open forests, grasslands, blueberry barrens, pine barrens) and prefers to forage on the ground with activity in the daytime. Smooth Green Snake overwinter in rodent burrows, ant mounds and rock crevices, either singly or communally.

**Core 751**

A 1,050-acre Core Habitat featuring Wetland Core, Vernal Pool Core, and Species of Conservation Concern.

Wetland Cores are the least disturbed wetlands in the state within undeveloped landscapes—those with intact buffers and little fragmentation or other stressors associated with 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.

A 109-acre and a separate 260-acre Wetland Core are among the largest 20% of Wetland Cores statewide. Vernal pools are small, seasonal wetlands that provide important wildlife habitat, especially for amphibians and invertebrate animals that use them to breed. BioMap2 identifies the top 5 percent most interconnected clusters of Potential Vernal Pools in the state.
Four-toed Salamanders 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 MA are characterized by pit-and-mound topography with significant sphagnum-moss cover. Eggs are typically laid in mounds or patches of sphagnum moss that overhang water. Upon hatching, the larvae wriggle through the moss and drop into the water, where they will develop for several weeks prior to metamorphosis.

Adult and juvenile Marbled Salamanders inhabit upland forests during most of the year, where they 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.

The Blanding’s Turtle is a medium sized turtle. It inhabits a mix of seasonal pools, marshes, shrub swamps, forest, and open uplands. After overwintering in the deep muds of wetlands, Blanding’s Turtles move overland to vernal pools and shrub swamps to feed and mate. Loss of only a few adults annually can cause populations to decline as they do not reproduce until late in life (14-20 yrs), and have low replacement rates due to low nest and juvenile survivorship. Roads are the primary cause of adult mortality.

Core 770
A <1-acre Core Habitat featuring a Priority Natural Community.

Alluvial Atlantic White Cedar Swamps occur along smaller rivers and ponds where Atlantic white cedar is co-dominant with red maple. They receive annual flooding, making them more mineral-rich than other Atlantic white cedar wetlands. This example of Alluvial Atlantic White Cedar Swamp is large and in good condition, despite the presence of an exotic invasive species.

Core 808
A 393-acre Core Habitat featuring Aquatic Core and Priority Natural Communities.

Aquatic Cores are intact river corridors within which important physical and ecological processes of the river or stream occur. They delineate integrated and functional ecosystems for fish species and other aquatic Species of Conservation Concern.

Alluvial Atlantic White Cedar Swamps occur along smaller rivers and ponds where Atlantic white cedar is co-dominant with red maple. They receive annual flooding, making them more mineral-rich than other Atlantic white cedar wetlands. This example of Alluvial Atlantic White Cedar Swamp is large and in good condition, despite the presence of an exotic invasive species.

Core 810
A 712-acre Core Habitat featuring Wetland Core and Species of Conservation Concern.
Wetland Cores are the least disturbed wetlands in the state within undeveloped landscapes—those with intact buffers and little fragmentation or other stressors associated with 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.

Four-toed Salamanders 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 MA are characterized by pit-and-mound topography with significant sphagnum-moss cover. Eggs are typically laid in mounds or patches of sphagnum moss that overhang water. Upon hatching, the larvae wriggle through the moss and drop into the water, where they will develop for several weeks prior to metamorphosis.

The Northern Black Racer is a snake of young upland forests, shrublands such as pitch pine/scrub oak communities and rock cliffs. Although relatively common, its range appears to be constricting and its abundance has been declining.

Strong populations of Spotted Turtles in good habitat - large, unfragmented, protected open space - continue to be of interest for the conservation of this species. This small, dark-colored turtle with yellow spots on its carapace inhabits a variety of wetlands year-round and nests in nearby uplands during spring. Road and collection are the primary conservation concerns.
BioMap2 Critical Natural Landscape in Attleboro

Critical Natural Landscape IDs correspond with the following element lists and summaries.
Elements of BioMap2 Critical Natural Landscapes

This section lists all elements of BioMap2 Critical Natural Landscapes that fall *entirely or partially* within Attleboro. The elements listed here may not occur within the bounds of Attleboro.

- **CNL 408**
  - Aquatic Core Buffer
- **CNL 412**
  - Wetland Core Buffer
- **CNL 421**
  - Aquatic Core Buffer
- **CNL 425**
  - Aquatic Core Buffer
  - Landscape Block
  - Wetland Core Buffer
- **CNL 433**
  - Wetland Core Buffer
- **CNL 438**
  - Aquatic Core Buffer
- **CNL 441**
  - Wetland Core Buffer
- **CNL 462**
  - Wetland Core Buffer
- **CNL 464**
  - Aquatic Core Buffer
  - Wetland Core Buffer
Critical Natural Landscape Summaries

**CNL 408**
A 9-acre Critical Natural Landscape featuring Aquatic Core Buffer.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

**CNL 412**
A 208-acre Critical Natural Landscape featuring Wetland Core Buffer.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

**CNL 421**
A 231-acre Critical Natural Landscape featuring Aquatic Core Buffer.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

**CNL 425**
A 5,695-acre Critical Natural Landscape featuring Aquatic Core Buffer, Wetland Core Buffer and Landscape Block.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

Landscape Blocks, the primary component of Critical Natural Landscapes, are large areas of intact predominately natural vegetation, consisting of contiguous forests, wetlands, rivers, lakes, and ponds, as
well as coastal habitats such as barrier beaches and salt marshes. Pastures and power-line rights-of-way, which are less intensively altered than most developed areas, were also included since they provide habitat and connectivity for many species. Collectively, these natural cover types total 3.6 million acres across the state. An Ecological Integrity assessment was used to identify the most intact and least fragmented areas. These large Landscape Blocks are most likely to maintain dynamic ecological processes such as buffering, connectivity, natural disturbance, and hydrological regimes, all of which help to support wide-ranging wildlife species and many other elements of biodiversity.

In order to identify critical Landscape Blocks in each ecoregion, different Ecological Integrity thresholds were used to select the largest intact landscape patches in each ecoregion while avoiding altered habitat as much as possible. This ecoregional representation accomplishes a key goal of BioMap2 to protect the ecological stages that support a broad suite of biodiversity in the context of climate change. Blocks were defined by major roads, and minimum size thresholds differed among ecoregions to ensure that BioMap2 includes the best of the best in each ecoregion.

At 5,255 acres, this Landscape Block is the sixth largest in the ecoregion. Unlike Landscape Blocks in much of the state that are dominated by upland forests, this Landscape Block also includes a relatively high percentage of forested wetlands. This Block is largely unprotected.

**CNL 433**
A 193-acre Critical Natural Landscape featuring Wetland Core Buffer.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

**CNL 438**
A 58-acre Critical Natural Landscape featuring Aquatic Core Buffer.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

**CNL 441**
A 659-acre Critical Natural Landscape featuring Wetland Core Buffer.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the
conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

**CNL 462**

A 79-acre Critical Natural Landscape featuring Wetland Core Buffer.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

**CNL 464**

A 577-acre Critical Natural Landscape featuring Aquatic Core Buffer and Wetland Core Buffer.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.
Help Save Endangered Wildlife!

Please contribute on your Massachusetts income tax form or directly to the Natural Heritage & Endangered Species Fund.

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