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.
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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 extinction 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
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

Belchertown lies on the border of the Connecticut River Valley, the Lower Worcester Plateau, and the Worcester Plateau Ecoregions. The Connecticut River Valley Ecoregion, the borders of which are primarily defined by the bedrock geology, has rich soils, a relatively mild climate and low rolling topography. The valley floor is primarily cropland and built land. Central hardwoods and transition hardwood forests cover the ridges. The Lower Worcester Plateau Ecoregion is comprised of open hills and transition hardwood and central hardwood forests. Most parts drain to the Chicopee and Quinebaug Rivers. The Worcester Plateau Ecoregion is an area that includes the most hilly areas of the central upland of Massachusetts with a few high monadnocks and mountains. The dominant forest types present are transition hardwoods and some northern hardwoods. Forested wetlands are common. Surface waters are acidic. Many major rivers drain this area.

Belchertown at a Glance

- Total Area: 35,376 acres (55.3 square miles)
- Human Population in 2010: 14,649
- Open space protected in perpetuity: 7,363 acres, or 20.8% percent of total area*
- BioMap2 Core Habitat: 5,024 acres
- BioMap2 Core Habitat Protected: 2,414 acres or 48.0%
- BioMap2 Critical Natural Landscape: 8,966 acres
- BioMap2 Critical Natural Landscape Protected: 4,104 acres or 45.8%.

BioMap2 Components

Core Habitat
- 3 Exemplary or Priority Natural Community Cores
- 2 Forest Cores
- 9 Wetland Cores
- 7 Aquatic Cores
- 1 Vernal Pool Core
- 17 Species of Conservation Concern Cores**
  - 3 birds, 4 reptiles, 4 amphibians, 1 fish, 1 insect, 1 mussel, 1 plant

Critical Natural Landscape
- 5 Landscape Blocks
- 11 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.

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 and Critical Natural Landscape in Belchertown

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 Belchertown

Mussels

Triangle Floater, (Alasmidonta undulata), Non-listed SWAP species

Insects

Damselflies

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

Amphibians

Blue-spotted Salamander, (Ambystoma laterale), SC
Marbled Salamander, (Ambystoma opacum), T
Four-toed Salamander, (Hemidactylium scutatum), Non-listed SWAP
Spring Salamander, (Gyrinophilus porphyriticus), Non-listed SWAP

Fishes

Bridle Shiner, (Notropis bifrenatus), SC

Reptiles

Eastern Box Turtle, (Terrapene carolina), SC
Eastern Hognose Snake, (Heterodon platirhinos), Non-listed SWAP
Eastern Ribbon Snake, (Thamnophis sauritus), Non-listed SWAP
Northern Black Racer, (Coluber constrictor), Non-listed SWAP

Birds

American Bittern, (Botaurus lentiginosus), E
Bald Eagle, (Haliaeetus leucocephalus), T
Least Bittern, (Ixobrychus exilis), E

Plants

Climbing Fern, (Lygodium palmatum), SC

Priority Natural Communities

Kettlehole Level Bog, S2
Level Bog, S3

Exemplary Natural Communities

Hemlock-Hardwood Swamp

Other BioMap2 Components

Forest Core
Aquatic Core
Wetland Core
Vernal Pool Core
Landscape Block
Aquatic Core Buffer
Wetland Core Buffer
BioMap2
Conserving the Biodiversity of Massachusetts in a Changing World

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.
BioMap2 Core Habitat in Belchertown

Core IDs correspond with the following element lists and summaries.

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).
Elements of BioMap2 Cores

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

Core 1411

Wetland Core
Species of Conservation Concern
Northern Black Racer  \textit{Coluber constrictor}  Non-listed SWAP

Core 1419

Aquatic Core
Species of Conservation Concern
Creeper  \textit{Strophitus undulatus}  SC
Triangle Floater  \textit{Alasmidonta undulata}  Non-listed SWAP
Bridle Shiner  \textit{Notropis bifrenatus}  SC

Core 1481

Priority & Exemplary Natural Communities
Level Bog  S3

Core 1500

Wetland Core

Core 1504

Forest Core
Wetland Core
Species of Conservation Concern
Marbled Salamander  \textit{Ambystoma opacum}  T

Core 1518

Species of Conservation Concern
Four-toed Salamander  \textit{Hemidactylium scutatum}  Non-listed SWAP

Core 1531

Species of Conservation Concern
Climbing Fern  \textit{Lygodium palmatum}  SC

Core 1547

Wetland Core
Core 1600

Priority & Exemplary Natural Communities
Hemlock-Hardwood Swamp

Core 1610

Wetland Core
Aquatic Core
Species of Conservation Concern
Eastern Hognose Snake  Heterodon platirhinos  Non-listed SWAP
Eastern Ribbon Snake  Thamnophis sauritus  Non-listed SWAP
American Bittern  Botaurus lentiginosus  E
Bald Eagle  Haliaeetus leucocephalus  T
Least Bittern  Ixobrychus exilis  E

Core 1616

Priority & Exemplary Natural Communities
Kettlehole Level Bog  S2

Core 1635

Species of Conservation Concern
Blue-spotted Salamander  Ambystoma laterale  SC

Core 1638

Wetland Core
Species of Conservation Concern
Climbing Fern  Lygodium palmatum  SC

Core 1665

Vernal Pool Core
Species of Conservation Concern
Northern Black Racer  Coluber constrictor  Non-listed SWAP

Core 1709

Priority & Exemplary Natural Communities
Kettlehole Level Bog  S2
Core 1710
Forest Core
Wetland Core
Vernal Pool Core
Species of Conservation Concern
Northern Black Racer  
*Coluber constrictor*  Non-listed SWAP

Core 1714
Species of Conservation Concern
Four-toed Salamander  
*Hemidactylium scutatum*  Non-listed SWAP

Core 1717
Species of Conservation Concern
New England Bluet  
*Enallagma laterale*  Non-listed SWAP
Marbled Salamander  
*Ambystoma opacum*  T

Core 1740
Species of Conservation Concern
New England Bluet  
*Enallagma laterale*  Non-listed SWAP

Core 1741
Species of Conservation Concern
Spring Salamander  
*Gyrinophilus porphyriticus*  Non-listed SWAP

Core 2335
Forest Core
Wetland Core
Aquatic Core
Priority & Exemplary Natural Communities
Acidic Rock Cliff Community
Acidic Talus Forest/Woodland
Circumneutral Talus Forest/Woodland  
S3
Kettlehole Level Bog  
S2
Level Bog  
S3
Oak - Hemlock - White Pine Forest
Oak - Hickory Forest
Species of Conservation Concern
Bush's Sedge  
*Carex bushii*  E
Climbing Fumitory  
*Adlumia fungosa*  SC
Drooping Speargrass  
Poa saltuensis ssp. languida  E
Muskflower  
*Mimulus moschatus*  E
New England Blazing Star  
*Liatris scariosa var. novae-angliae*  SC

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).
<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Clematis occidentalis</td>
<td>Purple Clematis</td>
<td>SC</td>
</tr>
<tr>
<td>Asclepias purpurascens</td>
<td>Purple Milkweed</td>
<td>E</td>
</tr>
<tr>
<td>Carex tuckermanii</td>
<td>Tuckerman's Sedge</td>
<td>E</td>
</tr>
<tr>
<td>Strophitus undulatus</td>
<td>Creeper</td>
<td>SC</td>
</tr>
<tr>
<td>Alasmidonta undulata</td>
<td>Triangle Floater</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Eubranchipus intricatus</td>
<td>Intricate Fairy Shrimp</td>
<td>SC</td>
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<tr>
<td>Pyrrhia aurantiago</td>
<td>Orange Sallow Moth</td>
<td>SC</td>
</tr>
<tr>
<td>Papaipepa appassionata</td>
<td>Pitcher Plant Borer Moth</td>
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<tr>
<td>Cicindela duodecimguttata</td>
<td>Twelve-spotted Tiger Beetle</td>
<td>SC</td>
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<tr>
<td>Enallagma laterale</td>
<td>New England Bluet</td>
<td>Non-listed SWAP</td>
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<tr>
<td>Sonatochlorella elongata</td>
<td>Ski-tipped Emerald</td>
<td>SC</td>
</tr>
<tr>
<td>Ambystoma laterale</td>
<td>Blue-spotted Salamander</td>
<td>SC</td>
</tr>
<tr>
<td>Hemidactylium scutatum</td>
<td>Four-toed Salamander</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Ambystoma opacum</td>
<td>Marbled Salamander</td>
<td>T</td>
</tr>
<tr>
<td>Gyrinophilus porphyriticus</td>
<td>Spring Salamander</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Heterodon platirhinos</td>
<td>Eastern Hognose Snake</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Coluber constrictor</td>
<td>Northern Black Racer</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Opheodrys vernalis</td>
<td>Smooth Green Snake</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Glyptemys insculpta</td>
<td>Wood Turtle</td>
<td>SC</td>
</tr>
<tr>
<td>Notropis bifrenatus</td>
<td>Bridle Shiner</td>
<td>SC</td>
</tr>
<tr>
<td>Haliaetus leucocephalus</td>
<td>Bald Eagle</td>
<td>T</td>
</tr>
<tr>
<td>Dendroica cerulea</td>
<td>Cerulean Warbler</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Gavia immer</td>
<td>Common Loon</td>
<td>SC</td>
</tr>
<tr>
<td>Caprimulgus vociferus</td>
<td>Eastern Whip-poore-will</td>
<td>SC</td>
</tr>
<tr>
<td>Synaptomys cooperi</td>
<td>Southern Bog Lemming</td>
<td>SC</td>
</tr>
<tr>
<td>Sorex palustris</td>
<td>Water Shrew</td>
<td>SC</td>
</tr>
</tbody>
</table>

**Core 2943D**

- Forest Core
- Wetland Core
- Aquatic Core
- Vernal Pool Core

**Priority & Exemplary Natural Communities**

- Black Gum-Pin Oak-Swamp White Oak “Perched” Swamp: S2

**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophioglossum pusillum</td>
<td>Adder’s-tongue Fern</td>
<td>T</td>
</tr>
<tr>
<td>Carex typhina</td>
<td>Cat-tail Sedge</td>
<td>T</td>
</tr>
<tr>
<td>Lygodium palmatum</td>
<td>Climbing Fern</td>
<td>SC</td>
</tr>
<tr>
<td>Arisaema dracontium</td>
<td>Green Dragon</td>
<td>T</td>
</tr>
<tr>
<td>Claytonia virginica</td>
<td>Narrow-leaved Spring Beauty</td>
<td>E</td>
</tr>
<tr>
<td>Strophitus undulatus</td>
<td>Creeper</td>
<td>SC</td>
</tr>
<tr>
<td>Alasmidonta heterodon</td>
<td>Dwarf Wedgemussel</td>
<td>E</td>
</tr>
<tr>
<td>Ligumia nasuta</td>
<td>Eastern Pondmussel</td>
<td>SC</td>
</tr>
</tbody>
</table>

**Natural Heritage & Endangered Species Program**

*Massachusetts Division of Fisheries and Wildlife*

1 Rabbit Hill Road, Westborough, MA 01581

phone: 508-389-6360  fax: 508-389-7890

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).
Triangle Floater  Alasmidonta undulata  Non-listed SWAP
Arrow Clubtail  Stylurus spiniceps  Non-listed SWAP
Brook Snaketail  Ophiogomphus aspersus  SC
Riverine Clubtail  Stylurus annicola  E
Zebra Clubtail  Stylurus scudder  Non-listed SWAP
Four-toed Salamander  Hemidactylum scutatum  Non-listed SWAP
Marbled Salamander  Ambystoma opacum  T
Spring Salamander  Gyrinophilus porphyriticus  Non-listed SWAP
Eastern Box Turtle  Terrapene carolina  SC
Northern Black Racer  Coluber constrictor  Non-listed SWAP
Spotted Turtle  Clemmys guttata  Non-listed SWAP
Wood Turtle  Glyptemys insculpta  SC
Burbot  Lota lota  SC
Eastern Silvery Minnow  Hybognathus regius  SC
Shortnose Sturgeon  Acipenser brevirostrum  E
American Bittern  Botaurus lentiginosus  E
Bald Eagle  Haliaeetus leucocephalus  T
Sedge Wren  Cistothorus platensis  E
Core Habitat Summaries

Core 1411
A 21-acre Core Habitat featuring Wetland 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 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.

Core 1419
A 149-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.

Creepers are freshwater mussels that inhabit low-gradient reaches of small to large rivers with sand or gravel substrates. Cool to warm water with diverse fish assemblages best support Creepers.

Triangle Floaters are freshwater mussels commonly found in low-gradient river reaches with sand and gravel substrates and low to moderate water velocities, although they are found in a wide range of substrate and flow conditions.

Bridle Shiners are small (<5 cm) minnows that are found in clear water in slack areas of streams and rivers and are also found in lakes and ponds.

Core 1481
A <1-acre Core Habitat featuring a Priority Natural Community.

Level Bogs are dwarf-shrub peatlands, generally with pronounced hummocks and hollows in sphagnum moss. These wetland communities are very acidic and nutrient-poor because the peat isolates them from nutrients in groundwater and streams. This example of Level Bog is small, yet good quality, and is well buffered by surrounding forested land.

Core 1500
A 56-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.

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Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries and Wildlife
1 Rabbit Hill Road, Westborough, MA 01581
phone: 508-389-6360 fax: 508-389-7890

For more information on rare species and natural communities, please see our fact sheets online at www.mass.gov/nhesp.
Core 1504

A 2,492-acre Core Habitat featuring Forest Core, Wetland Core, and a Species of Conservation Concern. Forest Cores are the best examples of large, intact forests that are least impacted by roads and development. Forest Cores support many bird species sensitive to the impacts of roads and development and help maintain ecological processes found only in unfragmented forest patches.

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.

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 1518

An 18-acre Core Habitat featuring a Species of Conservation Concern.

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 1531

A 169-acre Core Habitat featuring a Species of Conservation Concern.

Climbing Fern does not have the characteristic overall shape of most ferns. Instead, it is an evergreen, ivy-like plant which sprawls over the ground or climbs clockwise short distances up shrubs and coarse herbs. Climbing Fern grows in moist pine-oak-maple woods with an open understory, in moist thickets, and along stream margins. This plant prefers acidic soils that are sandy and rich in humus, but nutrient-poor.

Core 1547

An 84-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.

The 84-acre Wetland Core is among the largest 20% of Wetland Cores in this ecoregion.

Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries and Wildlife
1 Rabbit Hill Road, Westborough, MA 01581
phone: 508-389-6360 fax: 508-389-7890

For more information on rare species and natural communities, please see our fact sheets online at www.mass.gov/nhesp.
Core 1600
A <1-acre Core Habitat featuring a Priority Natural Community.

Hemlock-Hardwood Swamps are acidic forested swamps that have hemlock as the dominant canopy species. These forested wetlands occur on saturated soils in poorly drained basins throughout the state. This example of Hemlock - Hardwood Swamp, though small, has good species diversity and is well buffered by surrounding upland forest.

Core 1610
A 753-acre Core Habitat featuring Wetland Core, Aquatic 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.

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.

Eastern Hognose Snakes are shy, slow-moving, thick-bodied snakes that specialize in feeding on toads, although they eat other amphibians or other small animals as well. They require sandy soils in their habitat; both wooded and open habitats are known.

Eastern Ribbon Snakes are a medium-sized, very thin snake ranging from 7 to 34 inches long at maturity. They are active during the day and live in wetlands and edges of open water being comfortable in water and on land, eating amphibians, insects, and occasional fish. This species hibernates in ant mounds, rodent burrows, crayfish burrows, and bank burrows.

American Bitterns are heron-like birds that nest primarily in large cattail, tussock or shrub marshes and are very sensitive to disturbance.

Bald Eagles nest in tall trees along large lakes and rivers. The bulk of their diet consists of fish. Large lakes and rivers also support important winter congregations of Bald Eagles.

Least Bitterns are heron-like birds that typically nest in cattail marshes interspersed with open water and are very sensitive to disturbance.

Core 1616
An 8-acre Core Habitat featuring a Priority Natural Community.

Kettlehole Level Bogs are acidic dwarf-shrub peatlands with little water input or outflow that form in circular depressions left by melting ice blocks in sandy glacial outwash. The vegetation in Kettlehole Level Bogs usually grows in rings. This example of Kettlehole Level Bog is fairly large, with classic zoned vegetation structure and good species diversity. It is fairly well buffered from developed by upland forest.
Core 1635

A 160-acre Core Habitat featuring a Species of Conservation Concern.

Adult and juvenile Blue-spotted Salamanders inhabit upland forests 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 fish-free areas of swamps, marshes, or similar wetlands. Larvae metamorphose in late summer or early fall, whereupon they disperse into upland forest.

Core 1638

A 23-acre Core Habitat featuring Wetland 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.

Climbing Fern does not have the characteristic overall shape of most ferns. Instead, it is an evergreen, ivy-like plant which sprawls over the ground or climbs clockwise short distances up shrubs and coarse herbs. Climbing Fern grows in moist pine-oak-maple woods with an open understory, in moist thickets, and along stream margins. This plant prefers acidic soils that are sandy and rich in humus, but nutrient-poor.

Core 1665

A 319-acre Core Habitat featuring Vernal Pool Core and a Species of Conservation Concern.

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.

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.

Core 1709

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

Kettlehole Level Bogs are acidic dwarf-shrub peatlands with little water input or outflow that form in circular depressions left by melting ice blocks in sandy glacial outwash. The vegetation in Kettlehole Level Bogs usually grows in rings. This example of Kettlehole Level Bog, though small, is in very good condition, with good species and structural diversity.

Core 1710

A 1,045-acre Core Habitat featuring Forest Core, Wetland Core, Vernal Pool Core, and a Species of Conservation Concern.

Forest Cores are the best examples of large, intact forests that are least impacted by roads and development. Forest Cores support many bird species sensitive to the impacts of roads and development and help maintain ecological processes found only in unfragmented forest patches.
This 1,007-acre Forest Core is part of a cluster of three Forest Cores along the Holyoke Range, and provides important habitat in the otherwise largely fragmented Connecticut River Valley ecoregion. These Forest Cores are largely protected, but further protection is needed to maintain their habitat values and integrity.

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.

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.

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.

Core 1714

A 44-acre Core Habitat featuring a Species of Conservation Concern.

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 1717

A 367-acre Core Habitat featuring 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.

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 1740

A 103-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 1741
An 80-acre Core Habitat featuring a Species of Conservation Concern.

Spring Salamander adults inhabit clean, cold, high-gradient brooks and headwater seeps in forest habitat, usually at elevation >100 m. 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.

Core 2335

A 41,593-acre Core Habitat featuring Forest Core, Wetland Core, Aquatic Core, Priority Natural Communities, and Species of Conservation Concern.

The expansive waters and surrounding wildlands of the Quabbin Reservoir support the state’s largest breeding populations of Bald Eagle and Common Loon. The size of the reservoir allows for a high density of nesting eagle pairs, and the reservoir’s many quiet coves offer undisturbed nesting and nursery sites for loons. The site is a key wintering area for Bald Eagles. Twenty-six other rare and uncommon species also call this Core Habitat home.

Acidic Rock Cliffs are open communities with extremely sparse plants, with occasional dense lichen, on ledges and in crevices of acidic cliff faces. Acidic Rock Cliff Communities are often below Acidic Rocky Summits and above Acidic Talus Slopes. This small, bare example of Acidic Rock Cliff is a pristine example of this community type, and is very well buffered in the landscape. It shows no sign of human disturbance.

Acidic Talus Forest communities develop on acidic boulder-strewn slopes below cliffs, with scattered trees, tall shrubs, and vines and ferns. There is often a gradient of vegetation density as the slope changes, with more trees on the lower slope. Three examples of Acidic Talus Slope including one that is notable for its large size and relatively diverse flora. It is well buffered by a large, roadless, naturally vegetated area, and is in very good condition.

Circumneutral Talus Forest communities develop on boulder strewn slopes below slightly acidic cliffs or rock outcrops. There is often a gradient of vegetation density as the slope changes, with more trees on the lower slope. This Core has two examples of Circumneutral Talus Forest/Woodland including a small occurrence in very good condition in an excellent landscape, below a rock outcrop and a large patch of Oak Hickory Forest.

Kettlehole Level Bogs are acidic dwarf-shrub peatlands with little water input or outflow that form in circular depressions left by melting ice blocks in sandy glacial outwash. The vegetation in Kettlehole Level Bogs usually grows in rings. This example of Kettlehole Level Bog is a well developed example of a northern variant of this community type, in excellent condition and extremely well buffered to human disturbance by extensive natural vegetation.

Level Bogs are dwarf-shrub peatlands, generally with pronounced hummocks and hollows in sphagnum moss. These wetland communities are very acidic and nutrient-poor because the peat isolates them from nutrients in groundwater and streams. This example of Level Bog is large and in good condition, despite its lack of a naturally vegetated forest buffer between it and surrounding roads and development.
Oak-Hemlock-White Pine forest is a mixed conifer-hardwood community common in the southern part of the state, often on dry, acidic, low-nutrient mid-slope areas. The community grades into northern hardwood-hemlock-white pine forests to the north. This example of Oak-Hemlock-White Pine is moderate-sized, with moderate species diversity. Browsing by deer, as well as gypsy moth damage, are threats to this community.

Oak-Hickory Forests are dominated by a variety of oak species, with hickories present in lower densities. They generally occupy upper slopes or ridgetops. A subcanopy commonly present includes hop hornbeam, flowering dogwood, and shadbush. This extensive example of Oak-Hickory Forest is part of a larger complex of natural communities that is one of the largest relatively undisturbed landscapes in the state. Excellent regeneration of canopy tree species is occurring in this forest.

Forest Cores are the best examples of large, intact forests that are least impacted by roads and development. Forest Cores support many bird species sensitive to the impacts of roads and development and help maintain ecological processes found only in unfragmented forest patches.

Wetlands 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.

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 2943D**

A 7,350-acre section of a larger 93,990-acre Core Habitat featuring Forest Core, Wetland Core, Aquatic Core, Vernal Pool Core, Priority Natural Communities, and Species of Conservation Concern.

The Fort River and its tributaries are part of the extensive Connecticut River Core Habitat. Twenty-three rare and uncommon plants and animals are found here. The rarest of these is the federally Endangered and globally very rare Dwarf Wedgemussel.

Black Gum-Pin Oak-White Oak "Perched" swamps are an unusual type of wetland found in Massachusetts in one area of the Connecticut River Valley. This community type is dominated by red maple, with black gum, pin oak, and swamp white oak. This example of Black Gum-Pin Oak-Swamp White Oak "Perched" Swamp is moderately disturbed and has an exotic invasive species present.

Forest Cores are the best examples of large, intact forests that are least impacted by roads and development. Forest Cores support many bird species sensitive to the impacts of roads and development and help maintain ecological processes found only in unfragmented forest patches.

Wetlands 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.
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.

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.
**BioMap2 Critical Natural Landscape in Belchertown**

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 Belchertown. The elements listed here may not occur within the bounds of Belchertown.

**CNL 706**
- Wetland Core Buffer

**CNL 711**
- Aquatic Core Buffer

**CNL 740**
- Wetland Core Buffer

**CNL 748**
- Wetland Core Buffer

**CNL 787**
- Wetland Core Buffer

**CNL 803**
- Aquatic Core Buffer
- Wetland Core Buffer

**CNL 815**
- Aquatic Core Buffer
- Landscape Block
- Wetland Core Buffer

**CNL 816**
- Wetland Core Buffer

**CNL 824**
- Wetland Core Buffer

**CNL 873**
- Wetland Core Buffer

**CNL 932**
- Aquatic Core Buffer
- Landscape Block
- Wetland Core Buffer

**CNL 1322**
- Aquatic Core Buffer
- Landscape Block
- Wetland Core Buffer
Critical Natural Landscape Summaries

CNL 706
A 69-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 711
A 300-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 740
A 5-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 748
A 116-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 787
A 142-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 803
A 221-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.

CNL 815
A 7,315-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.

**CNL 816**

A <1-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 824**

A 21-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 873**

A 3-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 932**

A 15,327-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.

CNL 1322

A 288,370-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.
Help Save Endangered Wildlife!

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Natural Heritage &
Endangered Species Fund

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and the Commonwealth’s rare species, visit our web site at www.mass.gov/nhesp.