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 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>
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<tr>
<td>Birds</td>
<td>27</td>
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<td>Reptiles</td>
<td>10</td>
<td>5</td>
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<td>Amphibians</td>
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<td>Fish</td>
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<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](http://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](http://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](http://www.mass.gov/mgis).
Town Overview
Pelham lies on the border of the Connecticut River Valley 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 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.

Pelham at a Glance
- Total Area: 16,991 acres (26.5 square miles)
- Human Population in 2010: 1,321
- Open space protected in perpetuity: 10,178 acres, or 59.9% percent of total area*
- BioMap2 Core Habitat: 3,817 acres
- BioMap2 Core Habitat Protected: 1,759 acres or 46.1%
- BioMap2 Critical Natural Landscape: 13,026 acres
- BioMap2 Critical Natural Landscape Protected: 8,372 acres or 64.3%.

BioMap2 Components
Core Habitat
- 1 Forest Core
- 1 Wetland Core
- 4 Aquatic Cores
- 1 Vernal Pool Core
- 8 Species of Conservation Concern Cores**
  - 2 birds, 3 reptiles, 2 amphibians, 2 plants

Critical Natural Landscape
- 3 Landscape Blocks
- 1 Wetland Core Buffer
- 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 Pelham

[Map of BioMap2 Core Habitat and Critical Natural Landscape in Pelham]

- 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 Pelham

Amphibians
- **Marbled Salamander**, (*Ambystoma opacum*), T
- **Spring Salamander**, (*Gyrinophilus porphyriticus*), Non-listed SWAP

Reptiles
- **Wood Turtle**, (*Glyptemys insculpta*), SC
- **Eastern Box Turtle**, (*Terrapene carolina*), SC
- Smooth Green Snake, (*Opheodrys vernalis*), Non-listed SWAP

Birds
- **Common Loon**, (*Gavia immer*), SC
- **Bald Eagle**, (*Haliaeetus leucocephalus*), T

Plants
- **Pod-grass**, (*Scheuchzeria palustris*), E
- **Threadfoot**, (*Podostemum ceratophyllum*), recently de-listed

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

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.
BioMap2 Core Habitat in Pelham

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

Core 1842

Vernal Pool Core

Core 1874

Wetland Core

Core 1876

Aquatic Core

Species of Conservation Concern
Pod-grass

*Scheuchzeria palustris* E

Core 1903

Aquatic Core

Core 1936

Species of Conservation Concern
Bald Eagle

*Haliaeetus leucocephalus* T

Core 1961

Species of Conservation Concern
Spring Salamander

*Gyrinophilus porphyriticus* Non-listed SWAP

Core 1983

Species of Conservation Concern
Smooth Green Snake

*Opheodrys vernalis* 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
Oak - Hemlock - White Pine Forest
Oak - Hickory Forest

Species of Conservation Concern

<table>
<thead>
<tr>
<th>Species</th>
<th>Scientific Name</th>
<th>Conservation Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bush’s Sedge</td>
<td>Carex bushii</td>
<td>E</td>
</tr>
<tr>
<td>Climbing Fumitory</td>
<td>Adlumia fungosa</td>
<td>SC</td>
</tr>
<tr>
<td>Drooping Speargrass</td>
<td>Poa saltuensis ssp. languida</td>
<td>E</td>
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<tr>
<td>Muskflower</td>
<td>Mimulus moschatus</td>
<td>E</td>
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<tr>
<td>New England Blazing Star</td>
<td>Liatris scariosa var. novae-angliae</td>
<td>SC</td>
</tr>
<tr>
<td>Purple Clematis</td>
<td>Clematis occidentalis</td>
<td>SC</td>
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<tr>
<td>Purple Milkweed</td>
<td>Asclepias purpurascens</td>
<td>E</td>
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<tr>
<td>Tuckerman’s Sedge</td>
<td>Carex tuckermanii</td>
<td>E</td>
</tr>
<tr>
<td>Creeper</td>
<td>Strophitus undulatus</td>
<td>SC</td>
</tr>
<tr>
<td>Triangle Floater</td>
<td>Alasmidonta undulata</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Intricate Fairy Shrimp</td>
<td>Eubranchipus intricatus</td>
<td>SC</td>
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<tr>
<td>Orange Sallow Moth</td>
<td>Pyrrhia aurantiago</td>
<td>SC</td>
</tr>
<tr>
<td>Pitcher Plant Borer Moth</td>
<td>Papaipema appassionata</td>
<td>T</td>
</tr>
<tr>
<td>Twelve-spotted Tiger Beetle</td>
<td>Cicindela duodecimguttata</td>
<td>SC</td>
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<tr>
<td>New England Bluet</td>
<td>Enallagma laterale</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Ski-tipped Emerald</td>
<td>Sonatochlorella elongata</td>
<td>SC</td>
</tr>
<tr>
<td>Blue-spotted Salamander</td>
<td>Ambystoma laterale</td>
<td>SC</td>
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<tr>
<td>Four-toed Salamander</td>
<td>Hemidactylium scutatum</td>
<td>Non-listed SWAP</td>
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<tr>
<td>Marbled Salamander</td>
<td>Ambystoma opacum</td>
<td>T</td>
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<tr>
<td>Spring Salamander</td>
<td>Gymrithilus porphyrificus</td>
<td>Non-listed SWAP</td>
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<tr>
<td>Eastern Hognose Snake</td>
<td>Heterodon platirhinos</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Northern Black Racer</td>
<td>Coluber constrictor</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Smooth Green Snake</td>
<td>Opheodrys vernalis</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Wood Turtle</td>
<td>Glyptemys insculpta</td>
<td>SC</td>
</tr>
<tr>
<td>Bridle Shiner</td>
<td>Notropis bifrenatus</td>
<td>SC</td>
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<tr>
<td>Bald Eagle</td>
<td>Haliaeetus leucocephalus</td>
<td>T</td>
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<tr>
<td>Cerulean Warbler</td>
<td>Dendroica cerulea</td>
<td>Non-listed SWAP</td>
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<tr>
<td>Common Loon</td>
<td>Gavia immer</td>
<td>SC</td>
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<tr>
<td>Eastern Whip-poor-will</td>
<td>Caprimulgus vociferus</td>
<td>SC</td>
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<td>Southern Bog Lemming</td>
<td>Synaptomys cooperi</td>
<td>SC</td>
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<tr>
<td>Water Shrew</td>
<td>Sorex palustris</td>
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</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

Natural Heritage & Endangered Species Program

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

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
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<tbody>
<tr>
<td>Adder's-tongue Fern</td>
<td>Ophioglossum pusillum</td>
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<tr>
<td>Cat-tail Sedge</td>
<td>Carex typhina</td>
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<tr>
<td>Climbing Fern</td>
<td>Lygodium palmatum</td>
<td>SC</td>
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<tr>
<td>Green Dragon</td>
<td>Arisaema dracontium</td>
<td>T</td>
</tr>
<tr>
<td>Narrow-leaved Spring Beauty</td>
<td>Claytonia virginica</td>
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<td>Creeper</td>
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<td>Dwarf Wedgemussel</td>
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<td>Stylurus spiniceps</td>
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<td>Brook Snaketail</td>
<td>Ophiogomphus aspersus</td>
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<tr>
<td>Riverine Clubtail</td>
<td>Stylurus annicola</td>
<td>E</td>
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<tr>
<td>Zebra Clubtail</td>
<td>Stylurus scudder</td>
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<td>Four-toed Salamander</td>
<td>Hemidactylium scutatum</td>
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<td>Marbled Salamander</td>
<td>Ambystoma opacum</td>
<td>T</td>
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<tr>
<td>Spring Salamander</td>
<td>Gyrinophilus porphyriticus</td>
<td>Non-listed SWAP</td>
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<tr>
<td>Eastern Box Turtle</td>
<td>Terrapene carolina</td>
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<td>Northern Black Racer</td>
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<td>Spotted Turtle</td>
<td>Clemmys guttata</td>
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<td>Wood Turtle</td>
<td>Glyptemys insculpta</td>
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<td>Burbot</td>
<td>Lota lota</td>
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<td>Eastern Silvery Minnow</td>
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<td>Shortnose Sturgeon</td>
<td>Acipenser brevostrum</td>
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<td>American Bittern</td>
<td>Botaurus lentigans</td>
<td>E</td>
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<tr>
<td>Bald Eagle</td>
<td>Haliaeetus leucocephalus</td>
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<tr>
<td>Sedge Wren</td>
<td>Cistothorus platensis</td>
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</tr>
</tbody>
</table>
Core Habitat Summaries

Core 1842
A 50-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 1874
A 16-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 1876
A 3-acre Core Habitat featuring Aquatic Core and a 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.

Pod-grass, an erect, rush-like plant, inhabits open acidic peatlands, often in areas that are dominated by sedges and sphagnum mosses.

Core 1903
A 15-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 1936
An 8-acre Core Habitat featuring a Species of Conservation Concern.

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.

Core 1961
An 87-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 1983
A 38-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 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.

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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 Pelham

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

**CNL 924**
- Aquatic 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 924

A 13-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 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.

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Natural Heritage &
Endangered Species Fund

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