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.
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

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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 of Conservation</th>
<th>Non-listed Species of Conservation</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
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.

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**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/](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

Westfield lies on the border of the Berkshire Transition and the Connecticut River Valley Ecoregions. The Berkshire Transition Ecoregion shares characteristics with the Berkshire ecoregions and the Connecticut River Valley Ecoregion. Forests are transition hardwoods and northern hardwoods. This area drains to the Westfield and Connecticut River basins. 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.

Westfield at a Glance

- Total Area: 30,280 acres (47.3 square miles)
- Human Population in 2010: 41,094
- Open space protected in perpetuity: 3,619 acres, or 12.0% percent of total area*
- BioMap2 Core Habitat: 5,874 acres
- BioMap2 Core Habitat Protected: 765 acres or 13.0% 
- BioMap2 Critical Natural Landscape: 4,527 acres
- BioMap2 Critical Natural Landscape Protected: 748 acres or 16.5%.

BioMap2 Components

Core Habitat

- 3 Exemplary or Priority Natural Community Cores
- 1 Forest Core
- 2 Wetland Cores
- 5 Aquatic Cores
- 1 Vernal Pool Core
- 19 Species of Conservation Concern Cores**
  - 3 birds, 5 reptiles, 4 amphibians, 5 insects, 2 crustaceans, 2 mussels, 1 plant

Critical Natural Landscape

- 3 Landscape Blocks
- 4 Wetland Core Buffers
- 5 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 Westfield
Species of Conservation Concern, Priority and Exemplary Natural Communities, and Other Elements of Biodiversity in Westfield

Mussels
- **Creep**, (*Strophitus undulatus*), SC
- **Triangle Floater**, (*Asلامidonta undulata*), Non-listed SWAP

Crustaceans
- **Agassiz's Clam Shrimp**, (*Eulimnadia agassizii*), E
- **American Clam Shrimp**, (*Limnadia lenticularis*), SC

Insects

Moths
- **Orange Sallow Moth**, (*Pyrrhia aurantiago*), SC
- **Pine Barrens Zanclognatha**, (*Zanclognatha martha*), T
- **New Jersey Tea Inchworm**, (*Apodrepanulatrix liberaria*), E
- **Pine Barrens Speranza**, (*Speranza exonerata*), SC

Butterflies
- **Frosted Elfin**, (*Callophrys irus*), SC

Amphibians
- **Jefferson Salamander**, (*Ambystoma jeffersonianum*), SC
- **Marbled Salamander**, (*Ambystoma opacum*), T
- **Eastern Spadefoot**, (*Scaphiopus holbrookii*), T
- **Four-toed Salamander**, (*Hemidactylium scutatum*), Non-listed SWAP

Reptiles
- **Wood Turtle**, (*Glyptemys insculpta*), SC
- **Eastern Box Turtle**, (*Terrapene carolina*), SC
- **Eastern Hognose Snake**, (*Heterodon platirhinos*), Non-listed SWAP
- **Northern Black Racer**, (*Coluber constrictor*), Non-listed SWAP
- **Spotted Turtle**, (*Clemmys guttata*), Non-listed SWAP

Birds
- **Grasshopper Sparrow**, (*Ammodramus savannarum*), T
- **Upland Sandpiper**, (*Bartramia longicauda*), E
- **Vesper Sparrow**, (*Poecetes gramineus*), T

Plants
- **Climbing Fumitory**, (*Adlumia fungosa*), SC
- **Linear-leaved Milkweed**, (*Asclepias verticillata*), T
- **Smooth Rock-cress**, (*Boechera laevigata*), SC
- **Green Rock-cress**, (*Boechera missouriensis*), T
- **Nodding Chickweed**, (*Cerastium nutans*), E
- **Purple Clematis**, (*Clematis occidentalis*), SC

For more information on rare species and natural communities, please see our fact sheets online at [www.mass.gov/nhsp](http://www.mass.gov/nhsp).
Cornel-leaved Aster, (Doellingeria infirma), E
New England Blazing Star, (Liatris scariosa var. novae-angliae), SC
Bristly Buttercup, (Ranunculus pensylvanicus), SC
Shining Wedgegrass, (Sphenopholis nitida), T
Lily-leaf Twayblade, (Liparis liliifolia), T

Priority Natural Communities
Level Bog, S3
Pitch pine - scrub oak community, S2
Circumneutral Talus Forest/Woodland, S3

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 Westfield

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

**Core 1066**

<table>
<thead>
<tr>
<th>Species of Conservation Concern</th>
<th></th>
<th>Non-listed SWAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four-toed Salamander</td>
<td><em>Hemidactylium scutatum</em></td>
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<tr>
<td>Eastern Hognose Snake</td>
<td><em>Heterodon platirhinos</em></td>
<td></td>
</tr>
<tr>
<td>Wood Turtle</td>
<td><em>Glyptemys insculpta</em></td>
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**Core 1067**

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<tbody>
<tr>
<td>Climbing Fumitory</td>
<td><em>Adlumia fungosa</em></td>
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**Core 1154**

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<tbody>
<tr>
<td>Creeper</td>
<td><em>Strophitus undulatus</em></td>
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**Core 1155**

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<tr>
<td>Agassiz's Clam Shrimp</td>
<td><em>Eulimnadia agassizii</em></td>
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<tr>
<td>American Clam Shrimp</td>
<td><em>Limnadia lenticularis</em></td>
<td>SC</td>
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<tr>
<td>Eastern Spadefoot</td>
<td><em>Scaphiopus holbrookii</em></td>
<td>T</td>
</tr>
<tr>
<td>Four-toed Salamander</td>
<td><em>Hemidactylium scutatum</em></td>
<td>Non-listed SWAP</td>
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<tr>
<td>Jefferson Salamander</td>
<td><em>Ambystoma jeffersonianum</em></td>
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</tr>
<tr>
<td>Northern Black Racer</td>
<td><em>Coluber constrictor</em></td>
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**Core 1165**

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<tr>
<td>Four-toed Salamander</td>
<td><em>Hemidactylium scutatum</em></td>
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**Core 1179**

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<tr>
<td>Northern Black Racer</td>
<td><em>Coluber constrictor</em></td>
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### Core 1240

#### Species of Conservation Concern

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<th>Subspecies</th>
<th>Status</th>
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<tbody>
<tr>
<td>New England Blazing Star</td>
<td>Liatris scariosa var. novae-angliae SC</td>
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<tr>
<td>Frosted Elfin</td>
<td>Calliphrys irus SC</td>
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### Core 1256

#### Species of Conservation Concern

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<th>Status</th>
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<tbody>
<tr>
<td>Frosted Elfin</td>
<td>Calliphrys irus SC</td>
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### Core 1281

#### Species of Conservation Concern

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<thead>
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<th>Subspecies</th>
<th>Status</th>
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<tbody>
<tr>
<td>Smooth Rock-cress</td>
<td>Boechera laevigata SC</td>
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### Core 1286

#### Species of Conservation Concern

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<th>Subspecies</th>
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<tbody>
<tr>
<td>New Jersey Tea Inchworm</td>
<td>Apodrepanulatrix liberaria E</td>
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<tr>
<td>Pine Barrens Speranza</td>
<td>Speranza exonerata SC</td>
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<tr>
<td>Frosted Elfin</td>
<td>Calliphrys irus SC</td>
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### Core 1296

#### Species of Conservation Concern

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<td>Apodrepanulatrix liberaria E</td>
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<tr>
<td>Pine Barrens Speranza</td>
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### Core 1318

#### Wetland Core

#### Species of Conservation Concern

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<tbody>
<tr>
<td>Spotted Turtle</td>
<td>Clemmys guttata Non-listed SWAP</td>
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### Core 1334

#### Priority & Exemplary Natural Communities

<table>
<thead>
<tr>
<th>Subspecies</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Pitch pine - scrub oak community</td>
<td>S2</td>
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#### Species of Conservation Concern

<table>
<thead>
<tr>
<th>Subspecies</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Frosted Elfin</td>
<td>Calliphrys irus SC</td>
</tr>
<tr>
<td>Eastern Box Turtle</td>
<td>Terrapene carolina SC</td>
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### Core 1346

#### Species of Conservation Concern

<table>
<thead>
<tr>
<th>Subspecies</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Four-toed Salamander</td>
<td>Hemidactylium scutatum Non-listed SWAP</td>
</tr>
</tbody>
</table>
### Core 1359

**Priority & Exemplary Natural Communities**

**Level Bog**

**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Species</th>
<th>Conservation Status</th>
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</thead>
<tbody>
<tr>
<td>New Jersey Tea Inchworm</td>
<td>E</td>
</tr>
<tr>
<td>Pine Barrens Speranza</td>
<td>SC</td>
</tr>
<tr>
<td>Pine Barrens Zanclognatha</td>
<td>T</td>
</tr>
<tr>
<td>Frosted Elfin</td>
<td>SC</td>
</tr>
<tr>
<td>Grasshopper Sparrow</td>
<td>T</td>
</tr>
<tr>
<td>Upland Sandpiper</td>
<td>E</td>
</tr>
<tr>
<td>Vesper Sparrow</td>
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### Core 1466

**Aquatic Core**

**Species of Conservation Concern**

<table>
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<th>Species</th>
<th>Conservation Status</th>
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<tbody>
<tr>
<td>Creeper</td>
<td>SC</td>
</tr>
<tr>
<td>Triangle Floater</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Eastern Box Turtle</td>
<td>SC</td>
</tr>
<tr>
<td>Eastern Hognose Snake</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Northern Black Racer</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Wood Turtle</td>
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</table>

### Core 1656

**Forest Core**
**Wetland Core**
**Aquatic Core**
**Vernal Pool Core**

**Priority & Exemplary Natural Communities**

<table>
<thead>
<tr>
<th>Species</th>
<th>Conservation Status</th>
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<tbody>
<tr>
<td>Circumneutral rocky summit/rock outcrop community</td>
<td>S2S3</td>
</tr>
<tr>
<td>Circumneutral Talus Forest/Woodland</td>
<td>S3</td>
</tr>
<tr>
<td>Hemlock-Hardwood Swamp</td>
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<tr>
<td>Hickory - Hop Hornbeam Forest/Woodland</td>
<td>S2</td>
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**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Species</th>
<th>Conservation Status</th>
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<tbody>
<tr>
<td>Autumn Coralroot</td>
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<tr>
<td>Cornel-leaved Aster</td>
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<td>Dwarf Bulrush</td>
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<tr>
<td>False Hop-sedge</td>
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<tr>
<td>Glaucenceent Sedge</td>
<td>E</td>
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<tr>
<td>Green Rock-cress</td>
<td>T</td>
</tr>
<tr>
<td>Hairy Agrimony</td>
<td>T</td>
</tr>
<tr>
<td>Houghton's Flatsedge</td>
<td>E</td>
</tr>
<tr>
<td>Large-bracted Tick-trefoil</td>
<td>T</td>
</tr>
<tr>
<td>Linear-leaved Milkweed</td>
<td>T</td>
</tr>
</tbody>
</table>

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**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).
Midland Sedge Carex mesochorea E
Narrow-leaved Vervain Verbena simplex E
New England Blazing Star Liatris scariosa var. novae-angliae SC
Nodding Chickweed Cerastium nutans E
Philadelphia Panic-grass Panicum philadelphicum ssp. philadelphicum SC
Purple Clematis Clematis occidentalis SC
Red Mulberry Morus rubra E
Shining Wedgegrass Sphlenopholis nitida T
Smooth Rock-cress Boechera laevigata SC
Spiked False Oats Trisetum spicatum E
Swamp Loosewort Pedicularis lanceolata E
Toothcup Rotala ramosior E
Violet Wood-sorrel Oxalis violacea E
Wapato Sagittaria cuneata T
New Jersey Tea Inchworm Apodrepanulatrix liberaria E
Orange Sallow Moth Pyrrhia aurantiago SC
Pine Barrens Speranza Speranza exonerata SC
Pine Barrens Zanclognatha Zanclognatha martha T
Four-toed Salamander Hemidactylium scutatum Non-listed SWAP
Jefferson Salamander Ambystoma jeffersonianum SC
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
Peregrine Falcon Falco peregrinus E

Core 2943A

Aquatic Core
Vernal Pool Core
Priority & Exemplary Natural Communities
High-energy Riverbank S3
Ridgetop chestnut oak forest/woodland
Ridgetop Pitch Pine - Scrub Oak Community S2
Riverside rock outcrop community S3
Species of Conservation Concern
Houghton’s Flatsedge Cyperus houghtonii E
Smooth Rock-cress Boechera laevigata SC
Spiked False Oats Trisetum spicatum E
Gerhard’s Underwing Moth Catocala herodias gerhardi SC
Orange Sallow Moth Pyrrhia aurantiago SC
Pine Barrens Speranza Speranza exonerata SC

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.
Pine Barrens Zaclognatha | Zaclognatha martha | T
Gold-spotted Ghost Moth | Sthenopsis auratus | Non-listed SWAP
Arrow Clubtail | Stylurus spiniceps | Non-listed SWAP
Northern Black Racer | Coluber constrictor | Non-listed SWAP

Core 2943B

Aquatic Core

Priority & Exemplary Natural Communities
Cobble bar forest | S2
High-terrace Floodplain Forest | S2
Oak - Tulip Tree Forest
Rich, Mesic Forest Community | S3
Riverine Pointbar and Beach | S3

Species of Conservation Concern
Bristly Buttercup | Ranunculus pensylvanicus | SC
Fen Cuckoo Flower | Cardamine dentata | T
Great Blue Lobelia | Lobelia siphilitica | E
Many-fruited False-loosestrife | Ludwigia polycarpa | E
Narrow-leaved Spring Beauty | Claytonia virginica | E
Smooth Rock-cress | Boechera laevigata | SC
Creeper | Strophitus undulatus | SC
Triangle Floater | Alasmidonta undulata | Non-listed SWAP
Orange Sallow Moth | Pyrrhia aurantiago | SC
Pine Barrens Speranza | Speranza exonerata | SC
Arrow Clubtail | Stylurus spiniceps | Non-listed SWAP
Ocellated Darter | Boyeria grafiana | SC
Rapids Clubtail | Gomphus quadricolor | E
Riffle Snaketail | Ophiogomphus carolus | T
Skillet Clubtail | Gomphus ventricosus | T
Spine-crowned Clubtail | Gomphus abbreviatus | SC
Stygian Shadowdragon | Neurocordulia yamaskanensis | SC
Zebra Clubtail | Stylurus scudderi | Non-listed SWAP
Four-toed Salamander | Hemidactylium scutatum | Non-listed SWAP
Northern Leopard Frog | Rana pipiens | Non-listed SWAP
Eastern Box Turtle | Terrapene carolina | SC
Northern Black Racer | Coluber constrictor | Non-listed SWAP
Wood Turtle | Glyptemys insculpta | SC
Bald Eagle | Haliaeetus leucocephalus | T
Core Habitat Summaries

Core 1066
An 801-acre Core Habitat featuring 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.

Eastern Hog-nose 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.

Wood Turtle habitat is streams and rivers, preferably with long corridors of undeveloped, connected uplands. They also use fields and early succesional habitat extending up to 500 meters on both sides of the waterways. Mowing and roads are the primary causes of mortality. Collection is also a conservation concern.

Core 1067
A 71-acre Core Habitat featuring a Species of Conservation Concern.

Climbing Fumitory is an herbaceous biennial vine that can reach lengths of 10 feet. It is usually found in the shade climbing over talus at the base of cliffs.

Core 1154
A 16-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.

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.

Core 1155
A 328-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.

Agassiz’s Clam Shrimp, a small crustacean, has a short life cycle, reaching sexual maturity in 8 to 9 days. It appears primarily in late spring and early summer during large storms in years of unusually heavy rainfall. Its short life span has evolved to meet the ephemeral circumstances of its habitat. Adults begin to die shortly before the shallow pool dries or they die stranded as the pool dries. Once the pool dries, the resting eggs remain dormant until the appropriate wet conditions resume, allowing the young to hatch. This resting period can last for several years.

The American Clam Shrimp is a small (about 1 cm or 1/2 in. long) crustacean that inhabits ephemeral (vernal) pools. A carapace around the clam shrimps’ body parts resembles the shells of mollusks.

The Eastern Spadefoot is a short-legged, squat, big-headed toad with unmistakable cat-like, vertically elliptical pupils. This burrowing species requires dry, sand or sandy loam soils characteristic of Pitch Pine barrens, coastal oak woodlands or sparse shrub growth, interspersed with temporary ponds. It prefers areas with leaf litter, and may be found in farmland areas. In the warmer months, from April to September, the Spadefoot comes up to breed in vernal pools after prolonged warm and heavy rains.

Four-toed Salamanders live in forested habitats surrounding swamps, bogs, marshes, vernal pools, and other fish-free waters that are used as breeding sites. Most breeding sites in MA are characterized by pit-and-mound topography with significant sphagnum-moss cover. Eggs are typically laid in mounds or patches of sphagnum moss that overhang water. Upon hatching, the larvae wriggle through the moss and drop into the water, where they will develop for several weeks prior to metamorphosis.

Adult and juvenile Jefferson 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.

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 1165

A 35-acre Core Habitat featuring a Species of Conservation Concern.

Core 1179

A 210-acre Core Habitat featuring Wetland Core, Aquatic 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.

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.

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 1240**

A 48-acre Core Habitat featuring Species of Conservation Concern.

New England Blazing Star is an endemic, globally rare, perennial composite of dry, sandy grasslands and clearings. In Massachusetts, New England Blazing Star inhabits open, dry, low-nutrient sandy soils of grasslands, heathlands, and barrens. It thrives in fire-influenced natural communities that are periodically disturbed and devoid of dense woody plant cover.

The Frosted Elfin is a small lycaenid butterfly, inhabiting xeric and open, disturbance-dependent habitats on sandy (occasionally rocky) soil, including grassy openings in pitch pine/scrub oak barrens and similar anthropogenic habitats such as powerline cuts, railways, old sand/gravel pits, and airports.

**Core 1256**

A 20-acre Core Habitat featuring a Species of Conservation Concern.

The Frosted Elfin is a small lycaenid butterfly, inhabiting xeric and open, disturbance-dependent habitats on sandy (occasionally rocky) soil, including grassy openings in pitch pine/scrub oak barrens and similar anthropogenic habitats such as powerline cuts, railways, old sand/gravel pits, and airports.

**Core 1281**

A 9-acre Core Habitat featuring a Species of Conservation Concern.

In Massachusetts, Smooth Rock-cress, a biennial mustard, inhabits rich, rocky deciduous woods, rich rocky hillsides, ledges, talus slopes, and floodplain thickets and woodlands. It occupies open to shaded sites on dry to mesic soils.

**Core 1286**

A 10-acre Core Habitat featuring Species of Conservation Concern.

New Jersey Tea Inchworms, geometrid moths, inhabit xeric, open areas on sandy or rocky soil with abundant New Jersey Tea (*Ceanothus americanus*), the exclusive larval host.

The Pine Barrens Speranza (formerly the Pine Barrens Itame) is a geometrid moth that inhabits pitch pine-scrub oak barrens on sandplains and rocky summits and ridges.
The Frosted Elfin is a small lycaenid butterfly, inhabiting xeric and open, disturbance-dependent habitats on sandy (occasionally rocky) soil, including grassy openings in pitch pine/scrub oak barrens and similar anthropogenic habitats such as powerline cuts, railways, old sand/gravel pits, and airports.

**Core 1296**

A 16-acre Core Habitat featuring Species of Conservation Concern.

New Jersey Tea Inchworms, geometrid moths, inhabit xeric, open areas on sandy or rocky soil with abundant New Jersey Tea (*Ceanothus americanus*), the exclusive larval host.

The Pine Barrens Speranza (formerly the Pine Barrens Itame) is a geometrid moth that inhabits pitch pine-scrub oak barrens on sandplains and rocky summits and ridges.

**Core 1318**

A 115-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.

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

**Core 1334**

A 943-acre Core Habitat featuring a Priority Natural Community and Species of Conservation Concern.

Pitch Pine/Scrub Oak Communities are globally rare, fire-dependent, shrub-dominated communities, with scattered trees and occasional openings. They provide habitat for many rare species, and develop on dry, poor, usually sandy, soils. This small example of Pitch Pine-Scrub Oak is an unusual inland occurrence, and includes many of the associated rare plants and invertebrates typically found in southeastern Massachusetts. It has more trees than drier occurrences.

The Frosted Elfin is a small lycaenid butterfly, inhabiting xeric and open, disturbance-dependent habitats on sandy (occasionally rocky) soil, including grassy openings in pitch pine/scrub oak barrens and similar anthropogenic habitats such as powerline cuts, railways, old sand/gravel pits, and airports.

The Eastern Box Turtle is a terrestrial turtle, inhabiting many dry and moist woodland and early successional habitat. Development, roads, collection, and disease are the primary conservation concerns.

**Core 1346**

A 33-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 1359
A 1,797-acre Core Habitat featuring a Priority Natural Community and Species of Conservation Concern.
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 well developed example of Level Bog is in good condition despite its proximity to development.

New Jersey Tea Inchworms, geometrid moths, inhabit xeric, open areas on sandy or rocky soil with abundant New Jersey Tea (*Ceanothus americanus*), the exclusive larval host.

The Pine Barrens Speranza (formerly the Pine Barrens Itame) is a geometrid moth that inhabits pitch pine-scrub oak barrens on sandplains and rocky summits and ridges.

The Pine Barrens Zanclognatha inhabits sandplain pitch pine/scrub oak barrens. Larvae feed on pitch pine (*Pinus rigida*). 

The Frosted Elfin is a small lycaenid butterfly, inhabiting xeric and open, disturbance-dependent habitats on sandy (occasionally rocky) soil, including grassy openings in pitch pine/scrub oak barrens and similar anthropogenic habitats such as powerline cuts, railways, old sand/gravel pits, and airports.

Grasshopper Sparrows nest in dry grasslands. Natural situations include sandplain grasslands, but they have adapted well to anthropogenic habitats such as airports and landfills. They are very sensitive to changes in plant composition and respond well to the effects of fire management.

Upland Sandpipers require very large, unbroken tracts of grassland, and in Massachusetts are now relegated mostly to anthropogenic habitats such as airports. They are very sensitive to changes in plant composition and respond well to the effects of well-planned fire management and thoughtful mowing regimes.

Vesper Sparrows typically nest in large open, dry sites with a mixture of short herbaceous vegetation and bare ground. They have become rare breeders in Massachusetts despite being attracted to anthropogenic landscapes for breeding, such as potato fields, abandoned sandpits, and the disturbed margins of airports.

Core 1466
A 1,992-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.

The Eastern Box Turtle is a terrestrial turtle, inhabiting many dry and moist woodland and early successional habitat. Development, roads, collection, and disease are the primary conservation concerns.

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.

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.

Wood Turtle habitat is streams and rivers, preferably with long corridors of undeveloped, connected uplands. They also use fields and early successional habitat extending up to 500 meters on both sides of the waterways. Mowing and roads are the primary causes of mortality. Collection is also a conservation concern.

Core 1656

A 9,525-acre Core Habitat featuring Forest Core, Wetland Core, Aquatic Core, Vernal Pool Core, Priority Natural Communities, and Species of Conservation Concern.

The basalt bedrock of Mt. Tom and East Mountain juts up out of the lower Connecticut River valley in Massachusetts. These striking mountains are one of the most important sites for rare species in western Massachusetts, supporting 41 rare and uncommon plants and animals, five of them globally rare. Surprisingly, these ridges have numerous vernal pools, in which several excellent breeding populations of Marbled and Jefferson Salamanders are found. The unusual circumneutral bedrock, in addition to small ecological disturbances such as wildfires and ice storms, supports many rare plants, such as Purple Clematis and Narrow-leaved Vervain on the talus slopes, or the Glaucescent Sedge and Shining Wedgegrass in the Hickory-Hop Hornbeam Woodland.

Circumneutral Rocky Summit/Rock Outcrops are small, open communities of grasses, sedges and herbaceous plants occurring on rocky summits, ridges or outcrops with exposed circumneutral (neither acidic nor calcareous) bedrock. This Core has two examples of Circumneutral Rocky Summit in excellent condition, and very well buffered within a naturally vegetated landscape.

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 that are in good condition, with good diversity, no exotic invasive species, and are located within a large block of natural vegetation.

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.
Hickory-Hop Hornbeam Forests are open, hardwood forests dominated by various hickory species with significant hop hornbeam in the subcanopy. This community is characterized by a sparse shrub layer, and a nearly continuous cover of grasses and sedges. This large example of Hickory-Hop-hornbeam Forest is of excellent quality and is associated with many state-listed rare species.

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.

Core 2943A

A 6,343-acre section of a larger 93,990-acre Core Habitat featuring Aquatic Core, Vernal Pool Core, Priority Natural Communities, and Species of Conservation Concern.

Mt. Tekoa is part of the extensive Connecticut River Core Habitat, way upstream on the Westfield River. This striking mountain is home to 13 rare and uncommon plants and animals, including the globally rare Pine Barrens Speranza moth, which inhabits the Ridgetop Pitch Pine/Scrub Oak community atop Tekoa itself and adjacent Shatterack Mountain.

High-Energy Riverbank communities are sparse, open graminoid communities found on cobble and sand deposits along fast-flowing rivers that experience severe flooding and ice scour. This example of High-Energy Riverbank is extensive and relatively pristine, although some invasive exotic species are present and there are some upstream dams affecting the natural flood processes.

Ridgetop Chestnut Oak Forests are open forests of dry ridgetops, dominated by chestnut oak with an often dense shrub understory. This community often occupies dry upland sites with thin soil over acidic bedrock on ridges and slopes. This extensive example of Ridgetop Chestnut Oak Forest/Woodland is in excellent condition, with intact natural processes like fire occurring and with a very large, naturally vegetated buffer.

The Ridgetop Pitch Pine-Scrub Oak community occurs on acidic bedrock along mountain ridges, often in a mosaic with one of the rocky summit communities. This fire-dependent community is tolerant of extremely severe growing conditions. This Core has two examples of Ridgetop Pitch Pine-Scrub Oak Community including one of the largest and best of its kind in the state which burns fairly regularly, increasing its potential to persist here.
Riverside Rock Outcrop communities are sparsely vegetated areas in crevices on riverside rock outcrops where soil accumulates. The community occurs on flood-scoured bedrock along rivers. This small example of Riverside Rock Outcrop is in quite good condition, with little evidence of human disturbance and good species and habitat diversity.

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.

**Core 2943B**

A 2,594-acre section of a larger 93,990-acre Core Habitat featuring Aquatic Core, Priority Natural Communities, and Species of Conservation Concern.

The mainstem of the Westfield River is part of the extensive Connecticut River Core Habitat. The river and adjacent uplands support 24 rare and uncommon species, including eight species of dragonflies.

Cobble Bar Forests are found on bands of cobble-sized rocks deposited by powerful rivers during annual flood events. They are characterized by open forests of stunted sycamores and cottonwoods growing on sandy cobble bars. This Cobble Bar Forest occurs in patches along straight stretches of the Westfield River and is in good condition despite a few invasives.

High-Terrace Floodplain Forests are deciduous hardwood forests that occur along riverbanks, above the zone of annual flooding. Although they do not flood annually, they flood often enough for the soil to be moderately enriched. This large example of High-Terrace Floodplain Forest is in discontinuous patches on low bluffs along the Westfield River. It has many exotics and probably does not flood. It is surrounded by forest with development outside the park.

Oak - Tulip Tree Forests are characterized by tall, often emergent, tulip trees, mature red oaks, and scattered other trees. Our occurrences are small patches on moist warm slopes in southern and western Massachusetts. This large occurrence of Oak - Tulip Tree Forest is in very good shape, on protected land in a matrix of Mixed Oak Forest, although in an increasingly urban landscape.

Rich, Mesic Forests are a variant of northern hardwood forests, dominated by sugar maple with a diverse herbaceous layer that includes many spring wild flowers, in a moist, nutrient-rich environment. This moderate-sized Rich, Mesic Forest with good species diversity is in the 100 year floodplain and includes a large seep and several intermittent streams. It is near a park road and a utility corridor crosses it.

Riverine Pointbar and Beach communities are on exposed sandy beaches of major rivers. This sparsely vegetated community is a subtype of the High-Energy Riverbank community with similarities to Riverside Rock Outcrops. This small Riverine Pointbar and Beach community is on a sandbar next to a Major River Floodplain Forest. Vegetation is patchy with open sand and gravel as the river naturally recedes and floods, but many of the species are exotics.
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.
BioMap2 Critical Natural Landscape in Westfield

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

**CNL 576**  
Aquatic Core Buffer

**CNL 585**  
Aquatic Core Buffer

**CNL 586**  
Wetland Core Buffer

**CNL 659**  
Wetland Core Buffer

**CNL 670**  
Wetland Core Buffer

**CNL 682**  
Aquatic Core Buffer  
Landscape Block  
Wetland Core Buffer

**CNL 850**  
Aquatic Core Buffer  
Landscape Block  
Wetland Core Buffer

**CNL 883**  
Aquatic Core Buffer  
Landscape Block  
Wetland Core Buffer

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

CNL 576
A 3-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 585
A 50-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 586
A 41-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 659
A 64-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 670
A 14-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 682
A 1,475-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 850
A 21,004-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.
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.

This largely forested Landscape Block is 19,465 acres and is among the largest 20% of all Blocks across Massachusetts. These large forested landscapes provide invaluable wildlife habitat and other ecosystem values such as clean drinking water and absorbing carbon from the atmosphere.

**CNL 883**

A 179,293-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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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.
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Please contribute on your Massachusetts income tax form or directly to the

Natural Heritage &
Endangered Species Fund

To learn more about the Natural Heritage & Endangered Species Program and the Commonwealth’s rare species, visit our web site at www.mass.gov/nhesp.