CONSERVING THE BIODIVERSITY OF MASSACHUSETTS IN A CHANGING WORLD

East Brookfield

Produced in 2012

This report and associated map provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is not intended for use in state regulations.
Table of Contents

Introduction

What is BioMap2 – Purpose and applications

One plan, two components

Understanding Core Habitat and its components

Understanding Critical Natural Landscape and its components

Understanding Core Habitat and Critical Natural Landscape Summaries

Sources of Additional Information

East Brookfield Overview

Core Habitat and Critical Natural Landscape Summaries

Elements of BioMap2 Cores

Core Habitat Summaries

Elements of BioMap2 Critical Natural Landscapes

Critical Natural Landscape Summaries
Introduction

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

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

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

What Does Status Mean?

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

- Endangered species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- Threatened species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- Special Concern species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

In addition NHESP maintains an unofficial watch list of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated by any law or regulations, but they can help to identify ecologically important areas that are worthy of...
BioMap2
Conserving the Biodiversity of Massachusetts in a Changing World

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.

Components of Core Habitat

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.

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

Table 1. Species of Conservation Concern described in the State Wildlife Action Plan and/or included on the MESA List and for which habitat was mapped in BioMap2. Note that plants are not included in SWAP, and that marine species such as whales and sea turtles are not included in BioMap2.

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

For more information on rare species and natural communities, please see our fact sheets online at www.mass.gov/nhesp.
Species of Conservation Concern, beyond the species and exemplary habitats described above, *BioMap2* identifies intact river corridors within which important physical and ecological processes of the river or stream occur.

**Components of Critical Natural Landscape**

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

**Landscape Blocks**

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

**Upland Buffers of Wetland and Aquatic Cores**

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

**Upland Habitat to Support Coastal Adaptation**

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

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

**Legal Protection of Biodiversity**

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

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

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

Additional Information

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

Contact the Natural Heritage & Endangered Species Program

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

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

East Brookfield lies within the Lower Worcester Plateau Ecoregion, an area comprised of open hills and transition hardwood and central hardwood forests. Most parts drain to the Chicopee and Quinebaug Rivers.

East Brookfield at a Glance
- Total Area: 6,670 acres (10.4 square miles)
- Human Population in 2010: 2,183
- Open space protected in perpetuity: 1,432 acres, or 21.5% percent of total area*
- BioMap2 Core Habitat: 1,622 acres
- BioMap2 Core Habitat Protected: 410 acres or 25.3%
- BioMap2 Critical Natural Landscape: 2,378 acres
- BioMap2 Critical Natural Landscape Protected: 1,021 acres or 42.9%.

BioMap2 Components

Core Habitat
- 3 Exemplary or Priority Natural Community Cores
- 3 Wetland Cores
- 3 Aquatic Cores
- 11 Species of Conservation Concern Cores**
  o 4 birds, 2 reptiles, 3 amphibians, 4 plants

Critical Natural Landscape
- 1 Landscape Block
- 5 Wetland Core Buffers
- 3 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 East Brookfield

1 Mile

BioMap2 Core Habitat

BioMap2 Critical Natural Landscape
Species of Conservation Concern, Priority and Exemplary Natural Communities, and Other Elements of Biodiversity in East Brookfield

Amphibians

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

Reptiles

Wood Turtle, (Glyptemys insculpta), SC
Spotted Turtle, (Clemmys guttata), Non-listed SWAP

Birds

American Bittern, (Botaurus lentiginosus), E
Bald Eagle, (Haliaeetus leucocephalus), T
Pied-billed Grebe, (Podilymbus podiceps), E
King Rail, (Rallus elegans), T

Plants

Variable Sedge, (Carex polymorpha), E
Dwarf Bulrush, (Lipocarpha micrantha), T
Long's Bulrush, (Scirpus longii), T
Vasey's Pondweed, (Potamogeton vaseyi), E

Priority Natural Communities

Level Bog, S3

Exemplary Natural Communities

Deep Emergent Marsh
Highbush Blueberry Thicket

Other BioMap2 Components

Aquatic Core
Wetland 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 East Brookfield

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

**Core 1355**

Species of Conservation Concern
Marbled Salamander  *Ambystoma opacum*  T

**Core 1384**

Aquatic Core
Species of Conservation Concern
American Bittern  *Botaurus lentiginosus*  E
Pied-billed Grebe  *Podilymbus podiceps*  E

**Core 1393**

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

**Core 1403**

Aquatic Core
Species of Conservation Concern
American Bittern  *Botaurus lentiginosus*  E

**Core 1434**

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

**Core 1440**

Species of Conservation Concern
Spotted Turtle  *Clemmys guttata*  Non-listed SWAP

**Core 1444**

Priority & Exemplary Natural Communities
Highbush Blueberry Thicket

**Core 1448**

Priority & Exemplary Natural Communities
Highbush Blueberry Thicket
### Core 1465

**Species of Conservation Concern**
- Blue-spotted Salamander *Ambystoma laterale* SC
- Four-toed Salamander *Hemidactylium scutatum* Non-listed SWAP

### Core 1483

**Species of Conservation Concern**
- Variable Sedge *Carex polymorpha* E

### Core 1484

**Priority & Exemplary Natural Communities**
- Level Bog S3

### Core 1486

**Priority & Exemplary Natural Communities**
- Level Bog S3

### Core 1487

**Species of Conservation Concern**
- Variable Sedge *Carex polymorpha* E

### Core 1595

**Wetland Core**
- **Aquatic Core**
  **Priority & Exemplary Natural Communities**
  - Acidic Graminoid Fen S3
  - Acidic Shrub Fen S3
  - Circumneutral Talus Forest/Woodland S3
  - Deep Emergent Marsh
  - Shrub Swamp

**Species of Conservation Concern**
- Dwarf Bulrush *Lipocarpha micrantha* T
- Long’s Bulrush *Scirpus longii* T
- Variable Sedge *Carex polymorpha* E
- Vasey’s Pondweed *Potamogeton vaseyi* E
- Triangle Floater *Alasmidonta undulata* Non-listed SWAP
- Blue-spotted Salamander *Ambystoma laterale* SC
- Four-toed Salamander *Hemidactylium scutatum* Non-listed SWAP
- Eastern Hognose Snake *Heterodon platirhinos* Non-listed SWAP
- Northern Black Racer *Coluber constrictor* Non-listed SWAP
- Spotted Turtle *Clemmys guttata* Non-listed SWAP
- Wood Turtle *Glyptemys insculpta* SC

---

*For more information on rare species and natural communities, please see our fact sheets online at [www.mass.gov/nhesp](http://www.mass.gov/nhesp).*
<table>
<thead>
<tr>
<th>Species</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridle Shiner</td>
<td>Notropis bifrenatus</td>
<td>SC</td>
</tr>
<tr>
<td>American Bittern</td>
<td>Botaurus lentiginosus</td>
<td>E</td>
</tr>
<tr>
<td>Bald Eagle</td>
<td>Haliaeetus leucocephalus</td>
<td>T</td>
</tr>
<tr>
<td>King Rail</td>
<td>Rallus elegans</td>
<td>T</td>
</tr>
<tr>
<td>Least Bittern</td>
<td>Ixobrychus exilis</td>
<td>E</td>
</tr>
<tr>
<td>Pied-billed Grebe</td>
<td>Podilymbus podiceps</td>
<td>E</td>
</tr>
<tr>
<td>Sedge Wren</td>
<td>Cistothorus platensis</td>
<td>E</td>
</tr>
<tr>
<td>Sora</td>
<td>Porzana carolina</td>
<td>Non-listed SWAP</td>
</tr>
</tbody>
</table>
Core Habitat Summaries

Core 1355

A 613-acre Core Habitat featuring a Species of Conservation Concern.

Adult and juvenile Marbled Salamanders inhabit upland forests during most of the year, where they reside in small-mammal burrows and other subsurface retreats. Adults migrate during late summer or early fall to breed in dried portions of vernal pools, swamps, marshes, and other predominantly fish-free wetlands. Eggs are deposited under logs, leaf-litter, or grass tussocks and hatch after being inundated by fall rains. Larvae metamorphose during late spring, whereupon they disperse into upland forest.

Core 1384

A 32-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.

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

Pied-billed Grebes are secretive marshbirds that typically nest in dense cattail beds adjacent to open water. They are very sensitive to disturbance and changes in water levels.

Core 1393

A 43-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 Massachusetts 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 1403

A 153-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.
American Bitterns are heron-like birds that nest primarily in large cattail, tussock or shrub marshes and are very sensitive to disturbance.

**Core 1434**

A 98-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.

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 Massachusetts 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 1440**

A 74-acre Core Habitat featuring a Species of Conservation Concern.

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 1444**

A 14-acre Core Habitat featuring a Priority Natural Community.

Highbush Blueberry Thickets are acidic peatlands dominated by dense highbush blueberry bushes on hummocky sphagnum moss. These wetlands generally occur in areas that are wetter and more mineral-enriched than dwarf-shrub level bog communities. This example of Highbush Blueberry Thicket is in good condition, despite a railbed that runs through the community, with no invasive exotic species and surrounded by a buffer of natural vegetation.

**Core 1448**

A 4-acre Core Habitat featuring a Priority Natural Community.

Highbush Blueberry Thickets are acidic peatlands dominated by dense highbush blueberry bushes on hummocky sphagnum moss. These wetlands generally occur in areas that are wetter and more mineral-enriched than dwarf-shrub level bog communities. This example of Highbush Blueberry Thicket is in
good condition, despite a railbed that runs through the community, with no invasive exotic species and surrounded by a buffer of natural vegetation.

**Core 1465**

A 272-acre Core Habitat featuring Species of Conservation Concern.

Adult and juvenile Blue-spotted Salamanders inhabit upland forests during most of the year, where they reside in small-mammal burrows and other subsurface retreats. Adults migrate during late winter or early spring to breed in vernal pools and fish-free areas of swamps, marshes, or similar wetlands. Larvae metamorphose in late summer or early fall, whereupon they disperse into upland forest.

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 Massachusetts 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 1483**

A 45-acre Core Habitat featuring a Species of Conservation Concern.

Variable Sedge is a vigorous, grass-like herbaceous perennial plant that grows from large rhizomes into dense, spreading colonies. It is rarely found fruiting and flowering except when there is abundant light and little competition from other plants. Burning seems to stimulate flowering and seed production.

**Core 1484**

A 9-acre Core Habitat featuring a Priority Natural Community.

Level Bogs are dwarf-shrub peatlands, generally with pronounced hummocks and hollows in sphagnum moss. These wetland communities are very acidic and nutrient-poor because the peat isolates them from nutrients in groundwater and streams. This example of Level Bog is moderate-sized, and is in good condition with good species diversity and bog mat development.

**Core 1486**

A 9-acre Core Habitat featuring Priority Natural Communities.

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 moderate-sized, and is in good condition with good species diversity and bog mat development.
Core 1487

A 176-acre Core Habitat featuring a Species of Conservation Concern.

Variable Sedge is a vigorous, grass-like herbaceous perennial plant that grows from large rhizomes into dense, spreading colonies. It is rarely found fruiting and flowering except when there is abundant light and little competition from other plants. Burning seems to stimulate flowering and seed production.

Core 1595

A 4,335-acre Core Habitat featuring Wetland Core, Aquatic Core, Priority Natural Communities, and Species of Conservation Concern.

In southwestern Worcester County, the Quaboag River and its tributaries, the Sevenmile River, the Brookfield River, and Coys Brook, wind slowly through four miles of peatlands and marshes, as well as two lakes, Quaboag Pond and Quacumquasit Pond. This watery landscape supports one of southern New England's largest and most stable populations of the Endangered American Bittern, as well as nesting Sedge Wrens, Least Bitterns, Pied-billed Grebes, and King Rails in smaller numbers. The marshes are also home to one of the world's largest populations of the globally rare Long's Bulrush.

Acidic Graminoid Fens are sedge- and sphagnum-dominated acidic peatlands that experience some groundwater and/or surface water flow but no calcareous seepage. Standing water is often present throughout much of the growing season. This extraordinarily large and pristine example of Acidic Graminoid Fen is sedge dominated with scattered shrubs. It is within a 1117 acre roadless block and invasive species are not present and it has an intact hydrological system.

Acidic Shrub Fens are shrub-dominated acidic peatlands found primarily along pond margins in the eastern and central part of the state. These wetland communities experience some groundwater and/or surface water inputs, but no calcareous seepage. This is a large and pristine example of Acidic Shrub Fen that is part of a larger mosaic of acidic wetland ecosystems. Despite the presence of some exotic invasive species, it 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 example of Circumneutral Talus Forest, though small, is in excellent condition, with good species diversity. It occurs adjacent to several other interesting natural communities, including a Circumneutral Cliff and a cold swamp.

Deep Emergent Marshes are graminoid wetlands occurring on saturated soils that are seasonally flooded. They generally form in broad, flat areas bordering slow rivers or along pond margins, and often grade into shrub swamps. This Core has two examples of Deep Emergent Marsh including one that is of exemplary species diversity, size, and quality, and is home to both state-listed rare plants and animals.

Shrub Swamp communities are a common and variable type of wetlands occurring on seasonally or temporarily flooded soils. They are often found in the transition zone between emergent marshes and swamp forests. This example of Shrub Swamp is in excellent condition, and is an unusual and large variant enriched by groundwater seepage and dominated by Canadian Burnet.
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.
BioMap2 Critical Natural Landscape in East Brookfield

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

CNL 694
Aquatic Core Buffer

CNL 715
Wetland Core Buffer

CNL 720
Wetland Core Buffer

CNL 744
Wetland Core Buffer

CNL 764
Aquatic Core Buffer
Landscape Block
Wetland Core Buffer
Critical Natural Landscape Summaries

CNL 694
A 47-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 715
A 53-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 720
A 53-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 744
A 73-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 764

A 6,123-acre Critical Natural Landscape featuring Aquatic Core Buffer, Wetland Core Buffer and Landscape Block.

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

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

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

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.