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

This information is intended for conservation planning, and is not intended for use in state regulations.
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Introduction

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

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

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

What Does Status Mean?

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

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

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

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

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

BioMap2: One Plan, Two Components

BioMap2 identifies two complementary spatial layers, Core Habitat and Critical Natural Landscape.

Core Habitat identifies key areas that are critical for the long-term persistence of rare species and other Species of Conservation Concern, as well as a wide diversity of natural communities and intact ecosystems across the Commonwealth. Protection of Core Habitats will contribute to the conservation of specific elements of biodiversity. Critical Natural Landscape identifies large natural Landscape Blocks that are minimally impacted by development. If protected, these areas will provide habitat for wide-ranging native species, support intact ecological processes, maintain connectivity among habitats, and enhance ecological resilience to natural and anthropogenic disturbances in a rapidly changing world. Areas delineated as Critical Natural Landscape also include buffering upland around wetland, coastal, and aquatic Core Habitats to help ensure their long-term integrity.

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

Components of Core Habitat

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

Rare Species

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

<table>
<thead>
<tr>
<th>Taxonomic Group</th>
<th>MESA-listed Species</th>
<th>Non-listed Species of Conservation Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammals</td>
<td>4</td>
<td>5</td>
</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 priority to natural communities with limited distribution and to the best examples of more common types.

Vernal Pools

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

Forest Cores

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

Wetland Cores

BioMap2 used an assessment of Ecological Integrity to identify the least disturbed wetlands in the state within undeveloped landscapes—those with intact buffers and little fragmentation or other stressors associated with development. These wetlands are most likely to support critical wetland functions (i.e., natural hydrologic conditions, diverse plant and animal habitats, etc.) and are most likely to maintain these functions into the future.

Aquatic Cores

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

**Components of Critical Natural Landscape**

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

**Landscape Blocks**

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

**Upland Buffers of Wetland and Aquatic Cores**

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

**Upland Habitat to Support Coastal Adaptation**

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

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

**Legal Protection of Biodiversity**

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

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

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

Falmouth lies within the Cape Cod and Islands Ecoregion, an area formed by three advances and retreats of the Wisconsin Ice Sheet. The resulting terminal moraines, outwash plains, and coastal deposits characterize the area with their sandy beaches, grassy dunes, bays, marshes, and scrubby oak-pine forests. There are numerous kettle hole ponds, swamps, and bogs. Much of the surface water is highly acidic.

Falmouth at a Glance

- Total Area: 29,135 acres (45.5 square miles)
- Human Population in 2010: 31,531
- Open space protected in perpetuity: 6,866 acres, or 23.6% percent of total area*
- BioMap2 Core Habitat: 4,795 acres
- BioMap2 Core Habitat Protected: 3,020 acres or 63.0%
- BioMap2 Critical Natural Landscape: 3,897 acres
- BioMap2 Critical Natural Landscape Protected: 2,306 acres or 59.2%.

BioMap2 Components

Core Habitat

- 1 Exemplary or Priority Natural Community
- 19 Aquatic Cores
- 34 Species of Conservation Concern Cores**
  - 1 mammal, 8 birds, 5 reptiles, 1 amphibian, 17 insects, 1 mussel, 17 plants

Critical Natural Landscape

- 3 Landscape Blocks
- 15 Aquatic Core Buffers
- 27 Coastal Adaptation Areas
- 25 Tern Foraging Areas

* 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 Falmouth
Species of Conservation Concern, Priority and Exemplary Natural Communities, and Other Elements of Biodiversity in Falmouth

Mussels
  Tidewater Mucket, (Leptodea ochracea), SC

Insects

Moths
  Gerhard's Underwing, (Catocala herodias gerhardi), SC
  Melsheimer's Sack Bearer, (Cicinnus melsheimeri), T
  Chain Dot Geometer, (Cingilia catenaria), SC
  Barrens Buckmoth, (Hemileuca maia), SC
  Water-willow Stem Borer, (Papaipema sulphurata), T
  Pine Barrens Zale, (Zale lunifera), SC
  Pine Barrens Speranza, (Speranza exonerata), SC
  The Pink Streak, (Dargida rubripennis), T
  Unexpected Cycnia, (Cycnia inopinatus), T

Butterflies
  Frosted Elfin, (Callophrys irus), SC
  Oak Hairstreak, (Satyrium favonius), SC

Beetles
  Purple Tiger Beetle, (Cicindela purpurea), SC

Damselflies
  Scarlet Bluet, (Enallagma pictum), T
  Pine Barrens Bluet, (Enallagma recurvatum), T
  New England Bluet, (Enallagma laterale), Non-listed SWAP
  Little Bluet, (Enallagma minusculum), Non-listed SWAP

Dragonflies
  Comet Darner, (Anax longipes), SC

Amphibians
  Four-toed Salamander, (Hemidactylium scutatum), Non-listed SWAP

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

Grasshopper Sparrow, (Ammodramus savannarum), T
Upland Sandpiper, (Bartramia longicauda), E
Piping Plover, (Charadrius melodus), T
Common Tern, (Sterna hirundo), SC
Vesper Sparrow, (Pooecetes gramineus), T
Roseate Tern, (Sterna dougallii), E
Least Tern, (Sternula antillarum), SC
Eastern Whip-poor-will, (Caprimulgus vociferus), SC

Mammals

New England Cottontail, (Sylvilagus transitionalis), Non-listed SWAP

Plants

Purple Milkweed, (Asclepias purpurascens), E
Bushy Rockrose, (Crocanthemum dumosum), SC
Wright's Panic-grass, ( Dichanthelium wrightianum), SC
Saltpond Pennywort, (Hydrocotyle verticillata), T
Redroot, (Lachnanthes caroliana), SC
Saltpond Grass, (Leptochloa fusca ssp. fascicularis), T
New England Blazing Star, (Liatris scariosa var. novae-angliae), SC
Dwarf Bulrush, (Lipocarpha micrantha), T
Pondshore Knotweed, (Persicaria puritanorum), SC
Short-beaked Bald-sedge, (Rhynchospora nitens), T
Long-beaked Bald-sedge, (Rhynchospora scirpoides), SC
Plymouth Gentian, (Sabatia kennedyana), SC
Terete Arrowhead, (Sagittaria teres), SC
Papillose Nut-sedge, (Scleria pauciflora), E
Bristly Foxtail, (Setaria parviflora), SC
Nantucket Shadbush, (Amelanchier nantucketensis), recently de-listed
Resupinate Bladderwort, (Utricularia resupinata), T

Priority Natural Communities

Estuarine Subtidal: Coastal Salt Pond, S2

Other BioMap2 Components

Aquatic Core
Landscape Block
Aquatic Core Buffer
Coastal Adaptation Area
Tern Foraging Area
E  = Endangered
T  = Threatened
SC = Special Concern
S1 = Critically Imperiled communities, typically 5 or fewer documented sites or very few remaining acres in the state.
S2 = Imperiled communities, typically 6-20 sites or few remaining acres in the state.
S3 = Vulnerable communities, typically have 21-100 sites or limited acreage across the state.

For more information on rare species and natural communities, please see our fact sheets online at www.mass.gov/nhesp.
BioMap2 Core Habitat in Falmouth

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

Core 127
Aquatic Core
Species of Conservation Concern
Saltpond Pennywort  *Hydrocotyle verticillata*  T

Core 139
Priority & Exemplary Natural Communities
Estuarine Subtidal: Coastal Salt Pond  S2

Core 150
Species of Conservation Concern
Bristly Foxtail  *Setaria parviflora*  SC

Core 151
Wetland Core
Species of Conservation Concern
Bristly Foxtail  *Setaria parviflora*  SC
New England Blazing Star  *Liatris scariosa var. novae-angliae*  SC
Common Tern  *Sterna hirundo*  SC
Least Tern  *Sternula antillarum*  SC
Piping Plover  *Charadrius melodus*  T

Core 153
Species of Conservation Concern
Bushy Rockrose  *Crocanthemum dumosum*  SC

Core 154
Species of Conservation Concern
New England Blazing Star  *Liatris scariosa var. novae-angliae*  SC

Core 155
Aquatic Core
Species of Conservation Concern
Saltpond Grass  *Leptochloa fusca ssp. fascicularis*  T
### Core 158
Species of Conservation Concern
New England Blazing Star  
*Liatris scariosa var. novae-angliae*  SC

### Core 159
Species of Conservation Concern
Bushy Rockrose  
*Crocanthemum dumosum*  SC

### Core 161
Species of Conservation Concern
Northern Black Racer  
*Coluber constrictor*  Non-listed SWAP

### Core 162
Species of Conservation Concern
Northern Black Racer  
*Coluber constrictor*  Non-listed SWAP

### Core 164
Species of Conservation Concern
Bushy Rockrose  
*Crocanthemum dumosum*  SC

### Core 167
Species of Conservation Concern
Common Tern  
*Sterna hirundo*  SC

Species of Conservation Concern
Piping Plover  
*Charadrius melodus*  T

Species of Conservation Concern
Roseate Tern  
*Sterna dougallii*  E

### Core 169
Aquatic Core
Species of Conservation Concern
Pondshore Knotweed  
*Persicaria puritanorum*  SC

### Core 170
Aquatic Core
Species of Conservation Concern
Long-beaked Bald-sedge  
*Rhynchospora scirpoidea*  SC

Species of Conservation Concern
Wright’s Panic-grass  
*Dichanthelium wrightianum*  SC

### Core 173
Aquatic Core
Species of Conservation Concern
Tidewater Mucket  
*Leptodea ochracea*  SC
### Core 174

**Species of Conservation Concern**
- **Common Tern** *Sternula hirundo* SC
- **Roseate Tern** *Sternula dougallii* E

### Core 175

**Species of Conservation Concern**
- **New England Blazing Star** *Liatris scariosa var. novae-angliae* SC
- **Common Tern** *Sternula hirundo* SC
- **Roseate Tern** *Sternula dougallii* E

### Core 177

**Aquatic Core**

**Species of Conservation Concern**
- **Long-beaked Bald-sedge** *Rhynchospora scirpoides* SC
- **Pondshore Knotweed** *Persicaria puritanorum* SC
- **Wright’s Panic-grass** *Dichanthelium wrightianum* SC
- **Northern Black Racer** *Coluber constrictor* Non-listed SWAP
- **New England Cottontail** *Sylvilagus transitionalis* Non-listed SWAP

### Core 180

**Aquatic Core**

### Core 193

**Species of Conservation Concern**
- **New England Blazing Star** *Liatris scariosa var. novae-angliae* SC

### Core 208

**Species of Conservation Concern**
- **Frosted Elfin** *Callophrys irus* SC

### Core 211

**Species of Conservation Concern**
- **New England Bluet** *Enallagma laterale* Non-listed SWAP
- **Pine Barrens Bluet** *Enallagma recurvatum* T

### Core 216

**Aquatic Core**

**Species of Conservation Concern**
- **Long-beaked Bald-sedge** *Rhynchospora scirpoides* SC
- **Pondshore Knotweed** *Persicaria puritanorum* SC
- **Redroot** *Lachnanthes caroliniana* SC

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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).
Resupinate Bladderwort  Utricularia resupinata  T
Short-beaked Bald-sedge  Rhynchospora nitens  T
Terete Arrowhead  Sagittaria teres  SC
Wright's Panic-grass  Dichanthelium wrightianum  SC
New England Bluet  Enallagma laterale  Non-listed SWAP
Pine Barrens Bluet  Enallagma recurvatum  T
Scarlet Bluet  Enallagma pictum  T
Comet Darner  Anax longipes  SC

Core 219
Aquatic Core
Species of Conservation Concern
Plymouth Gentian  Sabatia kennedyana  SC
Redroot  Lachnanthes caroliana  SC
Little Bluet  Enallagma minusculum  Non-listed SWAP
New England Bluet  Enallagma laterale  Non-listed SWAP
Pine Barrens Bluet  Enallagma recurvatum  T
Scarlet Bluet  Enallagma pictum  T
Comet Darner  Anax longipes  SC

Core 221
Aquatic Core
Species of Conservation Concern
Pondshore Knotweed  Persicaria purpurascens  SC
Northern Black Racer  Coluber constrictor  Non-listed SWAP

Core 223
Species of Conservation Concern
Purple Milkweed  Asclepias purpurascens  E
Northern Black Racer  Coluber constrictor  Non-listed SWAP

Core 224
Aquatic Core
Species of Conservation Concern
Plymouth Gentian  Sabatia kennedyana  SC
Pondshore Knotweed  Persicaria purpurascens  SC
Terete Arrowhead  Sagittaria teres  SC
New England Bluet  Enallagma laterale  Non-listed SWAP
Pine Barrens Bluet  Enallagma recurvatum  T
Comet Darner  Anax longipes  SC
### Core 228

**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chain Dot Geometer</td>
<td>Cingilia catenaria</td>
<td>SC</td>
</tr>
<tr>
<td>Frosted Elfin</td>
<td>Callophrys irus</td>
<td>SC</td>
</tr>
<tr>
<td>Purple Tiger Beetle</td>
<td>Cicindela purpurea</td>
<td>SC</td>
</tr>
<tr>
<td>Northern Black Racer</td>
<td>Coluber constrictor</td>
<td>Non-listed SWAP</td>
</tr>
</tbody>
</table>

### Core 245

**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Box Turtle</td>
<td>Terrapene carolina</td>
<td>SC</td>
</tr>
</tbody>
</table>

### Core 507A

**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Threat Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kettlehole Level Bog</td>
<td></td>
<td>S2</td>
</tr>
</tbody>
</table>

**Priority & Exemplary Natural Communities**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Threat Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adder's-tongue Fern</td>
<td>Ophioglossum pusillum</td>
<td>T</td>
</tr>
<tr>
<td>Broad Tinker's-weed</td>
<td>Triosteum perfoliatum</td>
<td>E</td>
</tr>
<tr>
<td>Bushy Rockrose</td>
<td>Crocanthemum dumosum</td>
<td>SC</td>
</tr>
<tr>
<td>Dwarf Bulrush</td>
<td>Lipocarpha micrantha</td>
<td>T</td>
</tr>
<tr>
<td>Maryland Meadow Beauty</td>
<td>Rhexia mariana</td>
<td>E</td>
</tr>
<tr>
<td>Ovate Spike-sedge</td>
<td>Eleocharis ovata</td>
<td>E</td>
</tr>
<tr>
<td>Papilloose Nut Sedge</td>
<td>Scleria pauciflora</td>
<td>E</td>
</tr>
<tr>
<td>Plymouth Gentian</td>
<td>Sabatia kennedyana</td>
<td>SC</td>
</tr>
<tr>
<td>Pondshore Knotweed</td>
<td>Persicaria puritanorum</td>
<td>SC</td>
</tr>
<tr>
<td>Sandplain Flax</td>
<td>Linum intercursum</td>
<td>SC</td>
</tr>
<tr>
<td>Terete Arrowhead</td>
<td>Sagittaria teres</td>
<td>SC</td>
</tr>
<tr>
<td>Torrey's Beak-sedge</td>
<td>Rhynchospora torreyana</td>
<td>E</td>
</tr>
<tr>
<td>Weak Rush</td>
<td>Juncus debilis</td>
<td>E</td>
</tr>
<tr>
<td>Tidewater Mucket</td>
<td>Leptoda ochracea</td>
<td>SC</td>
</tr>
<tr>
<td>Barrens Buckmoth</td>
<td>Hemileuca maia</td>
<td>SC</td>
</tr>
<tr>
<td>Barrens Daggermoth</td>
<td>Acronicta albarufa</td>
<td>T</td>
</tr>
<tr>
<td>Chain Dot Geometer</td>
<td>Cicindela catenaria</td>
<td>SC</td>
</tr>
<tr>
<td>Coastal Heathland Cutworm</td>
<td>Abagrotis nefascia</td>
<td>SC</td>
</tr>
<tr>
<td>Coastal Swamp Metarranthis Moth</td>
<td>Metarranthis pilosaria</td>
<td>SC</td>
</tr>
<tr>
<td>Gerhard's Underwing Moth</td>
<td>Catocala herodias gerhardi</td>
<td>SC</td>
</tr>
<tr>
<td>Melsheimer's Sack Bearer</td>
<td>Cicinnus melsheimeri</td>
<td>T</td>
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<tr>
<td>Pine Barrens Speranza</td>
<td>Speranza exonerata</td>
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<td>Pine Barrens Zale</td>
<td>Zale lunifera</td>
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<td>The Pink Streak</td>
<td>Dargida rubripennis</td>
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<tr>
<td>Unexpected Cycnia</td>
<td>Cycnia inopinatus</td>
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<tr>
<td>Water-willow Stem Borer</td>
<td>Papaipema sulphurata</td>
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</table>
**Frosted Elfin**  
*Callophrys irus*  
**Purple Tiger Beetle**  
*Cicindela purpurea*  
**Little Bluet**  
*Enallagma minusculum*  
**New England Bluet**  
*Enallagma laterale*  
**Pine Barrens Bluet**  
*Enallagma recurvatum*  
**Scarlet Bluet**  
*Enallagma pictum*  
**Comet Darner**  
*Anax longipes*  
**Spatterdock Darner**  
*Rhionaeschna mutata*  
**Eastern Spadefoot**  
*Scaphiopus holbrookii*  
**Eastern Box Turtle**  
*Terrapene carolina*  
**Eastern Hog nose Snake**  
*Heterodon platirhinos*  
**Eastern Ribbon Snake**  
*Thamnophis sauritus*  
**Northern Black Racer**  
*Coluber constrictor*  
**Smooth Green Snake**  
*Opheodrys vernalis*  
**Barn Owl**  
*Tyto alba*  
**Eastern Whip-poor-will**  
*Caprimulgus vociferus*  
**Grasshopper Sparrow**  
*Ammodramus savannarum*  
**Northern Harrier**  
*Circus cyaneus*  
**Upland Sandpiper**  
*Bartramia longicauda*  
**Vesper Sparrow**  
*Poecetes gramineus*  
**New England Cottontail**  
*Sylvilagus transitionalis*

**Core 507B**

**Aquatic Core**

**Species of Conservation Concern**

<table>
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<tr>
<th>Species</th>
<th>Scientific Name</th>
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<tr>
<td>Pondshore Knotweed</td>
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<td>Redroot</td>
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<td>Eastern Pondmussel</td>
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<td>Tidewater Mucket</td>
<td><em>Leptodea ochracea</em></td>
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<td>Barrens Buckmoth</td>
<td><em>Hemileuca maia</em></td>
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<td>Gerhard’s Underwing Moth</td>
<td><em>Catocala herodias gerhardi</em></td>
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<td><em>Callophrys irus</em></td>
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<td>Oak Hairstreak</td>
<td><em>Satyrium favonius</em></td>
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<td>Little Bluet</td>
<td><em>Enallagma minusculum</em></td>
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<tr>
<td>New England Bluet</td>
<td><em>Enallagma laterale</em></td>
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<tr>
<td>Pine Barrens Bluet</td>
<td><em>Enallagma recurvatum</em></td>
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<td>Comet Darner</td>
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<td>Eastern Box Turtle</td>
<td><em>Terrapene carolina</em></td>
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<tr>
<td>Eastern Ribbon Snake</td>
<td><em>Thamnophis sauritus</em></td>
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<td>Northern Black Racer</td>
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<td>Barn Owl</td>
<td><em>Tyto alba</em></td>
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<td>New England Cottontail</td>
<td><em>Sylvilagus transitionalis</em></td>
<td>Non-listed SWAP</td>
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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).
Core Habitat Summaries

Core 127

A 19-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.

Saltpond Pennywort grows along the sandy to peaty margins of brackish ponds very near the ocean. Usually, these ponds are separated from the ocean by just a narrow sand barrier.

Core 139

A 62-acre Core Habitat featuring a Priority Natural Community.

Coastal Salt Pond communities consist of vegetation surrounding, and in, coastal brackish ponds. These ponds are usually separated from the ocean by a sandspit. Their salinity varies and is influenced by opening and closing of the spit. This example of Coastal Salt Pond is small but is in good condition.

Core 150

A 3-acre Core Habitat featuring a Species of Conservation Concern.

Bristly Foxtail is a perennial, rhizomatous grass of coastal habitats such as salt marsh and salt pond margins. Its most recognizable feature is its spike-like panicle that is exceptionally dense with golden bristles. This grass is found in scattered colonies, most often in linear patches along the upper borders of salt marshes, estuaries, and salt pond margins out of normal tidal reach.

Core 151

A 445-acre Core Habitat featuring Wetland Core and Species of Conservation Concern.

Wetland Cores are the least disturbed wetlands in the state within undeveloped landscapes — those with intact buffers and little fragmentation or other stressors associated with development. These wetlands are most likely to support critical wetland functions (i.e., natural hydrologic conditions, diverse plant and animal habitats, etc.) and are most likely to maintain these functions into the future.

Bristly Foxtail is a perennial, rhizomatous grass of coastal habitats such as salt marsh and salt pond margins. Its most recognizable feature is its spike-like panicle that is exceptionally dense with golden bristles. This grass is found in scattered colonies, most often in linear patches along the upper borders of salt marshes, estuaries, and salt pond margins out of normal tidal reach.
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 Common Tern is a small seabird that nests in colonies on sandy or gravelly islands and barrier beaches, but also occurs on rocky or cobbly beaches and salt marshes. It feeds on small fish, crustaceans, and flying insects in the open ocean, bays, tidal inlets, and between islands.

Diminutive yet feisty, the Least Tern is a spring and summer colonial nester on Massachusetts’ sandy beaches. For nesting, it favors for sites with little or no vegetation. In Massachusetts, the Least Tern nests on sandy or gravelly beaches periodically scoured by storm tides, resulting in sparse or no vegetation; it also takes advantage of dredge spoils. Along the coast, the Least Tern forages in shallow-water habitats, including bays, lagoons, estuaries, river and creek mouths, tidal marshes, and ponds.

Piping Plovers on the East Coast nest on sandy coastal beaches and relatively flat dunes with sparse vegetation. They typically lay their eggs in the narrow area of land between the high tide line and the foot of the coastal dunes. They can be particularly sensitive to anthropogenic disturbance, but the state's population has responded very well to coordinated management.

Core 153

A 13-acre Core Habitat featuring a Species of Conservation Concern.

Bushy Rockrose is a globally rare, bright yellow, perennial wildflower of coastal herbaceous grasslands and heathlands.

Core 154

A 3-acre Core Habitat featuring a 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.

Core 155

A 10-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.

In Massachusetts, Saltpond Grass is native to sandy shores of brackish coastal ponds, often where freshwater enters the pond such as at a seep or small stream.
Core 158
A 3-acre Core Habitat featuring a 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.

Core 159
A <1-acre Core Habitat featuring a Species of Conservation Concern.
Bushy Rockrose is a globally rare, bright yellow, perennial wildflower of coastal herbaceous grasslands and heathlands.

Core 161
A 2-acre Core Habitat featuring a 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 162
A 2-acre Core Habitat featuring a 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 164
A 3-acre Core Habitat featuring Species of Conservation Concern.
Bushy Rockrose is a globally rare, bright yellow, perennial wildflower of coastal herbaceous grasslands and heathlands.

Core 167
A 125-acre Core Habitat featuring Species of Conservation Concern.
The Common Tern is a small seabird that nests in colonies on sandy or gravelly islands and barrier beaches, but also occurs on rocky or cobbly beaches and salt marshes. It feeds on small fish, crustaceans, and flying insects in the open ocean, bays, tidal inlets, and between islands.
Piping Plovers on the East Coast nest on sandy coastal beaches and relatively flat dunes with sparse vegetation. They typically lay their eggs in the narrow area of land between the high tide line and the foot
of the coastal dunes. They can be particularly sensitive to anthropogenic disturbance, but the state's population has responded very well to coordinated management.

The elegant Roseate Tern, with its long, white tail-streamers and rapid flight, alights on Massachusetts beaches in the spring. It tunnels under vegetation to nest within colonies of its more rough-and-tumble relative, the Common Tern, from which it derives protection from intruders. The Roseate Tern is a plunge-diver that feeds mainly on the sand lance, and availability of this fish may influence the timing of breeding.

**Core 169**

A 31-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.

Pondshore Knotweed is a globally rare, trailing, annual wildflower of the Buckwheat family, found on the upper shores of coastal plain ponds in the Northeast. In Massachusetts, Pondshore Knotweed inhabits the sandy, peaty, or cobble upper shores of acidic, low-nutrient, coastal plain ponds. It requires pronounced water level fluctuation, acidic, nutrient-poor water and substrate, and an open, exposed shoreline, free from major soil disturbance.

**Core 170**

A 29-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.

Long-beaked Bald-rush is a slender inconspicuous annual sedge, 8 to 35 cm (3-15") tall, found on sparsely vegetated pond shores. This species is found on wet, sandy to peaty pond shores of coastal plain ponds where the water level fluctuates enough to keep the vegetation sparse.

In Massachusetts, Wright's Panic-grass inhabits moist, acidic, peaty to sandy, coastal plain pond shores, often in low, dense herbaceous vegetation.

**Core 173**

A 32-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.
In Massachusetts, the Tidewater Mucket, a freshwater mussel, prefers natural coastal freshwater ponds of several acres in size with clear, clean water and sandy substrates. It almost always occurs near the seacoast.

**Core 174**

A 2-acre Core Habitat featuring Species of Conservation Concern.

The Common Tern is a small seabird that nests in colonies on sandy or gravelly islands and barrier beaches, but also occurs on rocky or cobbly beaches and salt marshes. It feeds on small fish, crustaceans, and flying insects in the open ocean, bays, tidal inlets, and between islands.

The elegant Roseate Tern, with its long, white tail-streamers and rapid flight, alights on Massachusetts beaches in the spring. It tunnels under vegetation to nest within colonies of its more rough-and-tumble relative, the Common Tern, from which it derives protection from intruders. The Roseate Tern is a plunge-diver that feeds mainly on the sand lance, and availability of this fish may influence the timing of breeding.

**Core 175**

A 20-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 Common Tern is a small seabird that nests in colonies on sandy or gravelly islands and barrier beaches, but also occurs on rocky or cobbly beaches and salt marshes. It feeds on small fish, crustaceans, and flying insects in the open ocean, bays, tidal inlets, and between islands.

The elegant Roseate Tern, with its long, white tail-streamers and rapid flight, alights on Massachusetts beaches in the spring. It tunnels under vegetation to nest within colonies of its more rough-and-tumble relative, the Common Tern, from which it derives protection from intruders. The Roseate Tern is a plunge-diver that feeds mainly on the sand lance, and availability of this fish may influence the timing of breeding.

**Core 177**

A 466-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.
Long-beaked Bald-rush is a slender inconspicuous annual sedge, 8 to 35 cm (3-15") tall, found on sparsely vegetated pond shores. This species is found on wet, sandy to peaty pond shores of coastal plain ponds where the water level fluctuates enough to keep the vegetation sparse.

Pondshore Knotweed is a globally rare, trailing, annual wildflower of the Buckwheat family, found on the upper shores of coastal plain ponds in the Northeast. In Massachusetts, Pondshore Knotweed inhabits the sandy, peaty, or cobble upper shores of acidic, low-nutrient, coastal plain ponds. It requires pronounced water level fluctuation, acidic, nutrient-poor water and substrate, and an open, exposed shoreline, free from major soil disturbance.

In Massachusetts, Wright's Panic-grass inhabits moist, acidic, peaty to sandy, coastal plain pond shores, often in low, dense herbaceous vegetation.

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.

The New England Cottontail is a medium-sized cottontail rabbit. It is is an early successional or thicket-dwelling species, once found statewide in Massachusetts, including in Dukes and Nantucket counties. Suitable habitat can be found in both forests and shrublands, where there is a dense understory with food and cover in close association. Typical habitats include native shrub associations, beaver flowages, old fields and pastures, and early successional forests.

Core 180

A 7-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.

Core 193

A <1-acre Core Habitat featuring a 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.

Core 208

A 12-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 211**

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

New England Bluets are damselflies whose habitat includes coastal plain ponds, open water in swamps, and other ponds and lakes. It occurs only in the northeastern United States and is most common from eastern Massachusetts into Connecticut.

Pine Barrens Bluets, small damselflies, are restricted to coastal plain ponds and similar wetlands.

**Core 216**

A 187-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.

Long-beaked Bald-rush is a slender inconspicuous annual sedge, 8 to 35 cm (3-15") tall, found on sparsely vegetated pond shores. This species is found on wet, sandy to peaty pond shores of coastal plain ponds where the water level fluctuates enough to keep the vegetation sparse.

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Redroot, a slender, erect perennial in the bloodroot family, inhabits the exposed sandy to peaty shores of Coastal Plain ponds. It is usually found in linear bands along the middle to upper margins of the shore or in coves.

Resupinate Bladderwort is a small carnivorous aquatic plant. It bears "upside-down" flowers that are strongly tilted backwards. Its pink blooms can be seen in late July to August. This species grows in shallow ponds and on muddy shores.

Short-beaked Bald-sedge is a small, annual, grass-like plant that is known from coastal plain pond shores. It can only be found in dry years when shoreline soils are exposed. Massachusetts is the northern edge of this species’ range.

Terete Arrowhead is a perennial emergent aquatic plant of the water-plantain family, which grows in shallow water along the muddy, sandy, or peaty margins of coastal plain ponds.
In Massachusetts, Wright’s Panic-grass inhabits moist, acidic, peaty to sandy, coastal plain pond shores, often in low, dense herbaceous vegetation.

New England Bluets are damselflies whose habitat includes coastal plain ponds, open water in swamps, and other ponds and lakes. It occurs only in the northeastern United States and is most common from eastern Massachusetts into Connecticut.

Pine Barrens Bluets, small damselflies, are restricted to coastal plain ponds and similar wetlands. Scarlet Bluets are small (just over an inch long) damselflies with red eyes and orange bodies. They inhabit acidic sandy ponds with floating vegetation.

The Comet Darner is a large dragonfly that inhabits ponds with emergent vegetation as both larvae and adults. Surrounding upland forests provide protection while adults reach sexual maturity.

Core 219

A 34-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.

Plymouth Gentian is a globally rare, showy perennial herb of the gentian family, with striking pink and yellow flowers and opposite lance-shaped leaves. It inhabits the sandy and peaty shorelines of coastal plain ponds.

Redroot, a slender, erect perennial in the bloodroot family, inhabits the exposed sandy to peaty shores of Coastal Plain ponds. It is usually found in linear bands along the middle to upper margins of the shore or in coves.

The Little Bluet, a very small damselfly, inhabits ponds with sparse emergent or aquatic vegetation and a sandy substrate.

New England Bluets are damselflies whose habitat includes coastal plain ponds, open water in swamps, and other ponds and lakes. It occurs only in the northeastern United States and is most common from eastern Massachusetts into Connecticut.

Pine Barrens Bluets, small damselflies, are restricted to coastal plain ponds and similar wetlands.

Scarlet Bluets are small (just over an inch long) damselflies with red eyes and orange bodies. They inhabit acidic sandy ponds with floating vegetation.

The Comet Darner is a large dragonfly that inhabits ponds with emergent vegetation as both larvae and adults. Surrounding upland forests provide protection while adults reach sexual maturity.
Core 221

A 7-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.

Pondshore Knotweed is a globally rare, trailing, annual wildflower of the Buckwheat family, found on the upper shores of coastal plain ponds in the Northeast. In Massachusetts, Pondshore Knotweed inhabits the sandy, peaty, or cobble upper shores of acidic, low-nutrient, coastal plain ponds. It requires pronounced water level fluctuation, acidic, nutrient-poor water and substrate, and an open, exposed shoreline, free from major soil disturbance.

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 223

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

Purple Milkweed is an herbaceous perennial of open sparsely vegetated woodlands and borders.

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 224

A 53-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.

Plymouth Gentian is a globally rare, showy perennial herb of the gentian family, with striking pink and yellow flowers and opposite lance-shaped leaves. It inhabits the sandy and peaty shorelines of coastal plain ponds.

Pondshore Knotweed is a globally rare, trailing, annual wildflower of the Buckwheat family, found on the upper shores of coastal plain ponds in the Northeast. In Massachusetts, Pondshore Knotweed inhabits the sandy, peaty, or cobble upper shores of acidic, low-nutrient, coastal plain ponds. It requires pronounced water level fluctuation, acidic, nutrient-poor water and substrate, and an open, exposed shoreline, free from major soil disturbance.
Terete Arrowhead is a perennial emergent aquatic plant of the water-plantain family, which grows in shallow water along the muddy, sandy, or peaty margins of coastal plain ponds.

New England Bluets are damselflies whose habitat includes coastal plain ponds, open water in swamps, and other ponds and lakes. It occurs only in the northeastern United States and is most common from eastern Massachusetts into Connecticut.

Pine Barrens Bluets, small damselflies, are restricted to coastal plain ponds and similar wetlands.

The Comet Darner is a large dragonfly that inhabits ponds with emergent vegetation as both larvae and adults. Surrounding upland forests provide protection while adults reach sexual maturity.

**Core 228**

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

The Chain Dot Geometer inhabits open coastal plain habitats, especially heathlands, shrubby dunes and bluffs, and acidic shrub swamps and bogs, occasionally also pitch pine/scrub oak barrens. Huckleberries (Gaylussacia spp.), blueberries (Vaccinium spp.), and bayberry and gale (Myrica spp.) are favored larval host plants, but this species is widely polyphagous, especially during “outbreaks.”

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.

Although the Purple Tiger Beetle may be found on sandy loam soils along farm roads, grass-strip runways, or on earthen dams, in Massachusetts it primarily inhabits sandplain grasslands and heathlands, and grass or heath openings in pitch pine-scrub oak barrens.

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 245**

A 322-acre Core Habitat featuring a Species of Conservation Concern.

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 507A**

A 20,462-acre section of a larger 24,490-acre Core Habitat featuring Forest Core, Aquatic Core, Priority Natural Communities, and Species of Conservation Concern.

From the Cape Cod Canal south through the Crane Wildlife Management Area, a wide sweep of barrens and Coastal Plain Ponds is home to 43 species of rare and uncommon plants and animals. Much of this...
area is the Massachusetts Military Reservation; its airfield supports one of the state's better populations of sandplain grassland birds - Grasshopper Sparrow, Vesper Sparrow, and Upland Sandpiper - while the barrens to the north support the best populations of Whip-poor-will state-wide. Crane WMA is the site of the state's largest population of the federally Endangered and globally imperiled Sandplain Gerardia. Three species of globally rare damselflies, Scarlet Bluet, Pine Barrens Bluet, and New England Bluet, as well as the large, showy, and rare Comet Darner, inhabit the Coastal Plain Ponds scattered across this landscape.

Kettlehole Level Bogs are acidic dwarf-shrub peatlands with little water input or outflow that form in circular depressions left by melting ice blocks in sandy glacial outwash. The vegetation in Kettlehole Level Bogs usually grows in rings. This example of Kettlehole Level Bog is significant as the only bog in Camp Edwards, but it has only fair species and structural diversity.

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.

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

Core 507B

A 4,028-acre section of a larger 24,490-acre Core Habitat featuring Aquatic Core and Species of Conservation Concern.

Johns Pond drains to Waquoit Bay via the Childs and Quashnet Rivers. These water bodies and nearby uplands support 17 species of rare and uncommon plants and animals. Johns Pond and nearby ponds are home to two species of rare freshwater mussels, including one of the state's best populations of Tidewater Mucket, and to four species of rare and uncommon damselflies and dragonflies, including the globally rare Pine Barrens Bluet.

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 Falmouth

Critical Natural Landscape IDs correspond with the following element lists and summaries.

For more information on rare species and natural communities, please see our fact sheets online at [www.mass.gov/nhesp](http://www.mass.gov/nhesp).
Elements of *BioMap2* Critical Natural Landscapes

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

CNL 51  
Aquatic Core Buffer

CNL 56  
Coastal Adaptation Area

CNL 65  
Aquatic Core Buffer  
Tern Foraging Area

CNL 66  
Tern Foraging Area  
Coastal Adaptation Area

CNL 68  
Tern Foraging Area  
Coastal Adaptation Area

CNL 69  
Tern Foraging Area  
Coastal Adaptation Area

CNL 70  
Coastal Adaptation Area  
Tern Foraging Area

CNL 71  
Coastal Adaptation Area  
Tern Foraging Area

CNL 72  
Coastal Adaptation Area  
Tern Foraging Area

CNL 73  
Coastal Adaptation Area  
Tern Foraging Area

CNL 75  
Aquatic Core Buffer

CNL 76  
Coastal Adaptation Area  
Tern Foraging Area
CNL 77  
Tern Foraging Area  
Coastal Adaptation Area  

CNL 81  
Aquatic Core Buffer  

CNL 82  
Coastal Adaptation Area  
Tern Foraging Area  

CNL 84  
Tern Foraging Area  
Coastal Adaptation Area  

CNL 87  
Coastal Adaptation Area  
Tern Foraging Area  

CNL 88  
Tern Foraging Area  
Coastal Adaptation Area  

CNL 89  
Tern Foraging Area  
Coastal Adaptation Area  

CNL 90  
Aquatic Core Buffer  

CNL 91  
Aquatic Core Buffer  

CNL 92  
Coastal Adaptation Area  
Tern Foraging Area  

CNL 93  
Coastal Adaptation Area  
Tern Foraging Area  

CNL 95  
Coastal Adaptation Area  

CNL 96  
Coastal Adaptation Area  

CNL 103  
Aquatic Core Buffer  
Coastal Adaptation Area
BioMap2
Conserving the Biodiversity of Massachusetts in a Changing World

Tern Foraging Area

CNL 106
Coastal Adaptation Area
Tern Foraging Area

CNL 107
Coastal Adaptation Area
Tern Foraging Area

CNL 110
Aquatic Core Buffer

CNL 111
Aquatic Core Buffer

CNL 112
Tern Foraging Area
Coastal Adaptation Area

CNL 113
Tern Foraging Area
Coastal Adaptation Area

CNL 115
Aquatic Core Buffer

CNL 116
Coastal Adaptation Area
Tern Foraging Area

CNL 118
Aquatic Core Buffer

CNL 119
Aquatic Core Buffer

CNL 135
Coastal Adaptation Area

CNL 140
Coastal Adaptation Area

CNL 141
Coastal Adaptation Area

CNL 142
Coastal Adaptation Area

CNL 340
Aquatic Core Buffer
Coastal Adaptation Area

For more information on rare species and natural communities, please see our fact sheets online at www.mass.gov/nhesp.
Landscape Block
Tern Foraging Area
Critical Natural Landscape Summaries

CNL 51
A 19-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 56
A 108-acre Critical Natural Landscape featuring Coastal Adaptation Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

CNL 65
A 14-acre Critical Natural Landscape featuring Aquatic Core Buffer and Tern Foraging Area.

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.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

CNL 66
A <1-acre Critical Natural Landscape featuring Tern Foraging Area.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core

For more information on rare species and natural communities, please see our fact sheets online at www.mass.gov/nhesp.
Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 68**

A <1-acre Critical Natural Landscape featuring Tern Foraging Area.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 69**

A <1-acre Critical Natural Landscape featuring Tern Foraging Area.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 70**

A 2,829-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 71**

A 14-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

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).
The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 72**

A 54-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 73**

A 19-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape.
The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 75**

A 70-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 76**

A 22-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 77**

A 4-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony.
colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 81**

A 31-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 82**

A 19-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 84**

A 4-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony.
colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 87**
A 51-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 88**
A 12-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 89**
A <1-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with
high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

CNL 90
A 107-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 91
A 32-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 92
A 27-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.
CNL 93
A 47-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

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CNL 95
A 9-acre Critical Natural Landscape featuring Coastal Adaptation Area.

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CNL 96
A 12-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

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CNL 103
A 52-acre Critical Natural Landscape featuring Aquatic Core Buffer, Coastal Adaptation Area, and Tern Foraging Area.

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 106
A 11-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.
CNL 107
A 20-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.
The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

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CNL 110
A 12-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 111
A 128-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 112
A <1-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.
The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.
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Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 113**
A <1-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 115**
A 23-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 116**
A 37-acre Critical Natural Landscape featuring Coastal Adaptation Area and Tern Foraging Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with...
high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

Terns range widely from their breeding colonies to forage. While the breeding and staging areas for Roseate, Arctic, Common, and Least Terns were included in the Species of Conservation Concern Core Habitat for BioMap2, tern foraging areas were included in BioMap2 as part of Critical Natural Landscape. The extent of foraging habitat for Arctic, Common, and Roseate Terns depends on the size of the breeding colony. For Least Tern, all shallow marine and estuarine waters within 2 miles of recent colony sites and up to 1 mile offshore were mapped as foraging habitat.

**CNL 118**
A 51-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 119**
A 17-acre Critical Natural Landscape featuring Aquatic Core Buffer.

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**CNL 135**
A 13-acre Critical Natural Landscape featuring Coastal Adaptation Area.

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**CNL 140**
A 10-acre Critical Natural Landscape featuring Coastal Adaptation Area.

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where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

**CNL 141**

A 1-acre Critical Natural Landscape featuring Coastal Adaptation Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

**CNL 142**

A 19-acre Critical Natural Landscape featuring Coastal Adaptation Area.

The coastal habitats of Massachusetts are particularly vulnerable to potential sea-level rise in the next century, which many estimates suggest is likely to exceed one meter. Therefore, in addition to prioritizing current coastal habitats, the creators of BioMap2 examined the landward side of salt marshes to determine where these habitats might move to as sea levels rise. Undeveloped lands adjacent to and up to one and a half meters above existing salt marshes were identified, and included as Critical Natural Landscapes with high potential to support inland migration of salt marsh and other coastal habitats over the coming century.

**CNL 340**

A 40,353-acre Critical Natural Landscape featuring Aquatic Core Buffer, Landscape Block, Coastal Adaptation Area, and Tern Foraging Area.

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

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

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

At 26,176 acres, this Landscape Block is the third largest in the ecoregion and among the largest 20% of all Blocks statewide, which is especially important in the fragmented landscapes of Cape Cod. Unlike Landscape Blocks in much of the state that are dominated by upland forests, this coastal Landscape Block includes both extensive upland forest and a relatively high percentage of open lands and other important sandplain habitats. Much of this Block is protected by the Massachusetts Military Reservation. A very small portion of this Landscape Block occurs in Barnstable.

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

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