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

![BioMap2 logo](image)

Get your copy of the BioMap2 report! Download from [www.mass.gov/nhesp](http://www.mass.gov/nhesp) or contact Natural Heritage at 508-389-6360 or [natural.heritage@state.ma.us](mailto:natural.heritage@state.ma.us).
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>
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<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>
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<td>17</td>
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<tr>
<td>Invertebrates</td>
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<td>9</td>
</tr>
<tr>
<td>Plants</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>413</strong></td>
<td><strong>62</strong></td>
</tr>
</tbody>
</table>

BioMap2, NHESP staff identified the highest
quality habitat sites for each non-marine species
based on size, condition, and landscape context.

Other Species of Conservation Concern

In addition to species on the MESA List
described previously, the State Wildlife Action
Plan (SWAP) identifies 257 wildlife species and
22 natural habitats most in need of conservation
within the Commonwealth. BioMap2 includes
species-specific habitat areas for 45 of these
species and habitat for 17 additional species
which was mapped with other coarse-filter and
fine-filter approaches.

Priority Natural Communities

Natural communities are assemblages of plant
and animal species that share a common
environment and occur together repeatedly on
the landscape. BioMap2 gives conservation
priority to natural communities with limited
distribution and to the best examples of more
common types.

Vernal Pools

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

Forest Cores

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

Wetland Cores

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

Aquatic Cores

To delineate integrated and functional
ecosystems for fish species and other aquatic

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.
Species of Conservation Concern, beyond the species and exemplary habitats described above, BioMap2 identifies intact river corridors within which important physical and ecological processes of the river or stream occur.

Components of Critical Natural Landscape

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

Landscape Blocks

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

Upland Buffers of Wetland and Aquatic Cores

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

Upland Habitat to Support Coastal Adaptation

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

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

Legal Protection of Biodiversity

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

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

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

Additional Information

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

Contact the Natural Heritage & Endangered Species Program

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

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

Barnstable 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.

Town Overview

Barnstable 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.

Barnstable at a Glance

- Total Area: 40,078 acres (62.6 square miles)
- Human Population in 2010: 45,193
- Open space protected in perpetuity: 11,787 acres, or 29.4% percent of total area*
- BioMap2 Core Habitat: 10,149 acres
- BioMap2 Core Habitat Protected: 7,585 acres or 74.7%
- BioMap2 Critical Natural Landscape: 12,022 acres
- BioMap2 Critical Natural Landscape Protected: 8,106 acres or 67.4%.

BioMap2 Components

Core Habitat

- 7 Exemplary or Priority Natural Community Cores
- 4 Wetland Cores
- 29 Aquatic Cores
- 41 Species of Conservation Concern Cores**
  - 1 mammal, 9 birds, 2 reptiles, 2 amphibians, 1 fish, 8 insects, 1 crustacean, 3 mussels, 1 snail, 19 plants

Critical Natural Landscape

- 5 Landscape Blocks
- 40 Wetland Core Buffers
- 25 Aquatic Core Buffers
- 24 Coastal Adaptation Areas
- 7 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 Barnstable

![Map of Barnstable area with BioMap2 Core Habitat and Critical Natural Landscape highlighted.]

- **BioMap2 Core Habitat**
- **BioMap2 Critical Natural Landscape**

**1 Mile**

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**Natural Heritage & Endangered Species Program**

**Massachusetts Division of Fisheries and Wildlife**

1 Rabbit Hill Road, Westborough, MA 01581
phone: 508-389-6360 fax: 508-389-7890

For more information on rare species and natural communities, please see our fact sheets online at [www.mass.gov/nhesp](http://www.mass.gov/nhesp).
Species of Conservation Concern, Priority and Exemplary Natural Communities, and Other Elements of Biodiversity in Barnstable

Mussels
- Tidewater Mucket, *Leptodea ochracea*, SC
- Eastern Pondmussel, *Ligumia nasuta*, SC
- Triangle Floater, *Alasmidonta undulata*, Non-listed SWAP species

Snails
- Walker’s Limpet, *Ferrissia walkeri*, SC

Crustaceans
- Agassiz’s Clam Shrimp, *Eulimnadia agassizii*, E

Insects

Moths
- Barrens Buckmoth, *Hemileuca maia*, SC
- Water-willow Stem Borer, *Papaipema sulphurata*, T

Damselflies
- Scarlet Bluet, *Enallagma pictum*, T
- Pine Barrens Bluet, *Enallagma recurvatum*, T

Dragonflies
- Comet Darner, *Anax longipes*, SC
- Spatterdock Darner, *Rhionaeschna mutata*, SC

Amphibians
- Eastern Spadefoot, *Scaphiopus holbrookii*, T
- Four-toed Salamander, *Hemidactylium scutatum*, Non-listed SWAP

Fishes
- Bridle Shiner, *Notropis bifrenatus*, SC

Reptiles
- Diamond-backed Terrapin, *Malaclemys terrapin*, T
- Spotted Turtle, *Clemmys guttata*, Non-listed SWAP

Birds
- Grasshopper Sparrow, *Ammodramus savannarum*, T
- Piping Plover, *Charadrius melodus*, T
- Common Tern, *Sterna hirundo*, SC
- Roseate Tern, *Sterna dougallii*, E
- Least Tern, *Sternula antillarum*, SC
- Black-crowned Night-heron, *Nycticorax nycticorax*, Non-listed SWAP
Saltmarsh Sharp-tailed Sparrow, \textit{(Ammodramus caudactus)}, Non-listed SWAP
Seaside Sparrow, \textit{(Ammodramus maritimus)}, Non-listed SWAP
Snowy Egret, \textit{(Egretta thula)}, Non-listed SWAP

**Mammals**
New England Cottontail, \textit{(Sylvilagus transitionalis)}, Non-listed SWAP

**Plants**
- Mitchell's Sedge, \textit{(Carex mitchelliana)}, T
- Bushy Rockrose, \textit{(Crocanthemum dumosum)}, SC
- Wright's Panic-grass, \textit{(Dichanthelium wrightianum)}, SC
- Redroot, \textit{(Lachnanthes caroliana)}, SC
- New England Blazing Star, \textit{(Liatris scariosa var. novae-angliae)}, SC
- Sandplain Flax, \textit{(Linum intercursum)}, SC
- Bayard's Green Adder's-mouth, \textit{(Malaxis bayardii)}, E
- Pondshore Knotweed, \textit{(Persicaria puritanorum)}, SC
- Torrey's Beak-sedge, \textit{(Rhynchospora torreyana)}, E
- Short-beaked Bald-sedge, \textit{(Rhynchospora nitens)}, T
- Long-beaked Bald-sedge, \textit{(Rhynchospora scirpoides)}, SC
- Plymouth Gentian, \textit{(Sabatia kennedyana)}, SC
- Terete Arrowhead, \textit{(Sagittaria teres)}, SC
- Papillose Nut-sedge, \textit{(Scleria pauciflora)}, E
- Grass-leaved Ladies'-tresses, \textit{(Spiranthes vernalis)}, T
- Rough Panic-grass, \textit{(Dichanthelium scabriusculum)}, T
- Salt Reedgrass, \textit{(Spartina cynosuroides)}, T
- Slender Marsh Pink, \textit{(Sabatia campanulata)}, E
- Swamp Oats, \textit{(Sphenopholis pensylvanica)}, T

**Priority Natural Communities**
Coastal Interdunal Marsh/Swale, S1
Maritime Dune Community, S2
- Coastal plain pondshore, S2
- Maritime Juniper Woodland/Shrubland, S1
- Oak - Holly Forest / Woodland, S1
- Maritime Pitch Pine on Dunes, S1
- Estuarine Intertidal: Salt Marsh, S3

**Other BioMap2 Components**
- Aquatic Core
- Wetland Core
- Landscape Block
- Aquatic Core Buffer
- Wetland Core Buffer
- Coastal Adaptation Area
- Tern Foraging Area

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**Natural Heritage & Endangered Species Program**
Massachusetts Division of Fisheries and Wildlife
1 Rabbit Hill Road, Westborough, MA 01581
phone: 508-389-6360  fax: 508-389-7890

For more information on rare species and natural communities, please see our fact sheets online at [www.mass.gov/nhesp](http://www.mass.gov/nhesp).
BioMap2
Conserving the Biodiversity of Massachusetts in a Changing World

E  =  Endangered
T  =  Threatened
SC = Special Concern
S1 = Critically Imperiled communities, typically 5 or fewer documented sites or very few remaining acres in the state.
S2 = Imperiled communities, typically 6-20 sites or few remaining acres in the state.
S3 = Vulnerable communities, typically have 21-100 sites or limited acreage across the state.

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Barnstable

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

Core 171

Species of Conservation Concern
- Common Tern
- Least Tern
- Piping Plover

*Sterna hirundo* SC
*Sternula antillarum* SC
*Charadrius melodus* T

Core 179

Species of Conservation Concern
- New England Blazing Star

*Liatris scariosa var. novae-angliae* SC

Core 197

Species of Conservation Concern
- Common Tern

*Sterna hirundo* SC

Core 199

Species of Conservation Concern
- Black-crowned Night-heron
- Common Tern
- Least Tern
- Piping Plover
- Roseate Tern
- Snowy Egret

*Nycticorax nycticorax* Non-listed SWAP
*Sterna hirundo* SC
*Sternula antillarum* SC
*Charadrius melodus* T
*Sterna dougallii* E
*Egretta thula* Non-listed SWAP

Core 213

Aquatic Core
Species of Conservation Concern
- Plymouth Gentian

*Sabatia kennedyana* SC

Core 231

Species of Conservation Concern
- New England Cottontail

*Sylvilagus transitionalis* Non-listed SWAP

Core 232

Aquatic Core
Core 233

<table>
<thead>
<tr>
<th>Species of Conservation Concern</th>
<th>Sterna hirundo</th>
<th>SC</th>
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</thead>
<tbody>
<tr>
<td>Common Tern</td>
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<tr>
<td>Least Tern</td>
<td>Sternula antillarum</td>
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<tr>
<td>Piping Plover</td>
<td>Charadrius melodus</td>
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Core 236

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<thead>
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<th>Species of Conservation Concern</th>
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Core 238

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<th>Species of Conservation Concern</th>
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<tbody>
<tr>
<td>Common Tern</td>
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<tr>
<td>Least Tern</td>
<td>Sternula antillarum</td>
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<td>Piping Plover</td>
<td>Charadrius melodus</td>
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</tr>
<tr>
<td>Roseate Tern</td>
<td>Sterna dougallii</td>
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Core 243

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<thead>
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<th>Species of Conservation Concern</th>
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<td>Bushy Rockrose</td>
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Core 247

<table>
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<th>Species of Conservation Concern</th>
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<tbody>
<tr>
<td>Water-willow Stem Borer</td>
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Core 249

<table>
<thead>
<tr>
<th>Aquatic Core</th>
<th>Persicaria puritanorum</th>
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<tbody>
<tr>
<td>Species of Conservation Concern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pondshore Knotweed</td>
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Core 252

<table>
<thead>
<tr>
<th>Aquatic Core</th>
<th>Carex mitchelliana</th>
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<tbody>
<tr>
<td>Species of Conservation Concern</td>
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<td>Mitchell’s Sedge</td>
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Core 253

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<th>Species of Conservation Concern</th>
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<tbody>
<tr>
<td>Water-willow Stem Borer</td>
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<td></td>
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</tbody>
</table>

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### Core 254

<table>
<thead>
<tr>
<th>Species of Conservation Concern</th>
<th>Scientific Name</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Water-willow Stem Borer</td>
<td><em>Papaipema sulphurata</em></td>
<td>T</td>
</tr>
<tr>
<td>Scarlet Bluet</td>
<td><em>Enallagma pictum</em></td>
<td>T</td>
</tr>
<tr>
<td>Four-toed Salamander</td>
<td><em>Hemidactylus scutatum</em></td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Spotted Turtle</td>
<td><em>Clemmys guttata</em></td>
<td>Non-listed SWAP</td>
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### Core 256

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<thead>
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<th>Aquatic Core Species of Conservation Concern</th>
<th>Scientific Name</th>
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<tbody>
<tr>
<td>Bridle Shiner</td>
<td><em>Notropis bifrenatus</em></td>
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### Core 256

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<th>Species of Conservation Concern</th>
<th>Scientific Name</th>
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<tr>
<td>Water-willow Stem Borer</td>
<td><em>Papaipema sulphurata</em></td>
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### Core 262

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<th>Aquatic Core Species of Conservation Concern</th>
<th>Scientific Name</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Plymouth Gentian</td>
<td><em>Sabatia kennedyana</em></td>
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### Core 268

<table>
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<th>Species of Conservation Concern</th>
<th>Scientific Name</th>
<th>Status</th>
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<tbody>
<tr>
<td>Water-willow Stem Borer</td>
<td><em>Papaipema sulphurata</em></td>
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<thead>
<tr>
<th>Species of Conservation Concern</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water-willow Stem Borer</td>
<td><em>Papaipema sulphurata</em></td>
<td>T</td>
</tr>
</tbody>
</table>

### Core 273

<table>
<thead>
<tr>
<th>Species of Conservation Concern</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water-willow Stem Borer</td>
<td><em>Papaipema sulphurata</em></td>
<td>T</td>
</tr>
</tbody>
</table>

### Core 275

<table>
<thead>
<tr>
<th>Aquatic Core Priority &amp; Exemplary Natural Communities</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal plain pondshore</td>
<td></td>
<td>S2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species of Conservation Concern</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plymouth Gentian</td>
<td><em>Sabatia kennedyana</em></td>
<td>SC</td>
</tr>
<tr>
<td>Pondshore Knotweed</td>
<td><em>Persicaria puritanorum</em></td>
<td>SC</td>
</tr>
</tbody>
</table>
### Core 277

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

### Core 283

Aquatic Core  
Priority & Exemplary Natural Communities  
Coastal Plain Pondshore  
Species of Conservation Concern  
Pondshore Knotweed  
*Persicaria puritanorum*  
SC

### Core 287

Aquatic Core  
Species of Conservation Concern  
Plymouth Gentian  
*Sabatia kennedyana*  
SC

### Core 294

Aquatic Core  
Species of Conservation Concern  
Plymouth Gentian  
*Sabatia kennedyana*  
SC

### Core 301

Species of Conservation Concern  
Water-willow Stem Borer  
*Papaipema sulphurata*  
T

### Core 302

Species of Conservation Concern  
Bayard’s Green Adder’s-mouth  
*Malaxis bayardii*  
E

### Core 304

Aquatic Core  
Priority & Exemplary Natural Communities  
Coastal Plain Pondshore  
Species of Conservation Concern  
Plymouth Gentian  
*Sabatia kennedyana*  
SC  
Pondshore Knotweed  
*Persicaria puritanorum*  
SC  
Redroot  
*Lachnanthes carolina*  
SC  
Terete Arrowhead  
*Sagittaria teres*  
SC  
Torrey’s Beak-sedge  
*Rhynchospora torreyana*  
E  
Water-willow Stem Borer  
*Papaipema sulphurata*  
T
### Core 306

**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bushy Rockrose</td>
<td><em>Crocanthemum dumosum</em></td>
<td>SC</td>
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### Core 307

**Aquatic Core**

**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pondshore Knotweed</td>
<td><em>PERSICARIA PURITANORUM</em></td>
<td>SC</td>
</tr>
<tr>
<td>Eastern Pondmussel</td>
<td><em>LIGUMIA NASUTA</em></td>
<td>SC</td>
</tr>
<tr>
<td>Tidewater Mucket</td>
<td><em>LEPTODEA OCRACEA</em></td>
<td>SC</td>
</tr>
<tr>
<td>Triangle Floater</td>
<td><em>ALASMIODONTA UNDULATA</em></td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Water-willow Stem Borer</td>
<td><em>PAPAIPENA SULPHURATA</em></td>
<td>T</td>
</tr>
<tr>
<td>New England Bluet</td>
<td><em>ENALLAGMA LATERALE</em></td>
<td>Non-listed SWAP</td>
</tr>
</tbody>
</table>

### Core 313

**Aquatic Core**

**Coastal Plain Pondshore**

**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papillose Nut Sedge</td>
<td><em>SCLERIA PAUCIFLORA</em></td>
<td>E</td>
</tr>
<tr>
<td>Pondshore Knotweed</td>
<td><em>PERSICARIA PURITANORUM</em></td>
<td>SC</td>
</tr>
<tr>
<td>Redroot</td>
<td><em>LACHNANTHES CAROLIANA</em></td>
<td>SC</td>
</tr>
<tr>
<td>Sandplain Flax</td>
<td><em>LINUM INTERCURSUM</em></td>
<td>SC</td>
</tr>
<tr>
<td>Walker’s Limpet</td>
<td><em>FERISSIA WALKERI</em></td>
<td>SC</td>
</tr>
<tr>
<td>Comet Darner</td>
<td><em>ANAX LONGIPES</em></td>
<td>SC</td>
</tr>
</tbody>
</table>

### Core 315

**Aquatic Core**

**Priority & Exemplary Natural Communities**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Atlantic White Cedar Swamp</td>
<td><em>DICHANTHELIUM OVALE SPP. PSEUDOPUBESCENS</em></td>
<td>SC</td>
</tr>
<tr>
<td>Coastal Plain Pondshore</td>
<td></td>
<td>S2</td>
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</table>

**Species of Conservation Concern**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commons’s Panic-grass</td>
<td><em>DICHANTHELIUM OVALE SPP. PSEUDOPUBESCENS</em></td>
<td>SC</td>
</tr>
<tr>
<td>Heartleaf Twayblade</td>
<td><em>LISTERA CORDATA</em></td>
<td>E</td>
</tr>
<tr>
<td>Long-beaked Bald-sedge</td>
<td><em>RHYNCHOSPORA SCIRPOIDES</em></td>
<td>SC</td>
</tr>
<tr>
<td>Mattamuskeet Panic-grass</td>
<td><em>DICHANTHELIUM DICHTOTOMUM SPP. MATTAMUSKEETENSE</em></td>
<td>E</td>
</tr>
<tr>
<td>Plymouth Gentian</td>
<td><em>SABATIA KENNEDYANA</em></td>
<td>SC</td>
</tr>
<tr>
<td>Pondshore Knotweed</td>
<td><em>PERSICARIA PURITANORUM</em></td>
<td>SC</td>
</tr>
<tr>
<td>Redroot</td>
<td><em>LACHNANTHES CAROLIANA</em></td>
<td>SC</td>
</tr>
<tr>
<td>Short-beaked Bald-sedge</td>
<td><em>RHYNCHOSPORA NITENS</em></td>
<td>T</td>
</tr>
<tr>
<td>Slender Marsh Pink</td>
<td><em>SABATIA CAMPANULATA</em></td>
<td>E</td>
</tr>
<tr>
<td>Swamp Oats</td>
<td><em>SPHENOPHOLIS PENSYLVANICA</em></td>
<td>T</td>
</tr>
<tr>
<td>Terete Arrowhead</td>
<td><em>SAGITTARIA TERE</em></td>
<td>SC</td>
</tr>
<tr>
<td>Torrey’s Beak-sedge</td>
<td><em>RHYNCHOSPORA TORREYANA</em></td>
<td>E</td>
</tr>
</tbody>
</table>
BioMap2
Conserving the Biodiversity of Massachusetts in a Changing World

Wright's Panic-grass  
Dichanthelium wrightianum  SC

Barrens Buckmoth  
Hemileuca maia  SC

Water-willow Stem Borer  
Papaipema sulphurata  T

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

Spatterdock Darner  
Rhionaeschna mutata  SC

New England Cottontail  
Sylvilagus transitionalis  Non-listed SWAP

Core 318
Priority & Exemplary Natural Communities
Coastal Plain Pondshore  S2
Species of Conservation Concern
New England Bluet  Enallagma laterale  Non-listed SWAP

Core 324
Species of Conservation Concern
Grass-leaved Ladies'-tresses  Spiranthes vernalis  T
New England Cottontail  Sylvilagus transitionalis  Non-listed SWAP

Core 328
Wetland Core

Core 353
Aquatic Core
Priority & Exemplary Natural Communities
Coastal Plain Pondshore  S2
Species of Conservation Concern
Long-beaked Bald-sedge  Rhynchospora scirpoides  SC
Plymouth Gentian   Sabatia kennedyana  SC
Pondshore Knotweed  Persicaria puritanorum  SC
Redroot  Lachnanthes caroliana  SC
Terete Arrowhead  Sagittaria teres  SC
Wright's Panic-grass  Dichanthelium wrightianum  SC
Water-willow Stem Borer  Papaipema sulphurata  T
New England Bluet  Enallagma laterale  Non-listed SWAP
Pine Barrens Bluet  Enallagma recurvatum  T
Scarlet Bluet  Enallagma pictum  T

Core 361
Wetland Core

Natural Heritage
& Endangered
Species Program

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

For more information on rare species and natural communities, please see our fact sheets online at [www.mass.gov/nhesp](http://www.mass.gov/nhesp).
### Core 370

Priority & Exemplary Natural Communities  
Estuarine Intertidal: Salt Marsh  

### Core 374

Priority & Exemplary Natural Communities  
Estuarine Intertidal: Salt Marsh  

### Core 376

**Species of Conservation Concern**  
- Bushy Rockrose  
- New England Blazing Star  
- Rough Panic-grass  
- Sandplain Flax  
- Grasshopper Sparrow  
- New England Cottontail  

<table>
<thead>
<tr>
<th>Name</th>
<th>Scientific Name</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crocanthemum dumosum</td>
<td>SC</td>
<td></td>
</tr>
<tr>
<td>Liatris scariosa var. novae-angliae</td>
<td>SC</td>
<td></td>
</tr>
<tr>
<td>Dichanthelium scabriusculum</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Linum intercursum</td>
<td>SC</td>
<td></td>
</tr>
<tr>
<td>Ammodramus savannarum</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Sylvilagus transitionalis</td>
<td>Non-listed SWAP</td>
<td></td>
</tr>
</tbody>
</table>

### Core 377

Priority & Exemplary Natural Communities  
Estuarine Intertidal: Salt Marsh  

### Core 380

Priority & Exemplary Natural Communities  
Estuarine Intertidal: Salt Marsh  

### Core 381

Priority & Exemplary Natural Communities  
Estuarine Intertidal: Salt Marsh  

### Core 382

Priority & Exemplary Natural Communities  
Estuarine Intertidal: Salt Marsh  

### Core 383

Priority & Exemplary Natural Communities  
Estuarine Intertidal: Salt Marsh  

### Core 384

Priority & Exemplary Natural Communities  
Estuarine Intertidal: Salt Marsh  

Core 386

Priority & Exemplary Natural Communities
Estuarine Intertidal: Salt Marsh S3

Core 388

Priority & Exemplary Natural Communities
Estuarine Intertidal: Salt Marsh S3

Core 521

Wetland Core
Aquatic Core
Priority & Exemplary Natural Communities
Coastal Interdunal Marsh/Swale S1
Estuarine Intertidal: Salt Marsh S3
Maritime Dune Community S2
Maritime Juniper Woodland/Shrubland S1
Maritime Pitch Pine On Dunes S1
Oak - Holly Forest / Woodland S1

Species of Conservation Concern

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plymouth Gentian</td>
<td>SC</td>
</tr>
<tr>
<td>Salt Reedgrass</td>
<td>T</td>
</tr>
<tr>
<td>Swamp Oats</td>
<td>T</td>
</tr>
<tr>
<td>Agassiz's Clam Shrimp</td>
<td>E</td>
</tr>
<tr>
<td>Water-willow Stem Borer</td>
<td>T</td>
</tr>
<tr>
<td>Eastern Spadefoot</td>
<td>T</td>
</tr>
<tr>
<td>Diamond-backed Terrapin</td>
<td>T</td>
</tr>
<tr>
<td>Common Tern</td>
<td>SC</td>
</tr>
<tr>
<td>Least Tern</td>
<td>SC</td>
</tr>
<tr>
<td>Piping Plover</td>
<td>T</td>
</tr>
<tr>
<td>Roseate Tern</td>
<td>E</td>
</tr>
<tr>
<td>Saltmarsh Sharp-tailed Sparrow</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>Seaside Sparrow</td>
<td>Non-listed SWAP</td>
</tr>
<tr>
<td>New England Cottontail</td>
<td>Non-listed SWAP</td>
</tr>
</tbody>
</table>
Core Habitat Summaries

Core 171

A 71-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.

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 179

A 11-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 197

A 3-acre Core Habitat featuring a 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.

Core 199

A 271-acre Core Habitat featuring Species of Conservation Concern.

The breeding colonies of Black-crowned Night-herons, stocky, short-legged herons, are widely distributed along the Massachusetts coast. Habitats of Black-crowned Night-herons in Massachusetts include salt marshes and tidal flats, fresh and brackish marshes, ponds, and creeks. Night-herons are
primarily nocturnal and crepuscular foragers on small fish, amphioibians, crabs and other crustaceans, and insects.

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.

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.

Medium-sized white herons, Snowy Egrets nest in mixed colonies with other species of egrets and herons. The nests are in trees or patches of shrubs on coastal islands, presumably to reduce the likelihood of mammalian predation. Snowy Egrets forage in marshes and ponds near their breeding colonies for small fish, snails, and aquatic invertebrates.

Core 213

A 22-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.

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.

Core 231

A 175-acre Core Habitat featuring a Species of Conservation Concern.
The New England Cottontail is a medium-sized cottontail rabbit. It 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 232

A 66-acre Core Habitat featuring Aquatic Core.

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

Core 233

A 334-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.

Diminutive yet feisty, the Least Tern is a spring and summer colonial nester on Massachusetts’ sandy beaches. For nesting, it favors 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 236

A 4-acre Core Habitat featuring a Species of Conservation Concern.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

Core 238

A 1-acre Core Habitat featuring a Species of Conservation Concern.
The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

Core 239

A 304-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.

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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.

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Core 243

A 10-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 247

A 1-acre Core Habitat featuring a Species of Conservation Concern.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.
Core 249

An 8-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 252

An 18-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.

Mitchell’s Sedge is a wetland species of the Massachusetts coastal plain. It inhabits forested swamps and occasionally wet meadows. It occurs on poorly drained organic and silty loam soils of level ground, stream banks, ditches, and levees that experience seasonal high water tables. It is often found within small canopy openings inside of forested swamps. It typically occurs in areas where fresh groundwater seepage reaches the soil surface, and is often associated with freshwater swamps adjacent to salt marshes.

Core 253

A <1-acre Core Habitat featuring a Species of Conservation Concern.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

Core 254

A 348-acre Core Habitat featuring Species of Conservation Concern.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

Scarlet Bluets are small (just over an inch long) damselflies with red eyes and orange bodies. They inhabit acidic sandy ponds with floating vegetation.
Four-toed Salamanders live in forested habitats surrounding swamps, bogs, marshes, vernal pools, and other fish-free waters that are used as breeding sites. Most breeding sites in MA are characterized by pit-and-mound topography with significant sphagnum-moss cover. Eggs are typically laid in mounds or patches of sphagnum moss that overhang water. Upon hatching, the larvae wriggle through the moss and drop into the water, where they will develop for several weeks prior to metamorphosis.

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

**Core 256**

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

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

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

**Core 260**

A 29-acre Core Habitat featuring a Species of Conservation Concern.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

**Core 262**

A 70-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.

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.

**Core 268**

A 4-acre Core Habitat featuring a Species of Conservation Concern.
The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

**Core 269**

A <1-acre Core Habitat featuring a Species of Conservation Concern.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

**Core 273**

A <1-acre Core Habitat featuring a Species of Conservation Concern.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

**Core 275**

A 17-acre Core Habitat featuring Aquatic Core, a Priority Natural Community, 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.

Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct coastal plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. This moderate sized example of Coastal Plain Pondshore is in fair condition, and is degraded by an invasive species as well as by development, recreational use, and artificial water drawdowns.

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.
Core 277

A 52-acre Core Habitat featuring a Species of Conservation Concern.

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

Core 283

A 69-acre Core Habitat featuring Aquatic Core, a Priority Natural Community, 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.

Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct coastal plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. This example of Coastal Plain Pondshore has been severely degraded by dense development around most of the pond, along with recreational use and artificial water withdrawal.

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 287

A 9-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.

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.

Core 294

A 9-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.

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.

**Core 301**

A 1-acre Core Habitat featuring a Species of Conservation Concern.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

**Core 302**

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

Bayard’s Green Adder’s-mouth is a globally rare, pale green orchid of dry open woodlands, pine barrens, and similar habitats.

**Core 304**

A 662-acre Core Habitat featuring Aquatic Core, a Priority Natural Community, 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.

Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct coastal plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. This example of Coastal Plain Pondshore is in fair condition, and is degraded by surrounding development, recreational use, and artificial water withdrawals.

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.

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.

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.

Torrey’s Beak-sedge grows along the seasonally wet, sandy to peaty soils of low-nutrient, acidic wetlands, primarily coastal plain pondshores. It prefers full sun and does not compete well with shrubs; therefore, fluctuating water levels are important for the persistence of this species at a site.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

Core 306

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 307

A 409-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.

Eastern Pondmussels, large freshwater mussels, are most abundant in southeastern Massachusetts. They inhabit streams, rivers, and small to large lakes and ponds; they show no preference for substrate, depth, or flow conditions. As sedentary filter feeders they are vulnerable to the alterations of water bodies.

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

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

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

Core 313

A 110-acre Core Habitat featuring Aquatic Core, Priority Natural Communities, 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.

Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct coastal plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow.

Two examples of Coastal Plain Pondshore including one that, despite some concentrated recreational use areas, is in good condition, with a large buffer of natural vegetation and good species diversity.

Papillose Nut Sedge is 8 to 19 inches tall with stems that arise from hard knotty rhizomes. The leaves are narrow, 1-3 mm wide. In Massachusetts, it occurs in dry, open, grassy areas surrounded by scrub oak barrens or oak-pitch pine woods.

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.

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.

Sandplain Flax inhabits dry, open, sandplain grasslands or moors, sand barrens, and swaths under powerlines and mown fields, usually in small colonies.
Walker's Limpet is a very small freshwater limpet, up to 66 mm long. In Massachusetts, it is currently known only from one river in the western part of the state though historical records suggest a wider distribution.

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 315**

A 1,311-acre Core Habitat featuring Aquatic Core, Priority Natural Communities, and Species of Conservation Concern.

The Mary Dunn complex of Coastal Plain Ponds supports 10 rare plants, including two that are globally rare, Plymouth Gentian and Terete Arrowhead. These ponds and Little Sandy Pond are also home to three species of globally rare damselflies and the rare Comet Darner dragonfly. All together, these unusual ponds and the uplands surrounding and connecting them, are habitat for 22 rare and uncommon plants and animals.

Coastal Atlantic White Cedar Swamps are acidic, low-nutrient basin swamps dominated by Atlantic white cedar in the overstory and a mixture of species in the understory. This community type typically occurs in basins on the Atlantic Coastal Plain. This example of Coastal Atlantic White Cedar Swamp, though small, is of high quality.

Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct coastal plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. Despite the presence of a well and a nearby road, this example of Coastal Plain Pondshore is in excellent condition, with good structural and species diversity and a fairly extensive buffer of natural vegetation.

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 318**

A 24-acre Core Habitat featuring a Priority Natural Community and a Species of Conservation Concern.

Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct coastal plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow. This example of Coastal Plain Pondshore is in fair condition, with only a small buffer of natural vegetation, artificial water drawdown, and little signs of recreational use.

New England Bluets are damselflies whose habitat includes coastal plain ponds, open water in swamps, and other ponds and lakes. It occurs only in the northeastern United States and is most common from eastern Massachusetts into Connecticut.
Core 324
A 239-acre Core Habitat featuring Species of Conservation Concern.
Grass-leaved Ladies’-tresses is a slender, erect orchid of dry sandy habitats.
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 328
A 17-acre Core Habitat featuring Wetland Core.
Wetland Cores are the least disturbed wetlands in the state within undeveloped landscapes—those with intact buffers and little fragmentation or other stressors associated with development. These wetlands are most likely to support critical wetland functions (i.e., natural hydrologic conditions, diverse plant and animal habitats, etc.) and are most likely to maintain these functions into the future.

Core 353
A 291-acre Core Habitat featuring Aquatic Core, Priority Natural Communities, 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.
Coastal Plain Pondshores are globally rare herbaceous communities of exposed pondshores with a distinct coastal plain flora. Water levels change with the water table, typically leaving an exposed shoreline in late summer where many rare species grow.
Seven examples of Coastal Plain Pondshore including one that is in excellent condition, with no artificial water withdrawals, little impact from recreational use, and a large, natural forest buffer protecting it from any impacts of development.
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.
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.

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.

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.

The Water-willow Stem Borer is a yellowish moth with purple-brown shading that inhabits shallow portions of coastal plain wetlands where water-willow grows. It is endemic to southeastern Massachusetts.

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.

**Core 361**

A 23-acre Core Habitat featuring Wetland Core.

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

**Core 370**

A 33-acre Core Habitat featuring a Priority Natural Community.

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.
Core 374
A <1-acre Core Habitat featuring a Priority Natural Community.

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.

Core 376
A 1,597-acre Core Habitat featuring Species of Conservation Concern.

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

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.

This tall panic-grass can be found on moist to wet sandy soil with an open canopy.

Sandplain Flax inhabits dry, open, sandplain grasslands or moors, sand barrens, and swaths under powerlines and mown fields, usually in small colonies.

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

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 377
A 3-acre Core Habitat featuring a Priority Natural Community.

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.
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Core 380
A 3-acre Core Habitat featuring a Priority Natural Community.

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.

Core 381
A 11-acre Core Habitat featuring a Priority Natural Community.

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.

Core 382
A <1-acre Core Habitat featuring a Priority Natural Community.

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.

Core 383
A 64-acre Core Habitat featuring a Priority Natural Community.

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.

Core 384
A 5-acre Core Habitat featuring a Priority Natural Community.

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.
Core 386

A 44-acre Core Habitat featuring a Priority Natural Community.

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.

Core 388

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

The Salt Marsh community type is a graminoid dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.

Core 521

An 8,557-acre Core Habitat featuring Wetland Core, Aquatic Core, Priority Natural Communities, and Species of Conservation Concern.

The southern shore of Cape Cod Bay, from the Canal to Sandy Neck and Barnstable Harbor, is home to 11 rare species, including one of the state’s major nesting sites for Piping Plovers and Least Terns on the long barrier beach of Sandy Neck. Sandy Neck also supports two of the state’s best populations of the Threatened Eastern Spadefoot toad, while Diamond-backed Terrapins use Barnstable Harbor and the protected salt marshes landward of Sandy Neck for feeding and nesting. The Maritime Dune natural community along Sandy Neck is dotted with good examples of even more rare communities: Maritime Juniper Woodland/Shrubland, Maritime Pitch Pine on Dunes, Coastal Interdunal Marsh/Swale, and Maritime Oak-Holly Forest/Woodland.

The Coastal Interdunal Marsh/Swale community is a graminoid- or shrub-dominated coastal community that occurs in shallow depressions between sand dunes. They occur as part of a dune system, and the best examples are complexes of numerous swales. Despite the presence of some exotic invasive species, this large example of the Coastal/Interdunal Marsh/Swale community is in good condition, with excellent structural and species diversity and a sizable naturally vegetated buffer.

The Salt Marsh community type is a graminoid-dominated, tidally flooded coastal community with several vegetative zones. Salt Marshes form in areas subject to oceanic tides, but sheltered from wave energy. This example is the largest contiguous acreage of Salt Marsh on Cape Cod, and hosts diverse vascular flora, algae, and fauna.

The Maritime Dune Community consists of patches of herbaceous plants interspersed with areas of bare sand and shrubs. It occurs on windswept dunes within the salt spray zone, and often grades into shrubland or woodlands on more sheltered back dunes. This large example of Maritime Dunes stretches
over 1000 windswept acres. It is threatened by recreational use and exotic species; however, it is in very good condition and is very well buffered by a mosaic of coastal natural communities.

The Maritime Juniper Woodland/Shrubland is a predominantly evergreen community within the coastal salt spray zone. The trees tend to be short (less than 15 feet) and scattered, with the tops sculpted by winds and salt spray. This example of Maritime Juniper Woodland/Shrubland is in excellent condition and is part of a large complex of maritime communities that together provide habitat for many unusual, important, and/or rare species of plants and animals.

The Maritime Pitch Pine on Dunes community has scattered short pitch pines on back dunes, many with trunks at least partially buried. The open canopy is over bare sand with occasional shrubs, herbaceous plants, and lichens. This excellent occurrence of Maritime Pitch Pine on Dunes community occurs within the matrix barrier beach dune system in a mosaic with other community types. The most distinct examples of the community are towards the east.

Oak-Holly Forest/Woodland or Maritime Oak-Holly Forest Communities are mixed deciduous/evergreen forests within the coastal salt spray zone. Vegetation growth here is stunted by winds and salt spray, resulting in short trees (less than 30 feet). This large, high-quality example of Oak-Holly Forest occurs within a 1000-acre dune system stretching three-miles. These dunes support several other significant, high quality natural communities as well.

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

Aquatic Cores are intact river corridors within which important physical and ecological processes of the river or stream occur. They delineate integrated and functional ecosystems for fish species and other aquatic Species of Conservation Concern.
**BioMap2 Critical Natural Landscape in Barnstable**

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

CNL 101
   Tern Foraging Area

CNL 109
   Aquatic Core Buffer

CNL 122
   Coastal Adaptation Area

CNL 126
   Aquatic Core Buffer
   Coastal Adaptation Area
   Tern Foraging Area

CNL 131
   Tern Foraging Area

CNL 133
   Tern Foraging Area
   Coastal Adaptation Area

CNL 138
   Coastal Adaptation Area

CNL 145
   Coastal Adaptation Area

CNL 146
   Coastal Adaptation Area

CNL 158
   Aquatic Core Buffer

CNL 166
   Aquatic Core Buffer
   Landscape Block

CNL 167
   Aquatic Core Buffer
   Wetland Core Buffer

CNL 178
   Aquatic Core Buffer
   Wetland Core Buffer
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CNL 180
Aquatic Core Buffer

CNL 188
Aquatic Core Buffer

CNL 196
Aquatic Core Buffer
Wetland Core Buffer

CNL 203
Aquatic Core Buffer

CNL 211
Aquatic Core Buffer
Wetland Core Buffer

CNL 212
Aquatic Core Buffer
Landscape Block
Wetland Core Buffer

CNL 221
Wetland Core Buffer

CNL 224
Aquatic Core Buffer
Wetland Core Buffer

CNL 230
Wetland Core Buffer

CNL 239
Coastal Adaptation Area

CNL 244
Coastal Adaptation Area

CNL 247
Coastal Adaptation Area

CNL 281
Aquatic Core Buffer
Landscape Block
Wetland Core Buffer

CNL 340
Aquatic Core Buffer
Coastal Adaptation Area
Landscape Block
Tern Foraging Area

For more information on rare species and natural communities, please see our fact sheets online at www.mass.gov/nhesp.
CNL 558
Aquatic Core Buffer
Coastal Adaptation Area
Landscape Block
Tern Foraging Area
Critical Natural Landscape Summaries

**CNL 101**

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 109**

A 22-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 122**

A 11-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 126**

A 104-acre Critical Natural Landscape featuring Aquatic Core Buffer, 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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**Natural Heritage & Endangered Species Program**

**Massachusetts Division of Fisheries and Wildlife**

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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).
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 131**

A 5-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 133**

A 13-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 138**

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

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CNL 145

A 36-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 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 146

A 41-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 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 158

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 166

A 1,355-acre Critical Natural Landscape featuring Aquatic Core Buffer and Landscape Block.

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

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

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

**CNL 167**

A 17-acre Critical Natural Landscape featuring Aquatic Core Buffer and Wetland Core Buffer.

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

**CNL 178**

A 76-acre Critical Natural Landscape featuring Aquatic Core Buffer and Wetland Core Buffer.

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

**CNL 180**

A 9-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 188**

A 9-acre Critical Natural Landscape featuring Aquatic Core Buffer.

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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).
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CNL 196

A 936-acre Critical Natural Landscape featuring Aquatic Core Buffer and Wetland Core Buffer.

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

CNL 203

A 550-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 211

A 99-acre Critical Natural Landscape featuring Aquatic Core Buffer and Wetland Core Buffer.

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

CNL 212

An 844-acre Critical Natural Landscape featuring Aquatic Core Buffer, Wetland Core Buffer and Landscape Block.

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

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

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

**CNL 221**

A 44-acre Critical Natural Landscape featuring Wetland Core Buffer.

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

**CNL 224**

A 18-acre Critical Natural Landscape featuring Aquatic Core Buffer and Wetland Core Buffer.

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

**CNL 230**

A 44-acre Critical Natural Landscape featuring Wetland Core Buffer.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the Conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.
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**CNL 239**

A 22-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 244**

A 9-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 247**

A 11-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 281**

A 4,866-acre Critical Natural Landscape featuring Aquatic Core Buffer, Wetland Core Buffer and Landscape Block.

A variety of analyses were used to identify protective upland buffers around wetlands and rivers. One, the variable width buffers methodology, included the most intact areas around each wetland and river, by extending deeper into surrounding unfragmented habitats than into developed areas adjacent to each wetland. Other upland buffers were identified through the rare species habitat analysis. In this way, the conservation of wetland buffers will support the habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.
Landscape Blocks, the primary component of Critical Natural Landscapes, are large areas of intact predominately natural vegetation, consisting of contiguous forests, wetlands, rivers, lakes, and ponds, as well as coastal habitats such as barrier beaches and salt marshes. Pastures and power-line rights-of-way, which are less intensively altered than most developed areas, were also included since they provide habitat and connectivity for many species. Collectively, these natural cover types total 3.6 million acres across the state. An Ecological Integrity assessment was used to identify the most intact and least fragmented areas. These large Landscape Blocks are most likely to maintain dynamic ecological processes such as buffering, connectivity, natural disturbance, and hydrological regimes, all of which help to support wide-ranging wildlife species and many other elements of biodiversity.

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

**CNL 340**

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

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.

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 558**

A 97,955-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.

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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 6,182 acres, this Landscape Block is the sixth largest in the ecoregion and 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 is dominated by unique and important salt marsh and barrier beach habitats, much of which is protected by the town of Barnstable.

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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Help Save Endangered Wildlife!

Please contribute on your Massachusetts income tax form or directly to the

Natural Heritage &
Endangered Species Fund

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