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

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

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

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

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

What Does Status Mean?

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

- Endangered species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.

- Threatened species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.

- Special Concern species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

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

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

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

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

<table>
<thead>
<tr>
<th>Taxonomic Group</th>
<th>MESA-listed Species</th>
<th>Non-listed Species of Conservation Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammals</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Birds</td>
<td>27</td>
<td>23</td>
</tr>
<tr>
<td>Reptiles</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Amphibians</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Fish</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Invertebrates</td>
<td>102</td>
<td>9</td>
</tr>
<tr>
<td>Plants</td>
<td>256</td>
<td>0</td>
</tr>
<tr>
<td><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 ecosystems for fish species and other aquatic
Species of Conservation Concern, beyond the species and exemplary habitats described above, *BioMap2* identifies intact river corridors within which important physical and ecological processes of the river or stream occur.

**Components of Critical Natural Landscape**

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

**Landscape Blocks**

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

**Upland Buffers of Wetland and Aquatic Cores**

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

**Upland Habitat to Support Coastal Adaptation**

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

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

**Legal Protection of Biodiversity**

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

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

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

**Additional Information**

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

Contact the Natural Heritage & Endangered Species Program

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

The GIS datalayers of BioMap2 are available for download from MassGIS at [www.mass.gov/mgis](http://www.mass.gov/mgis).
**Town Overview**

Oxford lies within the Southern New England Coastal Plains and Hills Ecoregion, an area comprised of plains with a few low hills. Forests are mainly central hardwoods with some transition hardwoods and some elm-ash-red maple and red and white pine. Many major rivers drain this area.

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**Oxford at a Glance**

- **Total Area:** 17,550 acres (27.4 square miles)
- **Human Population in 2010:** 13,709
- **Open space protected in perpetuity:** 1,299 acres, or 7.4% percent of total area*
- **BioMap2 Core Habitat:** 2,489 acres
- **BioMap2 Core Habitat Protected:** 784 acres or 31.5%
- **BioMap2 Critical Natural Landscape:** 3,074 acres
- **BioMap2 Critical Natural Landscape Protected:** 658 acres or 21.4%.

**BioMap2 Components**

**Core Habitat**

- 2 Exemplary or Priority Natural Community Cores
- 3 Forest Cores
- 2 Wetland Cores
- 5 Aquatic Cores
- 10 Species of Conservation Concern Cores**
  - 1 bird, 3 reptiles, 2 amphibians, 4 insects, 2 mussels, 1 plant

**Critical Natural Landscape**

- 3 Landscape Blocks
- 4 Wetland Core Buffers
- 5 Aquatic Core Buffers

* Calculated using MassGIS data layer “Protected and Recreational Open Space—March, 2012”.

** See next pages for complete list of species, natural communities and other biodiversity elements.
BioMap2 Core Habitat and Critical Natural Landscape in Oxford

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

1 Mile
Species of Conservation Concern, Priority and Exemplary Natural Communities,
and Other Elements of Biodiversity in Oxford

Mussels

*Creeper*, (*Strophitus undulatus*), SC  
*Triangle Floater*, (*Alasmidonta undulata*), Non-listed SWAP species

Insects

Moths

*Coastal Swamp Metarranthis*, (*Metarranthis pilosaria*), SC  
*Orange Sallow Moth*, (*Pyrrhia aurantiago*), SC

Butterflies

*Hessel's Hairstreak*, (*Callophrys hesseli*), SC  
*Zebra Clubtail*, (*Stylurus scudderi*), Non-listed SWAP species

Amphibians

*Marbled Salamander*, (*Ambystoma opacum*), T  
Northern Leopard Frog, (*Rana pipiens*), Non-listed SWAP

Reptiles

*Wood Turtle*, (*Glyptemys insculpta*), SC  
Northern Black Racer, (*Coluber constrictor*), Non-listed SWAP  
Spotted Turtle, (*Clemmys guttata*), Non-listed SWAP

Birds

*Pied-billed Grebe*, (*Podilymbus podiceps*), E

Plants

*Bristly Buttercup*, (*Ranunculus pensylvanicus*), SC

Priority Natural Communities

*Inland Atlantic White Cedar Swamp*, S2  
*Kettlehole Level Bog*, S2

Other BioMap2 Components

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

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 Core Habitat in Oxford

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

**Core 1051**

Aquatic Core

Species of Conservation Concern

- Northern Black Racer: *Coluber constrictor*
- Spotted Turtle: *Clemmys guttata*
- Pied-billed Grebe: *Podilymbus podiceps*

**Core 1064**

Forest Core

Species of Conservation Concern

- Spotted Turtle: *Clemmys guttata*

**Core 1069**

Species of Conservation Concern

- Spotted Turtle: *Clemmys guttata*

**Core 1078**

Species of Conservation Concern

- Spotted Turtle: *Clemmys guttata*

**Core 1080**

Forest Core

Wetland Core

Aquatic Core

Priority & Exemplary Natural Communities

- Acidic Graminoid Fen: S3

Species of Conservation Concern

- Algae-like Pondweed: *Potamogeton confervoides*
- Slender Cottongrass: *Eriophorum gracile*
- Orange Sallow Moth: *Pyrrhia aurantiago*
- Pine Barrens Bluet: *Enallagma recurvatum*
- Scarlet Bluet: *Enallagma pictum*
- Umber Shadowdragon: *Neurocordulia obsoleta*
- Marbled Salamander: *Ambystoma opacum*
Core 1120
Species of Conservation Concern
Spotted Turtle  *Clemmys guttata*  Non-listed SWAP

Core 1151
Aquatic Core
Species of Conservation Concern
Triangle Floater  *Alasmidonta undulata*  Non-listed SWAP

Core 1199
Aquatic Core
Species of Conservation Concern
Triangle Floater  *Alasmidonta undulata*  Non-listed SWAP

Core 1261
Forest Core
Wetland Core

Core 1267
Aquatic Core
Priority & Exemplary Natural Communities
Inland Atlantic White Cedar Swamp  S2
Kettlehole Level Bog  S2
Species of Conservation Concern
Bristly Buttercup  *Ranunculus pensylvanicus*  SC
Creeper  *Strophitus undulatus*  SC
Triangle Floater  *Alasmidonta undulata*  Non-listed SWAP
Coastal Swamp Metarranthis Moth  *Metarranthis pilosaria*  SC
Zebra Clubtail  *Stylurus scudderii*  Non-listed SWAP
Marbled Salamander  *Ambystoma opacum*  T
Northern Leopard Frog  *Rana pipiens*  Non-listed SWAP
Wood Turtle  *Glyptemys insculpta*  SC

Core 1313
Aquatic Core
Priority & Exemplary Natural Communities
Level Bog  S3
Species of Conservation Concern
Great Laurel  *Rhododendron maximum*  T
Hessel's Hairstreak  *Callophrys hesseli*  SC

Core 1317
Wetland Core

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

Core 1051
A 299-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.

The Northern Black Racer is a snake of young upland forests, shrublands such as pitch pine/scrub oak communities and rock cliffs. Although relatively common, its range appears to be constricting and its abundance has been declining.

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.

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

Core 1064
A 740-acre Core Habitat featuring Forest Core and a Species of Conservation Concern.

Forest Cores are the best examples of large, intact forests that are least impacted by roads and development. Forest Cores support many bird species sensitive to the impacts of roads and development and help maintain ecological processes found only in unfragmented forest patches.

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 1069
A <1-acre Core Habitat featuring a Species of Conservation Concern.

Strong populations of Spotted Turtles in good habitat - large, unfragmented, protected open space - continue to be of interest for the conservation of this species. This small, dark-colored turtle with yellow spots on its carapace inhabits a variety of wetlands year-round and nests in nearby uplands during spring. Road and collection are the primary conservation concerns.
Core 1078

A 117-acre Core Habitat featuring a Species of Conservation Concern.

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

Core 1080

A 5,167-acre Core Habitat featuring Forest Core, Wetland Core, Aquatic Core, Priority Natural Communities, and Species of Conservation Concern.

Forest Cores are the best examples of large, intact forests that are least impacted by roads and development. Forest Cores support many bird species sensitive to the impacts of roads and development and help maintain ecological processes found only in unfragmented forest patches.

This 4,424-acre Forest Core is the largest in the ecoregion and among the largest 20% in the state. It is part of an important cluster of Forest Cores, occurring primarily in Douglas, which are only partially protected.

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

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

Acidic Graminoid Fens are sedge- and sphagnum-dominated acidic peatlands that experience some groundwater and/or surface water flow but no calcareous seepage. Standing water is often present throughout much of the growing season. This example of Acidic Graminoid Fen has good species and structural diversity, and may be reverting to an Inland Atlantic White Cedar Swamp.

Algae-like Pondweed is an aquatic plant with fine thread-like leaves. This plant is endemic primarily to the Atlantic coast plain and can be found in acidic lakes and ponds.

Slender Cottongrass is a plant of swamps and peatlands. Habitats in Massachusetts include acidic and calcareous fens and portions of seepage swamps.

Orange Sallow Moths inhabit dry, open oak woodlands on rocky uplands. Their eggs are laid on false foxgloves (Aureolaria spp.) where the larvae feed on the flowers and developing seeds.

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.

Umber Shadowdragons are dragonflies that are found on lakes with rocky shores and medium to large rivers that have relatively little aquatic vegetation. Shadowdragons fly only at dusk when they feed and mate in a frenzy of activity.

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

Core 1120
A 230-acre Core Habitat featuring a Species of Conservation Concern.

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

Core 1151
A 40-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.

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.

Core 1199
A 287-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.

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.
Core 1261

A 710-acre Core Habitat featuring Forest Core, Wetland Core.

Forest Cores are the best examples of large, intact forests that are least impacted by roads and development. Forest Cores support many bird species sensitive to the impacts of roads and development and help maintain ecological processes found only in unfragmented forest patches.

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 1267

A 1,060-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.

Inland Atlantic White Cedar Swamps are forested wetlands dominated by Atlantic white cedar, with hemlock, spruce, red maple, and yellow birch. As in all Atlantic White Cedar swamps, water-saturated peat overlies the mineral sediments. This nice, diverse example of an Inland Atlantic White Cedar Swamp grades into a red maple swamp in the adjoining wetlands. Surrounding oak-pine forest buffers the wetlands from development to the east.

Kettlehole Level Bogs are acidic dwarf-shrub peatlands with little water input or outflow that form in circular depressions left by melting ice blocks in sandy glacial outwash. The vegetation in Kettlehole Level Bogs usually grows in rings. These two fairly small patches of Kettlehole Level Bog are close enough together to exchange species. They contain typical bog species and none indicating site enrichment.

Bristly Buttercup is an annual or short-lived perennial herb with small, pale yellow flowers. A habitat generalist, Bristly Buttercup grows in a variety of areas that tend to have open to filtered light and that are wet to periodically flooded. It often inhabits areas with some disturbance.

Creepers are freshwater mussels that inhabit low-gradient reaches of small to large rivers with sand or gravel substrates. Cool to warm water with diverse fish assemblages best support Creepers.

Triangle Floaters are freshwater mussels commonly found in low-gradient river reaches with sand and gravel substrates and low to moderate water velocities, although they are found in a wide range of substrate and flow conditions.
Coastal Swamp Metarranthis moths inhabit open, acidic wetlands with ericaceous vegetation, especially shrub swamps and bogs, often within sandplain pitch pine/scrub oak barrens. Cranberry (*Vaccinium macrocarpon*) is a documented larval host, leatherleaf (*Chamaedaphne calyculata*) is likely also used; in dry barrens habitat the most likely larval hosts are lowbush blueberries (*Vaccinium pallidum* and *V. angustifolium*).

The Zebra Clubtail dragonfly inhabits sand-bottomed streams and small rivers with riffles as larvae. Adults feed over the same streams. Surrounding upland forests provide protection while adults reach sexual maturity.

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

Adult Northern Leopard Frogs are found in marshes, wet meadows, and peatlands in the narrow transition zone between open water and uplands; they retreat to the water of ponds and small streams when threatened. The herbivorous tadpoles require open water of sufficient permanence for their development.

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

**Core 1313**

A 255-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.

Level Bogs are dwarf-shrub peatlands, generally with pronounced hummocks and hollows in sphagnum moss. These wetland communities are very acidic and nutrient-poor because the peat isolates them from nutrients in groundwater and streams. This small example of Level Bog is found within a larger Atlantic White Cedar Swamp.

Great Laurel, a member of the Heath family, is an evergreen shrub or small tree that grows up to 10 m high. It is a plant of moist woods, swamps, and the edges of ponds.
Hessel’s Hairstreak, a butterfly, is restricted to Atlantic White Cedar Swamps and Bogs, where the larvae develop on new foliage of the Atlantic White Cedar trees.

**Core 1317**

A 66-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.
BioMap2 Critical Natural Landscape in Oxford

Critical Natural Landscape IDs correspond with the following element lists and summaries.
Elements of *BioMap2* Critical Natural Landscapes

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

- **CNL 550**
  - Aquatic Core Buffer
- **CNL 552**
  - Landscape Block
- **CNL 555**
  - Aquatic Core Buffer
- **CNL 583**
  - Aquatic Core Buffer
- **CNL 610**
  - Aquatic Core Buffer
- **CNL 618**
  - Aquatic Core Buffer
  - Landscape Block
  - Wetland Core Buffer
- **CNL 624**
  - Aquatic Core Buffer
  - Wetland Core Buffer
- **CNL 637**
  - Landscape Block
  - Wetland Core Buffer
- **CNL 663**
  - Wetland Core Buffer
Critical Natural Landscape Summaries

CNL 550

A 86-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 552

A 897-acre Critical Natural Landscape featuring Landscape Block.

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 555

A 61-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 583

An 80-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 610

A 430-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 618

A 20,002-acre Critical Natural Landscape featuring Aquatic Core Buffer, Wetland Core Buffer and Landscape Block.

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

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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 624**

A 340-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 637**

A 2,114-acre Critical Natural Landscape featuring Wetland Core Buffer and Landscape Block.

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

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**CNL 663**

A 134-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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Natural Heritage &
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