



BioMap2

Guiding Land Conservation for Biodiversity in Massachusetts

Washington

This report and associated maps 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.

Produced by:
Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries and Wildlife

Commonwealth of Massachusetts

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BioMap2:

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http://www.mass.gov/dfwele/dfw/nhesp/land_protection/biomap/biomap2_summary_report.pdf

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BioMap2: Guiding Land Conservation for Biodiversity in Massachusetts

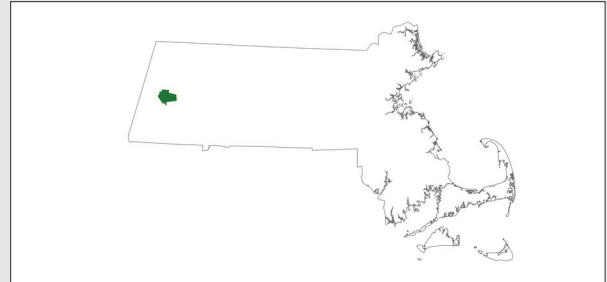
Washington

Washington is located in central Berkshire County, high in the Berkshire Hills. The town falls within the headwaters of both the Housatonic and Connecticut River watersheds (see Figure 1). In the west, its landscape is principally characterized by October Mountain, which supports large tracts of state forestland and reaches just over 1,900 feet at its peak elevation. On north and west slopes of October Mountain are Ashley, Roaring, and Mountain Brooks, all of which drain through October Mountain State Forest to join the Housatonic River mainstem in the lowlands of Lee and Lenox to the west. On the east side of the mountain, headwater streams such as Coles, Depot, and Shaker Mill Brooks, as well as their many tributaries, drain along a gradual slope into the West Branch Westfield River and ultimately the Connecticut River to the east. The village of Washington sits at about 1,400 feet elevation along the Berkshire Plateau in a valley near the eastern side of town. Route 8 also traverses this high valley. Several waterbodies, including many recreational lakes and drinking water supply reservoirs for neighboring towns, are found in central and western Washington. These lakes are primarily within either October Mountain State Forest or land managed as part of the drinking water supply watershed for Pittsfield. The Appalachian Trail passes through the middle of town along a north-south route.

With just over 500 residents, Washington is one of the less populated towns in Massachusetts. It lacks the more intense commercial and industrial development present in nearby towns like Pittsfield or Lee, and as a result its natural ecosystems are relatively undisturbed. Residential development is concentrated in the eastern part of town along Route 8 and its adjoining roads, and along Pittsfield Road. The western part of town, across October Mountain, is made up largely of state forest and is quite remote. The area was logged historically, but only a few minor timbering operations remain today, mostly in the vicinity of Washington Mountain Lake. Today the area is used primarily for recreation.

Washington is a part of the Berkshire Highlands ecological region, which lies east of the Taconic Mountains

and the Western New England Marble Valleys ecoregions. The Berkshire Highlands run north from central Berkshire County in Massachusetts into Vermont, where they transition into the Green Mountains and continue north to the Canadian border. While ecosystems of the Berkshires are not as ecologically rich as those in the neighbor-



Washington at a Glance

- Total area: 24,813 acres (38.8 square miles)
- Human Population in 2009: 541 people
- Open space protected in perpetuity: 15,964 acres, or 64.3% of total area*

BioMap2 Components

Core Habitat

- 6 Aquatic Cores: 490 acres
- 3 Forest Cores: 6,873 acres
- 1 Vernal Pool Core: 56 acres
- 20 Wetland Cores: 777 acres
- 4 areas of 3 Priority Natural Communities: 27 acres

Species of Conservation Concern**

- 3 insects, 1 fish, 3 salamanders, 1 reptile, 3 birds

Critical Natural Landscape

- 6 Upland Buffers of Aquatic Cores: 981 acres
- 15 Upland Buffers of Wetland Cores: 2,926 acres
- 2 Landscape Blocks: 20,760 acres

*calculated using MassGIS data layer "Protected and Recreational Open Space—November 2010"

**see next page for complete list of species, natural communities, and other biodiversity elements

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

Insects

Butterflies

Mustard White (*Pieris oleracea*), Threatened

Damselflies

Tule Bluet (*Enallagma carunculatum*), Special Concern

Dragonflies

Ocellated Darner (*Boyeria grafiana*), Special Concern

Fish

Bridle Shiner (*Notropis bifrenatus*), Special Concern

Amphibians

Four-toed Salamander (*Hemidactylium scutatum*), SWAP

Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern

Spring Salamander (*Gyrinophilus porphyriticus*), SWAP

Reptiles

Smooth Green Snake (*Opheodrys vernalis*), SWAP

Birds

American Bittern (*Botaurus lentiginosus*), Endangered

Common Moorhen (*Gallinula chloropus*), Special Concern

Least Bittern (*Ixobrychus exilis*), Endangered

Priority Natural Communities

Acidic Graminoid Fen (Vulnerable)

Level Bog (Vulnerable)

Spruce – Fir Swamp (Imperiled)

Other BioMap2 Components

Aquatic Cores

Forest Cores

Landscape Blocks

Upland Buffers of Aquatic Cores

Upland Buffers of Wetland Cores

Vernal Pool Cores

Wetland Cores

ing marble valleys – lowlands to the west that hold the main waterways of the upper Housatonic River watershed – the highlands do support an important array of plants, animals, and natural communities. Throughout the forested highlands of Washington, wetlands and vernal pools provide habitat for breeding amphibian species like the Jefferson Salamander. The state-endangered marsh-bird American Bittern nests and feeds near Washington Mountain and Muddy Lakes, and in wetland areas south of Ashley Lake in central Washington. The larvae of the butterfly called Mustard White feed on plants of the mustard family that grow along forested headwater streams like Watson and Felton Lake Brooks. These streams also provide breeding habitat for state-listed amphibians like the Spring Salamander. Several Priority Natural Communities are also found in these areas – including Level Bogs and Acidic Graminoid Fens, both of which are wetland types associated with high-elevation peatlands like those in western Washington.

BIODIVERSITY CONSERVATION TARGETS IN WASHINGTON: CORE HABITAT, CRITICAL NATURAL LANDSCAPE, & PRIORITY CONSERVATION AREAS

Overview

In this section, we outline areas in Washington that warrant special focus of conservation efforts locally, regionally, and throughout the state. Components of the Natural Heritage & Endangered Species Program's

(NHESP's) statewide BioMap2 project, which incorporates NHESP data and includes findings of studies funded by the Natural Resource Damages Assessment and Restoration Program (NRD) conducted in 2008 and 2009 as part of its Core Habitat and Critical Natural Landscape, were used to delineate and map these areas. The areas range in size from fewer than 10 acres to several thousand acres. Areas of Core Habitat, each called a BioMap2 Core (BC), and areas of Critical Natural Landscape (CNL), along with their associated components, are illustrated in Figure 2 and outlined in detail below. BioMap2 components described in this report are those that occur only in Washington, although a given area of Core Habitat or Critical Natural Landscape listed here may extend outside of the town boundaries of Washington and contain additional components.

To facilitate land protection and stewardship, NHESP further prioritized areas in each of the towns in the watershed using habitat size and conditions and other biodiversity indicators. Priority Conservation Areas (PCAs) were considered to be of high biodiversity value if they contained concentrations of state-listed species or Priority Natural Communities, or large areas of intact habitat. In each town, a total of one to six Town PCAs were selected. Each Town PCA contains part of at least one BioMap2 Core. In Washington, three Town PCAs were selected in order to preserve biodiversity in areas where it may be protected in perpetuity. Figure 3 illustrates how BioMap2 Core Habitat and Critical Natural Landscape relate to the distribution of Town PCAs in Washington.

Biodiversity Studies in Massachusetts and the Housatonic River Watershed

BioMap2 is a statewide biodiversity conservation plan produced in 2010 by MassWildlife's Natural Heritage & Endangered Species Program and The Nature Conservancy. It is designed to guide strategic biodiversity conservation in Massachusetts over the next decade by focusing land protection and stewardship on the areas that are most critical for ensuring the long-term persistence of state-listed and other native species and their habitats, Priority Natural Communities, and a diversity of ecosystems. BioMap2 is also designed to include the habitats and Species of Conservation Concern identified in the State Wildlife Action Plan (SWAP).

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 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.

In 2008 and 2009, field surveys were carried out to improve knowledge of the region's biodiversity resources in towns in the Housatonic River watershed in western Massachusetts. During these surveys, coordinated by the Natural Heritage and Endangered Species Program (NHESP) with funds from the Natural Resources Damage Assessment and Restoration (NRD) Program, researchers collected important information about state-listed species and Priority Natural Communities of 19 towns in the region. Surveys were conducted by NHESP staff, expert consultants, academic researchers, and graduate students. Information on the surveys' findings was added to the NHESP database, combined with other NHESP data, and incorporated into Core Habitat of BioMap2. BioMap2 data layers, complete with these data and other information, are now available for use in conservation planning at the town, regional, and state levels.

A larger scale prioritization was also conducted to select Regional PCAs of the highest conservation and stewardship value among all towns in Massachusetts' portion of the Housatonic River watershed. Regional PCAs often cross town boundaries and are quite large, ranging from 373 acres to more than 25,000 acres. Ecological connectivity within these Regional PCAs is important to biodiversity conservation, and these large units often include select Town PCAs that are of particular ecological significance to both the town and the region. In this way, biodiversity can be conserved at two scales: locally within each town and within a broader regional context. A part of Regional PCA 5 falls within Washington, covering much of the western part of town.

Core Habitat and Critical Natural Landscape Components in Washington

Areas of Core Habitat in Washington, called BioMap2 Cores (BCs), are summarized here, as are the various components of each BC, which may include Species of Conservation Concern, Exemplary and Priority Natural Communities, and Aquatic, Forest, Vernal Pool, or Wetland Cores. Components of Critical Natural Landscape (CNL)

associated with each BC are also provided. These include Upland Buffers of both Aquatic and Wetland Cores, as well as Landscape Blocks.

BC1823, BC1826, BC1832, BC1863, BC1954, BC1974 and CNL1029; BC1850 and CNL915

These BCs contain Wetland Cores and are surrounded by Upland Buffers. All except BC1850 lie within the large Landscape Block in CNL1029. Nearby BC1850 is associated with Upland Buffer of CNL915.

BC1813 (no CNL)

This BC includes an Aquatic Core along Shaker Mill Brook and the West Branch Westfield River. In Becket it overlaps in part with CNL1322, but in Washington it includes only a very small area and doesn't overlap with any CNLs. The portion of BC1813 in Washington includes one state-listed insect species:

Ocellated Darner (*Boyeria graefiana*), Special Concern: This is a dragonfly whose nymphs inhabit clear, shallow, rocky, and swift-flowing streams as well as large, rocky lakes with little vegetation. Adults also inhabit nearby

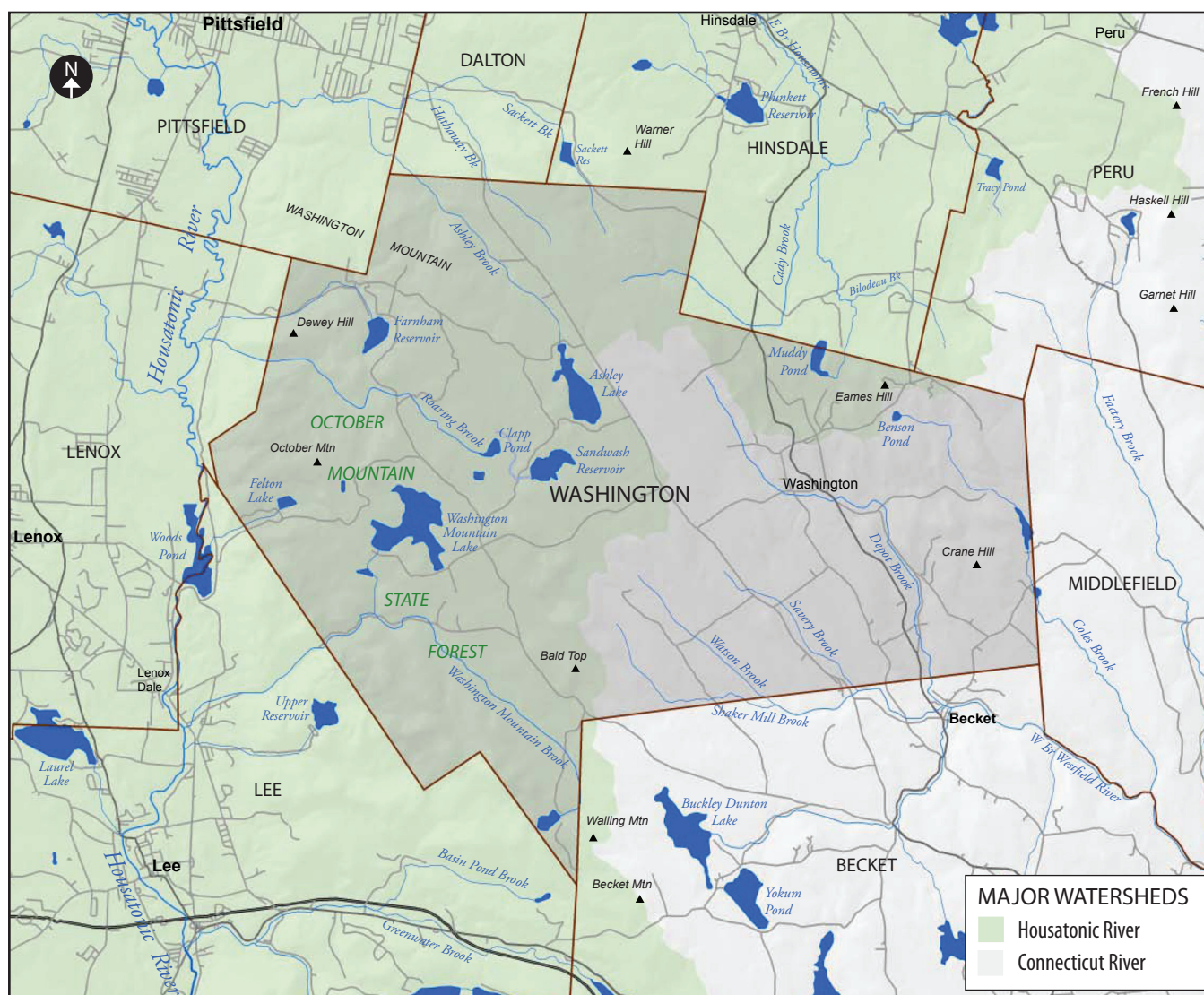


Figure 1. Washington is part of the Berkshire Highlands ecoregion and lies within the headwaters of both the Housatonic and Connecticut River watersheds.

uplands, often in forests with a mix of coniferous and deciduous trees.

BC1827 and CNL1029

This 136-acre BC supports a state-listed insect species in the very large Landscape Block of CNL1029.

BC1882 and CNL1029

BC 1882 is a 7,189-acre core in northeast Lee, northwest Becket, and southwest Washington. It includes October Mountain State Forest and contains the headwaters of several small tributaries such as Roaring and Mountain Brooks that flow west to join the Housatonic River mainstem in Lee. It also supports several BioMap2 components, including two areas of Aquatic Core and seven Wetland Cores, which are part of Upland Buffers of CNL

1029 – much of this area is associated with Washington Mountain Lake. In Washington, BC1882 includes nearly 3,000 acres of a Forest Core. BC1882 also supports two uncommon salamander species and three state-listed marshbird species.

Amphibians

Jefferson Salamander (*Ambystoma jeffersonianum*), Special

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

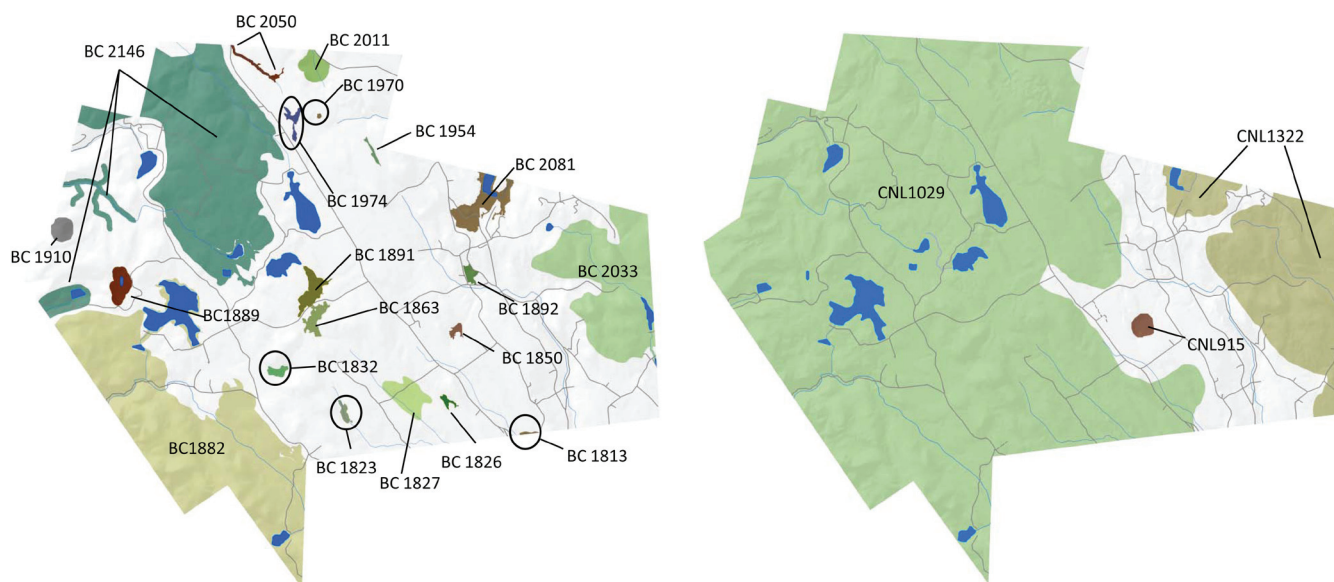


Figure 2. Washington includes a total of 20 BioMap2 Cores (BCs; left) and three areas of Critical Natural Landscape (CNL; right). Overlap between these two layers is shown in Figure 3.

Spring Salamander (*Gyrinophilus porphyriticus*), SWAP: This salamander inhabits clean, cold, high-gradient brooks and headwater seeps in forest habitat. Larvae are entirely aquatic and largely nocturnal, spending daylight hours buried below the streambed or hidden under stones. Adults are semi-aquatic and spend most of their time under cover objects along the margins of brooks, springs, and seeps, but venture into upland forest during rainy weather.

Birds

American Bittern (*Botaurus lentiginosus*), Endangered: This species is a mottled brown heron-like bird that feeds and nests primarily in large cattail, tussock, or shrub marshes, and is very sensitive to disturbance. Its coloring and unique behavior of pointing its bill skyward when threatened, sometimes swaying to mimic movement of grasses in the wind, make it well-camouflaged in marsh habitat.

Least Bittern (*Ixobrychus exilis*), Endangered: This is a small wading marshbird and member of the heron family with a long neck and bill, and black crown. It typically nests in marshes with dense and tall vegetation, such as cattails, and in areas that are interspersed with open water. This species is very sensitive to disturbance, particularly by invasive marsh plants like Purple Loosestrife and Phragmites.

Common Moorhen (*Gallinula chloropus*), Special Concern: These are duck-like marshbirds that inhabit shallow freshwater marshes and typically nest in dense cattail beds adjacent to open water.

BC1889 and CNL1029

BC1889 is a 74-acre core located along Lower Tower Road in October Mountain State Forest. It includes and surrounds Halfway Pond, and is associated with two Priority Natural Communities and a state-listed damselfly species. It is surrounded by an Upland Buffer and part of a large Landscape Block of CNL1029.

Insect

Tule Bluet (*Enallagma carunculatum*), Special Concern: This is a damselfly species whose nymphs are aquatic and live underwater in vegetation and debris in a variety of wetland types, as well as in slow-moving rivers and large lakes. Adults are terrestrial and inhabit emergent vegetation along shorelines and in nearby uplands.

Priority Natural Communities

Acidic Graminoid Fen (Vulnerable): This Priority Natural Community is a sedge and sphagnum moss-dominated acidic peatland that experiences a very small amount of freshwater inflow of groundwater or surface water. Standing water is often present throughout much of the growing season. This six-acre occurrence of Acidic Graminoid Fen is part of an acidic peatland complex, and lies near a Level Bog community. These wetlands are relatively isolated from disturbances by a buffer of natural vegetation.

Level Bog (Vulnerable): This Priority Natural Community is a peatland dominated by dwarf shrubs. It generally has pronounced, Sphagnum moss covered hummocks and hollows, and is very acidic and nutrient-poor be-

cause underlying peat isolates it from nutrients in groundwater and streams. This 10-acre occurrence of Level Bog is part of a larger complex of acidic wetlands that has a diversity of habitat types and is well buffered by surrounding natural vegetation.

BC1891 and CNL1029

BC1891 includes about 70 acres just north of West Branch Road and southeast of Sandwash Reservoir. It is part of both October Mountain State Forest and Pittsfield Watershed land. It includes an Aquatic Core and a Wetland Core, and is surrounded by an Upland Buffer and Landscape Block of CNL1029. It also includes one state-listed marshbird species:

American Bittern (*Botaurus lentiginosus*), Endangered: This mottled brown heron-like bird feeds and nests primarily in large cattail, tussock, or shrub marshes, and is very sensitive to disturbance. Its coloring and unique behavior of pointing its bill skyward when threatened, sometimes swaying to mimic movement of grasses in the wind, make it well-camouflaged in marsh habitat.

BC1892 (no CNL)

This 21-acre core is located in the village of Washington on the north side of Frost Road between Route 8 and Stonehouse Road. It supports one non-listed snake species still considered to be of conservation concern under SWAP:

Smooth Green Snake (*Opheodrys vernalis*), SWAP: This readily identifiable snake species is a uniform green color on its back and its belly is white or light yellow. It is small and is typically found in edges of marshes, wet meadows, fields, and forest edges or open forests.

BC1910 and CNL1029

BC1910 is a 56-acre core that lies along Washington's boundary with Lenox, less than a mile south of Roaring Brook. Its boundaries are defined by a Vernal Pool Core that provides important breeding habitat for amphibians, and is within the large Landscape Block of CNL1029.

BC1970 and CNL1029

BC1970 is a 2.2-acre core that is part of a large Landscape Block of CNL1029. It is part of Pittsfield Water Company land, and supports one Priority Natural Community.

Spruce – Fir Swamp (Imperiled): This Priority Natural Community is a forested wetland dominated by the trees Red Spruce and Balsam Fir. It is typically found at stream headwaters or in poorly drained basins in the

higher, western and north-central parts of the state. This occurrence lies amidst the headwaters of four different streams in north-central Washington, including Cady and Sackett Brooks.

BC2011 and CNL1029

BC2011 lies along Washington's boundary with Hinsdale, directly along Sackett Brook just upstream of the Upper Sackett Reservoir. Of its 85 total acres, 84 are within the town of Washington. BC2011 is also part of CNL1029's large Landscape Block, is on land owned by the Pittsfield Water Company, and supports one non-listed salamander species:

Four-toed Salamander (*Hemidactylium scutatum*), SWAP: This salamander species is the smallest in Massachusetts, and tends to live in forested areas near marshes, swamps, vernal pools, or other predator-free aquatic areas where adults reproduce and where young salamanders spend the first months of their lives. Juveniles and adults are primarily terrestrial, preferring mature hardwood or coniferous forest habitat.

BC2033 and CNL1322

BC2033 makes up an area of over 6,500 acres in parts of Peru, Middlefield, Becket, Chester, and the eastern part of Washington. It falls within the headwaters of the West Branch Westfield River and includes many acres of Forest Core in the highest headwaters, as well as Aquatic Core along riparian areas of the West Branch. In Washington, the boundaries of this BC match those of the Forest Core it contains (which is just over 1,300 acres in size). It also includes two Wetland Cores and one area of Aquatic Core along Coles Brook. BC2033 is surrounded by Upland Buffers of the Wetland and Aquatic Cores and lies within a Landscape Block of CNL1322.

BC2050 and CNL1029

BC2050 includes an Aquatic Core along Hathaway Brook in south Dalton and north Washington that is surrounded by an Upland Buffer and is part of a Landscape Block of CNL1029. A total of 25 acres are within Washington.

BC2081 and CNL1322

BC2081 is nearly 1,600 acres and consists of extensive areas of riparian area and relatively undisturbed wetlands along upper tributaries of the East Branch Housatonic River. Much of this core falls within Hinsdale, in the Hinsdale Flats Wildlife Management Area – however, approximately 200 acres are in northeast Washington, near Muddy Pond. This portion in Washington includes Aquatic Core, Wetland Cores, and several uncommon

and state-listed species. CNL1332 includes Landscape Block as well as Upland Buffer around the Aquatic and Wetland Cores; CNL1332 does not coincide with most of the part of BC2081 west of the rail line.

Reptiles

Smooth Green Snake (*Opheodrys vernalis*), SWAP: This readily identifiable snake species is a uniform green color on its back, and its belly is white or light yellow. It is small and is typically found in edges of marshes, wet meadows, and fields, as well as open areas of forests.

Fish

Bridle Shiner (*Notropis bifrenatus*), Special Concern: This small, straw-colored minnow has a distinct dark lateral band that runs from the tip of the snout to the base of the tail. It is typically found in clear water in slack areas of streams and rivers, as well as in lakes and ponds, and is sensitive to turbidity, invasive plant species, and severe changes in flow regime. This fish is generally associated with submerged aquatic vegetation, but also schools in areas of open water.

Birds

American Bittern (*Botaurus lentiginosus*), Endangered: This species is a mottled brown heron-like bird that feeds and nests primarily in large cattail, tussock, or shrub marshes, and is very sensitive to disturbance. Its coloring and unique behavior of pointing its bill skyward when threatened, sometimes swaying to mimic movement of grasses in the wind, make it well-camouflaged in marsh habitat.

Least Bittern (*Ixobrychus exilis*), Endangered: This is a small wading marshbird and member of the heron family with a long neck and bill, and black crown. It typically nests in marshes with dense and tall vegetation, such as cattails, and in areas that are interspersed with open water. This species is very sensitive to disturbance, particularly by invasive marsh plants like Purple Loosestrife and Phragmites.

BC2146 and CNL1029

BC2146 is a very large core of more than 7,000 acres that includes areas along the Housatonic River and its tributaries in Pittsfield, Washington, Lenox, and Lee. In Washington, over 2,600 acres of Forest Core define its major boundaries, but it also includes 189 acres of a Wetland Core along the upper reaches of Roaring Brook, and around Clapp and Mud Ponds. It is part of a Landscape Block of CNL1029. In Washington, BC2146 includes two state-listed insect species, one non-listed salamander Species of Conservation Concern under SWAP, and one Priority Natural Community:

Insects

Mustard White (*Pieris oleracea*), Threatened: This butterfly inhabits wet forest openings as well as wet meadows, fields, and pastures. In Massachusetts, it only occurs in central Berkshire County, and this is the southern extent of its natural range, which reaches north to Labrador and west across Canada. Its larvae feed on plants of the mustard family.

Tule Bluet (*Enallagma carunculatum*), Special Concern: This is a damselfly species whose nymphs are aquatic and live underwater in vegetation and debris in a variety of wetland types, as well as slow-moving rivers and large lakes. The adults inhabit emergent vegetation along shorelines and in nearby uplands.

Amphibians

Spring Salamander (*Gyrinophilus porphyriticus*), SWAP: This salamander inhabits clean, cold, high-gradient brooks and headwater seeps in forest habitat. Larvae are entirely aquatic and largely nocturnal, spending daylight hours buried below the streambed or hidden under stones. Adults are semi-aquatic and spend most of their time under cover objects along the margins of brooks, springs, and seeps, but venture into upland forest during rainy weather.

Priority Natural Communities

Level Bog (Vulnerable): This Priority Natural Community is a dwarf-shrub dominated peatland, generally with pronounced, Sphagnum moss covered hummocks and hollows. They are acidic and lack nutrients because they are generally isolated from groundwater and streams by layers of peat. This eight-acre occurrence of Level Bog is in fair condition, and well buffered by extensive natural vegetation in surrounding areas.

Priority Conservation Areas in Washington

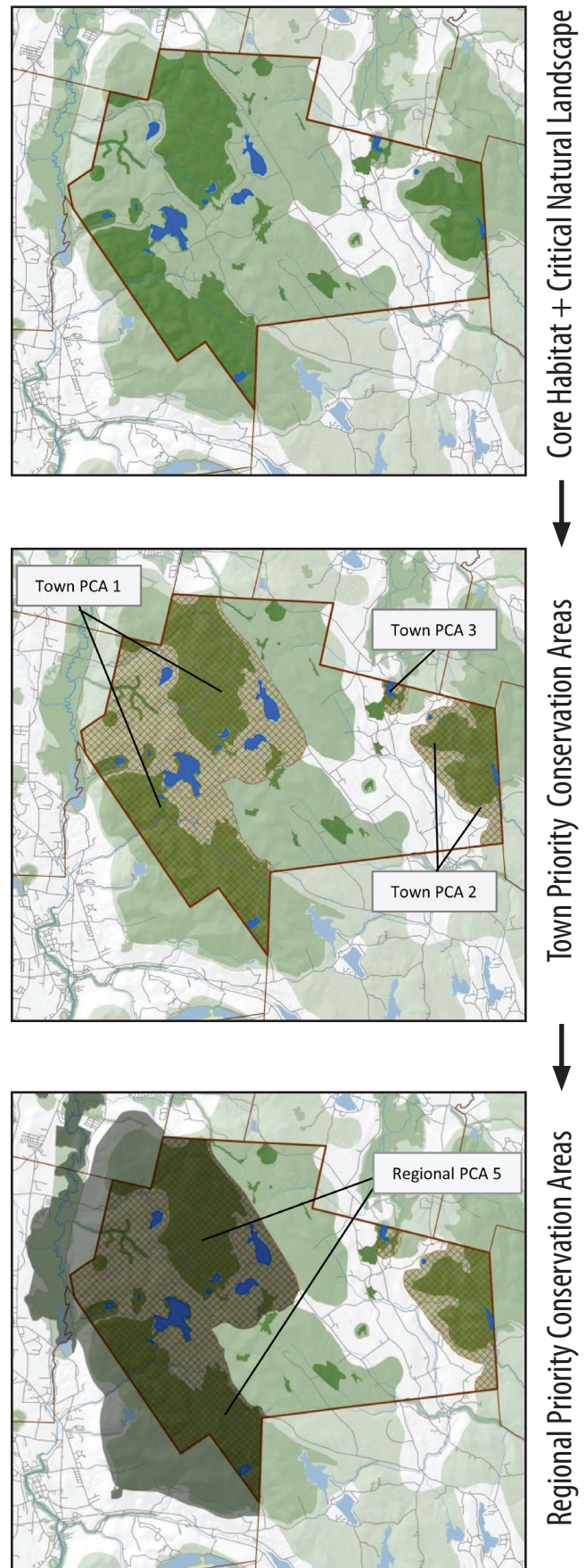
The town of Washington contains three areas identified as Priority Conservation Areas by NHESP. One of these three Town PCAs is part of a larger Regional PCA.

Town PCA 1/Regional PCA 5: Town PCA 1 is part of the larger Regional PCA 5 that incorporates much of western Washington, southeast Pittsfield, northeast Lenox, and northeast Lee. Within Regional PCA 5 are many mountains and headwater streams that lie east of the Housatonic River in these towns, including Roaring and Mill Brooks in Washington and Lenox, and Mountain and Commons Brooks, which flow from October Mountain in Washington and Lee. Within Washington, Regional PCA5 and Town PCA 1 overlap. This Town PCA is the largest in Washington, and includes 11,660 acres across October Mountain in the western part of town. This area is made up almost entirely of state forest land and land protected as part of the Pittsfield water supply. It contains headwater streams that flow west to the Housatonic River and provide habitat for state-listed amphibians like the Spring Salamander. It also contains both Wetland and Vernal Pool Cores.

Town PCA 2: This is Washington's second largest Town PCA, at 2,176 acres. It is located east of Lower Valley Road and includes area surrounding Coles Brook. It is made up of a Forest Core in BC2033, as well as two Wetland Cores and an Aquatic Core.

Town PCA 3: Town PCA 3 is the smallest of the three, and includes and surrounds Muddy Pond in northeast Washington. It includes BC2081 and nearly 50 acres of surrounding wetlands. This PCA supports a state-listed minnow, the Bridle Shiner (*Notropis bifrenatus*), as well as state-listed marshbirds and the Smooth Green Snake (*Opheodrys vernalis*).

Figure 3. Core habitat (dark green), Critical Natural Landscape (light green), Town Priority Conservation Areas (PCAs; reddish-brown grid), and Regional Priority Conservation Areas (transparent grey) in Washington. Town PCAs make up 14,021 acres, or 56.5 percent of the town's land area. Part of Regional PCA 5 makes up 11,665 acres, or 47.0 percent of the town's land area.



Glossary

Aquatic Cores (in BioMap2, a component of Core Habitat) include intact river corridors within which important physical and ecological processes of the river or stream occur, delineated using integrated and functional ecosystems for fish species and other aquatic Species of Conservation Concern. To identify those areas integrally connected to each river and stream, each river segment was buffered 30 meters. All wetlands wholly or partially contained within this buffer were then included, and the combination of the river channel, the adjacent buffer, and the connected wetlands make up this riverine Core Habitat.

BioMap2 Cores (BCs) (called Core Habitats in BioMap2) identify 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.

Certified Vernal Pools are temporary ponds or other fishless wetlands that meet certain biological and physical criteria to be classified as essential breeding habitat for a number of amphibian and invertebrate species, such as Wood Frog, Spotted Salamander, Blue-spotted Salamander, Jefferson Salamander, Marbled Salamander, and Intricate Fairy Shrimp. The certification of vernal pool habitat in The Commonwealth is administered by the Natural Heritage & Endangered Species Program. A number of regulations incorporate protections for certified vernal pools (please see http://www.mass.gov/dfwele/dfw/nhsp/vernal_pools/pdf/vpcert.pdf for more information).

Critical Natural Landscape (CNL) (part of BioMap2) identifies large natural landscape areas 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.

Cobbles are small hills or rocky knolls made of marble and quartzite. The alkaline soils derived from the calcareous rocks support a distinct and diverse flora. Examples include Bartholomew's Cobble in southern Sheffield and Tyringham Cobble in Tyringham.

Critically Imperiled natural communities typically have five or fewer documented sites or have very few remain-

ing acres in the state. Natural Community types ranked as Critically Imperiled are in the Priority Natural Communities category.

Disturbance, in an ecological sense, is an event that disrupts the normal structure and function of an ecosystem. Disturbances often produce bare soil and openings in forests where rapidly growing, sun-loving species, including invasive exotic species, can grow. Human activities have accelerated the number and types of disturbances in many ecosystems.

Ecoregions are areas of relatively homogeneous ecological systems, including vegetation, soils, climate, geology, and patterns of human uses.

Endangered species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts. Endangered is a category of state-listed species defined in the Massachusetts Endangered Species Act (M.G.L. c.131A) and listed in its regulations (321 CMR 10.00).

Exemplary Natural Communities are the best examples documented of relatively common (Secure) types of natural communities.

Forest Cores (in BioMap2, a component of Core Habitat) identify the best examples of large, intact forests that are least impacted by roads and development, providing critical "forest interior" habitat for numerous woodland species.

Fragmented Landscape, in ecological and conservation terms, refers to the idea that a large spatial area (the landscape) that in the past might have had connected habitats (for example, unbroken forest, continuous river, or undisturbed grasslands) have become interspersed with artifacts of human development that alter habitat and ecological processes – or that the human influence has come to dominate the land leaving patches, or fragments, of natural habitat surrounded by development.

Imperiled communities typically have 6-20 sites or few remaining acres in the state. Natural Community types ranked as Imperiled are included in the Priority Natural Communities category.

Landscape Blocks (component of BioMap2 Critical Natural Landscape), the primary component of Critical Natural Landscape, are large areas of intact and predominately natural vegetation, consisting of contiguous forests, wetland, rivers, lakes, and ponds, as well as coastal habitats such as

barrier beaches and salt marshes. Pastures and power-line right-of-way, which are less intensively altered than most developed areas, were also included since they provide habitat and connectivity for many species.

Landscape Context refers to taking the broadest view of the ability of ecosystems or species populations to maintain themselves where they are by considering the siting within the larger area. For example, a wooded area within a city park has a very different, urban context than a wooded area on a farm.

MESA (Massachusetts Endangered Species Act) (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00) provide regulatory protection of rare species and their habitats. MESA protects rare species and their habitats by prohibiting the “Take” of any plant or animal species listed as Endangered, Threatened, or Special Concern by the MA Division of Fisheries & Wildlife.

Natural Communities are assemblages of species that occur together in space and time. These groups of plants and animals are found in recurring patterns that are classified and described by their dominant biological and physical features.

Nymphs, sometimes informally referred to as larvae, are the young, immature form of dragonflies and some other invertebrates. Dragonfly nymphs are aquatic. On maturing, they change into the flying terrestrial adults that are seen along rivers and lakes, and nearby uplands.

Priority Natural Communities include types of natural communities with limited distribution, or relatively few occurrences, and/or low acreages in Massachusetts.

Protected in Perpetuity refers to land owned as conservation land by a public entity in Massachusetts whose lands come under the authority of Massachusetts Constitution Article 97, or federal land owned by a federal conservation agency, or by a non-profit dedicated to land conservation; or for which the conservation values have been protected by legal restrictions on the deed or by a conservation easement (conservation restriction).

Secure types of natural communities typically have over 100 sites or abundant acreage across the state; excellent examples are identified as Core Habitat to ensure continued protection and are referred to as Exemplary Natural Communities.

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. Special Concern is a category of state-listed species defined in the

Massachusetts Endangered Species Act (M.G.L. c.131A) and listed in its regulations (321 CMR 10.00).

Species of Conservation Concern (in BioMap2, a component of Core Habitat) include those species that meet the criteria for listing under the Massachusetts Endangered Species Act, as well as a number of species that do not meet these criteria for listing, but are considered to be of conservation concern within Massachusetts, such as inclusion in the State Wildlife Action Plan (SWAP).

State-listed Species are species listed under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its regulations (321 CMR 10.00). – that is, Endangered, Threatened, or Special Concern species.

SWAP (State Wildlife Action Plan), approved in 2006, the Massachusetts Division of Fisheries and Wildlife’s State Wildlife Conservation Strategy, most often referred to as the State Wildlife Action Plan (SWAP), is a comprehensive document to help guide wildlife conservation decision making for Massachusetts’ wildlife for many years.

SWAP Species were identified as being those in greatest need of conservation in the Massachusetts Division of Fisheries and Wildlife’s State Wildlife Conservation Strategy, most often referred to as the State Wildlife Action Plan (SWAP).

Threatened species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range. Threatened is a category of state-listed species defined in the Massachusetts Endangered Species Act (M.G.L. c.131A) and listed in its regulations (321 CMR 10.00).

Upland Buffers of Aquatic Cores (component of BioMap2’s Critical Natural Landscape) identify protective upland areas adjacent to all Aquatic Cores. A variable width buffer, that extends deeper into surrounding unfragmented habitats than into developed areas, was used to include the most intact areas around Aquatic Cores. The conservation of wetland buffers will support habitats and functionality of each aquatic area, and also include adjacent uplands that are important for many species that move between habitat types.

Upland Buffer of Wetland Cores (component of BioMap2’s Critical Natural Landscape) identify protective upland areas adjacent to all Wetland Cores. A variable-width buffer, that extends deeper into surrounding unfragmented habitats than into developed areas, was used to include the most intact areas around the Wetland Cores. The conservation of wetland buffers will support habitats and functionality of each wetland, and also include adjacent uplands that are important for many species that move between habitat types.

Variant of a natural community refers to a named subtype of a more broadly defined type of community. In Massachusetts the term is not a formal designation, but rather is intended as an aid for understanding community relationships.

Vernal Pools, also known as ephemeral pools, autumnal pools, and temporary woodland ponds, typically fill with water in the autumn or winter due to rainfall and rising groundwater and remain ponded through the spring and into summer. They usually dry completely by the middle or end of summer each year. Vernal pools are unique wildlife habitats best known for the amphibians and invertebrate animals that use them to breed.

Vernal Pool Cores (BioMap2, component of Core Habitat) identify, based on a GIS model, the highest quality most interconnected clusters of Potential Vernal Pools (a dataset of likely vernal pools identified from interpretation of aerial photographs) and the habitat between them.

Vulnerable communities typically have 21-100 sites or limited acreage across the state. Natural Community types ranked as Vulnerable are in the Priority Natural Communities category.

Wetland Cores (BioMap2, component of Core Habitat) identify, based on a GIS model, the least disturbed wetlands within undeveloped landscapes—those with intact buffers and little fragmentation or other stressors associated 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.

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