



BioMap2

Guiding Land Conservation for Biodiversity in Massachusetts

Pittsfield

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

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Pittsfield

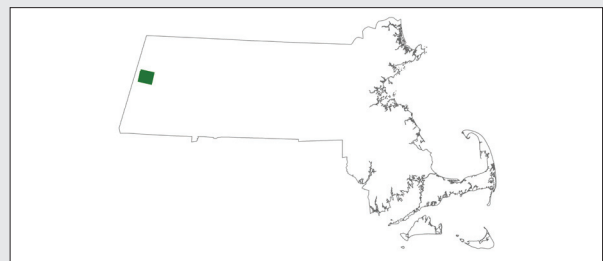
Pittsfield is located in central Berkshire County and lies in the heart of the marble valleys along the upper Housatonic River. On the west side of town, two tributaries of the Housatonic, Southwest Branch and Onota Brook, flow eastward from the Taconic Mountains in Hancock. To the east are the Berkshire Highlands, where the East Branch Housatonic River flows west from Dalton to enter Pittsfield along Dalton Avenue, northeast of the city center. The East and West Branches join just south of the city center to form the mainstem of the Housatonic River.

Pittsfield is by far the largest population center in Massachusetts' Berkshire Highlands; it is home to more than 40,000 people. The town also supports some of the most valuable biodiversity resources in the entire Housatonic River watershed. It includes extensive wetland areas along its rivers, streams, ponds, and reservoirs, and important habitat in its floodplain marshes and forests. These areas contain a great many species, including trees, sedges, herbaceous plants, dragonflies, moths, fish, amphibians, and marshbirds, among others. Some higher elevation areas closer to the perimeters of the town also contain tracts of relatively undisturbed forestlands – these highlands contain many headwater streams and vernal pools that provide habitat for uncommon amphibian species. Reservoirs in these areas, also supply drinking water for the city.

Pittsfield has historically been an important industrial and cultural center, and its human development has had lasting effects on the Housatonic River. Industrial operations have long been tied to the river's mainstem, which flows through the town's center. Electric power generation and other industrial operations have been instrumental in Pittsfield's economic and population growth during the past 100 years. Both current and historic impacts of industrial and other associated development continue to affect stream ecosystems within the city's boundaries, as well as in areas downstream. Effects include loss of natural in-stream and floodplain habitats for river-associated plants and animals, as well as contamination from pollution. Agricultural development has also played a significant role in the town's history, although today farmlands are generally

limited to the city's perimeters, near the bases of its more mountainous surrounding areas.

While the landscape of Pittsfield is largely urban and certain impacts of human development have been detrimental to the area's aquatic and terrestrial ecosystems, the town also contains extraordinarily important biological



Pittsfield at a Glance

- Total area: 27,178 acres (42.5 square miles)
- Human Population in 2009: 42,424 people
- Open space protected in perpetuity: 4,975 acres, or 18.3 percent of total area*

BioMap2 Components

Core Habitat

- 19 Aquatic Cores: 2,626 acres
- 3 Forest Cores: 1,653 acres
- 1 Vernal Pool Core: 59 acres
- 12 Wetland Cores: 271 acres
- 10 areas of 5 Exemplary and Priority Natural Community types: 114 acres

Species of Conservation Concern**

- 1 freshwater mussel, 10 insects, 1 fish, 4 amphibians, 1 turtle, 7 birds, 20 plants

Critical Natural Landscape

- 18 Upland Buffers of Aquatic Cores: 3,766 acres
- 14 Upland Buffers of Wetland Cores: 779 acres
- 3 Landscape Blocks: 3,808 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 Pittsfield

Invertebrates (non-insect)

Freshwater Molluscs

Triangle Floater (*Alasmidonta undulata*), Special Concern

Insects

Dragonflies

Arrow Clubtail (*Stylurus spiniceps*), Threatened

Brook Snaketail (*Ophiogomphus aspersus*), Special Concern

Ocellated Darner (*Boyeria graefiana*), Special Concern

Rapids Clubtail (*Gomphus quadricolor*), Threatened

Riffle Snaketail (*Ophiogomphus carolus*), Threatened

Spine-crowned Clubtail (*Gomphus abbreviatus*), Endangered

Zebra Clubtail (*Stylurus scudderii*), Special Concern

Butterflies

Mustard White (*Pieris oleracea*), Threatened

Moths

Ostrich Fern Borer (*Papaipema* sp. 2 nr. *pterisii*), Special Concern

Fish

Bridle Shiner (*Notropis bifrenatus*), Special Concern

Amphibians

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

Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern

Northern Leopard Frog (*Rana pipiens*), SWAP

Spring Salamander (*Gyrinophilus porphyriticus*), SWAP

Reptiles

Wood Turtle (*Glyptemys insculpta*), Special Concern

Birds

American Bittern (*Botaurus lentiginosus*), Endangered

Bald Eagle (*Haliaeetus leucocephalus*), Endangered

Common Moorhen (*Gallinula chloropus*), Special Concern

Grasshopper Sparrow (*Ammodramus savannarum*), Threatened

King Rail (*Rallus elegans*), Threatened

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

Sora (*Porzana carolina*), SWAP

Plants

Barren Strawberry (*Waldsteinia fragarioides*), Special Concern

Bristly Black Currant (*Ribes lacustre*), Special Concern

Bristly Buttercup (*Ranunculus pensylvanicus*), Special Concern

Chestnut-colored Sedge (*Carex castanea*), Endangered

Comb Water-milfoil (*Myriophyllum verticillatum*), Endangered

Crooked-stem Aster (*Symphyotrichum prenanthoides*), Threatened

Dwarf Scouring-rush (*Equisetum scirpoides*), Special Concern

Fen Cuckoo Flower (*Cardamine pratensis* var. *palustris*), Threatened

Few-flowered Spike-sedge (*Eleocharis quinqueflora*), Endangered

Fries' Pondweed (*Potamogeton friesii*), Endangered

Hairy Honeysuckle (*Lonicera hirsuta*), Endangered

Hairy Wild Rye (*Elymus villosus*), Endangered

Hill's Pondweed (*Potamogeton hillii*), Special Concern

Hitchcock's Sedge (*Carex hitchcockiana*), Special Concern

Intermediate Spike-sedge (*Eleocharis intermedia*), Threatened

Ogden's Pondweed (*Potamogeton ogdenii*), Endangered

Straight-leaved Pondweed (*Potamogeton strictifolius*), Endangered

Tuckerman's Sedge (*Carex tuckermanii*), Endangered

Wapato (*Sagittaria cuneata*), Threatened

White Adder's-mouth (*Malaxis monophyllos* var. *brachypoda*), Endangered

Natural Communities

Exemplary Natural Communities

Red Oak – Sugar Maple Transition Forest (Secure)

Priority Natural Communities

Black Ash – Red Maple – Tamarack Calcareous Seepage Swamp (Imperiled)

Calcareous Sloping Fen (Imperiled)

Major-river Floodplain Forest (Imperiled)

Transitional Floodplain Forest (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

resources. Much of Pittsfield is part of the Western New England Marble Valleys ecological region (see Figure 1); this is one of the most distinct and biologically rich ecoregions both in Massachusetts and throughout New England, stretching from northwest Connecticut up through sections of the Hudson River and Lake Champlain watersheds. It includes an impressively high percentage of Massachusetts' state-listed species and Priority Natural Communities. Some of these elements are restricted to the ecoregion, while others are more widespread. Stream corridors and nearby upland areas near the confluence of the East and West Branches of the Housatonic River, including Canoe Park, are host to uncommon floodplain forest communities that are maintained by natural periodic flooding. These areas support state-listed sedge, herbaceous plant, and tree species that require moist, nutri-

ent-rich soils. The river itself is home to a wide variety of dragonflies, whose larvae burrow in its sandy bottom and live for years before transforming into flying adults that inhabit nearby uplands. The freshwater mussel called Triangle Floater burrows in the stream bottom as well, and filters algae and bacteria from the water for food. The Bridle Shiner – a state-listed minnow species – feeds and nests in dense underwater vegetation in both Onota Lake and Richmond Pond, and marshbirds like the American Bittern feed and nest in cattails near these areas of open water. Further up the slopes of the Taconic Mountains, amphibians like the Jefferson Salamander access vernal pools during early spring to breed. Young salamanders grow and develop in these pools for months before maturing and moving back into drier upland wooded areas.

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.

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

Overview

In this section, we outline areas in Pittsfield 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 Pittsfield, although a given area of Core Habitat or Critical Natural Landscape listed here may extend outside of the town boundaries of Pittsfield and contain additional components.

To facilitate land protection and stewardship, NHESP further prioritized areas in each of the towns in the watershed based on habitat size and conditions as well as 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 Pittsfield, four Town PCAs were selected. Figure 3 illustrates how BioMap2 Core Habitat and Critical Natural Landscape relate to the distribution of Town PCAs in Pittsfield.

In addition, a larger scale prioritization was conducted to select Regional PCAs of the highest conservation and stewardship value among all towns within the Housatonic River watershed in Massachusetts. Regional PCAs often cross town boundaries and can be quite large, ranging from 373 acres to more than 25,000 acres. Ecological connectivity within these Regional PCAs is important, and these large units often include select Town PCAs that are of particular biodiversity value 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

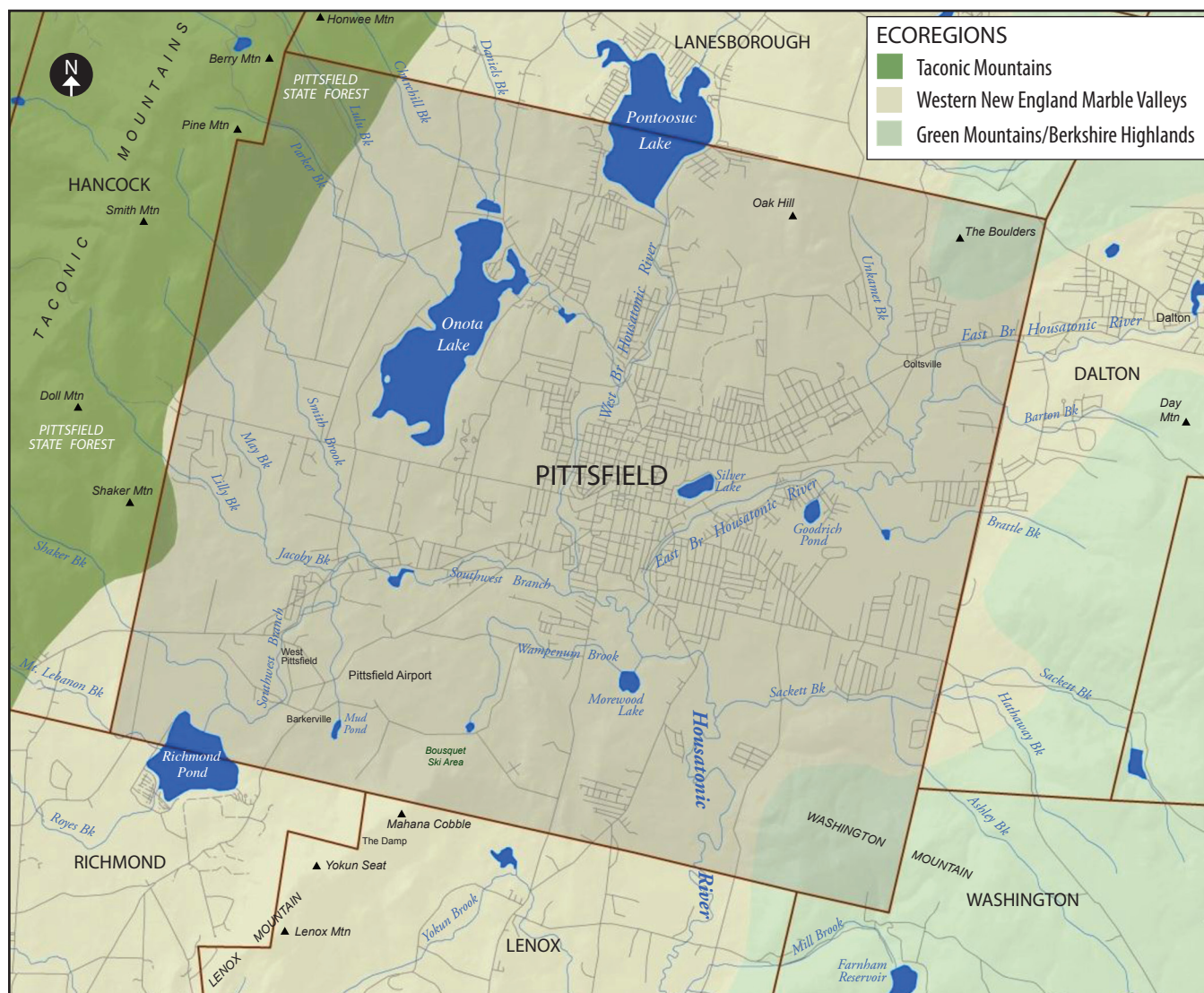


Figure 1. Pittsfield is part of the Taconic Mountains, Berkshire Highlands, and Western New England Marble Valleys ecoregions, and sits at the confluence of the East and West Branches of the Housatonic River.

regional context. Parts of three Regional PCAs – 5, 6, and 7 – fall within Pittsfield and encompass four of its six Town PCAs.

Core Habitat and Critical Natural Landscape Components in Pittsfield

Areas of Core Habitat in Pittsfield, 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, or 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.

BC2013 and CNL970; BC2016, BC2055, BC2078, and BC2209 (no CNL)

Each of these BCs provides habitat for various state-listed species. BC2013, BC2016, and BC2078 are located in south-central Pittsfield and are all less than 16 acres in size. BC2013 also supports an Aquatic Core and is surrounded by an Upland Buffer of CNL970. At nearly 80 acres, BC2209 is the largest of the four cores; it is located in the northeast corner of town, where it extends into Dalton. BC2055 in southeast Pittsfield is the largest at 107 acres.

BC2023 and CNL970

This BC covers more than 3,400 acres, including a 242-acre area in southern Pittsfield, much of northwestern

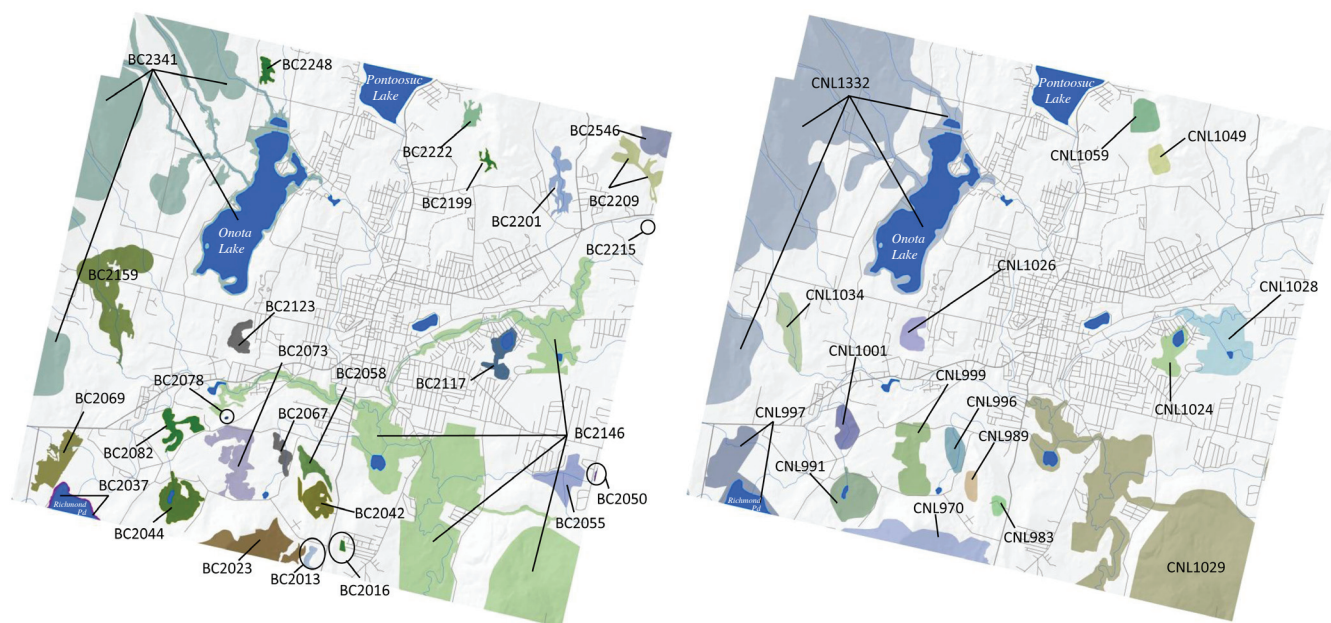


Figure 2. Pittsfield includes a total of 26 BioMap2 Cores (BCs; left) and 16 areas of Critical Natural Landscape (CNL; right).

Lenox, and parts of Richmond. The Pittsfield portion includes a large Forest Core as well as a Wetland Core, both of which are part of a Landscape Block of CNL970. The Wetland Core is also surrounded by an Upland Buffer of this CNL. One state-listed plant species is known here:

Hitchcock's Sedge (*Carex hitchcockiana*), Special Concern: This perennial woodland sedge occurs in Rich, Mesic Forests on or at the base of hillsides.

BC2037 and CNL997

BC2037 consists of 525 acres in Richmond and Pittsfield, and surrounds Richmond Pond, which lies along the joint boundary of these towns. In Pittsfield, it includes 87 acres of Aquatic Core, and is surrounded by an Upland Buffer of CNL997. It supports one state-listed fish species:

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 slack areas of streams and rivers, as well as in lakes and ponds, in places where the water is clear. It is sensitive to turbidity, invasive plant species, and severe changes in flow regime. This fish is generally associated with submerged aquatic vegetation, but it also schools in areas of open water.

BC2042, CNL989, and CNL983

BC2042 lies on the southern and southwestern slopes of

South Mountain. It is forested, but somewhat fragmented by pipeline and powerline right-of-ways, as well as scattered areas of development. It includes an Aquatic Core, several state-listed plant species, and one Priority Natural Community. CNL989 is an Upland Buffer around the wetland natural community and CNL983 is an Upland Buffer around the Aquatic Core.

Plants

Bristly Black Currant (*Ribes lacustre*), Special Concern: This plant is a short shrub that grows near streams, seeps, ledges, and swamps in somewhat rich, cool, and moist woods at fairly high elevations.

Crooked-stem Aster (*Symphyotrichum prenanthoides*), Threatened: This perennial herbaceous plant occurs in open to semi-open conditions along naturally nutrient-rich rivers, streams, and seeps, as well as along open and semi-open roadsides near such habitats.

Hitchcock's Sedge (*Carex hitchcockiana*), Special Concern: This perennial woodland sedge occurs in Rich, Mesic Forests that are on or at the base of hillsides.

Natural Communities

Black Ash – Red Maple – Tamarack Calcareous Seepage Swamp (Imperiled): This Priority Natural Community type is a mixed deciduous-coniferous forested swamp found in areas with calcium-rich groundwater seepage. Its characteristic nutrient enrichment supports many state-listed calcium-loving plant species.

BC2044 and CNL991

BC2044 is comprised of 123 acres that include and surround Mud Pond in southwest Pittsfield, near Tamarack and Knox Roads. Its boundaries are defined by an Aquatic Core, and it is surrounded by an Upland Buffer of CNL991. It supports several state-listed plant species and Priority Natural Communities.

Plants**Capillary Beak-sedge (*Rhynchospora capillacea*), Endangered:**

This short, grass-like plant with thread-like stems and leaves grows near groundwater seeps in open, calcareous wetlands.

Diocious Sedge (*Carex sterilis*), Threatened: This is a slender, grass-like perennial that is restricted to open calcareous wetlands.

Few-flowered Spike-sedge (*Eleocharis quinqueflora*), Endangered: This perennial sedge has clustered stems and grows on wet calcareous open shores or peatlands.

Fries' Pondweed (*Potamogeton friesii*), Endangered: This submersed aquatic herbaceous plant occurs in alkaline waters of ponds and slow-moving streams.

Hill's Pondweed (*Potamogeton hillii*), Special Concern: This species is a submersed aquatic plant that grows best in cold, shallow, slow-moving, and clean alkaline bodies of water in areas with muddy substrates.

White Adder's-mouth (*Malaxis monophyllos* var. *brachypoda*), Endangered: This small, slender orchid grows in wet, shady areas of seepage swamps with sphagnum moss.

Priority Natural Communities

Black Ash – Red Maple – Tamarack Calcareous Seepage Swamp (Imperiled): This Priority Natural Community is a mixed deciduous-coniferous forested swamp found in areas of calcium-rich groundwater seepage. It supports many state-listed, calcium-loving plant species. The occurrence in BC2044 is in good condition despite the presence of some exotic invasive plant species.

Calcareous Sloping Fen (Imperiled): This Priority Natural Community type is an open, sedge-dominated wetland that occurs on slight to moderate slopes with calcareous groundwater seepage. It tends to be a rare species 'hot spot,' supporting state-listed plants like Fen Sedge (*Carex tetanica*) and Sweet Coltsfoot (*Petasites frigidus* var. *palmatus*), as well as a number of uncommon turtles and butterflies.

BC2050 and CNL1029

BC2050 includes an Aquatic Core along Hathaway and Sackett Brooks. It is located primarily within Dalton and Washington, but approximately two acres fall within Pittsfield and support a pair of state-listed butterfly species. As a whole, BC2050 is surrounded by an Upland Buffer of

CNL1029. Its upper reaches, east of Pittsfield's boundary, are also part of a Landscape Block of the same CNL.

Dion Skipper (*Euphyes dion*), Threatened: This butterfly inhabits wetlands that support sedge species, including calcareous fens, riparian marshes, wet meadows, and shrub swamps. Their larvae feed on various sedges (*Carex* species), while adults nectar in nearby upland fields on the flowers of plants such as Common Milkweed (*Asclepias syriaca*).

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

BC2058 (no CNL)

This 46-acre core lies along the northern slopes of South Mountain, and supports an Exemplary Natural Community:

Red Oak – Sugar Maple Transition Forest (Secure): This widespread natural community has tree species typical of northern hardwood forests, particularly maples, as well as those of central hardwood forests, where the dominant species are oaks. It is moderate in terms of soil moisture, pH levels, and nutrient availability. The Red Oak – Sugar Maple Transition Forest in BC2058 comprises more than 40 acres and has particularly high species diversity.

BC2067 and CNL996

BC2067 lies along Wampenum Brook west of South Mountain in south-central Pittsfield, and is surrounded by an Upland Buffer of CNL996. It includes forests and wetlands, abuts fields and roads, and supports two state-listed plant species:

Chestnut-colored Sedge (*Carex castanea*), Endangered: This sedge species occurs in open to shaded, damp, calcareous forests and forest edges. It can tolerate some disturbance in its habitat.

Crooked-stem Aster (*Symphyotrichum prenanthoides*), Threatened: This perennial herbaceous plant occurs in open to semi-open conditions along naturally nutrient-rich rivers, streams, and seeps, as well as along open and semi-open roadsides near such habitats.

BC2069 and CNL997

This BC lies in southwest Pittsfield, around Shaker Brook

and northwest of Shaker Pond. It includes a 119-acre Wetland Core and is surrounded by an Upland Buffer of CNL997.

BC2073 and CNL999

BC2073 lies just east of the airport and includes areas of open water that make up an Aquatic Core. It is surrounded by an Upland Buffer of CNL999 and supports several state-listed plant species:

Barren Strawberry (*Waldsteinia fragarioides*), Special Concern:

This plant is a short herbaceous perennial that grows in rich soils near streams in a variety of forest types.

Chestnut-colored Sedge (*Carex castanea*), Endangered: This sedge species occurs in open to shaded, damp, calcareous forests and forest edges. It can tolerate some disturbance in its habitat.

Crooked-stem Aster (*Symphyotrichum prenanthoides*), Threatened: This perennial herbaceous plant occurs in open to semi-open conditions along naturally nutrient-rich rivers, streams, and seeps, as well as along open and semi-open roadsides near such habitats.

Hill's Pondweed (*Potamogeton hillii*), Special Concern: This species is a submersed aquatic plant that grows best in cold, shallow, slow-moving, and clean alkaline bodies of water in areas of muddy substrates.

BC2082 and CNL1001

This BC is north and west of the Pittsfield airport. It lies along the stream outlet of Mud Pond, and although it is somewhat subject to impacts of development, it contains areas of enriched forested wetlands that host a variety of uncommon plant species. It includes an Aquatic Core, is surrounded by an Upland Buffer of CNL1001, and supports several state-listed plant species:

Barren Strawberry (*Waldsteinia fragarioides*), Special Concern:

This plant is a short herbaceous perennial that occurs on rich soils near streams in a variety of forest types.

Chestnut-colored Sedge (*Carex castanea*), Endangered: This sedge species occurs in open to shaded, damp, calcareous forests and forest edges. It can tolerate some disturbance in its habitat.

Crooked-stem Aster (*Symphyotrichum prenanthoides*), Threatened: This perennial herbaceous plant occurs in open to semi-open conditions along naturally nutrient-rich rivers, streams, and seeps, as well as along open and semi-open roadsides near such habitats.

BC2117 and CNL1024

BC2117 is part of Brattle Brook Park and includes Goodrich Pond. Its boundaries are defined by a 79-acre

Aquatic Core that is surrounded by an Upland Buffer of CNL1024. Despite its close proximity to urban areas, the pond and surrounding wetlands provide important habitat for a state-listed marshbird:

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.

BC2123 and CNL1026

BC2123 lies west of the city center, just west of Jason Street and north of the railroad track, and includes the headwaters of Maloy Brook in the Tierney Conservation Area. It also includes an Aquatic Core, is surrounded by an Upland Buffer of CNL1026, and supports an impressive number of secretive waterbird 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.

Common Moorhen (*Gallinula chloropus*), Special Concern: This duck-like marshbird inhabits shallow freshwater marshes and typically nests in dense cattail beds adjacent to open water.

King Rail (*Rallus elegans*), Threatened: This is the largest rail species in Massachusetts. Its build is fowl-like, similar to that of a chicken. It is a secretive marshbird, inhabiting large cattails beds and tussock marshes, and occasionally shrub marshes. While populations of this bird are stable in the southern United States, they are less common in New England, which is near the northern extent of its range.

Pied-billed Grebe (*Podilymbus podiceps*), Endangered: The Pied-billed Grebe lives in wetlands that have abundant cattails, reeds, and other vegetation that provide nesting materials and cover. It usually inhabits areas surrounded by open water, and is sensitive to disturbance and changes in water levels.

BC2146, CNL1028 and CNL1029

BC2146 totals more than 7,000 acres and includes areas along the Housatonic River and its tributaries in Pittsfield, Washington, Lenox, and Lee. In Pittsfield, it includes the mainstem of the Housatonic River, the East and South-

west Branches and their adjoining wetlands, reaches of Sykes Brook, and Sykes Mountain. Parts include Aquatic Cores and Upland Buffers in CNL1028 and CNL1029. It includes a Forest Core and parts are surrounded by Upland Buffers, and extends into a Landscape Block of CNL1029, and also contains several Aquatic Cores and Wetland Cores that amount to nearly 16 acres. BC2146 also supports a variety of state-listed plants and animals, as well as Exemplary and Priority Natural Communities.

Plants

Barren Strawberry (*Waldsteinia fragarioides*), Special Concern:

This short herbaceous perennial occurs on rich soils near streams in a variety of forest types.

Bristly Buttercup (*Ranunculus pensylvanicus*), Special Concern:

This herbaceous wetland plant grows in sunny to partially shaded floodplain forest edges and openings.

Culver's-root (*Veronicastrum virginicum*), Threatened: This tall, showy herbaceous plant occurs in mesic to wet, generally open habitats in calcareous regions. It can reach several meters in height and produces a candelabra-like array of pink and white flowers during mid-summer.

Fen Cuckoo Flower (*Cardamine pratensis* var. *palustris*), Threatened: This species is a perennial herbaceous plant of calcium-rich seepage swamps.

Hairy Wild Rye (*Elymus villosus*), Endangered: In Massachusetts, this grass inhabits high-terrace floodplain forests with moist alluvial soils as well as rich, rocky, and open woods and thickets.

Intermediate Spike-sedge (*Eleocharis intermedia*), Threatened: This plant is a densely tufted grass-like annual that is found on muddy, alkaline riverbanks and pond shores, usually visible during periods of low water when mud is exposed.

Straight-leaved Pondweed (*Potamogeton strictifolius*), Endangered: This aquatic annual with submersed leaves grows in shallow alkaline ponds.

Tuckerman's Sedge (*Carex tuckermanii*), Endangered: This is a perennial grass-like plant that grows in nutrient-rich soils of oxbows and other floodplain depressions.

Wapato (*Sagittaria cuneata*), Threatened: In Massachusetts, Wapato is found primarily in riverine floodplain habitats such as alkaline backwaters, oxbow ponds, and small, shallow depressions with muddy substrates. Wapato particularly favors stagnant or very slow-moving water.

White Adder's-mouth (*Malaxis monophyllos* var. *brachypoda*), Endangered: This small, slender orchid grows in shady wet areas of seepage swamps that support peat moss.

Butterflies

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. 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.

Moths

Ostrich Fern Borer (*Papaipema* sp. 2 nr. *pterisii*), Special Concern:

This moth species has bright orange-yellow forewings overlaid with darker brownish-orange, and uniform pinkish-tan hindwings. In Massachusetts, it is found only in the western part of the state, and inhabits floodplain forests that have abundant Ostrich Fern (*Matteucia struthiopteris*), which its larvae must feed on to survive.

Dragonflies

Arrow Clubtail (*Stylurus spiniceps*), Threatened: This dragonfly is part of the diverse Gomphidae family. Nymphs, or larvae, are aquatic and live on bottoms of swift-flowing, sandy rivers and some lakes, while adults are terrestrial and inhabit riparian and upland areas.

Brook Snaketail (*Ophiogomphus asperses*), Special Concern: Aquatic larvae of this dragonfly species can be found in clear, sand-bottomed streams that contain intermittent rapids and often flow through dense woodlands. Adults dwell in nearby uplands.

Ocellated Darner (*Boyeria grafiana*), Special Concern: Larvae of this dragonfly species typically inhabit clear, shallow, rocky, swift-flowing streams, as well as large, rocky lakes with little vegetation. Adults inhabit nearby uplands, often preferring forests with mixed coniferous and deciduous trees.

Rapids Clubtail (*Gomphus quadricolor*), Threatened: This dragonfly inhabits clear, cold streams and rivers with intermittent sections of rocky rapids.

Riffle Snaketail (*Ophiogomphus carolus*), Threatened: This is a dragonfly species that inhabits clear, cold, and rocky streams that are fast-flowing with relatively few pools.

Spine-crowned Clubtail (*Gomphus abbreviatus*), Endangered: This dragonfly inhabits medium to large rivers with silty and sandy bottoms. Larvae are aquatic and burrow in streambottom sediments. Adults are terrestrial.

Zebra Clubtail (*Stylurus scudderi*), Special Concern: This dragonfly species inhabits lakes or mid-sized forested streams that are sandy-bottomed and have slow to moderate stream flows with intermittent rapids. Its larvae are aquatic and live on stream bottoms, while adults are terrestrial and inhabit nearby uplands.

Freshwater Molluscs

Triangle Floater (*Alasmidonta undulata*), Special Concern:

This freshwater mussel is a small species (no more than three inches long) and typically occupies low- to mid-gradient streams with sand and gravel substrates. Like most freshwater mussels, the Triangle Floater burrows

in stream bottoms, filters algae and bacteria from the water, and uses a fish host to transform from young larvae into juvenile stages.

Amphibians

Northern Leopard Frog (*Rana pipiens*), SWAP: Adults of this species occur in marshes, wet meadows, and peatlands along the narrow transition zone between open water and uplands; they retreat to the water of ponds and small streams when threatened. Their tadpoles are herbivorous and require open water for their development.

Reptiles

Wood Turtle (*Glyptemys insculpta*), Special Concern: Ideal habitat for this species includes streams and rivers such as the Housatonic River and its tributaries that have long stretches of undeveloped, connected uplands extending on both sides of the stream corridor. The Housatonic River in BC2146 supports a small population.

Birds

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.

Common Moorhen (*Gallinula chloropus*), Special Concern: This duck-like marshbird inhabits shallow freshwater marshes and typically nests in dense cattail beds adjacent to open water.

Sora (*Porzana carolina*), SWAP: This species is a secretive marshbird that typically nests in dense cattail marshes adjacent to areas of open water.

Priority Natural Communities

Major-river Floodplain Forest (Imperiled): In Massachusetts, this natural community is known to occur along mainstem sections of large rivers, including the Connecticut and Housatonic. Flooding is frequent and soils are typically sandy and contain no organic material. Silver Maple (*Acer saccharinum*) is the dominant overstory tree species, and several species of elm (*Ulmus* species) also grow here. Shrubs are often lacking, but herbaceous plants and ferns are typical.

Transitional Floodplain Forests (Imperiled): These are riverside forests dominated by Silver Maple, Green Ash, and American Elm that experience annual floods. Of the three floodplain forest community types, this type is intermediate in terms of nutrient richness and species diversity. This nine-acre, highly variable Transitional Floodplain Forest is buffered by some forested land, supports an unusual species mix, and includes areas of young forests. Natural flooding regimes are present here and help to maintain the community.

BC2159, CNL1034 and CNL1332

This BC lies along May Brook and its riparian wetlands in west Pittsfield. The northern part of it, along West Street, is highly developed while the south contains wetlands, two Certified Vernal Pools, and stretches of farmland. The southern part of BC2159 also is surrounded by an Upland Buffer of CNL1034, and a small area along its northern edge overlaps a Landscape Block of CNL1332. It supports one state-listed plant and one state-listed salamander species:

Plants

Barren Strawberry (*Waldsteinia fragarioides*) Special Concern:

This plant is a short, herbaceous perennial that grows in rich soils near streams in a variety of forest types.

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.

BC2199 and CNL1049

This BC consists of a Wetland Core north of Crane Avenue in northeast Pittsfield, and is surrounded by an Upland Buffer of CNL1049.

BC2201 (no CNL)

This core lies in a wetland area along Unkamet Brook in northeastern Pittsfield, and supports one uncommon marshbird species:

Sora (*Porzana carolina*), SWAP: This is a secretive marshbird species that typically nests in dense cattail marshes located near areas of open water.

BC2222 and CNL1059

BC2222 lies in northern Pittsfield near its boundary with Lanesborough, just east of North Street. It is made up of a Wetland Core and is surrounded by an Upland Buffer of CNL1059.

BC2248 (no CNL)

This core in northwest Pittsfield, near Churchill Street and Daniels Brook, provides habitat for a state-listed songbird.

BC2341 and CNL1332

BC2341 makes up over 11,500 acres. It stretches (in

CNL1332's Landscape Block) across the Taconic Mountains of Hancock and drops into the marble valleys in Lanesborough and Pittsfield, covering sections of the Onota Brook watershed. It includes Forest Core in the mountains, as well as stretches of Aquatic Core along Parker, Lulu, and Churchill Brooks at lower elevations in Pittsfield. Stretches of Shaker and May Brooks, tributaries of the Southwest Branch Housatonic River flowing through both Hancock and Pittsfield, are also part of this core. In Pittsfield, BC2341 contains habitat for salamanders – both along small headwater streams and in vernal pools present within the core – as well as a Wetland Core along Lulu Brook. The Wetland and Aquatic Cores are surrounded by Upland Buffers in CNL1332. It also includes Onota Lake, which supports habitat for state-listed species of fish and aquatic plants. BC2341 includes several Species of Conservation Concern:

Plants

Comb Water-milfoil (*Myriophyllum verticillatum*), Endangered: This is a submersed aquatic plant that grows in shallow, still, alkaline lakes and ponds.

Ogden's Pondweed (*Potamogeton ogdenii*), Endangered: This is an annual aquatic plant with submersed leaves that grows in shallow and alkaline waters that are still or very slow-moving.

Fish

Bridle Shiner (*Notropis bifrenatus*), Special Concern: The Bridle Shiner is a small, straw-colored minnow with 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.

Amphibians

Jefferson Salamander (*Ambystoma jeffersonianum*), Special Concern: During most of the year, adults and juveniles of this species inhabit forested uplands, residing 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.

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 streambeds 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.

Bird

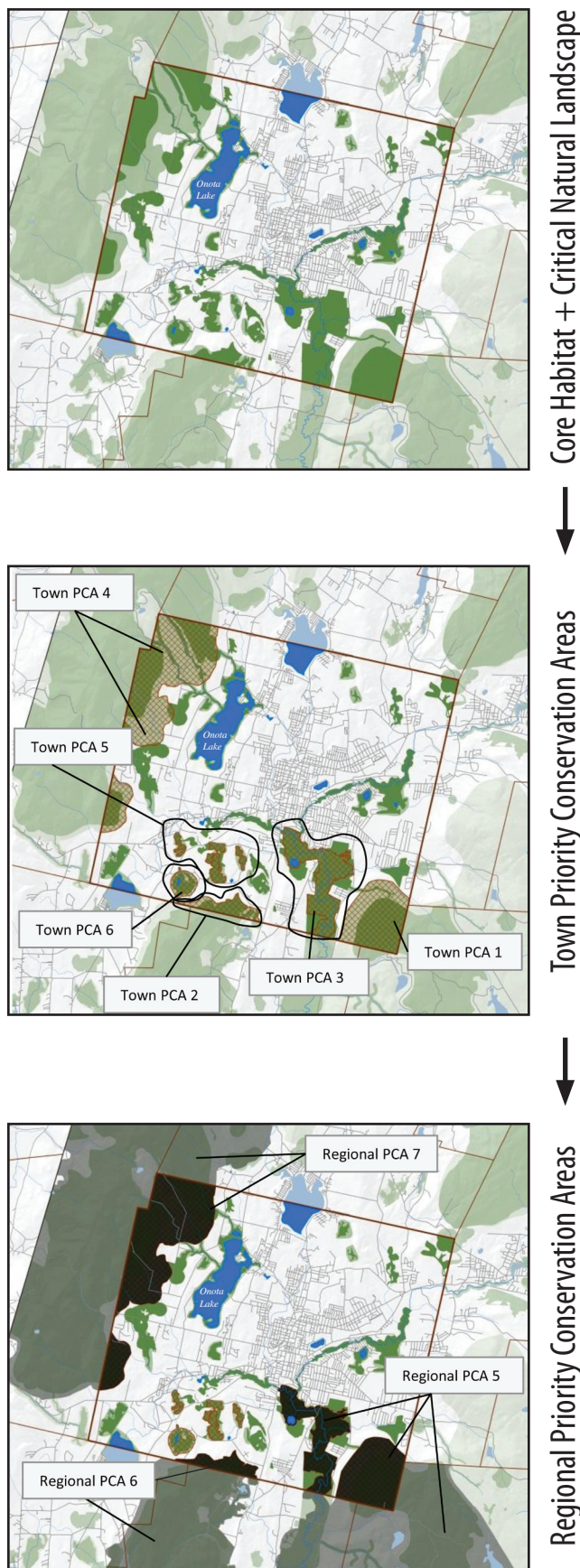
Bald Eagle (*Haliaeetus leucocephalus*), Endangered: These well-known eagles nest in tall trees along the large lakes and rivers. The bulk of their diet consists of fish. Large lakes and rivers like the Housatonic also support important winter congregations of Bald Eagles.

BC2546 (no CNL portion within Pittsfield)

BC2546 includes tracts of Forest Core in north Dalton, southeast Cheshire, and western Windsor, as well as sections of Aquatic Core along the Hoosic River and its tributaries in Cheshire and small parts of Windsor and Adams. It covers nearly 11,500 acres in total. Northern hardwood forest is the prevailing forest type, and is interspersed with uncommon natural community types at higher elevations. Much of this core has been protected through an impressive combined stewardship of federal, state, and private entities. While most of this core occurs outside of Pittsfield, a small, 70-acre portion of it falls in the northeast corner of town and provides habitat for several sensitive salamander species. BC2546 is nearly coincident with a large Landscape Block of CNL1332, much of which is Forest Core; however, CNL1332 does not extend into Pittsfield and BC2546 does not overlap it within the town's boundaries.

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 areas of swamps, marshes, or similar wetlands that are free of fish that would prey on eggs and young salamanders. Larvae metamorphose in late summer or early fall and then disperse into upland forests.

Four-toed Salamander (*Hemidactylium scutatum*), SWAP: This species lives in forested habitats around swamps, bogs, marshes, vernal pools, and other fish-free waters that are used as breeding sites. Most breeding sites in Massachusetts are characterized by pit-and-mound topography with significant Sphagnum moss cover. Eggs are typically laid in mossy mounds or patches of 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.



Priority Conservation Areas in Pittsfield

The town of Pittsfield contains six Priority Conservation Areas (PCAs) identified by NHESP. All six areas are considered Town PCAs; four of them are part of three larger Regional PCAs that also extend across multiple towns.

Town PCA 1/Regional PCA 5: Town PCA 1 is part of Regional PCA 5, which incorporates much of western Washington, southeast Pittsfield, northeast Lenox, and northeast Lee. This area includes portions of BC2146 and CNL1029. Within the Regional PCA are many mountains and headwater streams east of the Housatonic River, including Roaring and Mill Brooks in Washington and Lenox, and Mountain and Commons Brooks, which flow from October Mountain in Washington and Lee. It also contains a stretch of the Housatonic River, from central Pittsfield in the north to Woods Pond in the northern part of Lee. Town PCA 1 is the second largest of the Town PCAs in Pittsfield, and includes just over 1,000 acres in the southwest part of town, much of which is part of October Mountain State Forest. It contains headwater streams that flow west, from a Forest Core in a large Landscape Block, to the Housatonic River and associated areas of Aquatic Core.

Town PCA 2/Regional PCA 6: Town PCA 2 is part of Regional PCA 6, which is an 8,927-acre area that extends from south-central Pittsfield, first along the boundary between Lenox and Richmond, then along the boundary between Stockbridge and West Stockbridge. Regional PCA 6 reaches its southern limit in those two latter towns, just north of the Massachusetts Turnpike. Town PCA 2 comprises 279 acres and lies on and around South Mountain in south-central Pittsfield, along the town boundary with Lenox. It contains a Forest Core and a Wetland Core, and supports state-listed plant species.

Town PCA 3/Regional PCA 5: Like Town PCA 1, Town PCA 3 is part of Regional PCA 5 (described in detail above). Town PCA 3 makes up nearly 900 acres and includes the Housatonic River and its immediate riparian areas, as well as uplands and tributaries near the confluence of the East and West Branches. It lies in the midst of Pitts-

Figure 3. Core habitat (dark green), Critical Natural Landscape (light green), Town Priority Conservation Areas (Town PCAs; reddish-brown grid), and Regional Priority Conservation Areas (Regional PCAs; black) in Pittsfield. Town PCAs make up 5,162 acres in Pittsfield, or 19.0 percent of the town's total area. Regional PCAs constitute 4,783 acres, or 17.6 percent of the town's total area.

field's most urban areas, and includes important biodiversity resources. In this PCA, wetlands along the river and in and nearby areas like Canoe Meadows are home to state-listed sedges and herbaceous plant species. Areas of floodplain forests and nearby uplands provide habitat for Wood Turtles, and open wetlands support marshbirds like the American Bittern. The larvae of several dragonfly species burrow in river bottoms, while adults dwell in nearby fields and parks.

Town PCA 4/Regional PCA 7: Town PCA 4 is part of Regional PCA 7, which includes over 20,000 acres in Hancock and western Pittsfield and Lanesborough, and contains areas of extensive and relatively undisturbed forest habitat. It also includes the watersheds of several headwater streams: those that flow to Kinderhook Creek and the West Branch Green River in Hancock, to the Southwest Branch Housatonic River and Onota Brook in Pittsfield, and to Secum Brook in Lanesborough. Town PCA 4, part of the Regional PCA, is the largest in Pittsfield and contains more than 2,500 acres. It contains a large area of Forest Core along the slopes of the Taconic Mountains in the northwestern part of town, and includes sections of tributaries of Churchill, Lulu, Parker, Hawthorne, and Smith Brooks. Town PCA 4 also includes Wetland and Vernal Pools Cores that provide important breeding habitat for state-listed amphibians like the Jefferson Salamander.

Town PCA 5: This Town PCA consists of three discrete sections, each lying along a small tributary to the Housatonic, near the airport in the south-central part of town. It contains Aquatic Core along its streams, includes wetland areas, and supports several state-listed plant species (both terrestrial and aquatic). It is not associated with any Regional PCA.

Town PCA 6: This Town PCA is the smallest of the six in Pittsfield. It includes and surrounds Mud Pond, and is nearly contiguous with an Upland Buffer of CNL991. Despite its close proximity to urban areas, it supports two uncommon and sensitive natural communities, both designated Priority Natural Communities by NHESP: Calcareous Sloping Fen and Black Ash – Red Maple – Tamarack Calcareous Seepage Swamp. Many state-listed plant species, both terrestrial and aquatic, occur within this Town PCA. Like Town PCA 5, it is not part of a larger Regional PCA.

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/nhesp/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.

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.nhesp.org.