

# NATURAL AREAS AND WILDLIFE IN YOUR COMMUNITY



Hudson River Estuary Program

## A Habitat Summary Prepared for the Town of Coeymans

This summary was completed in August 2016 to provide information for land-use planning and decision-making as requested by the Town of Coeymans. It identifies significant ecosystems in the Town, including coastal habitats, streams, forests, wetlands, and other natural areas with important biological values. This summary is based only on existing information available to the New York State Department of Environmental Conservation (DEC) and its partners, and, therefore should not be considered a complete inventory. Additional information about habitats in our region can be found in the *Wildlife and Habitat Conservation Framework* developed by the Hudson River Estuary Program (Penhollow et al. 2006) and in the *Biodiversity Assessment Manual for the Hudson River Estuary Corridor* developed by Hudsonia and published by DEC (Kiviat and Stevens 2001).

Ecosystems of the estuary watershed—wetlands, forests, stream corridors, grasslands, and shrublands—are not only habitat for abundant fish and wildlife, but also support the estuary and provide many vital benefits to human communities. These ecosystems help to keep drinking water and air clean, moderate temperature, filter pollutants, and absorb floodwaters. They also provide opportunity for outdoor recreation and education, and create the scenery and sense of place that is unique to the Hudson Valley. Local land-use planning efforts are instrumental in balancing future development with protection of these resources. By conserving sufficient habitat to support the region's astonishing diversity of plants and animals, communities can ensure that healthy, resilient ecosystems—and the benefits they provide—are available to future generations. For more information on local conservation approaches, see *Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York's Hudson River Valley* (Strong 2008).

### The Estuary Program works toward achieving key benefits:

- Clean water
- Resilient communities
- Vital estuary ecosystem
- Fish, wildlife & habitats
- Natural scenery
- Education, access, recreation, and inspiration

This document was created by the New York State Department of Environmental Conservation's Hudson River Estuary Program and Cornell University's Department of Natural Resources. The Estuary Program (<http://www.dec.ny.gov/lands/4920.html>) protects and improves the natural and scenic Hudson River watershed for all its residents. The program was created in 1987 and extends from the Troy dam to upper New York Harbor.

The Estuary Program is funded by the NYS Environmental Protection Fund. The Biodiversity Outreach Program was created in partnership with Cornell University to help Hudson Valley communities learn what plants, animals, and habitats are found locally; understand the value of these resources; and increase their capacity to identify, prioritize, and conserve important natural areas through informed decision-making. Additional information about habitats in the Hudson Valley can be found on DEC's webpages, starting with [www.dec.ny.gov/lands/5094.html](http://www.dec.ny.gov/lands/5094.html).

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## Introduction

The Hudson River Estuary and its watershed is a region of remarkable beauty, historical and economic significance, and high biological diversity. The region, comprising only 13.5% of the land area in New York, contains nearly 85% of the bird, mammal, reptile, and amphibian species found in the state (Penhollow et al. 2006). Local municipalities can play a key role in conserving this natural heritage and the ecological processes that sustain it. By identifying important areas for habitat and wildlife, municipalities are better equipped to pursue conservation opportunities and make informed land-use decisions. This proactive approach to planning can help municipalities avoid the costs of urban and suburban sprawl, maintain community character and quality of life, and preserve the many benefits, or ecosystem services, that healthy, natural systems provide to present and future generations.

*An **ecosystem** is a community of animals and plants interacting with one another and with their physical environment.*

***Ecosystem services** are life-sustaining benefits we receive from nature, such as food, medicine, water purification, flood control, and pollination. Many of these services are provided for “free,” yet are worth many trillions of dollars.*

*- Ecological Society of America*

## Summary Content

This summary includes complementary text, maps, and tables. The [Habitat Summary text](#) describes what is known about the town's important natural areas and habitats based on information in DEC's databases and a review of local studies available at the time of writing. The text details the information in the maps, including the ecological importance of the data and its sources. There are seven habitat maps for the Town of Coeymans, which follow the text headings:

[Figure 1: Regional Context](#) of Coeymans, NY

[Figure 2: Major Ecological Features](#) in Coeymans, NY

[Figure 3: Hudson River Coastal Habitats](#) in Coeymans, NY

[Figure 4: Hudson River Shoreline Habitats and Tidal Wetland Pathways](#) in Coeymans, NY

[Figure 5: Streams](#) in Coeymans, NY

[Figure 6: Wetlands](#) in Coeymans, NY

[Figure 7: Large Forests](#) in Coeymans, NY

Descriptions of shrubland and young forest habitats and grasslands are included in the text but not mapped. Following the maps, Table 1 list known species and habitats of conservation concern that have been recorded for Coeymans, including species listed in New York (NY) or federally (US) as [endangered](#), [threatened](#), [special concern](#), [rare](#), a [Species of Greatest Conservation Need](#) (SGCN), or a [Hudson River Valley Priority Bird](#) species. SGCN are species that are experiencing some level of population decline, have identified threats that may put them in jeopardy, and need conservation actions to maintain stable population levels or sustain recovery (NYSDEC 2015). Audubon New York identified the Hudson River Valley priority birds by assessing continental, national, and regional bird planning initiatives in addition to state and federal priority designations.

[Table 1: Species and Ecosystems of New York State Conservation Concern](#) in Coeymans, NY

At the end of the summary, [references](#) identify the sources of information in this document and places to find more information. [General conservation measures](#) for protecting natural areas and wildlife are also provided.

Links in the summary will direct you to websites, publications, and fact sheets for supplemental information. In addition, Adobe Reader will enable you to zoom in and turn off data layers to customize your view of the maps. Most of the GIS layers shown in the habitat summary maps are available for free from the [New York GIS Clearinghouse](#); others are available upon request from the Estuary Program. A complementary online map application, the [Hudson Valley Natural Resource Mapper](#), can be used for more interactive viewing of

mapped features in the habitat summary. Attribute information for many of the individual features is available in the mapper, along with links to more information, including GIS data sources.

Please note that some habitats and species identified in this document may be protected by state or federal programs. The [Environmental Resource Mapper](#) on DEC's website can help identify those resources. Please work with DEC's Region 4 Office in Schenectady and other appropriate entities as necessary.

## How to use this summary

This summary provides a starting point for recognizing important natural areas in the town and surrounding areas, but is limited to existing information and is not a substitute for on-site survey and assessment. Information provided should be verified for legal purposes, including environmental review. Effective conservation occurs across property and political boundaries and, therefore, necessitates a broader view of natural landscapes. By identifying areas with high-quality resources, this summary will be especially useful for setting priorities to inform municipal planning. Habitat summaries like this have been used by communities for open space plans, comprehensive plans, natural resource inventories, and other conservation and planning actions. One Hudson Valley town used the species lists in its comprehensive plan's generic environmental impact statement, another to designate critical environmental areas. Some communities have incorporated their summaries directly into plans, while others refer to the information when writing their own documents.

Though this summary does not contain adequate detail for site planning purposes, it can be useful for environmental review. First, by identifying high quality habitats on a municipal-wide scale, it helps land-use decision-makers and applicants understand how a proposed site plan might relate to important natural areas

### Limitations of Maps in this Summary

Maps included here were created in a geographic information system or GIS. Information on the maps comes from different sources, produced at different times, at different scales, and for different purposes. It is often collected or developed from remote sensing data (i.e., aerial photographs, satellite imagery) or derived from paper maps. For these reasons, GIS data often contain inaccuracies from the original data, plus any errors from converting it. Therefore, maps created in GIS are approximate and best used for planning purposes. They should not be substituted for site surveys. Any resource shown on a map should be verified for legal purposes, including environmental review.

on- and off-site. Second, the summary highlights areas that may require more detailed assessment to evaluate potential impacts. Third, the tables identify species of conservation concern that may warrant special attention during reviews. If it's not already a routine step, the planning board should consider requiring applicants to produce a current letter from the [New York Natural Heritage Program](#) that identifies rare plants, rare animals, and significant ecosystems that are known to be on or near a proposed development site. The planning board and applicants should also work closely with DEC Region 4 Permits staff to ensure regulatory requirements are met.

## How to find more information

Most of the GIS data presented in the Habitat Summary maps may be obtained for free from the [New York State GIS Clearinghouse](#) or from other public websites. The summary can be enhanced by local knowledge. Local studies, maps, plans, and knowledgeable residents can provide details and may reveal previously unknown, high-quality ecosystems. It draws upon the 2008 *Onesquethaw-Coeymans Creek Watershed Study* and its description of a 2005 Biodiversity Assessment training study that covered a portion of the town. Biological information in environmental impact statements may also be useful, especially when a municipality has habitat standards for environmental review. For help with incorporating additional information into the

summary or questions about obtaining GIS data used in the maps, please contact Ingrid Haeckel, Hudson River Estuary Conservation and Land Use Specialist.

Guidance and suggestions for developing a more comprehensive natural resources inventory is available in [Creating a Natural Resources Inventory: A Guide for Communities in the Hudson River Estuary Watershed](#) (Haeckel and Heady 2014). This handbook outlines how to inventory valuable natural and cultural assets and strategies for using natural resource information in local land-use and conservation planning. Limited hard copies are available upon request for municipalities.

## Conservation

Once important habitats and natural areas are identified, municipalities have numerous options to strengthen their protection, such as incorporating maps and data into comprehensive plans and zoning, developing critical environmental areas or conservation overlay districts, adopting resource protection regulations, and acquiring conservation easements for sensitive habitats, such as floodplains or wetlands and their buffers.

Included with this summary are [General Conservation Measures for Protecting Natural Areas and Wildlife](#) that can help guide Coeymans' plans and land-use decisions. Additional information on the how and why of local habitat conservation is available in [Conserving Natural Areas in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York's Hudson River Valley](#) (Strong 2008). This handbook was published by DEC and details why towns should conserve their biological resources, as well as the tools and techniques local governments can use to conserve natural areas and wildlife. Chapter 5 covers habitat conservation. The document is available on a CD or in hard copy upon request.

Technical assistance is available through the Estuary Program, including help with incorporating natural resource conservation principles and information into municipal land-use planning procedures, plans, and policies. The Estuary Program and its partners also provide training to local leaders to recognize and map ecologically significant habitats and communicate their importance to the community. The [Hudson River Estuary Grants](#) program supports projects that continue to raise the capacity of municipalities, land trusts, and non-profits to identify and assess watershed biodiversity, promote stewardship and conservation of vital habitats, and create local conservation programs. For more information on technical assistance opportunities, please contact Ingrid Haeckel.

## Important Habitats in the Town of Coeymans

### Regional Context ([Figure 1](#))

The first step to understanding the natural areas and habitats of Coeymans is to consider how the town relates to its surrounding area. The town spans approximately 52 square miles including underwater lands in the Hudson River. Approximately 31.6 square miles of land in the southwestern section of the town drains to the Hudson River Estuary via Hannacroix Creek, while 16.8 square miles in the northeastern section of the town drains to the estuary via Onesquethaw-Coeymans Creek. The remaining area east of River Road drains to the estuary via minor streams and the Binnen Kill. The southwest corner of the town drains to Potic Creek, a tributary of Catskill Creek, which enters the Hudson River in the Village of Catskill.

*A **watershed** is the area of land where all of the water that is under it, or drains off of it, goes into the same stream, river, lake, or other waterbody.*

– U.S. Environmental Protection Agency

Coeymans is bordered to the east by the tidal Hudson River Estuary. Tidal wetlands and shallow water habitats in the estuary encompass some of the town's most biologically significant habitats. The Upper Hudson River Estuary is identified as a Significant Biodiversity Area (SBA) by the DEC Hudson River Estuary Program and is a globally rare ecosystem that supports many rare species as well as regionally important fisheries (Penhollow et al., 2006):

***Significant Biodiversity Areas (SBAs)** are locations of high concentration of biological diversity or value for regional biodiversity, described in [The Hudson River Estuary Wildlife and Habitat Conservation Framework](#) (Penhollow et al. 2006).*

“The Hudson River Estuary contains significant freshwater and brackish tidal wetlands, as well as other riverine and estuarine habitats, islands, riparian zones, and important tributaries. These habitats support a high diversity of fish, birds, and mammals....The open water, tidal wetlands, and tributaries in the upper reach of the Hudson are regionally important fish spawning habitats for anadromous fish, especially American shad, striped bass, Atlantic sturgeon and shortnose sturgeon, and provide habitat for all life stages of resident freshwater species. The numerous creeks and tidal freshwater marshes in this stretch serve as breeding, nursery, and migration corridors supporting waterfowl, shorebirds, herons, raptors, and passerine birds. Regionally and globally rare tidal communities include freshwater tidal swamp, freshwater tidal marsh, freshwater intertidal mudflats, and freshwater intertidal shore.”

The town's Hudson River shoreline and tidal wetlands are within the SBA and support occurrences of several rare plant species and important habitats for migratory fishes and freshwater mussels. The mouths of Hannacroix and Coeymans creeks and Shad Island are also designated Significant Coastal Fish and Wildlife Habitats by the New York State Department of State. These attributes are discussed further in the [Hudson River Coastal and Shoreline Habitat](#) section.

In addition to significant coastal features, much of Coeymans lies in the Hudson Valley Limestone and Shale Ridges SBA, recognized for its diversity of plants, animals, and natural communities, and areas of karst terrain providing winter hibernacula for bats of conservation concern (Penhollow et al. 2006):

“The limestone bedrock supports a wide variety of diverse communities, many of which are rare in New York State and the Hudson River Estuary corridor. These include calcareous cliffs, calcareous talus-slope woodlands, and red cedar rocky summits. The shale ridge contains what may be the best examples of shale cliffs and talus slopes in the region. Several sizable limestone caves occur on the

Helderberg Escarpment where eight species of bats are known to occur including the federally endangered Indiana bat. The limestone cliffs are one of only two areas in the Hudson River Estuary corridor to support a winter hibernaculum for the Indiana bat ... and also includes three sites for the state special concern eastern small-footed bat. ...

Numerous species of amphibians and reptiles are commonly found within the Hudson Valley Limestone and Shale Ridges, including the spotted salamander and several other rare species such as Jefferson salamander, blue spotted salamander, and wood turtle. Numerous rare plants occur in the area, including the smooth cliff brake, ram's head lady's slipper, and American ginseng. More rare plant species are found throughout the rich uplands and lowlands."

The Limestone and Shale Ridges SBA extends from the band of cliffs of the Helderberg Escarpment in Albany County and parallels the New York State Thruway south into Ulster County. The curved ridgeline is approximately 54 miles long and is 5.6 miles wide at its widest point. Several occurrences of significant limestone and shale-associated habitats and rare plants in Coeymans are listed in [Table 1](#).

*Geology strongly influences features like soil and groundwater chemistry, and thereby helps shape where different kinds of habitats occur.*

## Major Ecological Features ([Figure 2](#))

[Figure 2](#) shows the major ecological features known to occur in Coeymans, including the Limestone and Shale Ridge SBA, areas of known importance for rare animals, rare plants, and significant natural communities, stream habitat for migratory fishes, and a regional forest linkage zone. [Figure 2](#) and the corresponding descriptions below are based on limited information and more study of the town is needed to better describe Coeymans' natural features.

### Areas of Known Importance for Rare Plants, Rare Animals, and Significant Natural

**Communities.** The New York Natural Heritage Program (NYNHP) has identified areas of importance for sustaining populations of rare plants, rare animals, and significant natural communities based on existing records and the species' habitat requirements. These areas include the specific locations where species have been observed, as well as areas critical to maintaining the species' habitat or the integrity of the significant natural community. Proactive planning that considers how species move across the landscape, with careful attention to maintaining connected habitat complexes, will contribute to the long-term survival and persistence of rare species and significant natural communities. NYNHP has identified areas of importance in Coeymans for bald eagle, diadromous fishes, freshwater mussels, a coastal dragonfly, a bat overwintering area, and wood turtle, in addition to areas of importance for rare plants. NYNHP has also mapped several occurrences of rare, high quality natural communities in Coeymans. They include coastal ecosystems such as [freshwater intertidal mudflats](#) and [freshwater tidal marsh](#), non-tidal freshwater wetlands such as [red maple-hardwood swamp](#) and [silver maple-ash swamp](#), and upland communities associated with the Limestone and Shale Ridge, such as [calcareous cliff community](#), [chestnut oak forest](#), [maple-basswood rich mesic forest](#), [red cedar rocky summit](#), and [rocky summit grassland](#). The locations of significant natural communities are shown in [Figures 6](#) and [7](#). A complete list of state rare plants and animals and significant natural communities known from Coeymans is shown in [Table 1](#).

NY-Threatened [bald eagle](#) nesting occurs in Coeymans' coastal habitats and at the Alcove Reservoir. While bald eagle breeding and non-breeding populations are increasing in New York, development pressure and its impacts on habitat remain significant threats. Nesting sites are sensitive to human disturbance.

**Diadromous fish** refer to species that migrate between the sea and freshwater. NY-Endangered [shortnose sturgeon](#), blueback herring, alewives, and American eel are diadromous fishes of the

town's Hudson River coastal habitats and are discussed further in the following sections. Those that return to freshwater habitats to spawn are also referred to as **anadromous** and include sturgeon and herring species. NYNHP recognizes the mouths of Hannacroix and Coeymans creeks as an **anadromous fish concentration area**. Stream reaches used by American eel are shown in [Stream Habitat for Migratory Fishes](#).

**Tidewater mucket** is a state-rare mussel documented in the Hudson River between Coeymans Creek and the Binnen Kill. Populations of these mussels have declined dramatically since exotic zebra mussels were introduced to the Hudson River Estuary in the 1990s. These and other freshwater mussels are furthermore threatened by habitat loss and fragmentation, especially from dams; siltation and sedimentation from dams, altered river flows, and surface run-off.

[Russet-tipped clubtail](#) is a state-rare dragonfly documented near the mouth of Coeymans Creek. It may occur elsewhere in the town along the Hudson or its tidal tributaries, and is sensitive to water contamination, hydrological alteration, and other impacts from surrounding upland development.

**Bat hibernacula** are sites where bats hibernate over the winter, most often caves. Coeymans lies in a limestone-rich area and hosts a diverse group of cave-hibernating bats. Both the Federally-Endangered [Indiana bat](#) and NY-Special Concern [eastern small-footed bat](#) have been found in a local cave. Bats will return year after year to the same hibernation site and are susceptible to human disturbance and disease. The recent spread of the fungal disease [white-nose syndrome](#) has devastated bat colonies throughout the northeast, resulting in large die-offs of bats across the region. Research is ongoing by a number of agencies to determine if there are measures to protect these populations.

**Wood turtle** is a NY-Special Concern species occurring along low gradient perennial streams that also spends time in adjacent forests and grasslands. Wood turtle has been documented in riparian settings in Coeymans and is threatened by habitat loss, stream degradation, nest predation, and the pet trade.

**Note:** Rare animals may occur in more locations than are currently known by NYNHP or DEC. The DEC Region 4 Office in Schenectady should be contacted at (518) 357-2355 with any concerns or questions about the presence of protected species in the Town of Coeymans.

**Stream Habitat for Migratory Fishes.** DEC Bureau of Fisheries data and an aquatic habitat connectivity study by NYNHP indicate that the full length of Hannacroix and Onesquethaw-Coeymans creeks in Coeymans ([Figure 2](#)) comprise migratory routes for American eel, a fish species that begins life in the Atlantic Ocean and migrates to the headwaters of North American tributary streams as tiny "glass eels" (White et al. 2011). American eel is in decline throughout much of its range, and though eels are able to bypass certain dams, culverts, and other aquatic barriers, they rely on aquatic connectivity along streams to complete their life cycle and return to the sea to spawn. In addition, the lower section of Hannacroix Creek provides spawning habitat for alewife and blueback herring, and shallow subtidal areas at the mouth of Hannacroix and Coeymans creeks serve as spawning sites for American shad. The Binnen Kill provides spawning and feeding habitat for American shad, blueback herring, and alewife, and has documented use by US- and NY-Endangered shortnose sturgeon.

**Regional Forest Linkage Zone.** Large intact forests along the western end of Coeymans comprise part of a regional forest link zone connecting the globally significant forest blocks of the Catskills and the Adirondacks. Forest connectivity facilitates wildlife movement and will play a critical role in species migration as climate changes. See the [Forests](#) section below for greater detail on forests of all sizes in the town.

## Hudson River Coastal and Shoreline Habitats ([Figure 3](#) and [Figure 4](#))

Connections to upper watersheds, the Atlantic Ocean, and the changing tides make the coastal and shoreline zones of the Hudson River Estuary a dynamic area. Conditions throughout this reach of the estuary are entirely freshwater, supporting globally rare natural communities such as freshwater tidal marsh and swamp. The Town of Coeymans' coastal habitats along the tidal Hudson are shown in [Figure 3](#). Tidal shoreline habitat and tidal wetland migration pathways are shown in [Figure 4](#).

**Significant Coastal Fish and Wildlife Habitats.** Diverse coastal habitats occur in New York that provide critical habitat and feeding areas for animals as well as economic values. As previously mentioned, the DEC has identified and evaluated coastal habitats throughout the state's coastal regions, providing recommendations to the NYS Department of State (DOS) so that the most important or "significant" habitats may be designated for protection in accordance with the Waterfront Revitalization and Coastal Resources Act. The Significant Coastal Fish and Wildlife Habitats are useful for planning at the local level because they describe the highest quality habitats on the Hudson, outlining fish and wildlife values and activities that may have large impacts on the habitats. State and federal law requires that some projects may be reviewed for consistency with coastal policies on significant fish and wildlife habitat. Contact the NYS Department of State Office of Planning & Development for more information on the protection and regulation of these habitats.

There are two designated Significant Coastal Fish and Wildlife Habitat areas in Coeymans ([Figure 3](#)). Detailed descriptions of the [Coeymans-Hannacroix Creeks Complex](#) and [Shad and Schermerhorn Islands](#) sites are available from the [NYS Department of State webpage](#), including discussions of their value to fish and wildlife, and information on potential impacts to their habitat values. See [Table 1](#) for more information on the documented rare species associated with Coeymans' coastal habitats.

**The Coeymans and Hannacroix Creeks Complex** includes 93 acres of shallow water and marsh extending along the Hudson River's edge from the mouth of Coeymans Creek south to the mouth of Hannacroix Creek, which broadens into an undeveloped sheltered, tidal cove containing mudflats, freshwater tidal marsh, submerged aquatic vegetation beds and shallow littoral areas (less than 6 feet deep below mean low water). The [DOS habitat profile](#) states that this area provides favorable spawning conditions for a variety of migratory and resident fish species, including alewife and blueback herring. The shallows are a valuable nursery area for larval fish moving into the estuary from upstream spawning areas. In addition, the shallow subtidal areas at the mouth of Coeymans and Hannacroix creeks serve as spawning sites for American shad and other fishes. Submerged aquatic vegetation beds in the tidal cove provide food for fish, invertebrates and waterfowl as well as refuge for fish and invertebrates. The area is also known to be habitat for NY-Special Concern wood turtle and northern map turtle, a NY Species of Greatest Conservation Need.

The **Shad and Schermerhorn Islands** habitat area is a large, relatively undeveloped floodplain ecosystem spanning 1100 acres from the mouth of the Binnen Kill in Coeymans to the Vloman Kill in Bethlehem. The [significant fish and wildlife habitat](#) includes riverine littoral zones, submerged aquatic vegetation beds, tidal freshwater wetlands, tributary streams, floodplain forest, cliffs, and active agricultural lands. When this area of the Hudson was dredged for navigation, large areas of shallow secondary channel habitat were filled with dredged material behind the historic islands, eventually connecting the islands to the mainland.

Freshwater tidal wetlands, tidal mudflats, and important littoral zone areas along the main stem Hudson River serve as a nursery area for migratory young blueback herring, American shad, and striped bass as well as spawning and feeding areas for resident freshwater species. The submerged aquatic vegetation provides food and refuge for fish and invertebrates and adds dissolved oxygen to the water. The Binnen Kill also provides spawning and feeding habitat for American shad, blueback herring, alewife, and resident freshwater species. NY-Threatened [least bittern](#) and NY-Special Concern American bittern use the area for nesting and northern map turtles are found here.

**Underwater (Subtidal) Habitats.** Submerged Aquatic Vegetation (SAV) is plant life that grows under water. SAV improves water quality by trapping fine sediment and organic matter and adding oxygen to the water. It also provides essential habitat for organisms like insects, worms, and snails that feed fish and birds in the estuary. Native species of SAV in the Hudson such as water celery currently compete for habitat with invasive, non-native water chestnut. Water chestnut does not provide the same water quality benefit as native SAV because its floating leaves release oxygen into the air rather than into the water. [Figure 3](#) shows areas where SAV or water chestnut have been found since 1997. Even if SAV is not present today, these areas could support it in the future.

In Coeymans, 25 acres of water celery were observed during DEC's last SAV survey in 2007. SAV occurs at the mouths of Hannacroix and Coeymans creeks, in the Binnen Kill, and in the littoral zone of Shad Island ([Figure 3](#)). Smaller patches of SAV are present along much of the town's Hudson River shoreline. No areas of water chestnut were reported in Coeymans' coastal zone as of 2007. Re-mapping of SAV and water chestnut in the Hudson River Estuary is currently underway.

**Tidal Hudson River Estuary Wetlands.** Tidal wetlands are areas regularly inundated to some degree by tides. There are different types of tidal wetlands depending on plant life present and water depth during high and low tides. Tidal wetlands provide vital habitat in the estuary for rare plants and young fish. In addition, waterfront communities benefit from the ability of tidal wetlands to remove some pollutants from wastewater and protect shorelines from waves and strong storms.

A 2007 inventory by the DEC identified 51 acres of tidal wetlands in the Town of Coeymans ([Figure 3](#)). The Binnen Kill and Shad Island complex comprised the greatest extent of tidal wetlands in the town and supports a diverse mix of wetland types. Cattail marsh and other low marsh types are dominant in the cove south of the hamlet. The mouth of Hannacroix Creek is primarily tidal mudflats and shallow water habitat. Hannacroix Creek and the Binnen Kill extend beyond the town's boundaries; there are opportunities for intermunicipal cooperation with New Baltimore and Bethlehem, respectively to protect and manage these shared resources.

NYNHP has also mapped high quality examples of [freshwater tidal marsh](#) and [freshwater intertidal mudflats](#) in the Binnen Kill, along the eastern shoreline of Shad Island, and in mouth of Hannacroix Creek. Several rare plant and animal species are documented from the town's coastal habitats, including NY-Endangered [Hudson River water nymph](#) and [estuary beggar-ticks](#). See [Table 1](#) for a full list.

**Tidal Wetland Pathways.** The Hudson River estuary is connected to the Atlantic Ocean and affected by sea level rise (SLR) due to climate change. The Hudson has already risen by one foot since 1900 and is likely to rise an additional 3-6 feet due to SLR by 2100 (Horton et al. 2014). Such a rapid change in water levels threatens waterfront development and infrastructure as well as the future of tidal wetlands. Tidal wetlands along the Hudson River will disappear with SLR unless they can build up in place or move to higher ground. However, wetlands bordered by steep shorelines or existing development may have no place to go. Potential tidal wetland loss threatens the health of the entire estuary. A recent study by Scenic Hudson shows areas along the Hudson most likely to support tidal wetlands in the future as sea level rises (Tabak et al. 2016). The study shows that the location of Coeymans' tidal wetlands will likely change by 2100.

The **Tidal Wetland Pathways** in [Figure 4](#) show where tidal wetlands are likely to move by 2100 as sea level rises. Tidal wetlands are projected to expand greatly on Shad Island and in the area between the hamlet and the mouth of Hannacroix Creek. The undeveloped floodplain lands of Shad and Schermerhorn Islands are in fact one of the most important opportunity areas in the estuary for new tidal wetlands to be established in the 21<sup>st</sup> century. Some wetland loss is projected in Coeymans, particularly in current shallow water habitats of the Binnen Kill and along the eastern shoreline of Shad Island. Steep shorelines are a barrier to wetland movement in some areas, in others, existing roads, railroads, and development pose a physical barrier. The wetland pathways do not account for all of the barriers that may be present; for example, shoreline armoring may be a partial barrier to inland wetland migration south of the hamlet in Coeymans.

The most effective way for a municipality to conserve tidal wetlands in the face of these changes is to protect and manage the areas where wetlands may move. Minimizing future development in the pathways and designing public waterfronts to allow for these changes will ensure that tidal wetlands have room to adapt to rising sea levels. This strategy will also reduce risks to communities and property owners in the changing Hudson River flood zone. For more information, see [Protecting the Pathways: A Climate Change Adaptation Framework for Hudson River Estuary Tidal Wetlands](#) (Tabak and Spector 2016). Sea level rise projections for the town's waterfront can be viewed using Scenic Hudson's [Sea Level Rise Mapper](#).

**Tidal Shoreline Habitats.** Natural shorelines are an important transition zone between water and land and provide habitat for diverse plants, fish and wildlife. Natural shorelines located in the tidal wetland pathways may also allow tidal wetland and shoreline habitats to move to higher ground as sea level rises. Towns can evaluate tidal shoreline status to identify places where natural shorelines could be conserved or where the ecology of built shorelines could be enhanced.

The National Oceanic and Atmospheric Administration (NOAA) has classified tidal shoreline types along the Hudson River estuary as part of [Environmental Sensitivity Index \(ESI\)](#) maps. [Figure 4](#) shows tidal shoreline type in Coeymans based on the ESI analysis of 2012-13 air photos. Accounting for the inner shorelines of the Binnen Kill and Coeymans and Hannacroix creeks, Coeymans has 7.5 miles of vegetated shoreline. Another 1.8 miles of the town's shoreline along the Hudson River and mouth of Coeymans Creek are armored or engineered, primarily with rip-rap revetment or bulkhead. About 0.25 mile of shoreline south of the hamlet and in the mouth of Coeymans Creek is classified as rocky and steep. Note that a 2005 inventory of Hudson River shoreline types by the Hudson River National Estuarine Research Reserve indicates that much of the shoreline along Shad Island in Coeymans is in fact engineered, including almost 0.5 mile of timber cribbing and 0.125 mile of bulkhead.

There are opportunities to conserve, restore, and manage shoreline habitats throughout the Coeymans waterfront area. Parks, preserves, and regulated wetlands may offer a starting point to conserve or restore natural shorelines that will allow tidal wetlands to move with sea level rise. Even along working waterfronts there are ways to improve the habitat value of bulkheads and rip-rap revetments. The [Hudson River Sustainable Shorelines Project](#) provides information and tools on enhancing the ecology of built shorelines as well as how to conserve natural shorelines.

## Streams ([Figure 5](#))

[Streams](#), their floodplains, adjacent wetlands, and other "riparian" or streamside habitats that occur along their channel provide important ecosystem services to communities, including clean water, flood management, and recreational opportunities like fishing and kayaking. In addition, Hudson River tributary streams and their associated shoreline and floodplain areas provide some of the most productive wildlife habitat in the region. The health of the Hudson River Estuary is closely linked to the health of its tributaries and their watersheds (Penhollow et al. 2006).

All of the land in Coeymans ultimately drains to the Hudson River ([Figure 5](#)). The majority of the town lies within the Hannacroix Creek and Onesquethaw-Coeymans Creek subwatersheds, with smaller areas draining directly to the estuary and to Potic Creek, a tributary of Catskill Creek. Alcove Reservoir was formed by the damming of Hannacroix Creek and is the largest waterbody in the town. It is owned by the City of Albany and managed as a public drinking water supply. Streams and waterbodies shown on maps in this summary are from the 1:24,000 National Hydrography Dataset for New York State and

*Intermittent streams only flow seasonally or after rain. They can easily be overlooked when dry, but have great impact on larger downstream waters and warrant attention. Many flow directly into the Hudson and its tributaries, wetlands, and other water bodies, influencing water quantity and quality.*

were digitized from air photos. Note the resulting maps have inherent inaccuracies and will not capture most intermittent streams. Visiting sites and creating more accurate maps are methods to pursue to ensure these important resources are identified and considered during planning processes.

In addition to watershed boundaries, [Figure 5](#) shows streams, waterbodies, trout status, floodplains, and active river areas. Streams and waterbodies in [Figure 5](#) and other maps in this summary are from the USGS National Hydrography Dataset (NHD) and were digitized from air photos. Note the resulting maps have inherent inaccuracies and will not capture most intermittent streams. Visiting sites and creating more accurate maps are methods to pursue to ensure these important resources are identified and considered during planning processes.

Trout status information in [Figure 5](#) is provided from [DEC's Water Quality Standards and Classifications](#), which identifies trout or trout-spawning presence based on fish survey records. The classifications suggest there is coldwater habitat suitable for trout in many streams in Coeymans, including nearly the entirety of the main stems of both Onesquethaw-Coeymans Creek and Hannacroix Creek, as well as smaller tributaries of each. Trout require well-shaded, cool to cold, flowing water and are sensitive to warmer temperatures. While all streams benefit from adequate streamside vegetation, it is especially important for maintaining clean, coldwater habitats that support native species like brook trout. See [Figure 3](#) for the location of streams supporting migratory fish runs. The town also supports areas of known importance for NY-Special Concern wood turtle, a species occurring along low gradient perennial streams ([Figure 2](#)).

Lower Coeymans Creek hasn't been stocked with trout since the 1960s, but recent DEC fish surveys documented brown trout in the entire length of the lower creek, including evidence of trout spawning 1 mile upstream of the Hudson River. The creek is classified as supporting trout spawning (TS) and is also listed on the DEC's Priority Waterbodies List (PWL) as impaired due to agricultural non-point source activities, urban runoff, and industrial and municipal pollutants. The *Onesquethaw-Coeymans Creek Watershed Study* (2008) describes the course of the creek through the town and some possible sources of impairment. The subsequent 2010 *Onesquethaw-Coeymans Watershed Management Plan* lays out recommendations for improving water quality.

DEC identifies Hannacroix Creek as supporting trout spawning from the Alcove Reservoir to the crossing at Marshall Rd. The stream supports trout from Marshall Rd to one mile upstream of the Hudson River, in New Baltimore. DEC stocks the creek with brown trout annually in early spring and summer. A surface water storage reservoir fed by the creek and supplemented by the Alcove Reservoir provides public water for the Hamlet of Coeymans and the Village of Ravena. Water releases to the creek from the Alcove Reservoir cease during dry weather, causing the creek to go dry for about 2 miles below the dam. The creek is listed as impaired in the DEC's PWL due to the impacts of these changes in hydrology.

Floodplain information included in [Figure 5](#) comes from the [Federal Emergency Management Agency](#) (FEMA) Digital Flood Insurance Rate Map (DFIRM) Database. This information was included in the Habitat Summary to highlight the riparian corridors where stream and floodplain habitats occur, and where land-use change will likely influence stream quality. In addition to their high ecological value, floodplains provide many important functions including preventing erosion and recharging groundwater. They also act as a safety zone between human settlement and the damaging impacts of flood events. When left in their natural state, they provide space for the fluctuations in flow that cause streams to expand, contract, and sometimes change course. [Figure 5](#) shows the areas estimated by FEMA to have a 1% chance or greater probability of being inundated in any given year (often referred to as the "100-year flood"), including Shad Island and the town's Hudson River shoreline, floodplains along Coeymans and Hannacroix creeks, the upper Feuri Spruyt, and the

*Floodplains are low-lying areas adjacent to streams and rivers that can become inundated during heavy precipitation or snow melt. **The floodway** is the channel of a stream or river that carries the deepest, fastest water downstream.*

margins of Alcove Reservoir. Some narrow additional areas were mapped by FEMA with a 0.2% chance or greater probability of flooding in any given year (referred to as the “500-year flood”).

It is important to note that the FEMA-mapped floodplains and their statistical flooding intervals are estimations based on the data and technology available at the time of mapping. Due to many variables, such as the unpredictable nature of some kinds of floods, local drainage problems, and the variable intensity of land development in watersheds, some flood-prone areas may not appear on the maps. Nonetheless, the mapped floodplains provide a starting point for proactive conservation planning.

Forested floodplains and other forested riparian zones are especially important, supporting the in-stream food web and serving as a travel corridor for some wildlife (Knab-Vispo and Vispo 2010). In addition to their biological values, riparian forests play a vital role in minimizing soil erosion and surface runoff, control water temperatures, and help reduce downstream flood intensity. The Hudson River Estuary Program’s [“Trees for Tribes”](#) initiative offers free consultation and native trees and shrubs for qualifying streamside buffer planting projects in the estuary watershed.

Effective stream conservation and restoration occurs beyond stream channels and floodplain boundaries. [Figure 5](#) shows Active River Areas (ARAs), which were developed by the Nature Conservancy to identify areas where physical and ecological processes occur that drive and sustain streams. The ARAs includes five major components: meander belts—the adjacent areas within which the stream channel migrates over time; floodplains; terraces—former floodplains that may still flood in the largest flood events; riparian wetlands; and material contribution zones, which regularly contribute organic and inorganic (e.g., sediments, water) material to streams. These five components encompass the major processes influencing the stream—hydrology, sediment transport, processing and transport of organic materials, and key biotic interactions (Smith et al. 2008). Note that ARAs were developed through modeling based on a coarse-scale elevation model and have not been field verified. Nevertheless, ARAs can provide a starting point to inform land use strategies and stream protection efforts.

For more information on streams, water quality, drinking water, and watershed issues in Coeymans, a complementary Water Resources Summary is available from the Estuary Program by request.

## **Wetlands ([Figure 6](#))**

There are many types of wetlands in the Hudson River Estuary watershed, including wet meadows, emergent marsh, forested and shrub swamps, vernal pools, floating and submerged vegetation, and open water, as well as the variety of tidal wetland types in the estuary discussed in the [Coastal and Shoreline Habitat](#) section ([Figure 3](#)).

Each wetland type provides habitats for different groups of plants and animals. Many wildlife species depend upon wetlands for part of their life cycle, including many species of conservation concern in New York State. In addition to providing critical habitat for many plants and animals, wetlands help to control flooding and reduce damage from storm surge, recharge groundwater, filter and purify surface water, and provide recreation opportunities. The upland area surrounding a wetland is essential to its survival and function; both may diminish when a wetland is surrounded by pavement, buildings, and pollution-generating or other incompatible land uses ([Environmental Law Institute 2008](#)).

*Wetlands are areas saturated by surface or groundwater sufficient to support distinctive vegetation adapted for life in saturated soil conditions.*

Knowing about local wetlands enables municipalities to proactively plan to conserve this critical part of our life support system. Although several existing maps provide approximate locations and extent of wetlands, they are inherently inaccurate and not a substitute for site visits and on-the-ground delineation. Nonetheless, towns can use these maps as a starting point for inventorying local wetlands and supplement them with more refined data as they become available.

In [Figure 6](#), “known wetlands” are shown from the U.S. Fish and Wildlife Service’s (USFWS) [National Wetlands Inventory \(NWI\)](#) and DEC’s [Freshwater Wetlands Program](#) maps (which only include wetlands larger than 12.4 acres, unless designated “of unusual local importance”). Open water habitats including the Hudson River are symbolized in blue as “waterbodies.” NWI data are also available for viewing on the [NWI Wetlands Mapper](#) and NYS freshwater wetland maps can be viewed using the [Environmental Resource Mapper](#). **Note that NWI mapping has not been completed in southwest Coeymans.** In [Figure 6](#), information also comes from county soil maps, which are a good source for predicting the location of potential wetlands. “Probable wetlands” are those areas classified in the soil survey as very poorly drained or poorly drained soils, and “possible wetlands” are those classified as somewhat poorly drained (after Kiviat and Stevens 2001). Note that the probable and possible wetlands cover a greater area than NWI and DEC wetland layers. NWI maps often underestimate wetland area and omit smaller and drier wetlands (Zucker and Lau unpublished report). In particular, vernal pools, wet meadows, and swamps are often under-represented on maps. Many of DEC’s regulatory maps are outdated and have similar inaccuracies (Huffman and Associates 2000). Likewise, note that soil units are only mapped to an approximate area of about two acres, and that soils within the unit may not be homogeneous. Areas shown as supporting probable or possible wetlands should always be verified in the field for the purposes of environmental review.

The town’s Hudson River tidal wetlands and the forested swamps near Starr and Bushendorf roads are the largest and most biologically significant in the town. The large [red maple-hardwood swamps](#) east of these roads are reported by NYNHP to have good habitat and species diversity, surrounded by a mature, intact forest community. NYNHP described the example of [silver maple-ash swamp](#) northwest of Joralemon Park as mature and minimally disturbed, with unusual composition for the Hudson Valley, possibly due to the limestone substrate and flooding regime. NWI maps offer some general information on wetland habitat (e.g., forested, emergent), but in general, existing map resources are not very informative as far as habitat type or importance for biodiversity. Communities can learn more about habitat values by conducting local surveys and studies. The 2005 Biodiversity Assessment Training Study of the Coeymans-Onesquethaw Creek corridor noted an abundance of wet meadow habitats associated with poor drainage conditions on clayey soils. Large areas of hardwood swamp in the riparian areas along Coeymans Creek and in other low-lying areas subject to frequent flooding were also observed.

Although no [vernal pools](#) have been mapped in Coeymans, local wildlife records in the *NY Amphibian and Reptile Atlas* of spotted salamander and NY-Special Concern hybrid Jefferson-blue spotted salamander indicate that vernal pools occur in the town. [Vernal pools](#) are small, isolated wetlands that are often dry in summer. They provide habitat for many animals, including forest amphibians like wood frog and several salamander species, which use the pools for breeding. Vernal pools often go undetected in the forest due to their small size and seasonal drawdown. Vernal pools and other small, isolated wetlands are also vulnerable due to limited regulatory protection (see [Conserving Small Wetlands in the Hudson Valley](#) for more information). Knowing there are unmapped vernal pools in Coeymans, outreach to landowners with potential habitat may help promote stewardship and land-use decisions that protect the pools, surrounding forest habitat, and associated wildlife. Specific management recommendations can be found in [Best Development Practices: Conserving Pool-Breeding Amphibians in Residential and Commercial Development in the Northeastern United States](#) (Calhoun and Klemens 2002) and [Maine Municipal Guide to Mapping and Conserving Vernal Pool Resources](#) (Morgan and Calhoun 2012). Biodiversity assessment may reveal additional wetland habitat types in the town and provide detail on quality and habitat use.

## Large Forests ([Figure 7](#))

Large forests provide numerous benefits including wildlife habitat, clean water, climate moderation, and forest products. In general, larger forests provide higher quality habitat and greater benefits than smaller ones. However, the value of each forest is relative to the values of surrounding habitats. For example, a series of

forest patches along a stream helps maintain water quality while creating a wildlife travel corridor. Similarly, wooded hedgerows in farm fields often provide a refuge for animals moving through the landscape.

We know little about the on-the-ground habitat quality of individual forests in Coeymans (e.g., presence of invasive species, lack of understory vegetation, etc.) beyond the few areas that have been mapped and surveyed by NYNHP. However, the “birds-eye view” shows that most of Coeymans is covered in forests of varying sizes. [Figure 7](#) shows large forest patches in Coeymans. The map was created from land cover data developed for the Coastal Change Analysis Program (National Oceanic and Atmospheric Administration 2010). Land cover categories considered ‘forest’ for this analysis included deciduous forest, evergreen forest, mixed forest, and palustrine forested wetland. Roads were buffered and removed from forest patches to show results of development-related fragmentation. Interstate roads were buffered by a total of 300 feet and state and county roads by 66 feet (Dunn 2008). Forest patch size classifications follow the Orange County Open Space Plan (Orange County Planning Department 2004) as cited in Strong (2008).

*Forest fragmentation is the process of breaking large patches of forest into smaller areas, often by clearing it for new roads or development. Fragmentation decreases forest habitat quality and health, disrupts wildlife movement, and facilitates the spread of invasive species. These impacts are greatest at forest edges but can extend for hundreds of feet into forest patches, often displacing sensitive species that depend on interior forest.*

A “regionally significant” forest block measuring over 13,000 acres extends from south Coeymans into New Baltimore and Greenville. Forest patches greater than 6,000 acres provide habitat to more area-sensitive species and can accommodate large-scale disturbances that maintain forest health over time. Forests in this size range are able to maintain the wider range of habitats and conditions often required by forest-dependent species.

Three “locally significant” forest blocks are mapped north of Hannacroix Creek in Coeymans, ranging in size from 2,300 to 5,600 acres. These forests are relatively intact and include high quality examples of natural communities mapped by NYNHP, including [maple-basswood rich mesic forest](#) and [chestnut oak forest](#), as well as [red cedar rocky summit](#) and [calcareous cliff communities](#). Several rare and threatened plant species associated with rich soils and limestone bedrock have been documented in this area of the town, including [Back's sedge](#), [Davis' sedge](#), [golden-seal](#), [green rock-cress](#), and [James' sedge](#). Two additional “locally significant” forest blocks occur along the town’s boundary with Westerlo. “Locally significant” forest blocks represent the lower size limit of viable habitat for forest-dependent birds, which often require 2,500 to 7,500 acres of intact interior forest habitat. They can also provide important travel corridors between larger forest blocks.

Smaller “stepping stone” forest patches occur in the north and eastern ends in the town and may provide valuable, relatively broad corridors for wildlife movement and plant dispersal. These smaller forests enable a large array of species, including both wide-ranging and forest-interior species, to move safely from one habitat to another. These forests should be considered the absolute minimum size for intact forest ecosystems. Forests as small as 200 acres will support some forest-interior bird species, but several may be missing, and species that prefer “edge” habitats will dominate. Smaller forests are more vulnerable to the spread of invasive species and less viable for timber production, among other values. Regardless of size or habitat values, all forests and trees in the town help to manage stormwater, moderate temperature, and improve air quality, among other benefits.

The Biodiversity Assessment Training study described in the *Onesquethaw-Coeymans Creek Watershed Study* (2008) indicates that many of the “stepping stone” forests in northeast Coeymans occur in settings with steep clay bluffs and ravines. Clay bluff and ravine habitats near the Hudson River are “...characterized by narrow ridges, steep-sided ravines cut by small streams, and steep bluffs fronting on the river. The clayey soils formed in prehistoric Lake Albany during the melting of the glaciers” (Kiviat and Stevens 2001).

Maintaining forest along clay bluffs and ravines is especially beneficial to stabilize slopes, prevent further erosion, and protect stream habitat and tidal wetlands.

The combined forest blocks of western Coeymans correspond to an important forest linkage zone connecting “matrix forests” of the Catskills and Adirondacks, identified by NYNHP and the Nature Conservancy. Matrix forests represent the largest, most intact forests, whose size and natural condition allow for continuity of ecological processes and maintenance of forest communities and populations of forest-interior species (Anderson and Bernstein 2003). These forests are better equipped to adapt to changing climate conditions. Conserving large, high quality natural areas and connections between them will allow plants and animals to move north and higher in elevation as temperatures rise with climate change.

Wildlife records confirm the availability of high-quality forest habitat in Coeymans. The [2000-2005 NYS Breeding Bird Atlas](#) documented numerous forest-interior bird species of conservation concern in the town, including NY-Special Concern Cerulean warbler and many Species of Greatest Conservation Need such as black-throated blue warbler and worm-eating warbler ([Table 1](#)). Three NY-Special Concern raptors were also documented in Coeymans: Cooper’s hawk, red-shouldered hawk, and sharp-shinned hawk. Audubon New York’s website has specific information on [managing habitat for forest birds](#). In addition to birds, NY and federally-Endangered [Indiana bat](#) and NY-Special Concern [eastern small-footed bat](#) use forests in Coeymans for shelter and to forage for insect prey. Female bats roost in trees and snags in maternity colonies to raise their young each summer; some restrictions protect threatened bat species from tree-cutting, especially during the period when mothers are birthing and raising pups. The DEC Region 4 Office in Schenectady should be contacted at (518) 357-2355 with any concerns or questions about protected bat species.

Conserving the town’s large intact forested areas and connections between them will help ensure there is enough habitat to sustain forest plants and animals. This strategy will also help to preserve the other benefits that forests provide residents.

## **Grasslands, Shrublands, and Young Forests (not mapped)**

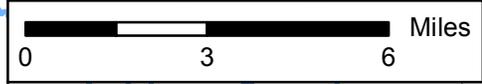
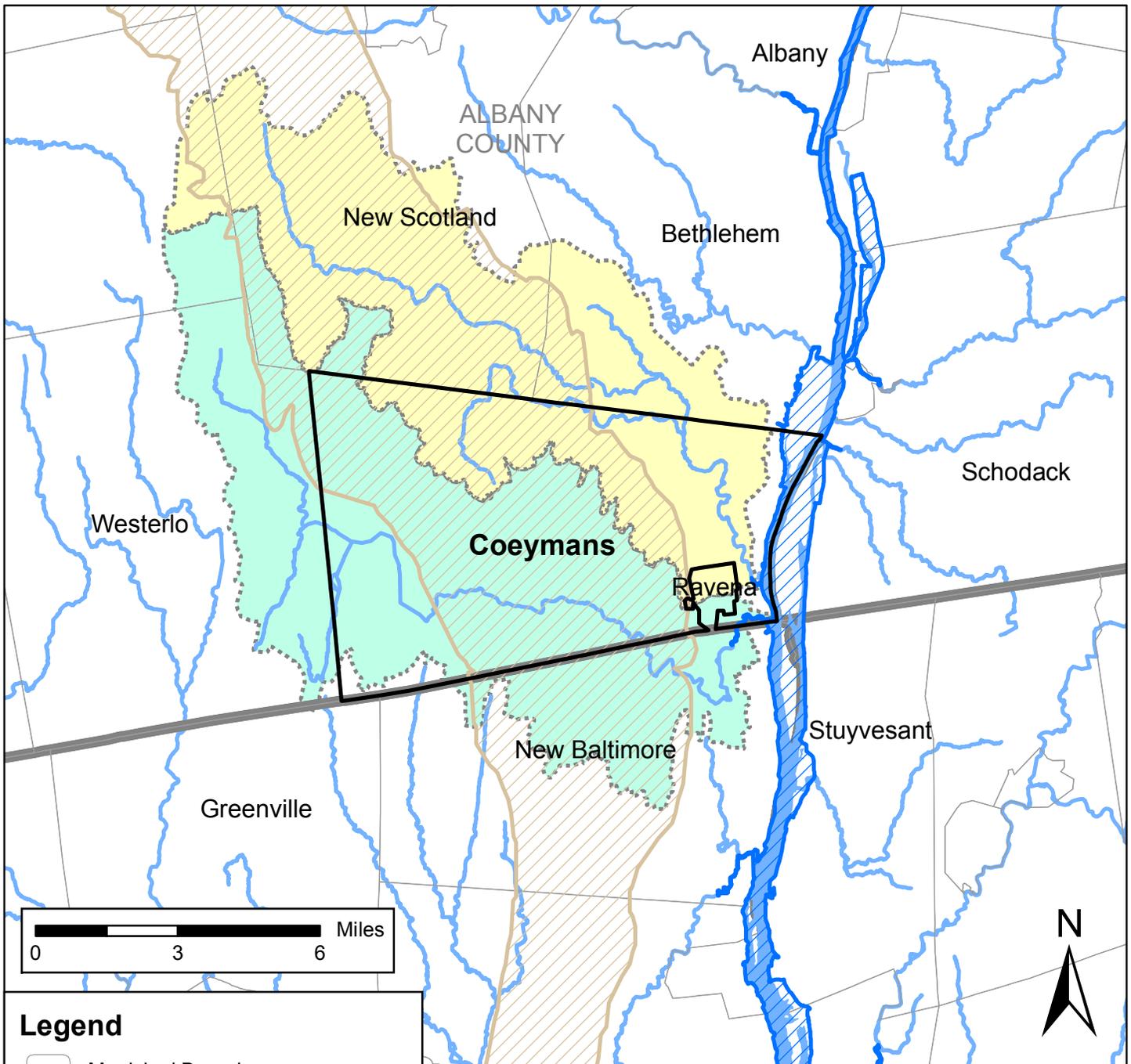
Recently disturbed sites, such as hayfields, abandoned farm fields, or forest clearings, can provide important habitat for species that require grasslands, shrublands, and young forests. These successional habitat types are transitional and relatively short-lived, and typically require periodic maintenance to avoid becoming more densely vegetated, eventually developing a canopy and becoming forest. We can infer from aerial photography and breeding bird records that valuable grasslands, shrublands, and young forests occur in Coeymans (see [Table 1](#)).

Grassland or [meadow](#) habitat can support a variety of life, including rare plants, butterflies, reptiles, and birds, in addition to providing agricultural uses and scenic values. The quantity and quality of grasslands for wildlife have rapidly decreased in the Northeast during the last century due to increased human population, changes in agricultural technology, and abandonment of family farms. This continuing trend threatens populations of grassland birds that have adapted to the agricultural landscape. The [2000-2005 NYS Breeding Bird Atlas](#) documented breeding by seven grassland bird species of conservation concern in the Coeymans area, including Species of Greatest Conservation Need such as eastern meadowlark, bobolink, and American kestrel, NY-Special Concern vesper sparrow, and NY-Threatened [northern harrier](#) and [sedge wren](#) (see [Table 1](#)). Audubon New York offers guidance on [managing habitat for grassland birds](#).

Shrublands and young forests are transitional habitats characterized by few or no mature trees, with a diverse mix of shrubs and/or tree saplings, along with openings where grasses and wildflowers grow. They can occur in recently cleared areas and abandoned farmland and are sometimes maintained along utility corridors by cutting or herbicides. These habitats are important for many wildlife species declining throughout the region because former agricultural areas have grown into forests, and natural forest disturbances that trigger young

forest growth, such as fires, have been suppressed. Records from the *NYS Breeding Bird Atlas* support the presence of 14 species of conservation concern in Coeymans that prefer young forest and shrubland habitat, including American woodcock, blue-winged warbler, brown thrasher, and ruffed grouse (see [Table 1](#)). The northwest area of Coeymans supports one of two known locations in the upper Hudson estuary watershed for NY-Special Concern whip-poor-will, which is also a high-priority Species of Greatest Conservation Need in the New York State Wildlife Action Plan (2015) and a target species for NYSDEC's Young Forest Initiative. For more information, see the [NYSDEC Young Forest Initiative](#) and Audubon's guidance on [managing habitat for shrubland birds](#).

# Figure 1: Regional Context of Coeymans, NY



### Legend

- Municipal Boundary
- County Boundary
- Stream
- Watershed**
- Hannacroix Creek
- Coeymans-Onesquethaw Creek
- Significant Biodiversity Areas**
- Upper Hudson River Estuary
- Hudson Valley Limestone and Shale Ridge

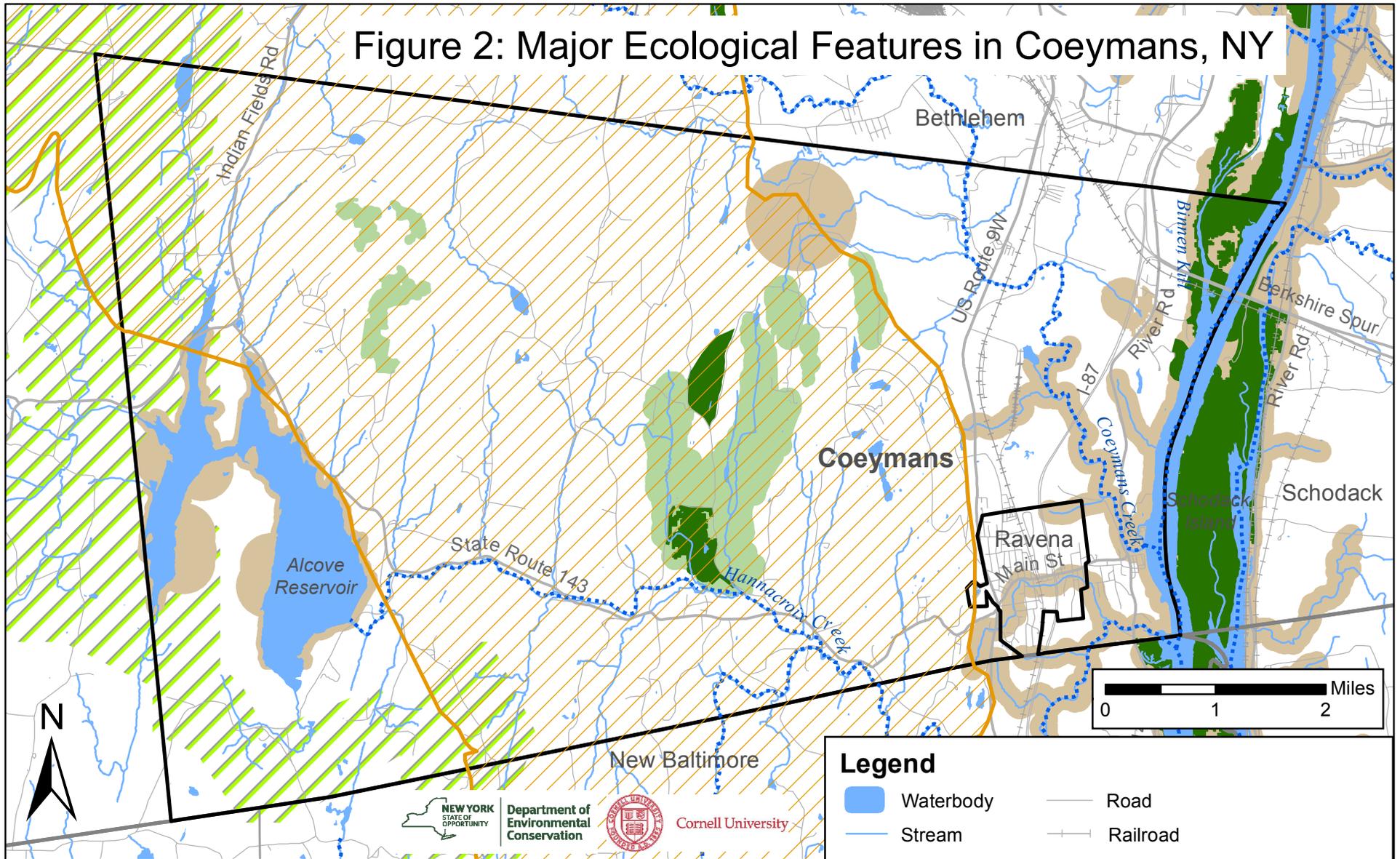
This map shows the location of the Town of Coeymans, Albany County, NY in relation to its major watersheds and significant biodiversity areas. This map was produced as part of a Habitat Summary for the town. For more information, please contact NYSDEC's Hudson River Estuary Program Conservation and Land Use Specialist Ingrid Haeckel at (845)256-3829 or [ingrid.haeckel@dec.ny.gov](mailto:ingrid.haeckel@dec.ny.gov). <http://www.dec.ny.gov/lands/5094.html>

**Data Sources:**  
 NYS Department of Environmental Conservation  
 NYS Office of Information Technology Services  
 New York Natural Heritage Program  
 US Geological Survey

Map Created 2016



Figure 2: Major Ecological Features in Coeymans, NY



This map shows the most significant *known* ecological features in the Town of Coeymans, Albany County based on limited information. This map was produced as part of a Habitat Summary for the Town. Overlapping layers in the map may be turned off in Adobe Acrobat for customized viewing. For more information, please contact NYSDEC's Hudson River Estuary Program Conservation and Land Use Specialist Ingrid Haeckel at [ingrid.haeckel@dec.ny.gov](mailto:ingrid.haeckel@dec.ny.gov) or (845)256-3829.

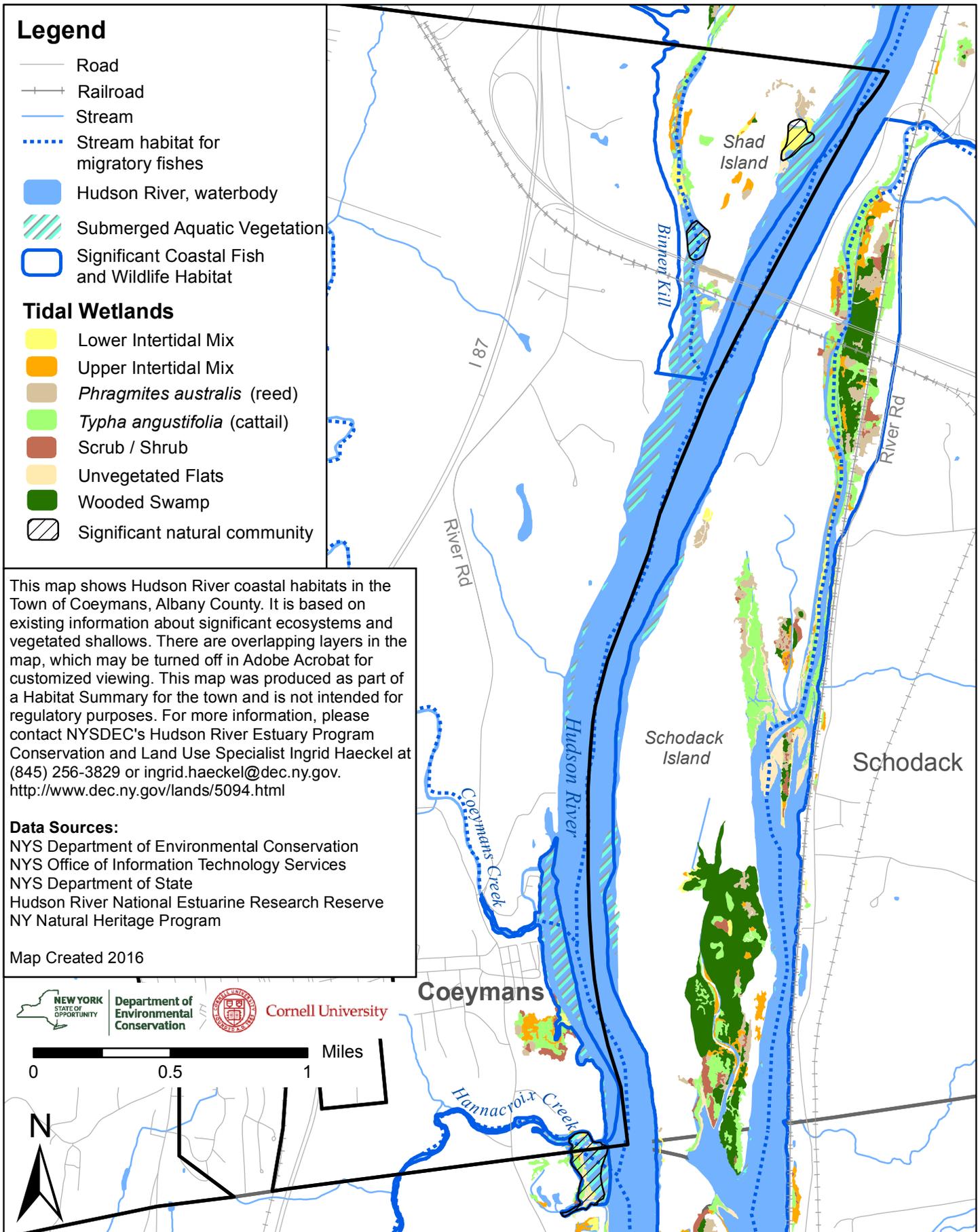
<http://www.dec.ny.gov/lands/5094.html>

**Data Sources:** NYS Department of Environmental Conservation, NYS Office of Information Technology Services, New York Natural Heritage Program, NYS Department of State, NY State Museum, US Geological Survey. Map created 2016

**Legend**

- Waterbody
- Stream
- Stream habitat for migratory fishes
- Regional forest linkage zone
- Limestone and Shale Ridge Significant Biodiversity Area
- Important area for rare plants
- Important area for rare animals
- Important area for significant natural communities
- Road
- Railroad

# Figure 3: Hudson River Coastal Habitats in the Town of Coeymans, NY



# Figure 4: Hudson River Shoreline Habitats and Tidal Wetland Pathways in the Town of Coeymans, NY

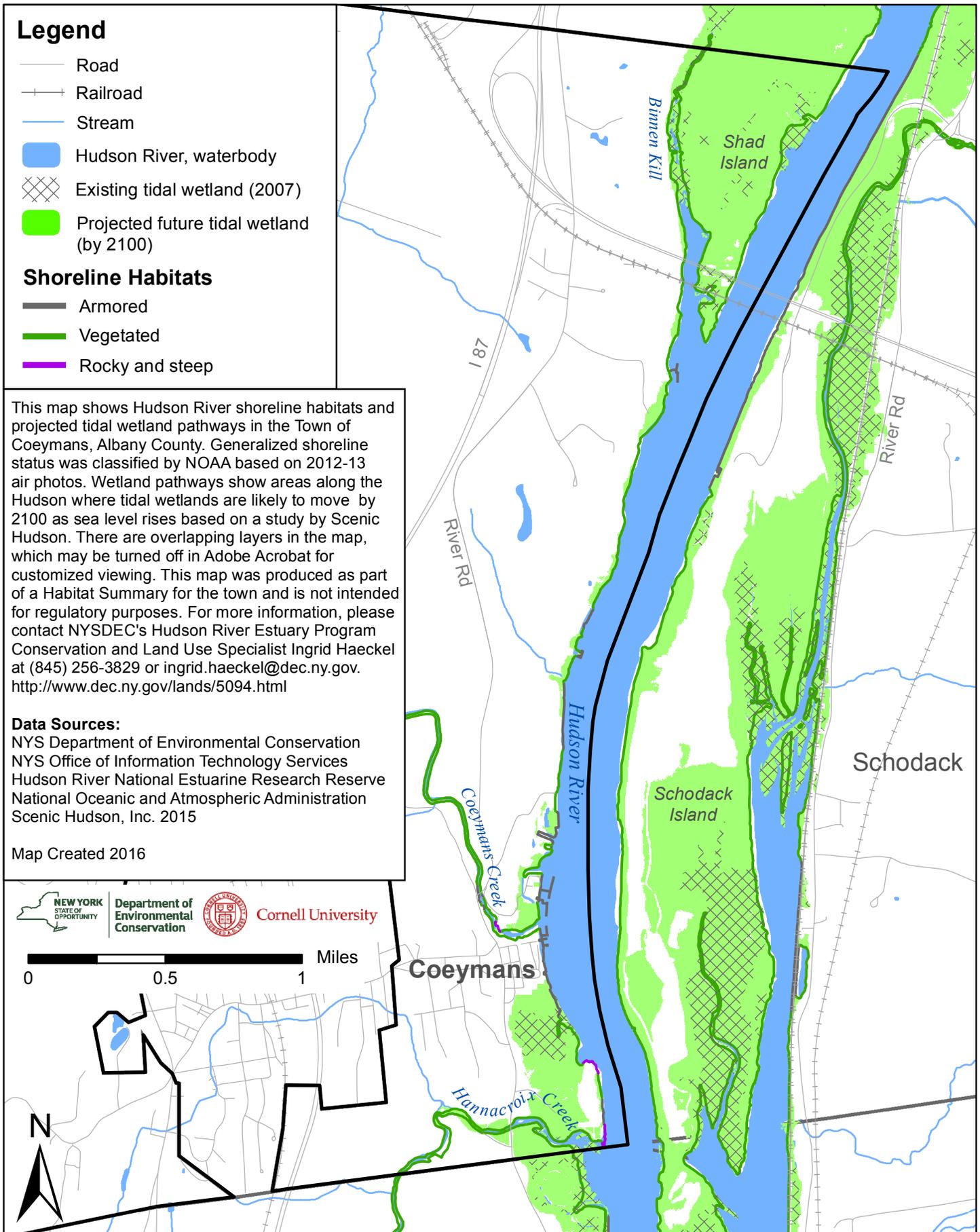
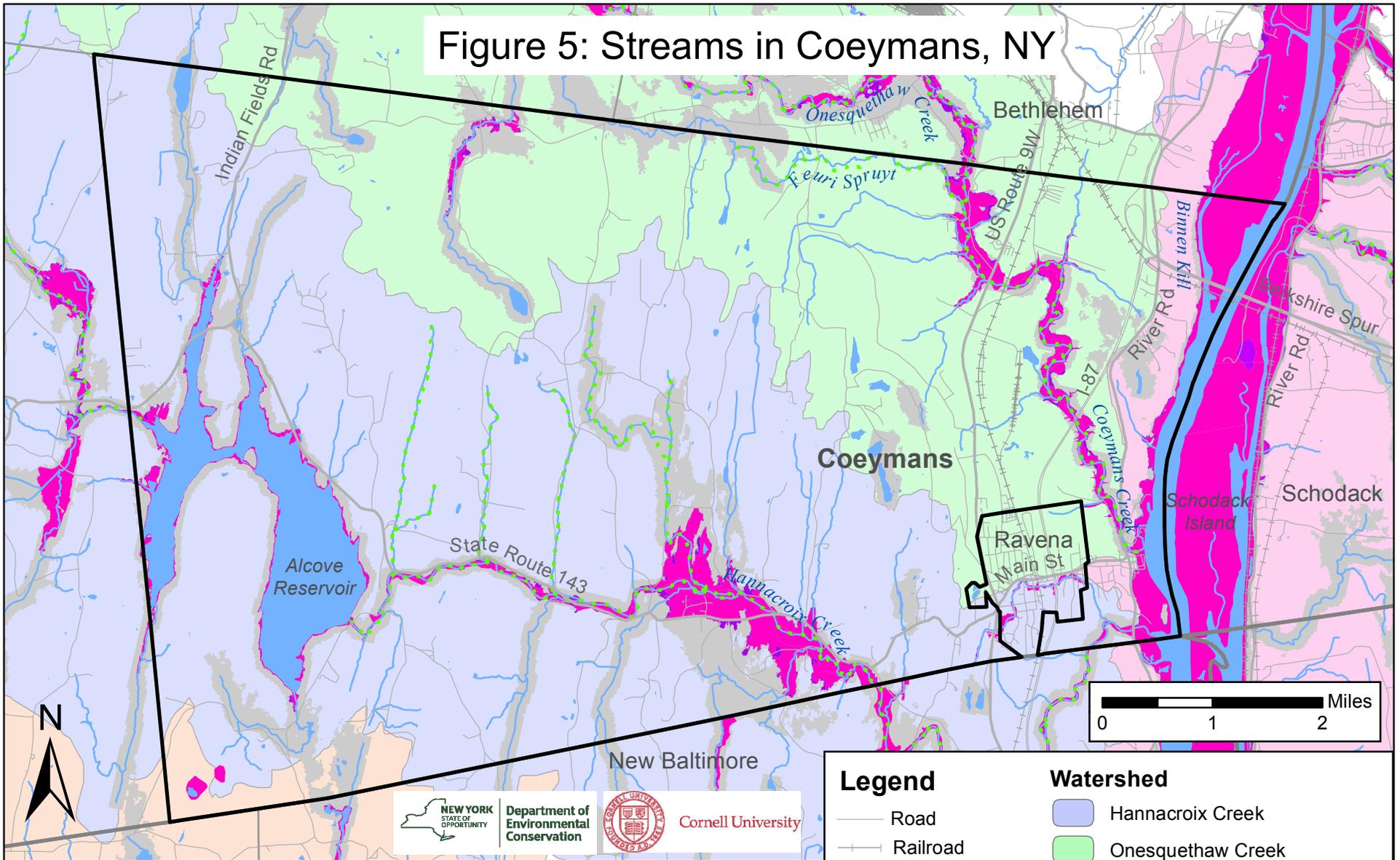


Figure 5: Streams in Coeymans, NY



This map shows streams, their watersheds, trout status, floodplains, active river areas, and waterbodies in the Town of Coeymans, Albany County. This map was produced as part of a Habitat Summary for the town and is not intended for regulatory purposes. Overlapping layers in the map may be turned off in Adobe Acrobat for customized viewing. For more information, please contact NYSDEC's Hudson River Estuary Program Conservation and Land Use Specialist Ingrid Haeckel at [ingrid.haeckel@dec.ny.gov](mailto:ingrid.haeckel@dec.ny.gov) or (845)256-3829. <http://www.dec.ny.gov/lands/5094.html>

**Data Sources:** NYSDEC, US Geological Survey, Federal Emergency Management Agency, the Nature Conservancy, NYS Office of Information Technology Services. Map created 2016

**Legend**

- Road
- Railroad
- Stream
- - - Trout or trout-spawning stream
- Waterbody
- Active River Area

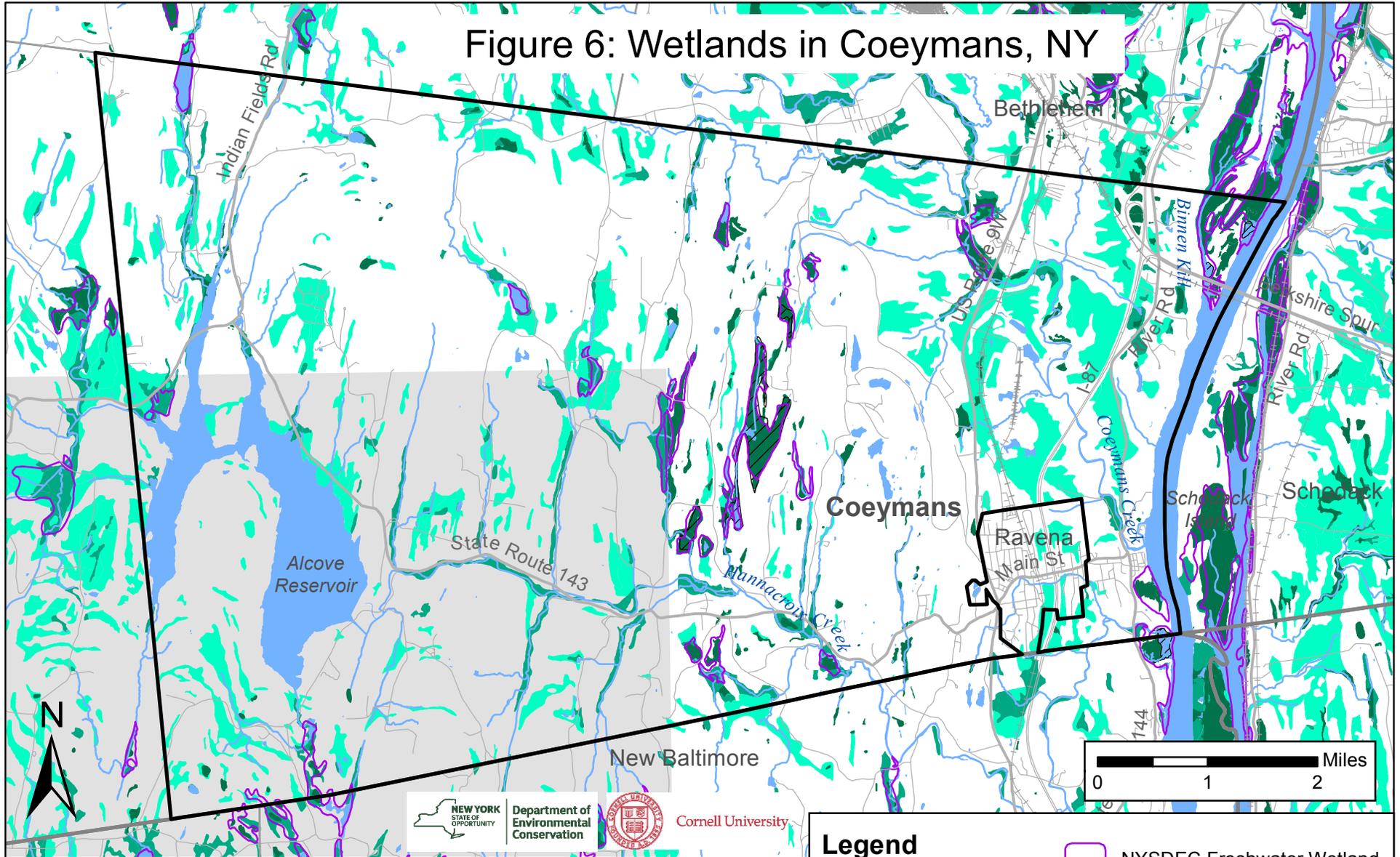
**Watershed**

- Hannacroix Creek
- Onesquethaw Creek
- Potic Creek
- direct drainage to Hudson

**Floodplain**

- 1% Annual Chance (100 year)
- 0.2% Annual Chance (500 year)

Figure 6: Wetlands in Coeymans, NY



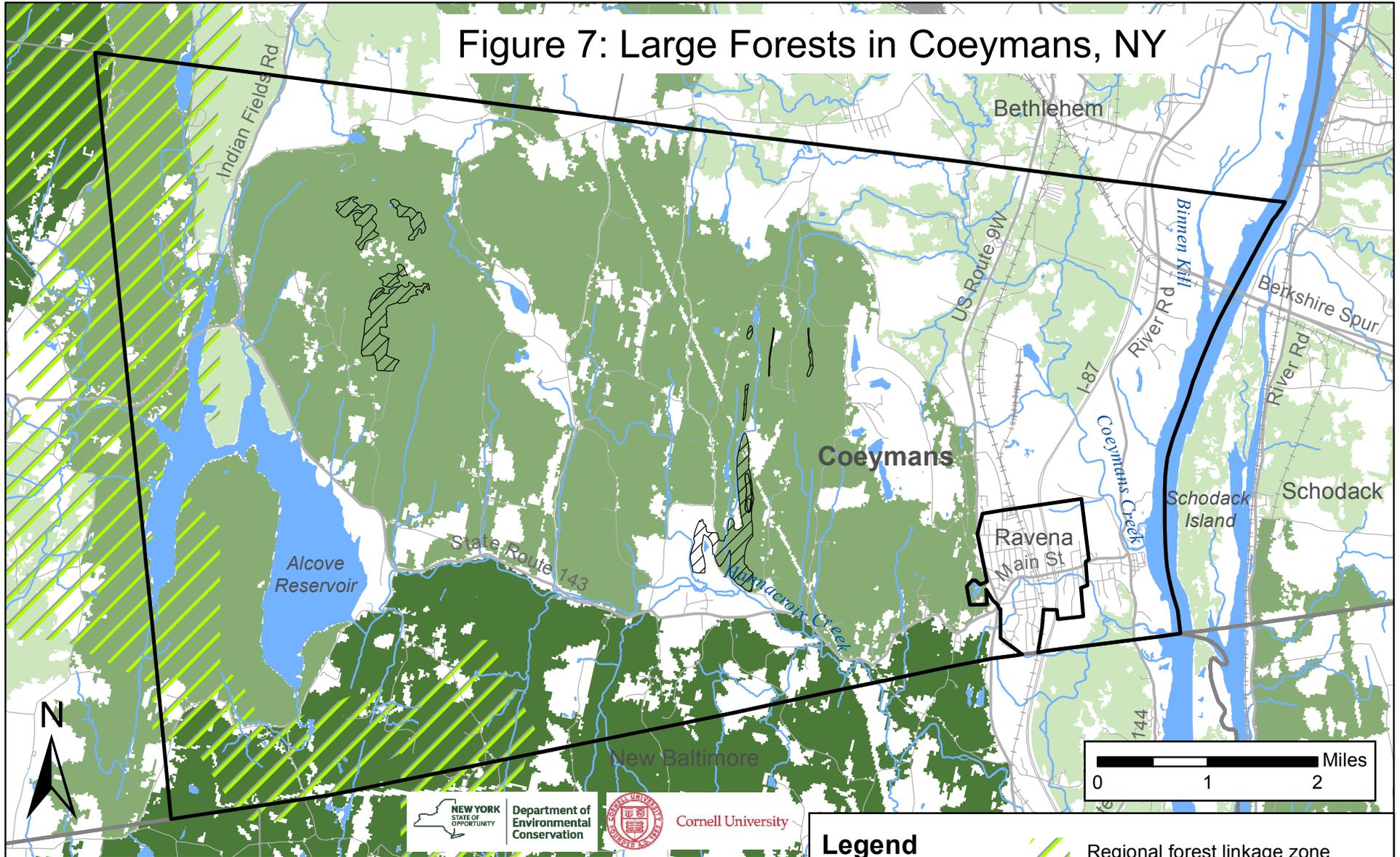
This map shows *known* wetlands from the National Wetlands Inventory (NWI), NYSDEC Freshwater Wetland Map, NYSDEC tidal wetlands map, and significant wetland communities in the Town of Coeymans, Albany County, NY. Probable and possible wetlands were identified based on soil drainage class in the Albany County Soil Survey. This map was produced as part of a habitat summary for the town and is not intended for regulatory purposes. For more information, please contact NYSDEC's Hudson River Estuary Program Conservation and Land Use Specialist Ingrid Haeckel at (845)256-3829 or [ingrid.haeckel@dec.ny.gov](mailto:ingrid.haeckel@dec.ny.gov). <http://www.dec.ny.gov/lands/5094.html> Map created 2016

**Data Sources:** USFWS National Wetlands Inventory, NYS Department of Environmental Conservation, NYS Office of Information Technology Services, Hudson River National Estuarine Research Reserve, Natural Resources Conservation Service, US Geological Survey, New York Natural Heritage Program.

### Legend

-  Road
-  Railroad
-  Waterbody
-  Stream
-  Significant wetland community
-  NYSDEC Freshwater Wetland
-  Known wetland - NWI (National Wetland Inventory)
-  Probable wetland
-  Possible wetland
-  No NWI data available

Figure 7: Large Forests in Coeymans, NY



**Legend**

- Road
- Railroad
- Waterbody
- Stream
- Significant forest community
- Regional forest linkage zone
- Forest Patch Size (acres)**
- Stepping Stone (200-1999)
- Locally Significant (2000-5999)
- Regionally Significant (6000-14999)
- Globally Significant (>15000)

This map shows contiguous forested patches by acreage and regional forest linkage zones of New York State for the Town of Coeymans, Albany County. The patches were developed using forest cover data from the Coastal Change Analysis Program and buffered roads. This map was produced as part of a Habitat Summary for the town and is not intended for regulatory purposes. Overlapping layers in the map may be turned off in Adobe Acrobat for customized viewing. For more information, please contact NYSDEC's Hudson River Estuary Program Conservation and Land Use Specialist Ingrid Haeckel at [ingrid.haeckel@dec.ny.gov](mailto:ingrid.haeckel@dec.ny.gov) or (845)256-3829. <http://www.dec.ny.gov/lands/5094.html>

**Data Sources:** NOAA 2010 Coastal Change Analysis Program, NYS Department of Environmental Conservation, NYS Office of Information Technology Services, New York Natural Heritage Program, Cornell University Department of Natural Resources, US Geological Survey. Map created 2016

# Species and Ecosystems of Conservation Concern in the Town of Coeymans

**Table 1. Species and Ecosystems of New York State Conservation Concern in Coeymans, NY**

The following table lists species of conservation concern that have been recorded in Coeymans, NY. The information comes from the [New York Natural Heritage Program](#) (NYNHP) biodiversity databases, the [Atlas of Inland Fishes of New York](#), the [1990-1999 New York Amphibian and Reptile Atlas](#) (NYARA), and the [2000-2005 New York State Breeding Bird Atlas](#) (NYBBA). Species from the NYBBA are included in the table if they were documented in Atlas blocks that are more than 50% in Coeymans. The table only includes species listed in New York (NY) or federally (US) as [endangered](#), [threatened](#), [special concern](#), [rare](#), a [Species of Greatest Conservation Need](#) (SGCN), or a [Hudson River Valley Priority Bird](#) species recognized by Audubon New York. Historical records are provided from the NYNHP biodiversity databases. Generalized primary habitat types are provided for each species, but for conservation and planning purposes, it's important to recognize that many species utilize more than one kind of habitat. More information on rare animals, plants, and ecological communities can be found at <http://guides.nynhp.org>. **Note:** Additional rare species and habitats may occur in the Town of Coeymans.

Common Name	Scientific Name	Primary Habitat	NYS Conservation Status						Data Source
			<a href="#">Species of Greatest Conservation Need</a> XX = high priority	<b>Rare</b>	<a href="#">Special Concern</a>	<a href="#">Threatened</a>	<a href="#">Endangered</a>	<a href="#">Hudson Valley Priority Bird</a>	
<b>Mammals</b>									
<a href="#">Eastern Small-footed Myotis</a>	<i>Myotis leibii</i>	forest, caves	X		X				NYNHP
<a href="#">Indiana Bat</a>	<i>Myotis sodalis</i>	forest, caves	XX				US NY		NYNHP
<b>Birds</b>									
American Black Duck	<i>Anas rubripes</i>	wetland	XX					X	NYBBA
American Goldfinch	<i>Spinus tristis</i>	young forest, shrubland						X	NYBBA
American Kestrel	<i>Falco sparverius</i>	grassland	X					X	NYBBA
American Redstart	<i>Setophaga ruticilla</i>	forest						X	NYBBA
American Woodcock	<i>Scolopax minor</i>	young forest, shrubland	X					X	NYBBA
Bald Eagle	<i>Haliaeetus leucocephalus</i>	forest/open water	X			X		X	NYBBA
Baltimore Oriole	<i>Icterus galbula</i>	forest						X	NYBBA
Belted Kingfisher	<i>Megaceryle alcyon</i>	open water						X	NYBBA
Black-and-white Warbler	<i>Mniotilta varia</i>	forest						X	NYBBA

Common Name	Scientific Name	Primary Habitat	NYS Conservation Status					Data Source	
			<u>Species of Greatest Conservation Need</u> XX = high priority	<u>Rare</u>	<u>Special Concern</u>	<u>Threatened</u>	<u>Endangered</u>		<u>Hudson Valley Priority Bird</u>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	young forest, shrubland	X					X	NYBBA
Blackburnian Warbler	<i>Dendroica fusca</i>	forest						X	NYBBA
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	forest	X					X	NYBBA
Black-throated Green Warbler	<i>Dendroica virens</i>	forest						X	NYBBA
Blue-Winged Warbler	<i>Vermivora pinus</i>	young forest, shrubland	X					X	NYBBA
Bobolink	<i>Dolichonyx oryzivorus</i>	grassland	XX					X	NYBBA
Broad-winged Hawk	<i>Buteo platypterus</i>	forest						X	NYBBA
Brown Thrasher	<i>Toxostoma rufum</i>	young forest, shrubland	XX					X	NYBBA
Cerulean Warbler	<i>Dendroica cerulea</i>	forest	X		X			X	NYBBA
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	young forest, shrubland						X	NYBBA
Chimney Swift	<i>Chaetura pelagica</i>	urban						X	NYBBA
Cooper's Hawk	<i>Accipiter cooperii</i>	forest	X		X			X	NYBBA
Downy Woodpecker	<i>Picoides pubescens</i>	forest						X	NYBBA
Eastern Kingbird	<i>Tyrannus tyrannus</i>	young forest, shrubland						X	NYBBA
Eastern Meadowlark	<i>Sturnella magna</i>	grassland	XX					X	NYBBA
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	young forest, shrubland						X	NYBBA
Eastern Wood-Pewee	<i>Contopus virens</i>	forest						X	NYBBA
Field Sparrow	<i>Spizella pusilla</i>	young forest, shrubland						X	NYBBA
Kentucky Warbler	<i>Oporornis formosus</i>	forest	XX					X	NYBBA
Least Flycatcher	<i>Empidonax minimus</i>	forest						X	NYBBA
Louisiana Waterthrush	<i>Seiurus motacilla</i>	forest	X					X	NYBBA
Marsh Wren	<i>Cistothorus palustris</i>	wetland						X	NYBBA
Northern Flicker	<i>Colaptes auratus</i>	forest						X	NYBBA
<a href="#">Northern Harrier</a>	<i>Circus cyaneus</i>	grassland	X			NY		X	NYBBA
<a href="#">Peregrine Falcon</a>	<i>Falco peregrinus</i>	cliffs	X				NY	X	NYBBA
Prairie Warbler	<i>Dendroica discolor</i>	young forest, shrubland	X					X	NYBBA

Common Name	Scientific Name	Primary Habitat	NYS Conservation Status					Data Source
			<u>Species of Greatest Conservation Need</u> XX = high priority	<u>Rare</u>	<u>Special Concern</u>	<u>Threatened</u>	<u>Endangered</u>	
Purple Finch	<i>Carpodacus purpureus</i>	forest					X	NYBBA
Red-shouldered Hawk	<i>Buteo lineatus</i>	forest	X		X		X	NYBBA
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	forest					X	NYBBA
Ruffed Grouse	<i>Bonasa umbellus</i>	young forest, shrubland	X				X	NYBBA
Savannah Sparrow	<i>Passerculus sandwichensis</i>	grassland					X	NYBBA
Scarlet Tanager	<i>Piranga olivacea</i>	forest	X				X	NYBBA
<u>Sedge Wren</u>	<i>Cistothorus platensis</i>	grassland	XX			NY	X	NYBBA
Sharp-shinned Hawk	<i>Accipter striatus</i>	forest	X		X		X	NYBBA
Veery	<i>Catharus fuscescens</i>	forest					X	NYBBA
Vesper Sparrow	<i>Poocetes gramineus</i>	grassland	XX		X		X	NYBBA
Whip-poor-will	<i>Caprimulgus vociferus</i>	young forest, shrubland	XX		X		X	NYBBA
Willow Flycatcher	<i>Empidonax traillii</i>	young forest, shrubland	X				X	NYBBA
Wood Thrush	<i>Hylocichla mustelina</i>	forest	X				X	NYBBA
Worm-eating Warbler	<i>Helmitheros vermivorum</i>	forest	X				X	NYBBA
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	young forest, shrubland					X	NYBBA
Yellow-throated Vireo	<i>Vireo flavifrons</i>	forest					X	NYBBA

Reptiles								
Common snapping turtle	<i>Chelydra s. serpentina</i>	wetland	X					NYARA
Northern map turtle	<i>Graptemys geographica</i>	coastal	X					NYARA
Wood turtle	<i>Clemmys insculpta</i>	forest, riparian, grassland	XX		X			NYARA

Amphibians								
Fowler's toad	<i>Bufo fowleri</i>	forest, wetland	X					NYARA

Common Name	Scientific Name	Primary Habitat	NYS Conservation Status					Data Source
			<u>Species of Greatest Conservation Need</u> XX = high priority	<u>Rare</u>	<u>Special Concern</u>	<u>Threatened</u>	<u>Endangered</u>	
Jefferson-blue spotted salamander hybrid	<i>Ambystoma jeffersonianum x laterale</i>	forest, vernal pool	X		X			NYARA

Fish								
Anadromous Fish Concentration Area		coastal						NYNHP
<a href="#">Shortnose Sturgeon</a>	<i>Acipenser brevirostrum</i>	coastal					NY US	NYNHP
American eel	<i>Anguilla rostrata</i>	stream	XX					NYNHP

Invertebrates								
<a href="#">Russet-tipped clubtail</a>	<i>Stylurus plagiatus</i>	coastal	X					NYNHP

Plants								
<a href="#">Back's sedge</a>	<i>Carex backii</i>	forest, rocky areas				NY		NYNHP
<a href="#">Davis' sedge</a>	<i>Carex davisii</i>	forest, riparian				NY		NYNHP
<a href="#">Delmarva beggar-ticks</a>	<i>Bidens bidentoides</i>	coastal		X				NYNHP
<a href="#">Estuary beggar-ticks</a>	<i>Bidens hyperborea var. hyperborea</i>	coastal				NY		NYNHP
<a href="#">Golden-seal</a>	<i>Hydrastis canadensis</i>	forest				NY		NYNHP
<a href="#">Green rock-cress</a>	<i>Boechera missouriensis</i>	forest, rocky areas				NY		NYNHP
<a href="#">Heartleaf plantain</a>	<i>Plantago cordata</i>	coastal		X				NYNHP
<a href="#">Hudson River water-nymph</a>	<i>Najas guadalupensis ssp. muenscheri</i>	coastal					NY	NYNHP
<a href="#">James' sedge</a>	<i>Carex jamesii</i>	forest, riparian				NY		NYNHP

Natural Communities								
<a href="#">Calcareous Cliff Community</a>								NYNHP
<a href="#">Chestnut Oak Forest</a>								NYNHP
<a href="#">Freshwater Intertidal Mudflats</a>								NYNHP

Common Name	Scientific Name	Primary Habitat	NYS Conservation Status						Data Source
			<u>Species of Greatest Conservation Need</u> XX = high priority	<b>Rare</b>	<u>Special Concern</u>	<u>Threatened</u>	<u>Endangered</u>	<u>Hudson Valley Priority Bird</u>	
<a href="#">Freshwater Tidal Marsh</a>									NYNHP
<a href="#">Maple-Basswood Rich Mesic Forest</a>									NYNHP
<a href="#">Red Cedar Rocky Summit</a>									NYNHP
<a href="#">Red Maple-Hardwood Swamp</a>									NYNHP
<a href="#">Rocky Summit Grassland</a>									NYNHP
<a href="#">Silver Maple-Ash Swamp</a>									NYNHP

Historical Records										
<a href="#">American waterwort</a>	<i>Elatine americana</i>							<b>NY</b>		NYNHP

## General Conservation Measures for Protecting Natural Areas and Wildlife



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- **Protect large, contiguous, unaltered tracts** wherever possible.
- **Preserve links** between natural habitats on adjacent properties.
- **Preserve natural disturbance processes**, such as fires, floods, tidal flushing, seasonal drawdowns, landslides, and wind exposures wherever possible. Discourage development that would interfere with these processes.
- **Restore and maintain broad buffer zones** of natural vegetation along streams, along shores of other water bodies and wetlands, and at the perimeter of other sensitive habitats.
- In general, **encourage development of altered land** instead of unaltered land wherever possible.
- **Promote redevelopment of brownfields**, other post-industrial sites, and other previously-altered sites (such as mined lands), “infill” development, and “adaptive re-use” of existing structures wherever possible, instead of breaking new ground in unaltered areas.
- **Encourage pedestrian-centered developments** that enhance existing neighborhoods, instead of isolated developments requiring new roads or expanded vehicle use.
- **Concentrate development along existing roads**; discourage construction of new roads in undeveloped areas. Promote clustered development wherever appropriate, to maximize extent of unaltered land.
- **Direct human uses toward the least sensitive areas**, and minimize alteration of natural features, including vegetation, soils, bedrock, and waterways.
- **Preserve farmland potential** wherever possible.
- **Minimize area of impervious surfaces** (roads, parking lots, sidewalks, driveways, roof surfaces) and maximize onsite runoff retention and infiltration to help protect groundwater recharge, and surface water quality and flows.
- **Restore degraded habitats wherever possible**, but do not use restoration projects as a “license” to destroy existing habitats.

*Source: Kiviat, E. & G. Stevens. 2001. Biodiversity Assessment Manual for the Hudson River Estuary Corridor. NYS Department of Environmental Conservation, Albany, NY.*

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