

## **1.15 Critical Habitats**

The NJDEP Natural Heritage Program has developed a priority site list to identify the best habitats for rare plant and animal species and natural communities through analysis of information in the heritage database. Natural heritage priority sites contain some of the best and most viable occurrences of endangered and threatened species and natural communities, but do not cover all known habitat for endangered and threatened species.

Habitats are ranked according to their significance for biological diversity using a scale developed by The Nature Conservancy and the network of Natural Heritage Programs. The scale ranges from B1 to B5 with sites ranked B1-B3 generally being of global significance and sites ranked B4-B5 being of state significance

**B1** - Outstanding significance, generally the "last of the least" in the world, such as the only known occurrence of any element (species or natural community), the best or an excellent occurrence of an element ranked critically imperiled globally, or a concentration (4+) of good or excellent occurrences of elements that are imperiled or critically imperiled globally. The site should be viable and defensible for the elements or ecological processes contained.

**B2** - Very high significance, areas that contain an outstanding occurrence of any natural community. Also includes areas containing other occurrences of elements that are critically imperiled globally, a good or excellent occurrence of an element that is imperiled globally, an excellent occurrence of an element that is rare globally, or a concentration (4+) of good occurrences of globally rare elements or viable occurrences of globally imperiled elements.

**B3** - High significance, such as any other viable occurrence of an element that is globally imperiled, a good occurrence of a globally rare element, an excellent occurrence of any natural community, or a concentration (4+) of good or excellent occurrences of elements that are critically imperiled in the State.

**B4** – Moderate significance, a good occurrence of any natural community, a good or excellent occurrence or only viable state occurrence of an element that is critically imperiled in the State, an excellent occurrence of an element that is imperiled in the State, or a concentration (4+) of good occurrences of elements that are imperiled in the State or excellent occurrences of elements that are rare in the State.

**B5** - General biodiversity interest.

### **Status and Trends**

Of the 389 Natural Heritage priority sites identified statewide, watershed management area 6 contains portions of 11 different areas. Plate 1.15-1 depicts these areas ranked by

biodiversity importance. The watershed contains one site of high significance (B3), seven of moderate significance (B4), and three of general biodiversity interest (B5).

The highest ranking site, with high biodiversity significance (B3), in the watershed is the Hibernia Mine, an abandoned iron mine which contains populations of two globally rare mammal species and is one of the largest bat hibernacula in the eastern United States. The site is located in Rockaway Township along the Hibernig Brook.

Moderate ranking sites (B4) include the Edison Bog (a Northern bog with a floating mat of vegetation that contains multiple occurrences of State-listed endangered plant species and plant species of special concern) located in Sparta and Hardyston Townships; Sparta Pine Swamp (a wooded swamp that is spruce dominant in places and provides habitat for several rare and endangered plant and animal species) located in Sparta and Jefferson Townships; the Southern portion of the Green Pond Mountain Macrosite (a large landscape patch of forests, lakes, and streams, much is within Picatinny Arsenal) located in Rockaway and Jefferson Townships; Great Piece Meadows (a wetland complex that is predominately forested wetland with some scrub-shrub and emergent areas with the presence of two State endangered and two State threatened species) located in Lincoln Park Borough, Fairfield and Montville Townships; Passaic Meadows Macrosite (a series of wetland complexes adjacent to the Passaic and Whippany Rivers in a portion of the area once covered by the Glacial Lake Passaic) located in Hanover, East Hanover, Parsippany-Troy Hills, Montville Townships, West Caldwell, Roseland, Lincoln Park, Fairfield Boroughs; Troy Meadows (a remnant glacial lake in the Piedmont geological province. It includes forested wetlands with numerous ephemeral ponds on the edge of extensive emergent wetlands) located in Parsippany-Troy Hills, East Hanover and Hanover Townships; Great Swamp Macrosite (a several thousand acre wetland complex, largely forested with hardwoods, but with many open marshes and ponds) located in Harding, Chatham, Long Hill, Bernards, and Passaic Townships.

Areas of general biodiversity interest (B5) include New Russia Gravel Pit (site contains an abandoned sand and gravel pit that is water-filled in places and serves as habitat for rare plant species) located in Jefferson Township; Splitrock Reservoir Site (contains mixed deciduous woodlands with steep slopes that are very rocky in places, with a few intermittent streams that provides habitat for one State-listed endangered plant species) located in Rockaway Township; Mount Hope Bog (site contains a glacial kettle hole bog, surrounded by a mixed hardwood/conifer swamp which is a state imperiled wetland natural community) located in Rockaway Township.

Appendix 1.15.1 lists threatened and endangered vertebrate species on state and federal inventories and their representative habitat.

### **New Jersey's Landscape Project For the Protection of Rare Species**

New Jersey is the most densely populated state in the nation. As people leave the cities to live in the "country", suburban growth overcomes the "country" setting. Extensive suburban growth results in degradation and loss of critically important wildlife habitats,

and the fragmentation and isolation of habitats that remain. Many rare species require large contiguous blocks of habitat to survive. “Small patches of fields, forests and wetlands, interspersed with development provide habitat for some common species, but don’t provide the necessary habitat for most of our rare wildlife. We need to protect large, contiguous blocks of forest, grasslands and wetlands to assure the survival of rare species over the long term.”<sup>1</sup>

In 1994 the N.J. Division of Fish and Wildlife adopted a landscape level (large areas, focus on the big picture) approach to protection of rare species under the Endangered and Nongame Species Program (ENSP). The Landscape Project focuses on large areas called landscape regions that have similar plant and animal communities. The State of New Jersey is divided into five (5) Landscape Regions (WMA 6 falls in the first two regions):

- Skylands
- Piedmont/Plains
- Pinelands
- Coastal
- Delaware Bay

The Landscape Project starts with identification of protected areas and then identifying critical habitats next to the protected areas so that large contiguous blocks of habitat can be identified and protected as appropriate to assure the conservation of rare wildlife for the future. The Project utilized 1995-1997 land use data to identify forests, grasslands and wetlands in the State. The identified areas were screened based upon specific criteria for minimum contiguous area, buffers and priority species location information, and parcels were assigned ranking values for further consideration for land preservation. The Landscape Project thus provides data that can be used for proactive planning purposes to take action to preserve important critical areas before activities occur which would threaten or destroy the areas. Landscape Project maps can be obtained through download of GIS coverages from NJDEP’s website: [www.state.nj.us/dep/fgw](http://www.state.nj.us/dep/fgw). Interactive maps can be viewed over the internet at: [www.state.nj.us/dep/gis](http://www.state.nj.us/dep/gis).

The maps and data available through the Landscape Project can be used in a variety of ways, including:

- Prioritize conservation acquisitions (through Green Acres and other programs)
- Guide regulators and planners
- Provide citizens with conservation tools
- Guide stewardship of already conserved areas – to assist in development of appropriate best management practices and prevent inappropriate modification of conserved public and private lands.

Within WMA 6, the Landscape Project maps show extensive areas of forest of concern with respect to federal threatened and endangered species habitat in the Highlands portion of the Rockaway River watershed. Other forest areas of concern with respect to state threatened and endangered species are shown in the headwaters of the Whippany and the

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<sup>1</sup> NJDEP, Division of Fish and Wildlife, New Jersey’s Landscape Project For the Protection of Rare Species, web site

Passaic Rivers. Wetlands of concern are shown in the Great Swamp and in the Great Piece and Troy Meadows, with surrounding forest and wetland forest areas.

### **Regionally Significant Habitats and Habitat Complexes of the New York Bight Watershed**

The U.S. Fish and Wildlife Service (U.S. Department of the Interior) has prepared a document presenting the “identification and descriptions of essential habitats of key marine, coastal, and terrestrial species inhabiting the New York Bight watershed study area in order to help guide informed and ecological sound land use decisions and land protection efforts.”<sup>2</sup> The report is oriented towards the identification of large habitat complexes. The New York Bight watershed includes all areas in New Jersey that discharge flow to the Atlantic Ocean or tributaries thereto except for the Delaware River and Bay. Thus all of the Passaic River Basin is included in the New York Bight watershed.

The report includes three (3) complexes which are all or partially in the Passaic River Basin:

1. Complex 23 – Preakness Mountain
2. Complex 24 – Passaic Meadows
3. Complex 25 – New York – New Jersey Highlands

Parts of Complexes 24 and 25 are in WMA 6. The following information regarding each complex is abstracted from the New York Bight report.

#### **Complex #24 – Passaic Meadows – (Predominantly in WMA 6, partially in WMA 3)**

The Passaic Meadows boundary encloses the wetlands and wetland buffer areas in the Passaic River valley from Basking Ridge northeast to Wayne Township, in Somerset, Morris and Essex Counties. Specific wetlands include the Great Swamp, Black Meadows, Troy Meadows, Hatfield Swamp, Lee Meadows, Little Piece Meadows, Great Piece Meadows, and Bog and Vly Meadows. Developed upland areas within this boundary in the municipalities of Madison, Florham Park, Hanover, and East Hanover are excluded. This approximately 34-square mile wetland area is one of the largest freshwater wetland complexes in the region and is especially significant given its location within the highly urbanized and suburbanized Northern Triassic Lowlands (Newark Basin). These wetlands support regionally significant populations of fish and wildlife, including several federal candidate and state-listed species. The wetlands are particularly significant for seasonal concentrations of waterfowl and waterbirds.

Wetlands in New Jersey are regulated under the Freshwater Wetlands Protection Act and Wetlands Act of 1970; federal regulations under Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act of 1977, and various Executive Orders.

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<sup>2</sup> U.S Fish and Wildlife Service, Significant Habitats and Habitat Complexes of the New York Bight Watershed, 1996.

At the southwest end of the complex is the Great Swamp National Wildlife refuge managed by the US Fish and Wildlife Service. The eastern half of the Refuge is designated as a Wilderness Area and left undisturbed except for a small network of trails. The western half is actively managed too maintain a diversity of wildlife habitat. Several parks and county environmental centers abut the Refuge.

Troy Meadows Natural Area consists of six separate small parcels in the northern part of the habitat managed by the New Jersey Division of Parks and Forestry. Great Piece Meadows at the northern most part of the complex is a state park also managed by the Division of Parks and forestry. West Essex Park is a county park managed by Essex County that includes about 5.6 miles along the eastern edge of the Passaic River. The Morristown Municipal Airport is located in the middle of Black Meadows. The rest of the habitat complex is privately owned. The U.S. Fish and Wildlife Service has designated the glacial Lake Passaic wetlands as a priority wetland site under the federal Emergency Wetlands Resources Act of 1986.

Passaic Meadows is surrounded by suburban residential and commercial land use, and much of the area has been impacted directly or indirectly by suburbanization . Several major highways run through or near the complex. Although some of the remaining open space in the wetland is publicly owned, much of it is privately owned and under increasing pressure for development. The complex is significant because it supports a diversity of regionally rare wildlife, especially migratory birds. The variety of aquatic and upland habitat in the Passaic Meadows supports a prey base for migratory raptors that stop in the area.

The major threat to this wetland complex is the continued development of lands within the watershed. Increased development will result in increased flooding, sedimentation, and increased point and nonpoint source pollution loads. There is contamination from two landfills near the Great Swamp Refuge. Changes in the watershed will potentially increase flows to but not through the Great Swamp, resulting in increased duration and depth of water in the swamp. Increased flooding in the Great Swamp would affect the ecological balance of the wetland. Increased development in the watershed could also result in decreased flow in tributaries to the Swamp during dry periods, adversely affecting fish and wildlife.

### **Complex #25 New York – New Jersey Highlands (WMA 3 and WMA 6)**

The New York – New Jersey Highlands are located in northern New Jersey and southeastern New York. The entire complex extends from the Delaware River northeast across the Hudson River into southwestern Connecticut. It includes 110 towns in three states. The Highlands lies between the Piedmont to the southeast and the Appalachian Ridge and Valley on the northwest. The entire Highlands Province is noteworthy as a relatively undeveloped corridor of forests, wetlands, and grasslands of regional importance to breeding and migratory bird, resident amphibians and reptiles, and rare plants and communities within close proximity to the New York City metropolitan area. The principal significant habitat is the core area of unfragmented forest and wetlands

within the Highlands physiographic province, extending from the glacial moraine (at about the location of Interstate 80 in New Jersey) northeast across the Hudson River to the New York-Connecticut border. This core habitat has the highest concentration within the Highlands of species and communities of special regional emphasis dependent on large, unfragmented forest and wetland habitats.

A regional study of the Highlands by the U.S. Forest Service in 1992 documented the occurrence and ownership status of 160,000 acres of publicly owned land between the Hudson and Delaware Rivers, or about 16% of the total land area of the Highlands. The significant core habitat north of the moraine is about 23% publicly owned.

The ecological significance of this area relates to its large, contiguous forest and wetland habitats and the disturbance-sensitive species dependent upon those habitats, as well as the diversity of plants, communities, and animals unique to this region. Species populations in the Highlands indicative of undisturbed forest and wetland habitats include wood turtle, timber rattlesnake, red-shouldered hawk, barred owl, warblers and thrushes, black bear, bobcat, and native brook trout. The Highlands study conducted by the U.S. Forest Service estimated that roughly 50% of the area between the Delaware and Hudson Rivers, or about 500,000 acres, is important habitat based on the presence of species that are endangered, threatened, or of special concern.

The most significant threat to the Highlands is the continued loss and fragmentation of the area's forests and wetlands. For many of these forest lands, there is no regulatory protection. The extension of interstate 287 through the Highlands has increased both the accessibility of areas and development pressure in the Highlands. There are several large parcels of protected lands. However, the cumulative impact of development of smaller parcels throughout this area will be significant. The majority of privately owned forest is in smaller parcels (less than 50 acres), making acquisition or protection of these areas difficult. The loss of forest habitat will reduce the suitability of this area for forest interior spaces, degrade water supply, and likely increase flooding of downstream areas. Loss of habitat will also fragment the mostly unbroken forested corridors connecting the Highlands from New England on the North to the Appalachian Ridges and Pennsylvania on the south.

Based on macroinvertebrate sampling, several streams in the Highlands, including the Ramapo River at Harriman, were severely degraded in 1991. The degradation of the stream segments was attributed to sewage treatment plant discharges upstream.

The New York Bight report included several recommendations for conservation of the Highlands. The core area for conservation in the Highlands should be the contiguous forest and wetland area within the Highlands physiographic province from the moraine north to the Hudson River. Within this area, the large network of publicly owned open space should be expanded to include all remaining undeveloped areas, whether through acquisition, conservation easements or other means. Lands that are in public ownership should have additional protection as needed to assure that they will not be diverted to other uses in the future.

## Appendix 1.15.1

### Threatened and Endangered Species *(taken from USFS Highlands Study)*

#### Faunal Species

Bobcat  
Lake Chub sucker  
Northern Cricket Frog  
Bog Turtle  
Timber Rattlesnake  
Wood Turtle  
Pied-billed Grebe  
Cooper's Hawk  
Northern Goshawk  
Northern Harrier  
Red-shouldered Hawk  
Osprey  
Bald Eagle  
Peregrine Falcon  
American Bittern  
Great Blue Heron  
Barred Owl  
Short-eared Owl  
Redheaded Woodpecker  
Cliff Swallow  
Bobolink  
Savannah Sparrow  
Grasshopper Sparrow  
Vesper Sparrow  
American Burying Beetle  
Dwarf Wedge Mussell

#### Habitat

Swamps, Forest  
Lakes  
Wetland Buffer  
Bogs, Sluggish Streams  
Mountain Slopes  
Streams, Buffers  
Ponds w/reed margins  
Forest  
Forest  
Ridges, Fields, Marshes  
Swamps, Forest  
Ridges, Water Areas  
Ridges, Water Areas  
Ridges, Water Areas  
Marshes  
Swamp, Marsh, Pond  
Swamp, Moist Woods  
Fields, Farms  
Ridges, Swamps  
Dams, Bridges, Buildings  
Uncut Fields  
Uncut Fields  
Uncut Fields  
Farmland, Fields  
Generalist / Oak Hickory Forest  
Streams, Rivers

**Floral Species**

Long's bitter cress

Variable sedge

Small whorled pogonia

Swamp-pink

Alleghany plum

Spreading globe flower

Trailing tick-trefoil

Small white lady's slipper

Heart leaf plantain

*Cardamine longii*

*Carex Polymorpha*

*Isotria medeoloides*

*Helonias bullata*

*Prunus alleghaniensis*

*Trollius laxus*

*Desmodium humifusum*

*Cypripedium candidum*

*Plantago cordata*

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