

## Chapter 4:

# Natural Area and Wildlife Inventory



An inventory of natural areas and wildlife helps a community to plan for and protect important natural features. It can be comprehensive—looking at land, water, air, plants, animals, etc.—or it can focus on a few important resources in a community. An inventory can be a municipality-wide effort, or intermunicipal, based on a shared natural resource. This chapter describes where to find biological information and how to create priorities for conservation. Once

complete, community leaders can use such an inventory to conserve natural areas using the tools described in the remainder of this handbook.

## Create a Map of the Local Ecological Landscape

Creating a map of your ecological landscape using existing information is an important step in creating a local conservation program. The purpose of this map is not to identify areas that are off-limits to development, but to begin to guide the discussion on how local natural areas and wildlife can be conserved. When a map exists, the town has a basis for protecting important habitats through acquisition, easement, or by working with developers and private landowners. The habitat information can be enhanced by species information, biodiversity assessments, and site-specific biological surveys.

As part of this process, your community may choose to inventory additional resources it wishes to conserve, such as drinking water aquifers or farmland.

Your map should identify:

- The known locations of rare animals, rare plants, and significant ecosystems. This is the information that is collected by the New York Natural Heritage Program.
- Hudson River habitats (if applicable).
- Wetlands. Pay special attention to large wetland complexes and clusters of small or medium size wetlands.
- Streams and their corridors. For stream corridors, include at least 200 feet on either side of streams.

- Significant forest resources. Pay special attention to forests larger than 200, 2,000, 6,000, and 15,000 acres, and those along streams and rivers. Some of the larger forests will cross municipal boundaries.
- Grassland areas larger than 100 acres. Areas of this size will be more likely to support rare and declining species of birds.
- Existing species-specific information (see sidebar on page 23).
- Once all of these features are identified on a map or geographic information system (GIS), a pattern will begin to emerge. If the areas do not connect, identify broad swaths of habitat that could serve as potential connections among them\*
- The next step is to develop local priorities for conservation.

**A NOTE OF CAUTION:** The process of identifying your ecological landscape as outlined here is very general. On-the-ground surveys will likely identify additional natural areas and wildlife species in your community. For this reason, a natural-resource inventory should be an ongoing process and should not be substituted for onsite surveys during project review. Moreover, a natural-resource inventory should not be used to direct development or create a management plan for a single site because the information will be too general. To incorporate habitat and species information into those site-specific activities appropriately, it must be confirmed by on-the-ground surveys.

## How to Find Habitat Information About Your Community

There are several reliable sources of information for the natural area and habitat information. Much of it is now available for use on a geographic information system. Online resources are listed in the table on page 21. Your regional Department of Environmental Conservation office is also a good source of natural area and wildlife information (see Appendix 3).

\* See Kennedy et al. 2003 for more information on appropriate corridor size and location.

## What Is a GIS?

A geographic information system (GIS) is a computerized map that can combine different layers of geographic information. It also connects that geographic information to a database. Because a GIS is dynamic, new information can be added over time and different kinds of information can be analyzed together. For example, steep slopes and significant habitats can be overlain to see how these two different types of information might inform land-use planning. A GIS layout can be printed as a paper map for use in meetings and by the planning board.

Using GIS data requires specialized viewing software and often training to use the software and understand its limitations. Some towns have purchased their own GIS and dedicated staff people to maintain it, while others use consultants to develop and maintain the town's system.

## Rare Species and Significant Ecosystems

The New York State Department of Environmental Conservation's Natural Heritage Program maintains New York's database on the status and location of rare species and significant ecosystems. It tracks and maps state- and federal-listed species as well as other species that are rare statewide, but not legally listed. The program also tracks and maps significant ecosystems, including different kinds of forests, wetlands, and open uplands, that are rare, or of exceptionally high quality when compared to other examples in the state. The list of species and significant ecosystems (ecological communities) inventoried by the program can be found at [www.nynhp.org](http://www.nynhp.org). Note that the location of some rare species are kept confidential due to their sensitive nature.

## Coastal Habitats (Hudson River)

The locations of tidal estuarine wetlands and vegetated shallows have been collected by the New York State Department of Environmental Conservation. The New York State Department of State implements New York's coastal program and maintains information about significant coastal fish and wildlife habitat on the Hudson River.

## Wetlands

Wetland maps have been developed by the New York State Department of Environmental Conservation and the U.S. Fish and Wildlife Service. Neither Department of Environmental Conservation freshwater wetland maps nor National Wetland Inventory (NWI) maps show all of the wetland resources in a community. Not all areas of the Hudson Valley have completed NWI maps. Using the freshwater wetland, NWI, and hydric soil maps together is the best way to identify wetlands without on-the-ground surveys. Some county

agencies may have wetland information on GIS.

A town can arrange for its own mapping to fill the gaps or partner with another municipality to share the cost. Site-specific wetland boundary delineation must be conducted to determine whether or not wetlands are present on a particular site. Additionally, towns can require developers to delineate wetlands on each parcel.

## Streams and Stream Corridors

Permanent streams have been mapped by the U.S. Geological Survey and the New York State Department of Environmental Conservation. Some county agencies may have higher resolution stream information.

## Forests

Forest location information is not typically collected in New York State, but high quality forests are mapped by the New York State Department of Environmental Conservation's Natural Heritage Program. Aerial photos can also be used to identify forested areas. What constitutes a significant forest will vary by community. Chapter 5 has information on wildlife values of different forest sizes. Aerial photos should be used only to identify habitat at a broad scale. All information collected from maps and photos should be confirmed by visiting the site.

## Open Uplands and Barrens

Open upland location information is not typically collected in New York State, but rare barrens are mapped by the New York State's Natural Heritage Program. Aerial photos can also be used to identify large open areas, although they should be used only to identify habitat at a broad scale. All information collected from maps and photos should be confirmed by visiting the site.



### Table 4-1. Online Natural Area and Wildlife Information

The two best resources for widely available GIS data in the Hudson Valley are the New York State GIS Clearinghouse ([www.nysgis.state.ny.us](http://www.nysgis.state.ny.us)) and the Cornell University Geospatial Information Repository ([cugir.mannlib.cornell.edu/](http://cugir.mannlib.cornell.edu/)). Other useful GIS web sites are U.S. maps and data ([www.geodata.gov](http://www.geodata.gov)) and the National Biological Information Infrastructure ([www.nbi.gov](http://www.nbi.gov)). New data are added over time, so search these sites for updates.

habitat	available data online	format	web site	notes
rare species and significant ecosystems	rare plant, rare animal, and significant ecosystem fact sheets	fact sheet	<a href="http://www.guides.nynhp.org">www.guides.nynhp.org</a>	Information collected by the New York Natural Heritage Program
coastal habitats	tidal wetlands south of the Tappan Zee	digital scan	<a href="http://twi.ligis.org">twi.ligis.org</a>	Maps are of tidal wetlands protected by New York State
coastal habitats	significant coastal fish and wildlife habitat maps and narratives	CD, paper, GIS	<a href="http://www.nyswaterfronts.com">www.nyswaterfronts.com</a>	Information used for state coastal consistency analysis
coastal habitats	Hudson River vegetated shallows from Troy to Yonkers (submerged aquatic vegetation)	GIS	<a href="http://cugir.mannlib.cornell.edu">cugir.mannlib.cornell.edu</a>	
wetlands	New York State freshwater wetland maps show regulated wetlands 12.4 acres and larger	GIS	<a href="http://cugir.mannlib.cornell.edu">cugir.mannlib.cornell.edu</a>	Maps are of freshwater wetlands protected by New York State
wetlands	National Wetland Inventory (NWI) maps can be downloaded from the U.S. Fish and Wildlife Service	GIS	<a href="http://www.nwi.fws.gov">www.nwi.fws.gov</a>	NWI maps are not complete for all areas of the Hudson Valley.
wetlands	National Wetland Inventory wetland mapper (No GIS software needed)		<a href="http://www.wetlands.fws.gov">www.wetlands.fws.gov</a>	
wetlands	hydric soils	GIS		Hydric soils are good indicators of wetlands.
streams and stream corridors	data layer: hydrography 1:24,000	GIS	<a href="http://cugir.mannlib.cornell.edu">cugir.mannlib.cornell.edu</a>	
streams and stream corridors	100-year floodplain maps developed by the Federal Emergency Management Agency (FEMA)	GIS	<a href="http://www.nysgis.state.ny.gov">www.nysgis.state.ny.gov</a>	Floodplain maps are not habitat maps, but may help identify floodplains, which do have habitat significance.
forests, open uplands and barrens, urban natural areas	digital orthoimagery	GIS	<a href="http://www.nysgis.state.ny.gov">www.nysgis.state.ny.gov</a>	These aerial photos can be used to identify forested or open lands, or to identify natural areas in a built environment.

The presence of rare grassland and shrubland birds can help confirm that areas on aerial photos are high-quality habitat. The New York State Breeding Bird Atlas (available at [www.dec.ny.gov](http://www.dec.ny.gov)) has general locations of birds across the state. A list of rare grassland birds can be found in Chapter 3 (See also sidebar on page 23).

#### Urban Habitats

Urban habitats are not fundamentally different from those listed above. The techniques already described can be used to identify habitats in urban areas. Aerial photos can also be used to identify urban natural areas, although they should be used only to identify habitat at a broad scale. All information collected from maps and photos should be confirmed by visiting the site.

#### Existing Species Specific Information

Some existing sources of species-specific biological information can tell you more about the kinds of habitats in your town. For example, some birds, reptiles, and amphibians can be good indicators of high-quality habitat (see the following table for resources).

Valuable information can be obtained from people in your community, including college or university professors and volunteer naturalist groups (e.g., local birding clubs, Torrey Botanical Society, Bear Mountain League of Naturalists). A list of volunteer naturalist groups in the Hudson Valley can be found in the appendix of the Biodiversity Assessment Manual of the Hudson River Estuary Corridor (Kiviat and Stevens 2001). Pay special attention to species that are rare or declining,



as the presence of these species indicate habitat that is most important to protect (see page 23). Local species lists are also useful for project review.

### How To Store Information

Once you’ve collected the information, you don’t want to lose it. You may want to charge a town staffperson or committee (e.g., conservation advisory council or open space committee) with maintaining the information as a database, GIS, or in paper files. Make sure to cite sources and detail methods for accessing the information sources so future users of the information know what you’ve done.

### Developing Priorities

Municipalities that have many natural areas may want to prioritize their conservation efforts. Here are a few questions to ask:

*What does your community value?* Community values are very important in creating priority. A public participation process can help identify what is important in your community (see Chapter 6 for advice on involving the public). In many communities water is a very important resource—and there are many habitats that support a clean and abundant water supply. Natural areas that contribute to a region’s character may be another important factor in your community. Other important community values include recreational opportunities like birdwatching, fishing, hunting, and boating. Next, determine what habitats the community needs to conserve in order to protect what the community values. For example, if your community values clean water, then natural areas like forests, wetlands, and streams may be most important.

*Which resources in your area are unique?* Natural areas and wildlife that are unique to your county, the Hudson Valley, or the state can be another conservation priority.

For example, sixty-six percent of steep cliff and talus habitat on the Shawangunk Ridge is in the Town of Gardiner, Ulster County, which led the town to develop zoning to help protect its steep slope habitats. The New York State Department of Environmental Conservation, regional conservation organizations, and local naturalists can help identify unique resources.

*Which resources in your area are high-quality habitats?* A high-quality habitat can be common or rare. It contains native plants and animals, few invasive species, and is of sufficient size to keep living and nonliving parts working together. Your community may choose to conserve those high-quality natural areas and wildlife because they have the best chance of long-term survival. The New York State Department of Environmental Conservation, regional conservation organizations, and local naturalists can help identify high quality habitats.

If natural area and wildlife information is lacking for your community, you may want to prioritize collecting new biological information using one of the tools that follow.

### How To Add New Information

There are several ways to get new information:

#### Identify Ecologically Significant Habitats

Based on the inventory process outlined in this chapter, small but important habitats probably won’t be identified (e.g., rock outcrops or crest habitats). The Biodiversity

Assessment Manual for the Hudson River Estuary Corridor (Kiviat and Stevens 2001) outlines a process by which anyone can identify both large and small habitats in their community. Using readily available maps and documents, the manual guides you step by step to accurately identify ecologically significant habitats in your landscape. The manual includes descriptions of significant habitats, the rare or declining plant and animal species that live in those habitats, as well as conservation and management issues.

**Table 4-2. Where to Find Information About Your Community’s Plant and Animal Species**

resource	species information	where to find
New York State Breeding Bird Atlas	breeding bird presence 1980–1985 and 2000–2005	www.dec.ny.gov
New York State Reptile and Amphibian Atlas	reptile and amphibian presence 1990–1998	www.dec.ny.gov
New York Flora Atlas	county plant lists, search for plant species’ habitat and rarity	atlas.nyflora.org
Important Bird Areas	sites identified by Audubon New York that are significant to breeding and migrating birds	ny.audubon.org
native trout streams	streams where trout naturally reproduce (not stocked).	regional Department of Environmental Conservation office www.dec.ny.gov

### Information from Project Review

Chapter 9 of this guidebook includes suggestions for developing standards for environmental review and requiring biological assessments during project review. Standards for environmental review make it clear what habitats and/or species your municipality wants to assess and how to assess them consistently across projects. Requiring assessments not only informs the development at hand, but can also be added to a municipal natural-resource inventory.

### Biological Surveys

Biological information can also be obtained by commissioning surveys by a qualified biologist. A municipality could decide to collect information on habitat and/or individual species the community wishes to conserve. Grants may be available to help fund such a study.

### Species of Conservation Concern

We do not recommend that a town try to inventory and protect every plant and animal species that exists. The following references list species of conservation concern.

For animals, use the list of Species of Greatest Conservation Need developed for New York's Wildlife Action Plan (New York State Department of Environmental Conservation 2006). For plants, use the New York State list of endangered, threatened, rare, and exploitably vulnerable plants or the New York State rare plant status lists (Young 2007). Use these lists to prioritize the list of species identified in your municipality. All information is available at [www.dec.ny.gov](http://www.dec.ny.gov). For more guidance, contact your regional Department of Environmental Conservation office.

### Local Examples

#### Intermunicipal Inventory

Leaders in the towns of Cortlandt, New Castle, Putnam Valley, and Yorktown wanted to learn more about the important wildlife in their town. They hired the Wildlife Conservation Society's Metropolitan Conservation Alliance (MCA), professional biologists whose approach to biodiversity conservation looks beyond political borders. Biologists surveyed public lands and private lands with landowner permission for wildlife species, producing a report that identified the areas in their towns most appropriate for development and those that are most appropriate for conservation (Miller and Klemens 2004). The towns are working at the municipal and intermunicipal levels to implement the report's recommendations, which encourage the use of land-use planning tools to direct development to the most appropriate areas.

### Learning to Identify Ecologically Significant Habitats

The intermunicipal Croton to Highlands Biodiversity Plan identified areas in the towns of Cortlandt, New Castle, Putnam Valley, and Yorktown that support high-quality habitat. The plan, developed in partnership with the four towns and the Wildlife Conservation Society, identified tenuous habitat connections that might be stronger if appropriate habitat was found in neighboring Philipstown. A group of volunteers from the Town of Putnam Valley Environmental Committee and the Hudson Highlands Land Trust used the Biodiversity Assessment Manual to identify ecologically significant habitats near those connections in the Town of Philipstown. The volunteers are now working with the Town of Philipstown to help conserve the significant resources.



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### Tompkins County Unique Natural Areas Program

Tompkins County is in the Finger Lakes Region of New York. Tompkins County's Environmental Management Council developed an innovative way to identify its habitats and share that information with local land-use decision-makers. The Tompkins County Unique Natural Areas Inventory was developed using biological information to identify important resources for local land-use planners and conservation. The areas fall into one of the following categories: important natural communities, high-quality habitat, rare or scarce plants and animals, geological importance, and cultural significance. Natural-area boundaries based on a review of air photographs were delineated by field biologists, digital GIS basemap data, and field visits. Maps and a report are available at town offices and local libraries. The project was led by the Tompkins County Environmental Management Council, in partnership with Cornell Plantations, local naturalists, and citizen input. This program is a good model for providing useful information about unique areas of the region that can be used by local governments (Tompkins County Environmental Management Council 2000). For more information, contact the Tompkins County Planning Department at 607 275-5560.

### Regional Information Sources

Some local areas are fortunate enough to have documents that summarize biological information for a region. These can be excellent sources of information for local and intermunicipal plans. A few of these are listed below.

### Helderberg Escarpment Planning Guide

Developed over a ten-year period by an award-winning committee, the 257-page *Helderberg Escarpment Planning Guide* (Driscoll and Childs 2002) examines the geology, soils, hydrology, flora and fauna, agriculture, aesthetics, recreation, history, present land use and zoning, noise, and electromagnetic radiation of this unique area. Planners, municipal officials, developers, residents, and anyone else wishing to better understand the special character of the Helderberg Escarpment region will find the guide an invaluable resource. It is a great tool for comprehensive, watershed, or open space planning in the Helderberg Region of western Albany County. An executive summary, front cover, back cover, and table of contents are available for free download at [www.mohawkhudson.org](http://www.mohawkhudson.org), where the complete book can be ordered for \$20 (includes shipping).

### Shawangunk Ridge Biodiversity Partnership

The Shawangunk Ridge Biodiversity Partnership was formed by conservation landowners and researchers to create a shared management vision of the ridge in Ulster, Orange, and Sullivan Counties. Since 1994, the members have worked together to collect biological information and develop stewardship guidelines. The partnership created the Green Assets program in 2002, recognizing the stewardship role of local communities in protecting the ridge ecosystem. Through Green Assets, the partnership provides biological information and guidance to the local communities of the Northern Shawangunks. The communities determine how to integrate that information into land-use planning. For more information, contact The Nature Conservancy's Shawangunk Ridge Office at 845 255-9051.

### Orange County Open Space Plan

With help from The Nature Conservancy and the Wildlife Conservation Society, the Orange County Planning Department developed the Orange County Open Space Plan in 2004 with biological diversity as one of the priorities. They collected existing biological information and identified areas important for plants and animals, forests and aquatic systems, and corridors to connect them. The biological diversity chapter includes an excellent discussion of the benefits of biodiversity, how past land-use history influences the plants and animals that live in Orange County today, and the greatest threats to local biodiversity. Maps include rare plants, rare animals, forests, and wildlife corridors, and can be sued by municipalities for comprehensive open space and watershed planning.

### New York/New Jersey Highlands Regional Study 2002 update

The U.S. Department of Agriculture Forest Service (Phelps and Hoppe 2002) updated the 1992 study of the New York/New Jersey Highlands Region. The Highlands region provides water for 11 million people and hosts 14 million visitors annually. The report found that since 1992, the population in the highlands increased 11.5 percent and changing land use is a defining feature of the region. The resource assessment inventoried water, forest, species diversity, aquifers, farmland, and recreation areas. An analysis of all the resources identified the areas that are most important for all of these factors, which the report terms conservation focus areas. This report is a valuable resource to any town in the Highlands region undertaking planning.

### Resources

- LaBruna, D. T., and M. W. Klemens. 2007. Northern Wallkill Biodiversity Plan: Balancing Development and Environmental Stewardship in the Hudson River Estuary Watershed. *MCA Technical Paper No. 13*. Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, N.Y.
- Miller, N. A., M. W. Klemens, and J. E. Schmitz. 2005. Southern Wallkill Biodiversity Plan: Balancing Development and Environment in the Hudson River Estuary Watershed. *MCA Technical Paper No. 8*. Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, N.Y. Order from [www.metropolitanconservationalliance.org](http://www.metropolitanconservationalliance.org).
- Tompkins County Environmental Management Council. 2000. *Unique Natural Area Inventory of Tompkins County, Revised Edition*. Tompkins County Environmental Management Council, Tompkins County Department of Planning, Ithaca, N.Y.

