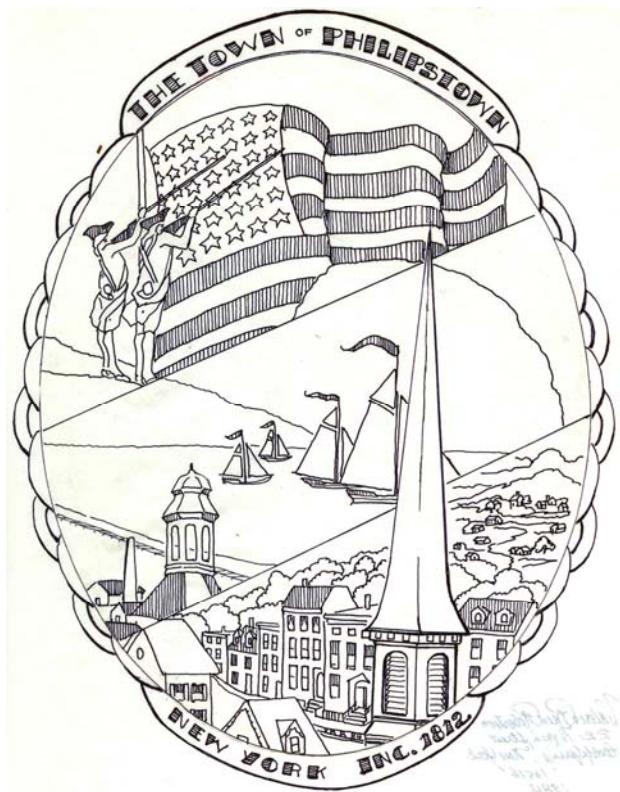


FINAL DRAFT
Philipstown Natural Resource
and
Open Space Protection Plan



Submitted by:

*Comprehensive Plan Implementation
Subcommittee on Natural Resources*

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EXECUTIVE SUMMARY

The purpose of this plan is to establish and guide an efficient and effective way to protect and manage Philipstown's natural resources according to the goals of the Philipstown Comprehensive Plan adopted March 9, 2006. This plan is intended for use by residents, local boards, project applicants, non-profit land conservation organizations and state agencies. The goal of this plan is to insure that our natural resources continue to be viable and sustainable, serving as the foundation for a healthy and thriving Philipstown. The Plan covers all of the Town of Philipstown, excluding the Villages of Cold Spring and Nelsonville.

This plan:

1. identifies existing natural resources and potential impacts related to development
2. recognizes high priority natural resource areas for conservation throughout the Town and provides a suggested Open Space Index;
3. recommends the following to effectively and efficiently administer natural resource and open space conservation:
 - a. adopt an Open Space Index;
 - b. designate the Conservation Advisory Council as a Conservation Board;
 - c. establish a Community Preservation Fund, in order to preserve properties of importance to Philipstown's natural resources or community character;
 - d. establish a staff/consulting position of Natural Resource Review Officer to conduct conservation analysis of applications;
 - e. enact changes to the zoning and other land use codes and promote public education and outreach programs to better protect natural resources.

I. INTRODUCTION

Philipstown's open space sustains important natural resources for the community-at-large, it provides our drinking water, supports habitats and biodiversity, maintains natural ecological processes, and contributes to our health and quality of life. Scenic areas, recreational opportunities and rural character make Philipstown a unique, and special, home.

Philipstown's open space and natural resources are its natural infrastructure. As with man-made infrastructure, this natural infrastructure should be a major factor determining the appropriate location, type and scale of development.

Our open space inventory demonstrates that Philipstown is rich in natural resources (see maps in Appendix F of the Comprehensive Plan). Because of significant conservation efforts over past decades, as well as large parcels of still undeveloped lands held by private landowners, Philipstown is fortunate to have many large tracts of open space still intact, supporting high quality natural resources.

Comprehensive Plan

Preserving the value of these high quality natural resources was stressed in Philipstown's Comprehensive Plan (adopted 3/9/06). Community goals articulated in Chapter 2 of the Plan call for protecting our ground and surface water, biodiversity and habitat, recreational opportunities, and community character. These goals are:

Goal 1: Conserve Philipstown's rural, historic and river-community character

This goal calls for improving both visual and physical access to the Hudson River, as well as protecting particular features and elements that contribute to the unique character of the community, such as ridgelines, scenic viewsheds, farmlands and forests.

Goal 4: Expand recreational opportunities to offer a wider variety and greater capacity to meet current and future needs

This goal has three elements that are covered in this plan – trail networks, lands for fishing and hunting, and riverfront access.

Goal 7: Protect Philipstown's natural resources

This goal stresses protecting ground water, habitat and biodiversity, and specifically identified environmentally sensitive areas. It also highlights the need to enhance appreciation of the Hudson River.

One implementation measure of the Comprehensive Plan (see Chapter 3, section 3, M 1) calls for preparing and adopting this plan. It states: "The natural resources plan would

identify existing preserved open space and establish functional categories for both existing and proposed open space preservation, such as water quality protection, scenic views, town gateways, trail corridors, recreation, and wildlife habitat. The natural resources plan can then be linked to regulatory changes (such as open space development provisions) and land acquisition programs to enable the Town to have a systematic strategy for cost-effective land protection.”

II. NATURAL RESOURCE FUNCTIONS

This section provides an overview of existing natural resources and open space features in Philipstown and identifies the risks to our natural resources posed by development.

This Plan focuses on the following primary resource functions:

- Ground and Surface Water
- Biodiversity
- Community Character
- Outdoor Recreation

Priority Resource maps identifying the location of these primary resource functions are located in Appendix A.

Ground and surface water

Groundwater resources include water located in the pore space of soil and rocks, and aquifers, underground geological formation from which groundwater can be usefully extracted using a well. A common misconception is that groundwater exists in underground rivers (e.g., caves where water flows freely underground). This is only sometimes true in unique geological formations. More often, as is the case throughout Philipstown, the pore spaces of rocks in the subsurface are simply saturated with water, which can be pumped out and used. With the exception of Continental Village, all residents throughout Philipstown rely on groundwater for drinking water.

The Town of Philipstown is currently working with a consultant to investigate our ground water resources, develop a water recharge budget, and identify groundwater protection measures.

Surface water is water in a stream, lake or wetland. After heavy rains, streams act as natural storm water management systems and wetlands naturally filter pollutants. Reports written by Cascade Environmental Consulting, Inc. and Hudson Highlands Lands Trust demonstrate that surface water flowing throughout Philipstown provides a variety of habitat to a diverse population of flora and fauna. The tidal influenced portion of streams draining into the Hudson River also supports threatened and endangered species. There are approximately 200 miles of stream corridor and over 1500 acres of controlled surface water in Philipstown.

Water resources do not recognize municipal boundaries and it is important to consider surrounding communities when planning water resource protection measures. For example, Foundry Brook is the primary source for municipal water services to the Villages of Nelsonville and Cold Spring. From the Upper Cold Spring Reservoir along Scofield Ridge, Foundry Brook carries water to the Lower Cold Spring Reservoir. Both reservoirs and the Brook are located in the Town of Philipstown.

Another example is the north flowing Clove Creek. The stream flows above one of four aquifers in the Hudson River basin that is designated a Primary-Water Supply Aquifer by the NYSDEC. As defined by the NYSDEC, a Primary-Water Supply Aquifer is a highly productive aquifer presently being utilized as a source of water supply by major municipal water supply systems. Clove Creek feeds the Fishkill Creek/Sprout Brook Aquifer, which yields enough water to serve thousands of people in the Towns of Fishkill and Wappinger, the City of Beacon, and the Village of Fishkill.

Ground and Surface Water Resources at Risk

The following potential impacts from development pose a significant risk to our surface and groundwater:

i. Run-off from excavated/disturbed steep slopes

When slopes are excavated for roads and buildings, water will rapidly flow downhill, not soaking into the ground and thus decreasing groundwater recharge rates. Run-off will erode the hillside, and carry sediment, contaminants and pollutants to the streams, ponds and lakes degrading the quality of the surface and ground water.

ii. Loss of wetlands and inadequacy of wetland mitigation

As wetland permits are granted for development within regulated areas, mitigation measures are employed to offset the overall impact of development. Unfortunately, mitigation doesn't always work and should be considered only as a last resort, while avoidance of wetland loss or degradation should be the primary goal. A report by the National Research Council¹ indicates that up to 20 years may be needed for some restored or created wetlands to achieve functional goals, flood control, water filtration and habitat value.

iii. Increase in paved/impermeable surfaces

Impervious surfaces are rooftops, sidewalks, paved roads, and parking lots covered by impenetrable material such as asphalt, concrete, or stone. Unable to percolate, precipitation washes over these surfaces and picks up pollutants before entering streams and other surface water. In addition, the temperature of stormwater runoff in the summer months can be dramatically increased via heat conduction from impervious surfaces.

iv. Non-point source pollution

Non-point source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into

¹Committee on Mitigating Wetland Losses. Compensating for Wetland Losses Under the Clean Water Act. National Research Council, Washington DC, 2001

streams, wetlands, the Hudson River and even our underground sources of drinking water. These pollutants include:

- Excess fertilizers, herbicides, and insecticides from residential areas and agricultural lands
- Oil, grease, and toxic chemicals from road runoff
- Sediment from improperly managed construction sites and eroding streambanks
- Bacteria and nutrients from septic systems

v. Road salt applications

Seasonal road salt applications can inhibit the growth of bacteria in soil, which ultimately compromises soil structure, leading to increased erosion. Elevated salt concentrations can also lead to salt pollution of drinking water wells and vegetation damage, especially in the buffer zones between roads and watercourses.

vi. Overtaxed groundwater resources

High demand for drinking water from private and community wells can overtax groundwater resources, resulting in water shortages during dry periods.

Biodiversity

Biodiversity is defined as the variety of plants, animals and habitats that make up an ecosystem, and the interconnectedness of the system. Simply put, one species depends on many other species and habitats to live in balance - and to be sustained - including humans. The interdependence of species and ecosystems is not always obvious, and impairing one system or species can have serious, unintended consequences for biodiversity, and health of our community.

Philipstown is home to several rare animals, rare plants and significant ecosystems. The New York Natural Heritage Program currently keeps track of rare species and significant ecosystem occurrences throughout the state. Recorded occurrences in Philipstown include the fence lizard, timber rattlesnake, short nose sturgeon and chestnut oak forests.² The National Audubon Society identified 3 Important Bird Areas (IBA)³ in Philipstown that provide threatened, endangered and at-risk bird species with places to nest, forage, rest during migration, and over-winter. A review of the Herp Atlas Project⁴, a 10 year survey of amphibians and reptiles completed by the NYSDEC, demonstrates Philipstown has a diverse population of common and uncommon amphibians and reptiles.

While threatened and endangered species enjoy special protection measures during the land development process, it is imperative for our future health that we also focus on

² New York Natural Heritage Program Database, New York State Department of Environmental Conservation. <http://www.dec.state.ny.us/website/dfwmr/heritage/index.htm>

³ National Audubon Society. Important Bird Areas of New York: Habitats Worth Protecting, 2nd ed.

⁴ New York State Amphibian and Reptile Atlas Project. New York State Department of Environmental Conservation. <http://www.dec.state.ny.us/website/dfwmr/wildlife/herp/>

protecting the ecosystems that support other species, in order to protect proper abundances and distributions of common species that also contribute key ecological functions.

Biodiversity is a relatively new science, with a developing field of knowledge and expertise. It is evident that it is critical for a healthy community, but we are still discovering all of the far-reaching implications and consequences.

Biodiversity at Risk

The following potential impacts from development pose a significant risk to biodiversity:

i. Forest fragmentation

Fragmentation occurs when large, continuous forests are divided into smaller blocks, either by roads or other human development. Most of northern and eastern Philipstown is part of a vast forested landscape that extends east to Putnam Valley and north to Dutchess County. This unfragmented forest land provides habitat and travel corridors for a variety of species.

As the forest becomes fragmented, the interconnectedness of species and habitat is negatively affected. Species associated with developed areas and having less specific habitat requirements (white tailed deer, Canada geese, etc.) thrive in fragmented areas and often replace development sensitive species, resulting in an overall loss of biodiversity.⁵

Recent research at the Institute of Ecosystem Studies⁶ demonstrates forest fragmentation can also directly affect human health. This research indicates that tick population is considerably higher in small woodlots than in larger forests, leading to an increase in Lyme disease.

ii. Filling in/destroying vernal pools

Vernal pools usually retain standing water during the winter and spring and dry up by mid-summer. These shallow pools are surrounded by upland forest and serve as critical breeding places for several amphibians. Vernal pools can range from less than .2 acre to over 1 acre.⁷ Currently, wetland areas less than 1/4 acre are not regulated by the Town's Freshwater Wetlands and Watercourses Law; therefore, many vernal pools can be disturbed, damaged, or filled without a permit or notification to the Town.

⁵ Miller, N. A. & M. W. Klemens. Croton-to-Highlands Biodiversity Plan: Balancing development and the environment in the Hudson River Estuary Catchment. MCA Technical Paper No. 7, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York, 2004

⁶ Ostfeld, R. Habitat Fragmentation. Institute of Ecosystem Studies
http://www.ecostudies.org/people/sci_ostfeld_habitat_fragmentation.html

⁷ Kiviat, E. & G. Stevens. Biodiversity Assessment Manual for the Hudson River Estuary Corridor. New York State Department of Environmental Conservation, New Paltz, NY. 2001

iii. Decrease in large grasslands

Grasslands are often filled with native biodiversity – wildflowers, small mammals, birds, butterflies, and insects. A variety of bird species rely on grassland for breeding and foraging but grasslands areas are declining throughout the Hudson Valley due to a decline in farming, increase in development and transformation of abandoned farm fields to forests.

iv. Degradation of the Hudson River

The Hudson River is tidal along the shores of Philipstown which creates distinct habitats, including mud flats, marshes, swamps and tributary mouths. Much of the River shoreline is unprotected from development. Throughout the Town, development can adversely affect the health of the River through polluted run-off and sedimentation.

v. Filling in and disturbance of wetland habitats

Wetlands provide critical habitat to a variety of plants and animals. Current threats to existing wetland habitat include increased invasive plants, sedimentation, and pollution. Currently, a 100 foot buffer zone is established to protect wetlands from the negative impact of development. These zones are not established on a site specific basis and do not consider the surrounding topography; therefore, current regulated buffer areas can fall short of protecting the upland habitat used by marsh animals. As noted in the previous section on water resources, wetland mitigation rarely succeeds in restoring the habitat functions of existing high quality wetlands.

Community Character

Community character refers to physical attributes that offer scenic beauty, special aesthetic value, or a ‘sense of place.’ The Priority Community Character Resource Area map identifies the location of these attributes, including ridgelines, viewsheds and local treasures.

Ridgelines are areas at or near the tops of hills that are visible from many points within the Town or from the Hudson River. Philipstown’s ridgelines contribute significantly to the beauty of the Town and to its rugged, rural character. They are valued by residents and visitors, alike. Many of the Town’s ridgelines are located within preserved areas, including NY State Parks and conservation easement protected lands. However, there are notable exceptions, and special consideration should be given to their protection.

“Viewsheds” are defined as scenic areas that are visible from public access points and therefore have a high profile. The Hudson Highlands are renowned for their breathtaking views, and Philipstown has some that are remarkable. Care must be given to make sure that future development does not impair their scenic value.

A local treasure is a unique natural or human-made feature that is highly valued by the community. Residents who participated in the comprehensive planning process valued a number of local treasure elements: community gateways, dirt roads, stone walls, significant trees and working farms. The shoreline along the Hudson River is also a unique and valuable feature of Philipstown's character.

Community Character at Risk

Although many areas/properties within the Town have protections afforded through direct preservation measures (state parks, conservation easements, etc.), there are few regulatory protections afforded for privately owned lands. The following impacts from development may pose significant risk to community character:

i. Development along ridgelines

Some protections are afforded through the current steep slope laws, but the tops of the ridgelines have no specific protections and current zoning permits traversing steep slopes to the tops of ridgelines where no other access is available. For subdivision applications, the Planning Board does require consideration of landscaping, buffering, etc. Significant ridgeline areas that are not protected and require attention in the planning process include:

- just the north of the Appalachian Trail in Garrison, extending from Fort Defiance Hill to the northeast
- north of Fahnestock State Park, to the boundary of Dutchess County
- east of Route 9, north of the Bird and Bottle Inn
- east of Route 9D, south of the Village of Cold Spring
- Scofield Ridge near Lake Valhalla and north to Dutchess County

ii. Development within significant viewsheds

Although the State has designated the Hudson River Valley corridor a Statewide Area of Scenic Significance, there are no local regulatory requirements affording protection to the lands within this area. Significant viewsheds that are not protected and require attention in the planning process include:

- the view from the Hudson River looking into the area east of Route 9D, south of Cold Spring, along the ridgeline accessed from Lane Gate Road
- the view of Scofield Ridge from Route 9
- the view east from Route 9 towards East Mountain Road South
- the view west from Route 9 across the Garrison Golf Club

iii. Removal of significant trees and stone walls

The current Land Development Code does direct that subdivision plans minimize disturbance of sensitive land and removal of large isolated trees (Para 112-32), and requires that stonewalls be depicted on final plat maps (Para. 112-24). However, the Land Development Regulations do not affect site plans, only subdivision plats. Thus, much of the development throughout the Town may result in destruction of these important elements of community character.

iv. Historic and Cultural Sites

There are currently 10 historic and cultural sites in Philipstown recognized by the federal government as worthy of preservation and listed on the National Register of Historic Places. However, unless a development proposal involves the use of federal funds or is a considered a Type 1 or Unlisted Action under SEQRA, this designation does not afford any additional protection during the development planning process.

v. Working Farms

A small number of the remaining working farms in Philipstown are protected by conservation easements (Saunders, Hilpert), but other small farms and former farmlands are generally at risk to pressures of development due to high land values and ease of development.

Outdoor Recreation

This section deals with open space and natural features that contribute to achieving community goals for passive forms of recreation, including hunting, fishing, hiking, horseback riding, bird watching, boating, and enjoying views of and along the Hudson.

The survey conducted by the Recreation Group of the Comprehensive Plan Special Board several years ago identified 'more trails' as the number one priority for town-wide recreational needs. Philipstown has an extensive network of trails, and efforts by New York State to connect Fahnestock and Hudson Highlands State Park will create additional significant connections between two trail networks. Breakneck Ridge (Hudson Highlands State Park), named Best Day Hike by Backpacker magazine, attracts visitors from the region and beyond. The Appalachian Trail, a 2160-mile footpath stretching from Georgia to Maine, passes through Philipstown. Other trails are located throughout town on lands owned by conservation organizations, and are thus protected.

Parts of the Hudson River shoreline are owned by Open Space Institute or Scenic Hudson and are available (or will be eventually available) to the public. Constitution Marsh Sanctuary, a 270 acre tidal marsh sanctuary, administered and managed by the Audubon Society offers public access to the Hudson River and is greatly enhanced by a boardwalk and guided kayak tours. Little Stony Point, Arden Point, Manitou Point (Mystery Point), and Manitou Marsh all offer public access to the Hudson River.

Foundry Dock Park is located adjacent to the Cold Spring train station and features viewing decks, benches and a gravel launch for small boats. Other areas for access to the Hudson include kayak launches at Garrison Landing and Manitou Marsh and local boat clubs, Cold Spring Boat Club and Garrison Yacht Club. But much of the River's shoreline in Philipstown is inaccessible to the public, and thus both public and private partnerships to improve access are a need clearly cited by the public as a priority within the Town.

Outdoor Recreation Features at Risk

Currently, the following natural resource features that serve recreation are at risk:

i. Contiguous interconnected trail corridors

If identified and properly planned, trail designation can be accommodated in the planning process. If these areas are not identified and protected through the planning process, they will be lost to future public access.

ii. Boating, swimming and fishing access to the Hudson

Increased public access to the Hudson, for both Philipstown residents and other Putnam County residents, is needed.

iii. Land for hunting and fishing

Long-time residents remember the days when there were many sites for hunting and fishing; these have been encroached on mostly by development of single-family homes. Also, protected lands that are managed by New York State Office of Parks, Recreation and Historical Preservation generally do not allow hunting. However, shot gun hunting is allowed on approximately 500 acres and bow hunting on an additional in Clarence Fahnestock State Park.

Economics of Natural Resources

All natural resources have economic value for the community and contribute to its growth and prosperity. Philipstown's natural beauty and rural character add to property values and contribute strongly to what draws tourists and residents alike. There are also products from natural resources that have economic value for residents and local businesses, including gravel, timber and agriculture. Finally, and most critically, the health and viability of our community relies on plentiful, high quality drinking water and ecological processes that control flooding and wildlife populations.

III. CONSERVATION OPEN AREAS AND CONSERVATION ANALYSIS PROCESS

This section of the Plan describes priority natural resource protection areas and presents a process of conservation analysis that can be incorporated into the existing planning review process to insure that natural resource conservation helps to guide the planning process.

Conservation Open Areas

As a starting point for assessing and managing our natural resources, priority areas were identified throughout Philipstown. Extensive Geographic Information System (GIS) data were collected focusing on four primary resource functions: ground and surface water, biodiversity, community character and recreation; and then, combined with local knowledge and community input at forums as part of the comprehensive planning process. The resulting 4 maps were then combined to create a Suggested Open Areas map (see Appendix B).

Defined by NYS General Municipal Law, §239-y) an **open area** is “any area characterized by natural scenic beauty or, whose existing openness, natural condition or present state of use, if preserved, would enhance the present or potential value of abutting or surrounding development or would establish a desirable pattern of development or would offer substantial conformance with the planning objectives of the municipality or would maintain or enhance the conservation of natural or scenic resources.”

The draft map, part of the *Suggested Open Space Index* (see Section IV, Recommendations for Natural Resource and Open Space Protection) reflects the community’s goals for resource conservation. Once adopted by the Town Board, a Conservation Open Area map can be referred to during the land use planning process.

Conservation Analysis

Conducting a conservation analysis requires first identifying and then establishing the relative significance of natural resources related to a proposed project. The purpose of a conservation analysis is to assess the existing conditions and functions of natural resources on and near the site and then determine the impact of the proposed development on those resources.

The project planning process should begin with a broad-brush review of a site and contiguous properties to determine if the potential for priority natural resources exists and a closer look is needed. The assessment should consider the relationship of site specific conditions and the surrounding landscape conditions, since changes to one may affect the other. This broad-brush review should occur before any site specific planning is completed, therefore ensuring that natural resource functions are considered early in the planning process.

If the initial assessment determines that any part of the proposed project site may contain significant natural resources, could potentially adversely effect surrounding significant natural resources, or is listed in an Open Space Index (see Section IV, Recommendations for Natural Resource and Open Space Protection) the development proposal automatically requires additional conservation analysis.

Additional conservation analysis may require the applicant to retain specialized expertise, e.g., biodiversity, water resources, viewshed analysis, etc. The analysis, conducted by the proposed Natural Resource Officer (as outlined in Section IV), will identify appropriate mitigation measures to manage the natural resources on the site, and may determine a proposed project is not appropriate for the site. Specific analysis requirements need to be developed.

IV. RECOMMENDATIONS FOR NATURAL RESOURCE AND OPEN SPACE PROTECTION

To improve Philipstown's capability to effectively and efficiently administer natural resource and open space conservation, this Plan recommends that the Town Board do the following:

- Adopt an Open Space Index prepared by the Conservation Advisory Council.
- Designate the Conservation Advisory Council as a Conservation Board.
- Seek authority through NYS legislative action to establish a Community Preservation Fund, in order to preserve properties of importance to Philipstown's natural resources or community character.
- Establish a staff/consulting position of Natural Resource Review Officer to conduct conservation analysis of applications and review work in progress.
- Enact changes to the zoning and land use code to better protect natural resources.

Open Space Index

New York State law (General Municipal Law §239-y) provides for the preparation and adoption by a town of an “open space index.” The purpose of the Index is to identify, catalog, prioritize, and map a variety of resources within the town. Prepared by the Conservation Advisory Council (CAC) and adopted by the Town Board, the Index identifies and lists natural and cultural resource areas to be considered during the Town’s land-use planning review process. The adopted Open Space Index will set preservation and acquisition priorities for land-use planning and policy decisions made by elected and appointed officials of the Town, as well as by its citizens. The Index will also serve as the basis for granting additional powers to the CAC once it has been designated as a Conservation Board.

A *Suggested Open Space Index* comprised of a Draft Conservation Open Areas map and Inventory can be found in Appendix B. The map shows all open areas identified as important to preserve and the inventory indicates the significant natural resource attributed to each area. Further work to prioritize these areas for acquisition or preservation should be completed prior to adopting an Open Space Index.

Conservation Board

Following the acceptance and approval of the Open Space Index, NYS General Municipal Law permits the Town Board to designate the CAC as a Conservation Board (CB). As provided in NYS General Municipal Law §239-y, the CB “shall review each application received by the local legislative body or by the building department, zoning board, planning board, board of appeals or other administrative body that seeks approval for the use or development of any open area listed in the open space index.” The CB must then

submit a written report to the referral body within 45 days of receiving the application, evaluating any proposed development of the listed open area and its effect on the open space index, with recommendations as to the appropriate use of the open area, including preferable alternative uses consistent with open areas conservation.

Currently, the Conservation Advisory Council (CAC) only reviews development proposals referred by the Town's permitting authorities when natural resources may be impacted. By designating the CAC as a Conservation Board (CB), this advisory board would also be charged with reviewing **any development application** that would affect properties listed in the Open Space Index. This includes all applications, regardless of size, to the Planning Board, Zoning Board, Wetlands Inspector, Building Inspector, etc.

To ensure that the concerns of the CB are addressed, this Plan recommends that any permitting authority that receives written comments from the CB on a proposal for development adopt a written response that addresses the CB's concerns prior to, or concurrent, with approval.

Community Preservation Fund

The town board should seek NYS legislative authority to establish by local law a Community Preservation Fund (CPF), in order to acquire properties identified in the prioritized Open Space Index as important for the protection of natural resources and community character. The purposes of the CPF, which must be approved through public referendum and funded through a graduated real estate transfer tax, would include preservation of: open spaces, lands of exceptional scenic value, fresh and saltwater marshes and other wetlands, forestlands, access to lands for public use, historic places, and other properties as identified through the Open Space Index. Additionally, the local law should further empower the Conservation Board to continue to review the Open Space Index, and make further recommendations to the town board on proposed acquisitions of interests in real property using the CPF.

Natural Resources Review Officer

This plan recommends that the Town create the part-time position of Natural Resource Review Officer to provide the Town Board, permitting authorities, and the CAC/CB with findings on natural resource protection issues related to a development application. The applicant should have the option of retaining his/her own natural resource expert or relying upon the Town's findings. The Natural Resources Review Officer should review all building permits, comment upon any information submitted by an applicant's expert, and if necessary, recommend that the Town retain a technical specialist. The Natural Resources Review Officer will develop a deep pool of knowledge about conditions in the Town, helping to ensure that the review process is streamlined, efficient, and effective, and that it fulfills the goals of this Plan.

Because Philipstown places a high value on its natural resources and open space, this Plan recommends that the cost of reviewing applications for single family homes relating to natural resource protection be borne by the Town, using its Natural Resources Review Officer. Ways to reduce costs are to consider sharing this part time position with Putnam Valley, or expanding the current wetland inspector's responsibilities to include review of all natural resource functions.

Land Use Code and Public Education

The recommendations below should be implemented through amendments to the Town Code, including the zoning law, land development law, as well as through land preservation measures, code enforcement, and public education.

Land Development and Zoning Code Recommendations

The following recommendations require changes in Town Code provisions, which are enacted by the Town Board.

Surface and Ground Water

- a) **Require applicants to identify and map wetlands under $\frac{1}{4}$ acre and all known vernal pool areas** on development proposal plans. These resources are unprotected under current land use code in Philipstown.
- b) **Establish regulated areas around existing vernal pools.** Currently, these areas are not regulated. Identification of on-site vernal pools can be done as part of the recommended Biodiversity Survey and Assessment.
- c) **Extend current steep slopes regulations** to commercial and industrial projects.
- d) **Review current protection measures along stream banks and shorelines** to maintain the quality of surface and groundwater. Regulated areas should provide sufficient setbacks and buffers along high quality wetlands and watercourses. The regulated area should be determined by habitat, topography and water quality not size of the water body.
- e) When creating new roads and driveways, **establish a road buffer** zone around surface water bodies relative to the surrounding slope. For example, when constructing a new road where the slope between the stream and roadside is greater than 15%, the buffer area protecting a water body should increase.
- f) Better understand our groundwater resources and **develop aquifer overlay zones** to protect our aquifers and important drinking water sources. The Town is working with Chazen Companies to produce a ground water management and protection plan. This Natural Resource and Open Space Protection and Management Plan will rely on that document to identify surficial and bedrock aquifers, and lay out guidelines for protecting those aquifers.
- g) To help protect the drinking water source for the Village of Cold Spring, **notify the Village of Cold Spring** of all development proposals in the Foundry Brook watershed.

- h) **Maintain water quality by utilizing Best Management Practices** identified for storm water management and salt application.

Biodiversity

- a) **Require a Biodiversity Survey and Assessment** to assess the existing environmental conditions, identify any areas of ecological sensitivity, and determine what the impact of the proposed development will be. Habitat review must be done from two perspectives - site specific and the context, or surrounding landscape. The Town of Milan in Dutchess County has a Biodiversity Assessment Guide that can be a model for Philipstown, see Appendix C.
- b) A biodiversity assessment will identify habitats, but it is also necessary to **recognize important biotic corridors**. These corridors connect areas rich in biodiversity, or 'hubs', and allow species to travel between these hubs. Since flora and fauna do not recognize municipal and county boundaries it is important for Philipstown to coordinate efforts with neighboring towns to protect habitats, and to establish biotic corridors.
- c) **Review current wetlands law, timber harvest law, soil mining provisions, and other existing ordinances** with a goal of modifying them for better overall habitat/biodiversity protection. For example, do wetland regulations protect appropriate buffers of upland habitats; does timber harvest have restrictions to prevent disturbance of nesting by rare species of birds during nesting seasons?
- d) Though needing protection, endangered species should not be overemphasized at the expense of ignoring our common woodlands and forests. Philipstown's efforts should strive to **protect proper abundances and distributions of common species** that provide key ecological functions.
- e) The Hudson River is rich in aquatic and terrestrial biodiversity. **Develop protection measures along the shoreline to protect current habitats.**

Community Character

- a) **Establish ridgeline protection measures** to minimize the visual impact of new building and remodeling of homes along designated ridgelines in Philipstown.
- b) **Establish scenic roadway protection measures** to minimize the visual impact of new building and remodeling of homes and businesses along designated scenic roadways.
- c) Manage and control building to **conserve or enhance views of and from the Hudson River**.
- d) **Establish criteria for identifying significant trees**, and then establish protective regulations.
- e) **Establish criteria for identifying significant stonewalls**, and establish protective regulations.

Recommendations for Public Education and Outreach

The following recommendations can be carried out by individuals, community organizations, schools, and/or local government.

Surface and Ground Water

- a) **Reduce impact of pesticides and herbicides** on water resources through public education.
- b) Continue to **support outreach and education programs**, like Streamwalk organized by Hudson Highlands Land Trust.
- c) Encourage programs that **increase awareness of the impacts of failing septic systems** and the need for regular maintenance.
- d) **Align efforts to protect surface and groundwater with the Hudson River Estuary Program's** conservation goals for the region, including the Hudson River itself and its shoreline.
- e) **Establish connection with Cortlandt, Fishkill and Putnam Valley** to discuss water issues, and consider intermunicipal agreements to afford greater protection to water resources.

Biodiversity

- a) **Conduct a town-wide biodiversity survey** and establish a GIS-based system to map biodiversity.
- b) Continue to **support biodiversity assessment training** to properly survey and assess the biodiversity value of a habitat; Hudsonia and NYDEC offer this training to community members. In 2003, a group of trained volunteers, led by the Hudson Highlands Land Trust, completed a broad biodiversity survey of the North Highlands, the northernmost 5000 acres of the Town and another team focused on the Croton-to-Highlands biotic corridor in southeast Philipstown. A similar volunteer effort over time could complete a survey for the rest of the Town.
- c) **Educate residents about the effects of invasive plant species** on biodiversity and provide tips and tools to keep them from spreading.
- d) **Implement a long-term biodiversity health monitoring program** to gauge the success of our land use regulations.

Recreation Features

- a) Partner with the Garrison Fish and Game Club and other sporting associations to **provide better access to streams and other fishing resources**.
- b) Work with DEC, OSI, Scenic Hudson, NYSOPRHP to **open up lands for hunting**, and also work with DEC, Garrison Fish and Game Club, and sportsmen for landowner education on the benefits of hunting in controlling the deer population, and the impact of over-browsing on biodiversity and habitat.
- c) Work with Putnam Highlands Audubon to **identify good places for bird watching**.

- d) **Establish connecting trail corridors**
 - Support efforts of the Philipstown Greenway Committee and New York/New York Trails Conference
 - Map approximate locations for desirable trail alignments
 - Encourage, through zoning and subdivision laws, trail easements during the development review process.
- e) Promote landowner education to **encourage maintenance of fields and good mowing practices** to enhance meadow habitat for nature observation.
- f) **Improve access to the Hudson**
 - Work with Village of Cold Spring, Open Space Institute, Scenic Hudson, Metro-North and private landowners.
 - Use information gathered by the Putnam Waterfront Alliance (Appendix H of the Comprehensive Plan) to work with local yacht and boat clubs.
 - Work with DEC Hudson River Estuary Program to achieve their goal of increased swimming opportunities on the River.

MAPS

- Priority Ground & Surface Water Resource Areas
- Priority Biodiversity Resource Areas
- Priority Community Character Resource Areas
- Priority Outdoor Recreation Resources Protection Areas
- Priority Natural Resource Functions

Priority Ground & Surface Water Resource Areas Philipstown, NY

Fishkill

Foundry Brook Watershed

Clove Creek Watershed

9D

Nelsonville

Cold Spring

801

Putnam Valley

Cortlandt Lake Watershed

403

9D

Cortlandt Lake Watershed

9

Legend

Groundwater Resource Area

Surface Water Resource Area

Watershed Boundary

1 0.5 0 1

Miles



DATA SOURCE

Putnam County IT Dept

NRC/USDA, SSURGO database

NYSDEC | National Wetland Inventory

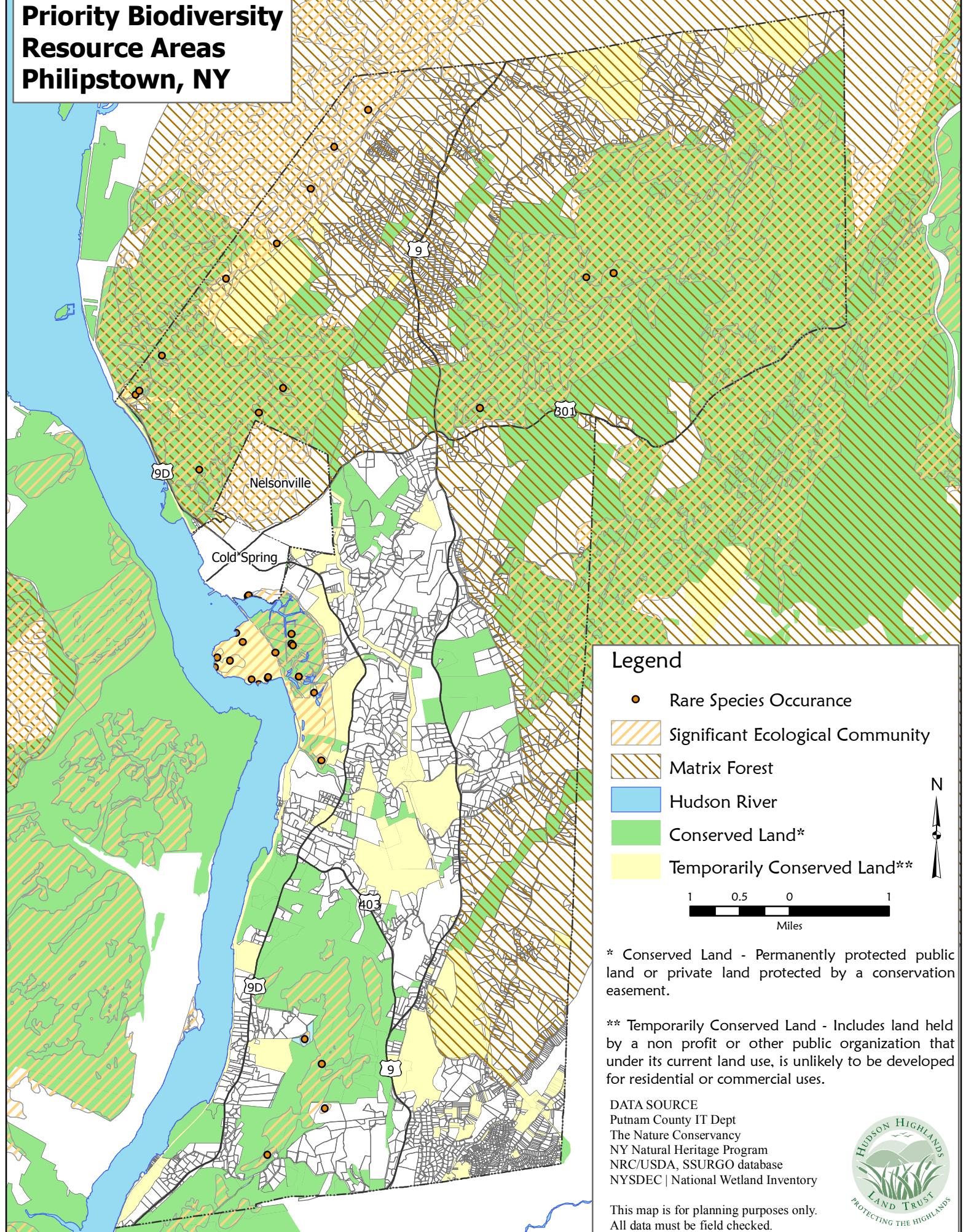
NYS Department of Health

Rt 9 Aquifer Study, Tim Miller Associates, Inc.

This map is for planning purposes only.
All data must be field checked.



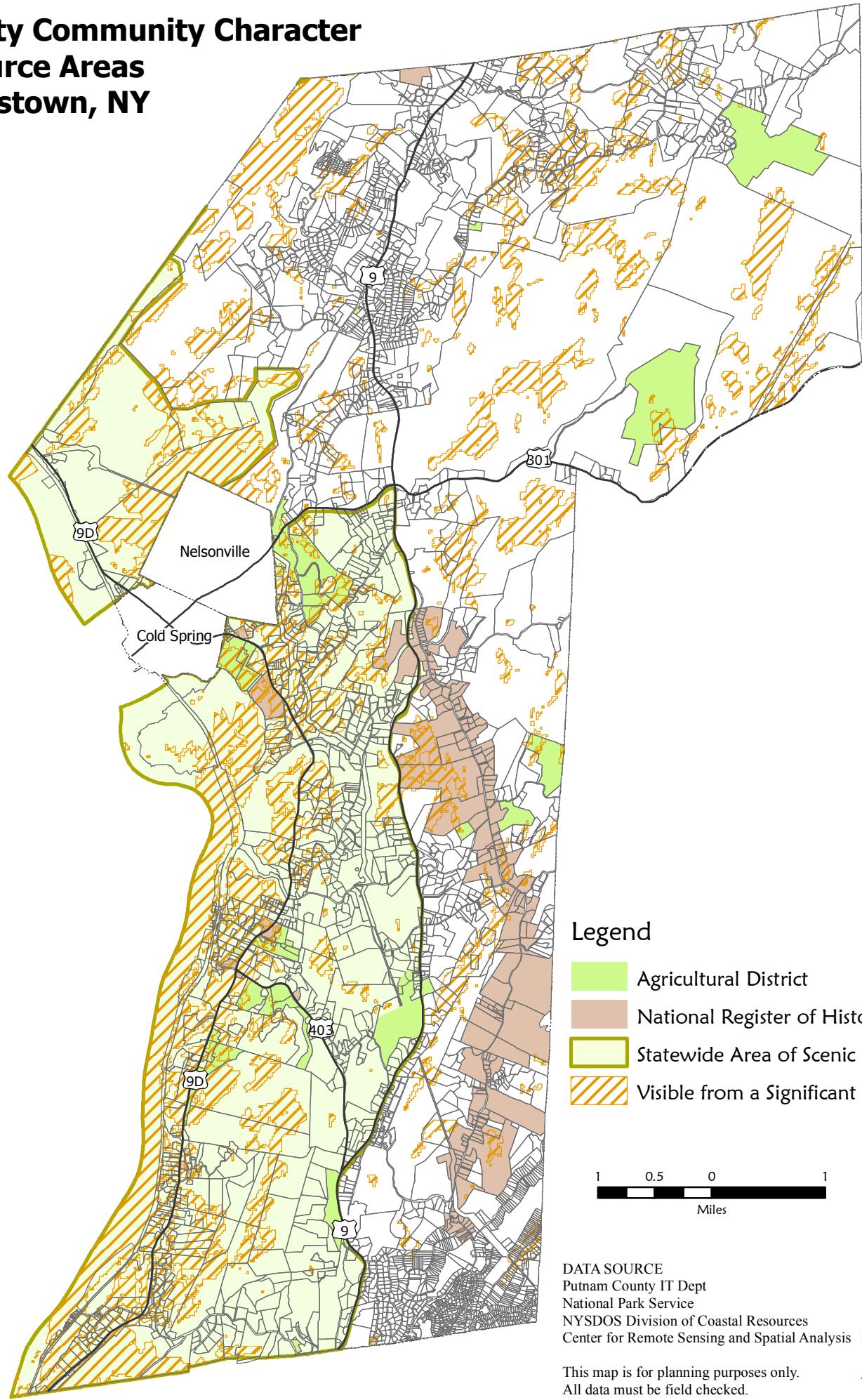
Priority Biodiversity Resource Areas Philipstown, NY



Priority Community Character

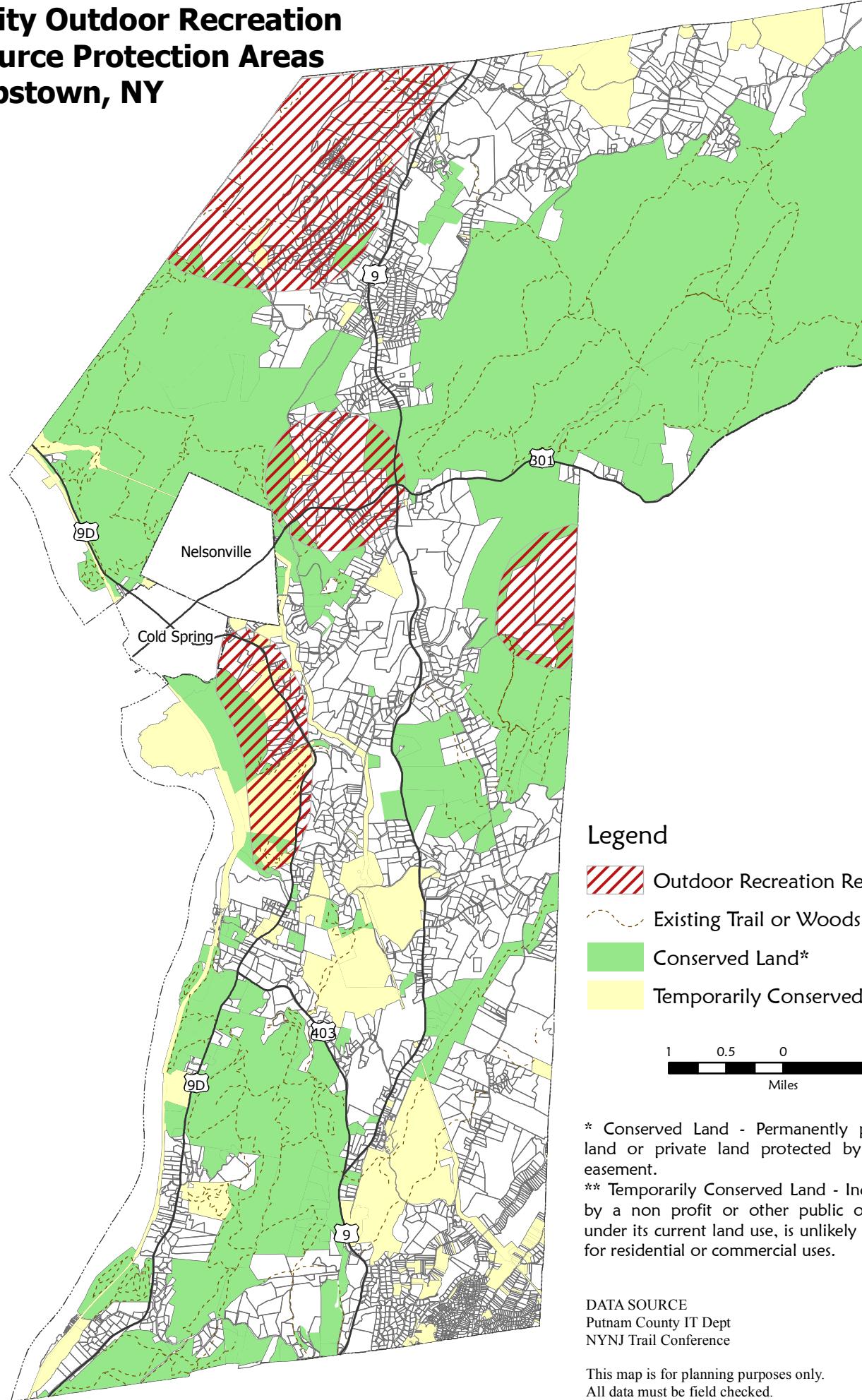
Resource Areas

Philipstown, NY



Priority Outdoor Recreation Resource Protection Areas

Philipstown, NY



Legend

- ◆ **Outdoor Recreation Resource Area**
- ◆ **Existing Trail or Woods Road**
- ◆ **Conserved Land***
- ◆ **Temporarily Conserved Land****



* **Conserved Land** - Permanently protected public land or private land protected by a conservation easement.

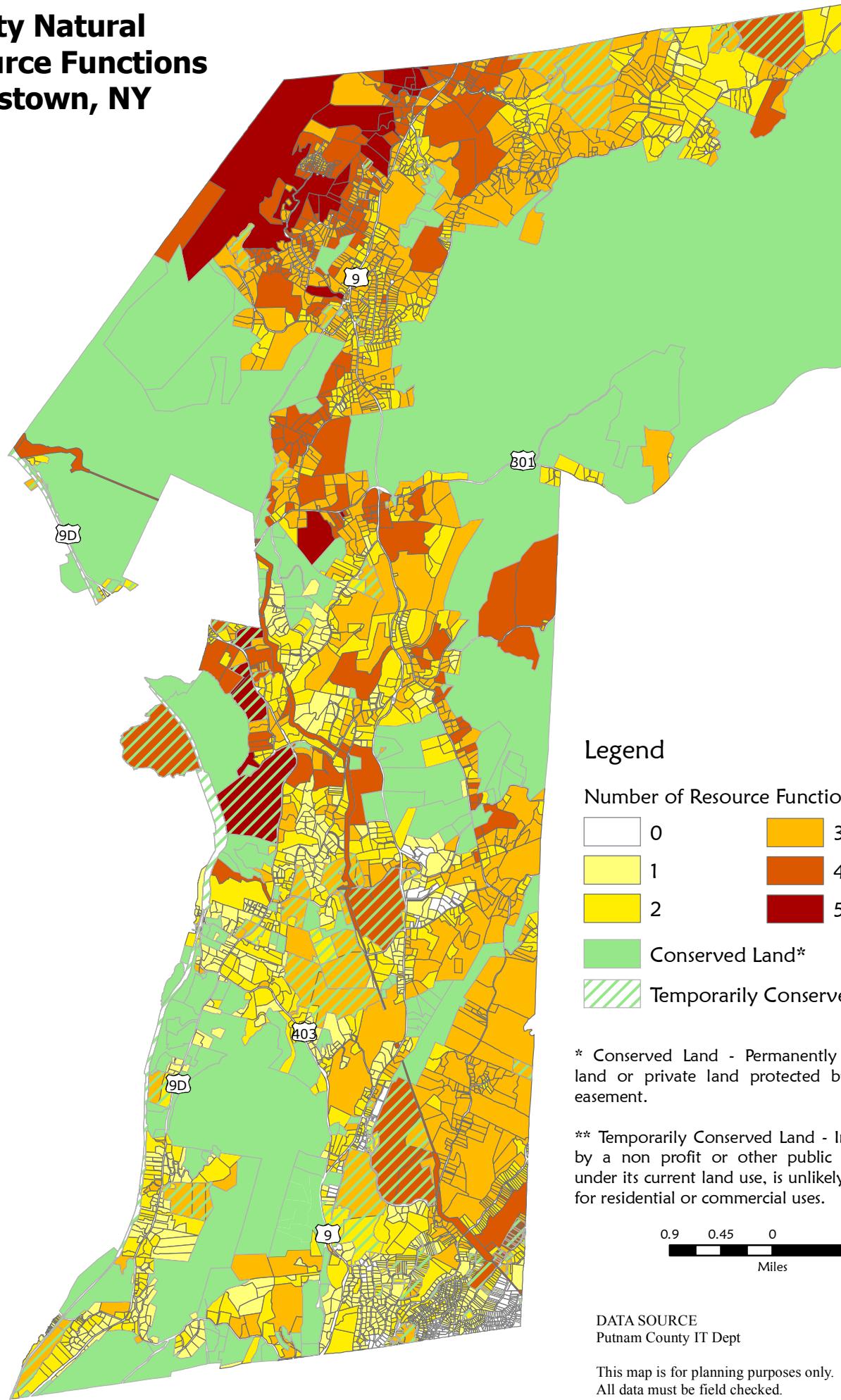
** **Temporarily Conserved Land** - Includes land held by a non profit or other public organization that under its current land use, is unlikely to be developed for residential or commercial uses.

DATA SOURCE
Putnam County IT Dept
NYNJ Trail Conference

This map is for planning purposes only.
All data must be field checked.



Priority Natural Resource Functions Philipstown, NY



OPEN AREAS INVENTORY

1. Lake Valhalla

Over 1,100 acres along Scofield Ridge and contiguous with Hudson Highlands State Park, this property is visible from many vantage points including the Hudson River and recreational trails. In close proximity to known occurrences of endangered species, the steep slopes, mixed hardwoods forests, and wetlands along the ridge provide vital habitat to a range of species.

2. Reeve's Farm

Located on Indian Brook Rd, this 300 acre tract of forest and meadow habitat is surrounded entirely by conserved land. A 50 acre wetland complex serves as the headwaters for Indian Brook.

3. Graymoor

The Appalachian Trail traverses this 450 acre site of woodland habitat with steep slopes and perennial streams. The property is visible from public parklands and lies above a 150+ acre unconfined aquifer.

4. St. Basil's

Previously known as "Eagle's Rest" and the former estate of Jacob Rupert, St. Basil's Academy is located along the Hudson River and the campus is visible from points along the river, including Constitution Marsh.

5. AT and Hudson Highlands State Park

The Appalachian Trail crosses Route 9 just south of 2 large relatively undeveloped parcels. These parcels create an important biotic corridor between the Hudson Highlands State Park and Graymoor. The land, owned by the Osborn family, is visible from scenic viewpoints along hiking trails in Hudson Highlands State Park.

6. Jaycox Rd

This area is essential for establishing a trail corridor connecting Hudson Highlands State Park and Fahnestock State Park. These parcels are visible from preserved parkland, lie within the Matrix Forest, and are within the Foundry Brook Watershed.

7. School Forest

The Garrison School Forest is a significant recreational resource and the South Redoubt contributes to the historical legacy of our town.

8. Old Albany Post Rd

Old Albany Post Rd is one of the oldest roads in New York State and is listed on the National Register of Historic Places. The Appalachian National Scenic Trail also crosses Old Albany Post Road.

9. Route 9D and Indian Brook

This area includes both residential and temporarily conserved lands. The landscape is visible from various public viewpoints (including Constitution Marsh) and includes Boscobel and St. Basil's Academy.

10. Garrison Golf Club

Visible from many public vantage points, including the Hudson River and NYS parkland, the property includes wooded landscapes and wetland areas. The Philipse Brook traverses the property.

11. Hudson River Shoreline

The significance of the Hudson River Shoreline is recognized in the Philipstown Comprehensive Plan. The Plan calls for protection of its environmentally sensitive areas.

12. Cargill Reservoir

Owned by the City of Beacon, these two parcels comprise 212 acres of open land containing the Cargill Reservoir. The Reservoir is second largest of Beacon's three water sources, holding approximately 150 million gallons of water for use by its residents.

13. Clove Creek

Clove Creek flows above the Fishkill/Sprout Brook Aquifer, one of four aquifers in the Hudson River basin that are designated as *Primary-Water Supply Aquifers* by the NYSDEC. The Fishkill/Sprout Brook Aquifer is an underground rock formation that yields enough water for thousands of people in the Towns of Fishkill and Wappinger, the City of Beacon and the Village of Fishkill.

14. Earl's Pond

Earl's Pond is the home of the local Garrison Fish and Game Club and its annual fishing derby. The Philipse Brook flows from this significant cultural and recreational resource.

15. Continental Village

Vacant parcels dot Continental Village and offer habitat and open space in an otherwise densely developed area.

16. Route 9 and Eyrie Rd

The meadows, wetlands, and undeveloped hillsides south of Route 301 extending to Eyrie Rd contribute to the rural character of Philipstown.

17. East Mountain

Within the Clove Creek watershed, this area includes residential parcels accessed from East Mountain Rd North and South, Esselborne Rd, and Horton Rd. The ridge is visible from Route 9 and from trails in Clarence Fahnestock State Park.

18. Fresh Air Fund

Close to Clarence Fahnestock State Park and extending into Dutchess County, the area includes lands currently owned by the Fresh Air Fund and other important large buffer parcels. This area is visible from scenic trails and lies within the Matrix forest.

19. Lane Gate Rd

There are 100+ acres of privately conserved land along this dirt road contributing greatly to the rural character of Philipstown. The area is also located within the Statewide Area of Scenic Significance.

20. Route 301

At 100 acres, the Berner properties located on Route 301 and Jaycox Rd are the largest undeveloped tracts of land remaining in this part of Philipstown. A perennial stream flows through the property located on Route 301 and is contiguous with the Healy properties, a 100+ acre tract of privately conserved land. A 25+ acre wetland provides vital habitat and flood control and both properties lie within the Statewide Area of Scenic Significance.

21. Avery Rd

Located above a significant groundwater resource, large residential lots along this dirt road contribute to the rural character of Philipstown. Privately owned fields contiguous with the NYC Aqueduct enhance existing meadow habitat.

22. Sprout Brook

Undeveloped land in this area provides an important biotic corridor for plants and animals.

23. Fahnestock State Park buffer

Lands surrounding Clarence Fahnestock State Park serve as significant buffer for the flora and fauna of the Park.

24. South Mountain Pass

Large lots along the Pass are surrounded by conserved land, providing an important biotic corridor. The dirt road also contributes to the community character of Philipstown.

25. Old Albany Post Rd North

Located in the North Highlands with Fishkill Ridge serving as the backdrop, this 50+ acre area is held by various owners. This somewhat developed area is visible from scenic trails, and creates an important buffer to already conserved lands.

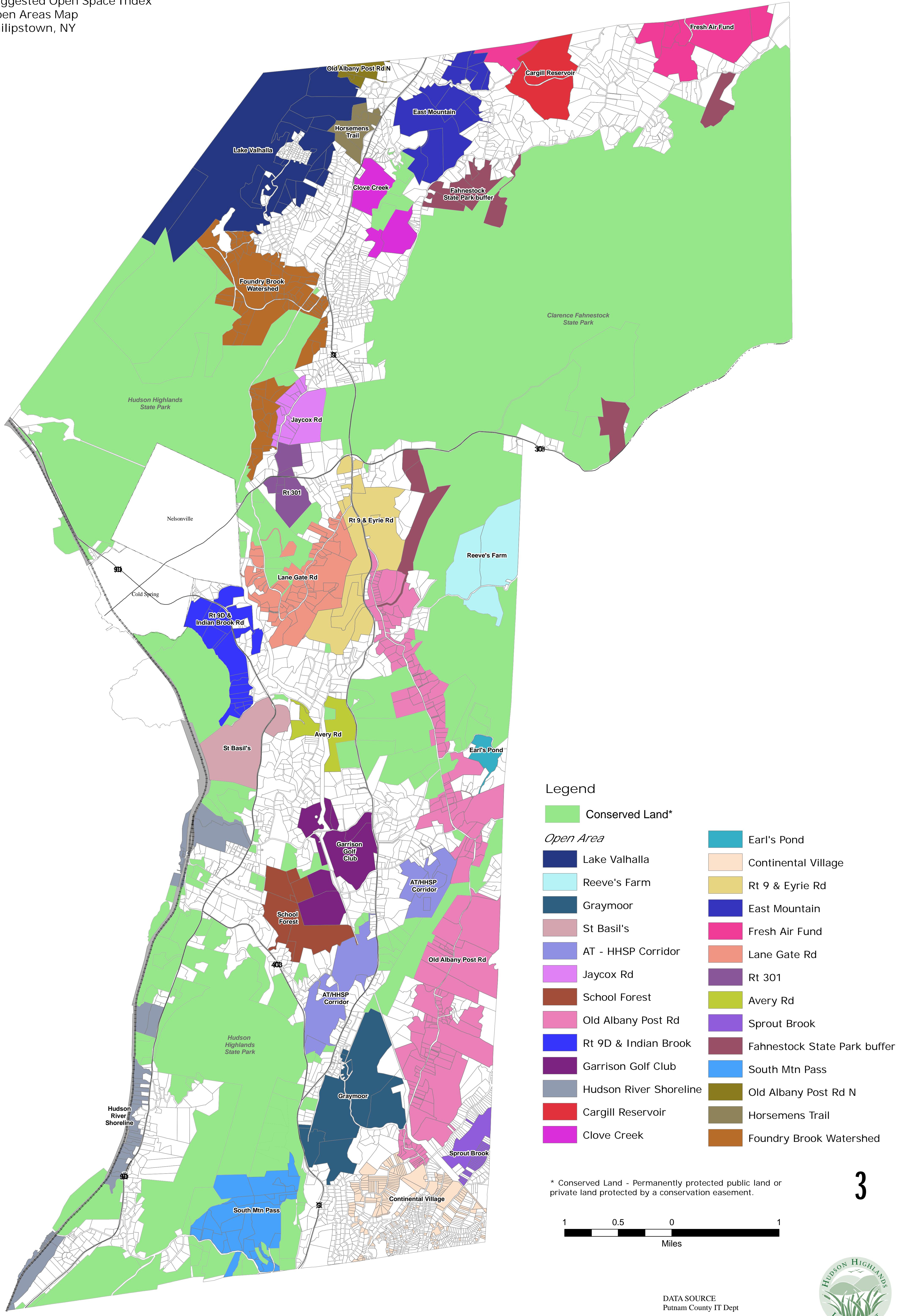
26. Horsemens Trail

Visible from Route 9, this area includes large parcels in the North Highlands located in an area of otherwise commercial/industrial uses.

27. Foundry Brook Watershed

This area of large undeveloped parcels includes all parcels in the Upper Cold Spring Reservoir watershed, which is the drinking water source for the residents of the Villages of Cold Spring and Nelsonville. These parcels contain endangered species and conserved land.

Suggested Open Space Index Open Areas Map Philipstown, NY



* Conserved Land - Permanently protected public land or private land protected by a conservation easement.

A horizontal scale bar representing one mile. The scale is marked at 0.5 miles from both ends. The left half of the scale is black, and the right half is white. The word "Miles" is centered below the scale.

DATA SOURCE
Putnam County IT Dept

This map is for planning purposes only.
All data must be field checked.

The logo is circular with a light green background. The words "HUDSON HIGHLANDS" are written in a white serif font along the top inner edge. In the center, there is a stylized illustration of rolling green hills and three birds in flight. The words "LAND TRUST" are written in a white serif font along the bottom inner edge. At the bottom, the words "PROTECTING THE HIGHLANDS" are written in a white sans-serif font.

OPEN AREAS INVENTORY TAX PARCEL LIST

1. Lake Valhalla

16.-1-11	16.-1-19	16.15-1-12	16.15-1-38
16.11-1-11	16.-1-20	16.15-1-13	16.-1-55
16.11-1-12	16.-1-23.15	16.15-1-14	16.-1-7
16.-1-12	16.15-1-1	16.15-1-2	16.19-1-5
16.-1-18	16.15-1-11	16.15-1-37	16.19-1-8

2. Reeve's Farm

39.-2-23	50.-2-19	50.-2-25
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3. Graymoor

82.-2-10	82.-2-20	82.8-1-45	00.-0-00*
82.-2-11	82.8-1-40	82.8-1-46	
82.-2-19	82.8-1-43	00.-0-00*	

4. St Basil's

49.-1-75	60.-1-9	60.-1-9
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5. AT and Hudson Highlands State Park

00.-0-00	61.-3-23	72.-2-34.11	82.-2-1
61.-3-12.1	71.-2-53	72.-2-34.2	
61.-3-16	71.-2-60	72.-2-35	

6. Jaycox Rd

27.-1-40.11	38.-2-20	38.-2-26	38.-2-31
27.-1-40.12	38.-2-21	38.-2-27	38.-2-51
27.-1-40.21	38.-2-22	38.-2-28	
27.19-1-1	38.-2-24	38.-2-29	
27.19-1-2	38.-2-25	38.-2-30	

7. School Forest

60.-1-67	71.-2-33	71.-2-93	71.-2-95.1
71.-2-23	71.-2-34	71.-2-94	

* Tax parcel number was not available.

8. Old Albany Post Rd

49.-4-19	50.-2-43	50.-2-59	61.-4-6
49.-4-20	50.-2-44	50.-2-6.1	61.-4-60
49.-4-26	50.-2-45	50.-2-6.21	61.-4-7
49.-4-27	50.-2-47	50.-2-6.22	72.17-1-1.1
49.-4-29	50.-2-47	50.-2-60	72.17-1-1.2
49.-4-30	50.-2-47	50.-2-7	72.17-1-10
49.-4-31	50.-2-47	50.-2-8	72.17-1-11
49.-4-32	50.-2-47	50.-2-9	72.17-1-13
49.-4-33	50.-2-47	61.-3-1	72.17-1-14
49.-4-34	50.-2-47	61.-3-2	72.17-1-15
49.-4-35	50.-2-47	61.-3-3	72.17-1-16
49.-4-36	50.-2-47	61.-3-4.1	72.17-1-17
49.-4-37	50.-2-47	61.-3-4.2	72.17-1-18
49.-4-38	50.-2-47	61.-3-43.1	72.17-1-19
49.-4-39	50.-2-47	61.-3-44	72.17-1-2.1
49.-4-40	50.-2-47	61.-3-45	72.17-1-2.2
49.-4-41	50.-2-47	61.-3-5	72.17-1-3
49.-4-42	50.-2-47	61.-3-71	72.17-1-4
49.-4-43	50.-2-47	61.-3-72	72.17-1-5
49.-4-44	50.-2-47	61.-4-19.1	72.17-1-6
49.-4-46	50.-2-47	61.-4-19.2	72.17-1-7
49.-4-47	50.-2-47	61.-4-2	72.17-1-8
49.-4-48	50.-2-47	61.-4-21	72.17-1-9
49.-4-49	50.-2-47	61.-4-22	72.18-1-12
49.-4-56	50.-2-47	61.-4-3	72.18-1-5
50.-2-10	50.-2-47	61.-4-30	72.18-1-9
50.-2-11	50.-2-48	61.-4-31	72.-2-16
50.-2-12	50.-2-49	61.-4-32	72.-2-20
50.-2-13.1	50.-2-5.1	61.-4-33	72.-2-21
50.-2-14	50.-2-5.2	61.-4-34	72.-2-22
50.-2-2	50.-2-50.1	61.-4-35	72.-2-23.1
50.-2-3	50.-2-50.2	61.-4-36	72.-2-24
50.-2-35	50.-2-50.3	61.-4-37	72.-2-25
50.-2-38	50.-2-50.4	61.-4-38	72.-2-27.11
50.-2-39	50.-2-51	61.-4-39	72.-2-27.12
50.-2-4.11	50.-2-52	61.-4-4	72.-2-28
50.-2-4.2	50.-2-54	61.-4-46	72.-2-29
50.-2-40.1	50.-2-55	61.-4-47	72.-2-41
50.-2-40.2	50.-2-56	61.-4-48	72.-2-42
50.-2-41	50.-2-57	61.-4-49	72.-2-43
50.-2-42	50.-2-58	61.-4-5	72.-2-44

* Tax parcel number was not available.

72.-2-48	83.13-1-21	83.5-1-11	83.5-1-8
72.-2-49	83.13-1-22	83.5-1-12	83.5-1-9
72.-2-50	83.13-1-23	83.5-1-13	83.9-1-1
72.-2-51	83.13-1-24	83.5-1-15	83.9-1-10
72.-2-52	83.13-1-25	83.5-1-16	83.9-1-11
72.-2-53	83.13-1-26	83.5-1-18	83.9-1-14
72.-2-8.15	83.13-1-27	83.5-1-19	83.9-1-15
72.-2-8.24	83.13-1-28	83.5-1-2	83.9-1-16
72.-2-9	83.13-1-33	83.5-1-20	83.9-1-17
83.13-1-10	83.13-1-49	83.5-1-21	83.9-1-18.1
83.13-1-11	83.13-1-50	83.5-1-22	83.9-1-18.2
83.13-1-12	83.13-1-51	83.5-1-23	83.9-1-2
83.13-1-13	83.13-1-52	83.5-1-24.111	00.-0-00*
83.13-1-14	83.13-1-53	83.5-1-24.2	00.-0-00*
83.13-1-17	83.13-1-55	83.5-1-3	00.-0-00*
83.13-1-18.1	83.13-1-9	83.5-1-4	00.-0-00*
83.13-1-18.2	83.-2-4	83.5-1-5	00.-0-00*
83.13-1-19	83.5-1-1	83.5-1-6	
83.13-1-20	83.5-1-10	83.5-1-7	

9. Route 9D and Indian Brook

49.-1-11	49.-1-18	49.-1-24.1	49.-1-8
49.-1-12	49.-1-19	49.-1-24.2	49.-1-9
49.-1-13	49.-1-20	49.-1-25	00.-0-00*
49.-1-14	49.-1-21	49.-1-26	00.-0-00*
49.-1-15	49.-1-22	49.-1-36	
49.-1-17	49.-1-23	49.-1-43	

10. Garrison Golf Club

60.-1-59.2	60.-1-65	60.-2-26.71	60.-2-29.2
60.-1-59.3	60.-1-69	60.-2-29.1	71.-2-92

11. Hudson River Shoreline

60.-1-1	60.17-1-12	60.17-1-4	71.-1-1
60.-1-2	60.17-1-13	60.17-1-5	81.-1-1.1
60.-1-4	60.17-1-14	60.17-1-6	81.-1-11
60.-1-5	60.17-1-15	60.17-1-7	81.-1-12
60.17-1-1	60.17-1-17	60.17-1-8	81.-1-13
60.17-1-10	60.17-1-2	60.17-1-9	81.-1-15
60.17-1-11	60.17-1-3	70.-1-2	81.-1-16

* Tax parcel number was not available.

81.-1-17	81.-1-38	89.7-1-10	89.7-1-21
81.-1-18	81.-1-39	89.7-1-11	89.7-1-3
81.-1-20	81.-1-41.12	89.7-1-12	89.7-1-34
81.-1-27.2	81.-1-43	89.7-1-14	89.7-1-4
81.-1-29	81.-1-5	89.7-1-15	89.7-1-5
81.-1-30	81.-1-9	89.7-1-16	89.7-1-6
81.-1-31	89.11-1-1	89.7-1-17	89.7-1-7
81.-1-33	89.11-1-2	89.7-1-18	89.7-1-8
81.-1-35	89.11-1-3	89.7-1-19	89.7-1-9
81.-1-36	89.14-1-1	89.7-1-20	00.-0-00*

12. Cargill Reservoir

17.-2-17.1 7.-1-21

13. Clove Creek

16.-1-38 16.-1-41.2 17.-1-1

14. Earl's Pond

61.-4-16

15. Continental Village

82.20-2-15	82.20-2-38	82.20-3-2	83.13-1-7
82.20-2-16	82.20-2-40	82.20-3-3	83.17-1-12
82.20-2-17	82.20-2-41	82.20-3-4	83.17-1-13
82.20-2-19	82.20-2-42	82.20-3-5	83.17-1-14
82.20-2-21	82.20-2-43	82.20-3-6	83.17-1-15
82.20-2-23	82.20-2-45	82.20-3-7	83.17-1-16
82.20-2-25	82.20-2-46	82.20-3-8	83.17-1-17
82.20-2-26	82.20-2-47	82.20-3-9	83.17-1-18
82.20-2-26	82.20-2-48	82.-2-22	83.17-1-18
82.20-2-27	82.20-2-49	82.-2-24	83.17-1-19
82.20-2-28	82.20-2-50	82.-2-24	83.17-1-20
82.20-2-28	82.20-2-51	82.-2-30	83.17-1-21
82.20-2-29	82.20-2-52	83.13-1-1	83.17-1-22
82.20-2-33	82.20-3-1	83.13-1-1	83.17-1-23
82.20-2-34	82.20-3-10	83.13-1-2	83.17-1-24
82.20-2-35	82.20-3-11	83.13-1-2	83.17-1-25
82.20-2-36	82.20-3-15	83.13-1-5	83.17-1-25
82.20-2-37	82.20-3-16	83.13-1-6	83.17-1-26

* Tax parcel number was not available.

83.17-1-27	83.17-2-52	90.12-1-35	91.5-3-76
83.17-1-28	83.17-2-52	90.8-1-13	91.5-3-80
83.17-1-28	83.17-2-53	90.8-1-14	91.5-3-82
83.17-1-29	83.17-2-54	90.8-1-18	91.5-3-85
83.17-1-41	83.17-2-55	90.8-2-19	91.5-4-10
83.17-1-43	83.17-2-56	90.8-2-20	91.5-4-11
83.17-1-50	83.17-2-57	90.8-2-24	91.5-4-13
83.17-1-6	83.17-2-68	90.8-2-25	91.5-4-16
83.17-1-62	83.17-2-69	90.8-2-26	91.5-4-30
83.17-2-16	83.17-2-69	90.8-2-27	91.5-4-32
83.17-2-19	83.17-2-69	90.8-2-36	91.5-4-4
83.17-2-20	83.17-2-70	90.8-2-43	91.5-4-49
83.17-2-20	83.18-1-28	90.8-2-49	91.5-4-5
83.17-2-27	83.18-1-29	90.8-2-58	91.5-4-51
83.17-2-29	83.18-1-30	90.8-2-59	91.5-4-54
83.17-2-30	83.18-1-31	90.8-2-6	91.5-4-56
83.17-2-31	83.18-1-32	90.8-2-63	91.6-1-24
83.17-2-32	83.18-1-33	90.8-2-68	91.6-1-36
83.17-2-34	83.18-1-34	90.8-2-9	91.6-1-41
83.17-2-36	83.18-1-38	91.5-1-15	91.6-1-45
83.17-2-37	83.18-1-39	91.5-1-21	91.6-1-46
83.17-2-38	83.18-1-40	91.5-1-26	91.6-1-5
83.17-2-39	83.18-1-49	91.5-1-30	91.6-2-13
83.17-2-40	90.12-1-14	91.5-1-41	91.6-2-15
83.17-2-44	90.12-1-14	91.5-1-44	91.6-2-19
83.17-2-45	90.12-1-22	91.5-2-12	91.6-2-41
83.17-2-46	90.12-1-23	91.5-2-29	91.6-2-43
83.17-2-47	90.12-1-23	91.5-2-34	91.9-1-1.1
83.17-2-48	90.12-1-24	91.5-2-35	91.9-1-1.2
83.17-2-49	90.12-1-24	91.5-2-67	91.9-1-5
83.17-2-50	90.12-1-25	91.5-2-8	00.-0-00*
83.17-2-51	90.12-1-25	91.5-3-56	00.-0-00*
83.17-2-51	90.12-1-26	91.5-3-64	00.-0-00*

16. Route 9 & Eyrie Rd

38.-3-19	38.-3-25	38.-3-59	49.-3-81
38.-3-23	38.-3-27	38.-3-64	49.-3-82
38.-3-24	38.-3-28	38.-3-71	49.-3-84
38.-3-24	38.-3-58	49.-3-80	49.-3-87

* Tax parcel number was not available.

17. East Mountain

17.-1-27	17.-1-59.1	17.-2-14	7.-1-17
17.-1-36	17.-1-76.11	17.-2-15	
17.-1-37	17.-1-76.22	17.-2-8	
17.-1-39	17.-2-12	7.-1-10	

18. Fresh Air Fund

7.-1-20	8.-2-2.14	8.-2-4	8.-2-6
8.-2-17	8.-2-3	8.-2-5	8.-2-7

19. Lane Gate Rd

38.-3-29	38.-3-56	49.-2-7	49.-3-28
38.-3-30	38.-3-57	49.-2-8	49.-3-29
38.-3-31	38.-3-6	49.-3-1	49.-3-3
38.-3-32	38.-3-89	49.-3-10	49.-3-32
38.-3-33	49.-2-10	49.-3-12.1	49.-3-33
38.-3-34	49.-2-11	49.-3-12.2	49.-3-34
38.-3-35	49.-2-12	49.-3-13	49.-3-35
38.-3-36	49.-2-13	49.-3-14	49.-3-4
38.-3-37.1	49.-2-14	49.-3-15	49.-3-5
38.-3-37.2	49.-2-15	49.-3-16	49.-3-7
38.-3-38	49.-2-17	49.-3-16	49.6-2-12
38.-3-40	49.-2-18.1	49.-3-17.1	49.6-2-13
38.-3-43	49.-2-18.2	49.-3-17.4	49.6-2-18
38.-3-44	49.-2-19.1	49.-3-18	49.6-2-21
38.-3-49.1	49.-2-19.2	49.-3-2	49.6-2-6
38.-3-49.2	49.-2-21	49.-3-20	49.6-2-8
38.-3-5	49.-2-3	49.-3-21	49.6-2-9
38.-3-50	49.-2-4	49.-3-25	

20. Route 301

38.-2-32	38.-3-84.1	38.-3-85	38.-3-87.1
38.-2-33	38.-3-84.1	38.-3-86	

21. Avery Rd

49.-1-77	60.-2-60	00.-0-00*
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* Tax parcel number was not available.

22. Sprout Brook

83.14-1-10	83.14-1-16	83.14-1-4	83.18-1-1
83.14-1-11	83.14-1-17	83.14-1-5	83.18-1-2
83.14-1-12	83.14-1-18	83.14-1-6	83.18-1-3
83.14-1-13	83.14-1-19	83.14-1-7	83.18-1-6
83.14-1-14	83.14-1-2	83.14-1-8	83.18-1-7
83.14-1-15	83.14-1-20	83.14-1-9	83.18-1-8

23. Fahnestock State Park buffer

17.-3-15.1	17.-3-29	39.-2-17	00.-0-00*
17.-3-18	17.-3-37.41	39.-2-20	
17.-3-27	18.-2-8	39.-2-22	

24. South Mountain Pass

82.-1-52	82.-1-66	90.-1-15	90.-1-6
82.-1-53	90.10-1-10	90.-1-16	90.-1-7
82.-1-56	90.10-1-8	90.-1-18.1	90.-1-8
82.-1-57	90.10-1-9	90.-1-18.2	90.-1-9
82.-1-58	90.11-1-1	90.-1-18.3	00.-0-00*
82.-1-61.1	90.11-1-2	90.-1-20	00.-0-00*
82.-1-61.2	90.-1-12	90.-1-22	
82.-1-62	90.-1-13.1	90.-1-4	
82.-1-63	90.-1-13.2	90.-1-5	

25. Old Albany Post Rd North

16.-1-34	16.-1-56	6.-1-1	6.-1-2
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26. Horsemens Trail

16.12-1-5	16.12-1-7	16.-1-23.12	16.-1-23.14
16.12-1-6	16.-1-23.11	16.-1-23.13	16.-1-28

27. Foundry Brook Watershed

16.-1-1	27.-1-10.11	27.11-1-1	27.11-1-14
16.-1-2	27.-1-10.12	27.11-1-10	27.11-1-2
16.-1-3	27.-1-10.13	27.11-1-11	27.11-1-27
16.-1-3	27.-1-10.14	27.11-1-13	27.11-1-28
16.-1-5	27.-1-11	27.11-1-14	27.11-1-29

* Tax parcel number was not available.

27.11-1-3	27.11-1-9.4	27.-1-37	27.6-1-6
27.11-1-34	27.11-1-9.5	27.-1-38	27.7-1-1
27.11-1-35	27.-1-12	27.-1-39	27.7-1-1
27.11-1-36	27.-1-13	27.-1-41	27.7-1-12
27.11-1-37	27.-1-14	27.-1-41	27.7-1-13
27.11-1-38	27.-1-15	27.-1-42	27.7-1-14
27.11-1-39	27.-1-16	27.-1-42	27.7-1-5
27.11-1-4	27.-1-17	27.15-1-15	27.7-1-6
27.11-1-41	27.-1-18	27.15-1-16	38.-2-23.1
27.11-1-42	27.-1-19	27.15-1-5	38.-2-23.1
27.11-1-43	27.-1-20	27.15-1-6	38.-2-4
27.11-1-44	27.-1-21	27.15-1-6	38.-2-4
27.11-1-45	27.-1-22	27.15-1-7	38.-2-5
27.11-1-46	27.-1-23	27.15-1-7	38.-2-5
27.11-1-47	27.-1-24	27.-1-9	38.-2-50.1
27.11-1-48	27.-1-25	27.-1-9	38.-2-50.22
27.11-1-49	27.-1-25	27.6-1-1	38.-2-50.51
27.11-1-5	27.-1-26.1	27.6-1-15	38.-2-50.52
27.11-1-50	27.-1-28	27.6-1-16	38.-2-6
27.11-1-6	27.-1-29	27.6-1-19.11	38.-2-6
27.11-1-8.1	27.-1-30	27.6-1-19.12	38.-2-7
27.11-1-8.2	27.-1-30	27.6-1-19.2	38.-2-7
27.11-1-9.11	27.-1-31	27.6-1-3	38.-2-8
27.11-1-9.12	27.-1-31	27.6-1-4	38.-2-9
27.11-1-9.2	27.-1-33	27.6-1-4	38.-2-9
27.11-1-9.3	27.-1-36	27.6-1-5	
27.11-1-9.3	27.-1-37	27.6-1-5	

* Tax parcel number was not available.

Habitat Assessment Guidelines Town of Milan

Endorsed by the Town of Milan Planning Board
March, 2005

Prepared for the Town of Milan by:

Karen Schneller-McDonald, Greenplan Inc.,
CAC members Sheila Buff and Frank Margiotta,
and Planning Board Chair Lauren Kingman.
Gretchen Stevens of Hudsonia Ltd. provided invaluable guidance.

An electronic retrievable copy (PDF file) of this document may be obtained from
www.milan-ny.gov.

Message from the Planning Board Chairman

Milan is committed to maintaining its rural character, protecting its environment, and preserving its natural resources. We believe our goals are compatible with the goals of any land development projects within the Town and will result in higher quality subdivisions. Milan's approach uses Habitat Assessment early in the process to establish the environmental constraints and guide the plan before the applicant invests significant time and money in design and engineering.

Habitat Assessment Guidelines Town of Milan

This planning and development tool for habitat assessments has been developed to foster a cooperative effort between the Town of Milan Planning and Town Boards and project applicants. These Guidelines will:

1. Enable Town boards to better carry out their responsibilities to protect the interests of Milan residents, protect the integrity and value of Milan's natural areas, and protect the Town's watershed and significant biological resources;
2. Streamline the planning process by facilitating New York State Environmental Quality Review (SEQR), site plan review, subdivision review, and other related environmental reviews;
3. Incorporate environmental protection into siting and design of development projects;
4. Provide applicants with notice in advance as to what actions will be required, thus giving them the opportunity to minimize delays and expenses during the review process.

The diverse natural resources of the Town of Milan are vulnerable to the adverse impacts often associated with development and construction. Habitat assessments provide the Town with site-specific baseline information and improve the Town's ability to make better planning decisions, establish consistent standards for development proposals, fulfill regulatory obligations (see below), and protect significant biological resources as development and economic growth occur.

Environmental Impacts of Development

Land development may affect the environment in many ways. A high degree of biological diversity accompanied by low numbers of invasive species is often indicative of a healthy ecosystem.

Direct loss of habitat eliminates some species and affects the population size of others. Habitat fragmentation leads to isolation (and reduced viability) of small populations, reduced population dispersal, increased edge effects which in turn may lead to increased predation or parasitism, and decreased breeding success. Healthy ecosystems comprise the landscapes we value; ecological imbalances resulting from improperly sited development and its impacts can lead to degraded landscapes and a proliferation of invasive or nuisance species. In addition, habitat loss is often associated with negative impacts to the watershed, which may result in degraded water quality, reduced water supply, increased pollution, erosion and sedimentation, damage to streams and wetlands, poor drainage, and flooding.

The inclusion of habitat assessment as part of the planning/review process facilitates biodiversity conservation, preserves water resources, helps maintain natural areas, reduces the impact of invasive species, enhances visual resources and recreational opportunities, supports community values, and protects and enhances property values.

It is ultimately more cost effective for the Town to protect significant resources than to attempt to restore them once they have been damaged or lost. This proactive stance intends to guide development--not prohibit it--and influence decisions on how development occurs on a particular site.

Timing

Habitat assessments must be completed before sketch plan endorsement or initiation of the SEQR process, and before the site's Erosion and Sediment Control Plan and Stormwater Pollution Prevention Plan. This approach minimizes project review delays and expenses.

Regulatory Basis for Habitat Assessments

The federal Endangered Species Act protects ecosystems upon which threatened and endangered species depend. The federal Clean Water Act regulates wetlands and may require a permit to alter any wetland that is connected to a surface water system.

The Environmental Conservation Law (ECL) of New York State regulates wildlife habitat protection. Section 9 of the ECL is designed to protect rare plants; sections 11-0535 and 11-0536 protect at-risk fish and wildlife. Article 24 gives the NYS DEC authority to regulate wetlands; article 15 regulates disturbance to protected streams.

In addition, New York State law allows communities to use home rule to protect wildlife and habitats when considering zoning ordinances, subdivision regulations, and site plan reviews.

As part of the SEQR review process, Parts 1 and 2 of the Environmental Assessment Form (EAF) contain questions pertaining to potential impacts of a project on both protected species (threatened and endangered) and non-protected species (EAF Part 2). To answer the questions as to whether a project will have significant impacts on these resources, the Planning Board needs a description of habitat types (and their condition) found on or in the vicinity of the site and species (protected and unprotected) that are associated with those habitats.

The N.Y.S. Natural Heritage Program (NYNHP) maintains records of known occurrences of rare species and significant natural communities throughout the state. Because most sites have never been surveyed by biologists, however, the presence or absence of rare species or significant communities is unknown. NYCNHP issues letters to applicants in response to inquiries regarding the presence of protected species on, or in the vicinity of, a particular site. If no records exist for that site, the letter states:

The absence of records does not necessarily mean that endangered or threatened species do not exist on or adjacent to the site, but rather that our files currently do

not contain any information on the presence of these species. . . . In most cases, site-specific or comprehensive surveys have not been conducted. For these reasons, *we cannot provide a definitive statement on the presence or absence of species. Therefore, this information should not be substituted for on-site surveys that may be required for environmental impact assessment* [italics added].

Even if a record for a protected species occurs on or near the project site, the NYSNHP letter will state:

For most sites, comprehensive field surveys have not been conducted: the enclosed report only includes records from our databases. *We cannot provide a definitive statement on the presence or absence of all rare or state listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.*

Habitat assessment guidelines are designed to assist applicants in providing additional information necessary for impact assessment in compliance with SEQR.

Because stormwater management activities may have a significant effect on water resources, including wetlands and streams, compliance with the new DEC Phase II Stormwater Management regulations also will affect, and be affected by, the vegetation and soil characteristics of certain habitats, particularly wetlands, ponds, lakes and streams.

Role of Habitat Assessments in Environmental Review

The purpose of a habitat assessment in subdivision and site plan review process is to assess the existing environmental conditions, identify any areas of ecological sensitivity, and determine what the impact of the proposed development will be.

Specific areas of concern are:

- Water resources (including aquifers, streams, wetlands, and vernal pools, *whether or not they are protected by state or federal regulations*)
- Vegetation
- Soil types
- Elevation, aspect and slope (including rocky outcrops, steep slopes and ridgelines)
- Wildlife of conservation concern, including but not limited to breeding birds, reptiles, amphibians, and mammals
- Presence of protected species of plants or animals

The habitat assessment uses standard methods to define the various habitat types (e.g., shrubby oldfield, cool ravine, mature mesophytic forest, intermittent woodland pool) found on the property and estimate their extent, condition, and ecological sensitivity. It analyzes the presence or potential presence of plant and animal species of conservation concern on the property and estimates the impact the development will have on all plants and wildlife found in the area. The habitat assessment also analyzes the water resources of the property and estimates onsite as well as downstream impact of the development.

When completed, the habitat assessment will be a valuable tool for planning land use that is compatible with the existing habitat, minimizing the possible impacts to habitat, and mitigating unavoidable impacts.

Guidelines

The habitat assessment includes identification of habitats on and adjacent to, the site, identification of species of conservation concern that use, or may use, the habitats, and evaluations of habitat quality for those species.

1. Existing habitats

Assessment of habitats includes two perspectives: site specific and the context, or surrounding landscape. The habitat assessment must first describe existing conditions onsite, and observable habitats on adjacent and nearby properties. Though decisions are made on a site-by-site basis, some of the ecological information that informs those decisions is on the landscape scale. Many species utilize a complex of habitats within the course of their life cycles; development that attempts to avoid disturbance of breeding habitat, for example, may unintentionally destroy foraging, roosting or winter habitat.

Habitat assessment requires the following:

- Soils and bedrock geology
- Habitat descriptions, including approximate acreage for each habitat type, dominant vegetation, and connections with adjacent habitat
- Assessment of habitat quality/condition for each habitat
- Approximate acreage for each habitat type that will be impaired or lost as a result of the project activity
- Quality/condition of each habitat
- Habitat evaluation of all wetlands and streams (perennial and intermittent) onsite *regardless of regulatory status or jurisdiction.*
- To clarify development impacts on the larger landscape and facilitate siting of conservation easements, habitat assessment includes both onsite and adjacent areas. Offsite areas can be assessed using map and air photo analysis.

For purposes of habitat description, the Hudsonia *Biodiversity Assessment Manual* or the latest edition of *Ecological Communities in New York State* must be used (see Resources). A list of some expected habitats in the Town of Milan is appended to these guidelines.

2. Species associated with habitat types

Since the minimum habitat area required to sustain a population will vary according to species, probable species present onsite must first be determined. A habitat patch can then be evaluated as

to whether or not it is large enough to sustain that species (see *Conservation Thresholds for Land Use Planners* in Resources).

Description of probable plant and animal species present should be based on field visits (formal surveys are not required at this stage) and existing information (see Resources list). The possible presence of local, state, or federal threatened, endangered, special concern or rare species is identified based on these lists. Invasive species and their extent onsite must also be identified.

Certain birds, reptiles and amphibians, and plants are often good indicators of quality habitat for a variety of other species. Plant species commonly associated with the above described habitat types must be listed, in addition to species actually observed onsite. Assessment of habitat quality or condition must be included. Quality measures, depending on habitat type, may include:

- Extent (e.g., for forests or meadows)
- Connectivity with other habitats or corridors
- Age or size of trees
- Abundance of down wood, standing snags, rocks, organic debris, woody hummocks, and other microhabitat features
- Level of human disturbance (e.g., from logging, ATVs, foot traffic, etc.)
- Abundance of non-native or invasive species
- Diversity of native plant species
- Observable quality of surface water and substrates (for streams)

3. Species of conservation concern

For purposes of habitat assessment, species of conservation concern include those listed as:

- Endangered or Threatened under the federal Endangered Species Act
- Endangered, Threatened, Rare, or Special Concern under the New York State Environmental Conservation Law
- S1, S2, or S3 by the New York Natural Heritage Program
- Regionally rare, scarce, declining, or vulnerable in Kiviat and Stevens (2001)

Many of the species of conservation concern are restricted to specialized habitats with particular physical or biological features. *If the appropriate habitat is present onsite, it is assumed that species known to use that habitat are present or could be present in the future.*

4. Evaluation of onsite habitat

The assessment includes the value of the habitats for non-protected as well as protected species. This includes habitat for breeding, nursery habitat, foraging, seasonal movements, nesting, overwintering, and population dispersal.

Some criteria for evaluating these natural resources (both species and habitat) include:

- Rarity

- Diversity
- Size (critical habitat areas)
- Naturalness (level of disturbance)
- Productivity
- Fragility (susceptibility to disturbance)
- Representativeness (high-quality habitat for a variety of species)
- Importance to wildlife
- Local importance (e.g., only site in the Town with certain undisturbed habitat features)
- Connectivity to adjacent habitats and wildlife corridors
- Habitat fragmentation, both onsite and within the landscape context

The observed presence of habitat specialist species (e.g. wood vernal pool amphibians, interior forest birds) may indicate high-quality habitats where development-related impacts must be avoided, minimized or mitigated. The presence of species that are associated with disturbed habitat, along with the absence of habitat specialists, indicate lower quality habitat that may be more suitable for development.

Habitat Assessment Report

The following format for habitat assessment reports must be followed.

1. Title page

Name of subdivision, report date, applicant, name and contact information for report preparer

2. Introduction

Project description; location map using USGS topographic base map.

3. Methods

Sources of information (existing studies, maps); agency inquiries; aerial photographs; field visits.

All onsite field observations must be accompanied by the date, time of day, and general temperature/weather conditions, locations, methods of observation, and seasonal considerations. Please list scientific names for all species mentioned in the report.

4. Results must include

- Site overview with descriptions of bedrock geology and soils
- Habitat descriptions (see attached list)
- Indicators of habitat quality (e.g., size of trees, degree of disturbance, invasive species, abundance of species or groups, vegetation characteristics, relationships to offsite or adjacent habitats, extent of habitat)
- Habitat map of the site including roads, existing structures, habitat labels, contours, topographic features, and soils
- Soils map

Use tables to present results for habitat types and species of special concern, as illustrated in the following examples.

Example 1: Habitat Types

Habitat Type	Size*	% of Total Site Area*	Dominant Vegetation
Mature mesophytic lowland forest	3 Acres	20%	Sugar maple, oaks (red, white, black, chestnut)
Shrubby oldfield	5 Acres	33%	Grey dogwood, orchard grass, goldenrods, bluestem
Intermittent woodland pool	¼ Acre	<2%	Buttonbush, hummocks, duckweed, algae
Perennial stream	Average width: 6 ft.; length 1000 ft.	N/A	Submerged vegetation; vegetation on bars or low banks (see text for details)
*Approximate			

Example 2: Species of Special Concern

We recommend that some of the basic information on species of conservation concern be presented in a table such as the one below. The list of species in the table need not be comprehensive, but it must include representatives of the groups of species that may use the habitats. For example, black-throated blue warbler or ovenbird could represent the interior forest-breeding songbirds; small-flowered crowfoot or blazing-star could represent the rare forbs of calcareous crests, and northern copperhead could represent the snakes of low-to-moderate elevation crests and ledges. More complete lists of potential species should be included in the narrative discussion. Any species of conservation concern that are *known to occur* (recently or historically) on or near the site must be listed in the table.

Species of Conservation Concern	Habitat(s)	Quality
Jefferson salamander, marbled salamander, spotted salamander, wood frog	Intermittent woodland pool	High
(same)	Upland hardwood forest (15 ac)	Moderate (soils in eastern half disturbed by selective logging 15 years ago)
Red-shouldered hawk	Upland hardwood forest and floodplain hardwood swamp (total = 30 ac)	Moderate (too small?)
Yellow lady's-slipper	Upland hardwood forest (15 ac)	Low to moderate (soils in eastern half disturbed by selective logging 15 years ago; invasion of garlic-mustard)

5. Discussion

- Includes species of conservation concern that would use the site
- Overview of biodiversity
- Ecological impacts of the proposed development in the context of the larger landscape
- Relationship of existing or proposed conservation easements to habitats onsite.
Conservation easements should include significant habitat and avoid incorporating small or isolated (disconnected) patches of habitat.

6. Potential impacts of proposed project activity

Include cumulative, primary and secondary impacts and stormwater management impacts. Considerations include magnitude, spatial extent, duration, probability of occurrence.

7. Recommended mitigation measures

Include mitigation measures that will minimize impacts to species of conservation concern, maintain biodiversity, limit habitat fragmentation, minimize impacts to water resources, reduce edge effects, and minimize impacts to the surrounding landscape, viewsheds, and adjacent property owners.

8. Summary

9. References cited

Quality Control and Follow-Up

A site visit(s) by representatives of the CAC, Planning Board, and Town Planner will be conducted after the habitat assessment is submitted. Mitigation measures for impacts on habitats/plant and animal species will be evaluated.

The Town may require peer review of the Habitat Assessment Report at the expense of the applicant.

Habitat List

Suggested habitat types for general habitat and biodiversity assessments. Habitats on any particular site in the Town of Milan may include but are not necessarily limited to these types.

STREAM, POND, & WETLAND HABITATS

<u>Habitat</u>	<u>Comments</u>
Stream	Includes intermittent and perennial streams and rivers
Open water	Natural ponds and lakes (i.e., undammed, unexcavated)
Constructed pond	Dammed or excavated ponds and lakes
Intermittent woodland pool	Vernal pool in a forested setting

<u>Habitat</u>	<u>Comments</u>
Wet meadow	
Wet clay meadow	
Fen	Calcareous low-shrub or sedge fen
Kettle shrub pool	
Circumneutral bog lake	
Acidic bog	
Marsh	Includes emergent and floating-leaved marshes
Hardwood swamp	Includes forested and shrub swamps
Conifer swamp	
Springs and seeps	

UPLAND HABITATS

<u>Habitat</u>	<u>Comments</u>
Upland meadow	Includes inactive agricultural land, herbaceous oldfields, farmed meadows, pasture, hayfield, and cropland
Upland shrubland	Includes shrubby oldfield and other shrub-dominated habitats
Orchard/plantation	For example, Christmas tree farm; fruit orchard; young (seedling-sapling size) plantations
Cool ravine	Very deep, very narrow ravine, with rocky slopes flanking rocky stream at bottom; creating very cool, shaded environment with unusual plant and animal community
Upland hardwood forest	$\geq 75\%$ hardwood cover
Upland mixed forest	
Mature upland conifer forest	$\geq 75\%$ conifer cover; includes spontaneous conifer stands and mature plantations
Crest, ledge, and talus	Includes noncalcareous CLT, as well as CLT of unknown bedrock chemistry
Calcareous crest, ledge and talus	
Waste ground	Abandoned soil or rock mines, active private dumps, unreclaimed landfills, post-industrial or commercial sites, other areas with stripped topsoil and little vegetation

<u>Habitat</u>	<u>Comments</u>
Cultural	Manicured areas lacking structure, pavement, etc.; e.g., ballfields, campgrounds, large lawns, mowed park-like areas under trees

Additional Information

For procedural questions regarding these guidelines, contact Lauren Kingman, Planning Board Chair, at (845) 758 1027 or kingman@webjogger.net. For technical questions, contact Sheila Buff, CAC Chair, at (845) 758 3035 or sheilabuff@frontiernet.net.

Document History

These Guidelines for Habitat Assessments were adopted by the Milan Planning Board in March 2005. They were prepared by Karen Schneller-McDonald, Greenplan Inc., CAC members Sheila Buff and Frank Margiotta, and Planning Board Chair Lauren Kingman. Gretchen Stevens of Hudsonia Ltd. provided invaluable guidance.

Karen Schneller-McDonald is an environmental consultant to Greenplan, Inc. She holds a BS in Conservation of Natural Resources from North Carolina State University at Raleigh. Her professional training includes jurisdictional delineation of wetlands, functional assessment of wetland and riparian systems, wetland identification, raptor identification, and rare plant surveys.

Sheila Buff is a freelance writer specializing in both medicine and natural history. She is the chair of the Milan CAC. She holds a BA with high honors from Washington Square College at New York University.

Frank Margiotta, MST, MS, was appointed to the Milan CAC in 2004. His professional experience includes science teaching at the secondary and graduate school levels and biological studies of wetlands. The Towns of Huntington and Northport, the Village of Asharoken, and SUNY Stony Brook graduate biology department have utilized his research.

Lauren Kingman was a member of the 2000-2001 Milan Master Plan Committee and joined the Milan Planning Board in 2001. He chaired the Zoning Board of Appeals in 2003. From January 2004 to the present he has chaired the Planning Board. Mr. Kingman holds a BS in engineering from Cornell University and a Certificate in Landscape Design from the Institute of Ecosystem Studies. He has participated in several workshops of the Pace University Land Use Law Center and recently completed the Pace Land Use Leadership Alliance Training Program.

Gretchen Stevens is staff botanist at Hudsonia Ltd. She holds a BS in land use planning and environmental conservation from the University of New Hampshire. She specializes in wetland assessments, wetland boundary delineation, rare plant surveys, habitat evaluations, and other field biology in the Northeast and throughout the U.S.

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