

## APPENDIX J: EXAMPLES OF INVENTORY PROJECTS

The following examples demonstrate the variety of approaches that can be used to accomplish a natural resources inventory. Many have a town-wide focus; others give examples of regional, watershed, and county inventories. Some required very little budget and were completed by volunteers or graduate students, while others had grant funding and consultant assistance. The case studies described below include:

- Town of Rosendale Natural Resources Inventory
- Town of Berne Inventories of Forests, Wildlife, and Wetlands
- Town of Shawangunk Open Space Inventory and Analysis
- Town of Ancram Natural Resources Conservation Plan
- Town and Village of New Paltz Open Space Plan
- Shawangunk Mountains Regional Open Space Plan
- Wappinger Creek Natural Resource Management Plan
- Dutchess County Natural Resources Inventory

### Town of Rosendale Natural Resources Inventory

**Link for download:** [www.evolutiontechs.com/clients/rosendale/NRI.pdf](http://www.evolutiontechs.com/clients/rosendale/NRI.pdf)

**Study area:** Town of Rosendale, Ulster County

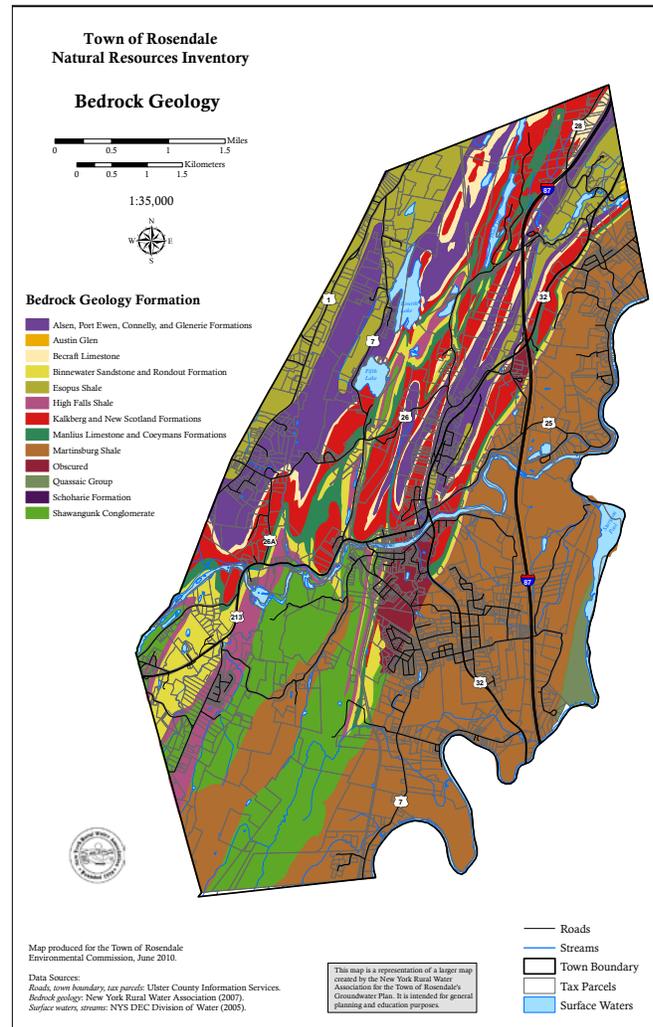
**Date completed:** 2010

**Project goals:** To provide baseline information for helping town officials, developers, and residents make informed and environmentally sound land-use decisions, and a public education and classroom resource for teaching environmental studies, geography, biology, and other subjects.

**Study done by:** Town volunteers, primarily members of the Rosendale Environmental Commission, with technical and mapping assistance from various individuals and organizations, including the Ulster County Department of the Environment, Hudsonia Ltd., New York Rural Water Association, and Cornell Cooperative Extension of Dutchess County. Minimal costs (purchase of GIS software and laptop, and small amount of mapping assistance) were covered by the environmental commission's budget.

**Description:** The Town of Rosendale is a rural community in Ulster County with a population of around 6,000 people. The town is known for its limestone mining history and it shares significant regional features like the Shawangunk Ridge, Wallkill River, and Rondout Creek with other municipalities. Its 2007 comprehensive plan highlighted residents' interests in conserving the town's natural and historical resources and recommended a strategic plan for open space preservation.

The *Town of Rosendale Natural Resource Inventory* includes 21 maps, which help to demonstrate how its resources and topography have shaped the town's history and development. The maps illustrate Rosendale's geology, soils, surface and ground water, habitats, historical sites, cultural and recreational sites, agricultural lands, and other resources and land uses, both natural and human-made. In addition to utilizing existing data, the environmental commission added original data that they collected themselves, including historical sites, cultural sites, and protected open space. They also incorporated the results of a 4,300-acre habitat map that was developed by a volunteer team who completed the Biodiversity Assessment Training offered by Hudsonia Ltd. and the DEC Hudson River Estuary Program in 2004 (see [Appendix E](#)). Most of the GIS mapping work was done by an environmental commission member who was a GIS professional.



In order to share the results of the NRI with the community, the environmental commission matted all of the maps and exhibited the series in the spirit of an art opening at a local café. The set of maps is now permanently on display in the town community center, where many meetings and events are held. The NRI continues to be used by the town planner and environmental commission for environmental reviews. The commission intends for the inventory to be an evolving document, periodically updated to reflect the availability of more accurate data and the natural and human changes to the landscape over time.

### Town of Berne Inventories of Forests, Wildlife, and Wetlands

**Links for download:** <http://berneny.org/wp-content/uploads/cons-Forest-and-Wildlife.pdf> and <http://berneny.org/wp-content/uploads/cons-Wetlands.pdf>

**Study area:** Town of Berne, Albany County

**Date completed:** Forest and Wildlife Inventory (1978), Inventory of Wetlands over 12.4 Acres (1981), comprehensive plan update (2011)

**Project goals:** To develop a natural resource overlay map and provide data to support land use decisions and wetland protection.

**Study done by:** Town of Berne Environmental Commission; subsequently designated a conservation board. There was no dedicated funding for this project.

**Description:** Berne is a rural hilltown with a population under 3,000 in western Albany County. The town's environmental commission became a conservation board several decades ago when it completed inventories of forests, wildlife, and wetlands. The initial forest and wildlife inventory developed an overlay map of forest, shrubland, agricultural, and developed areas based on analysis of stereoscopic aerial photography and limited field verification. In addition, the inventory lists forest landowners and properties under forest management, and summarizes harvest records of local furbearers and deer. The report discusses habitat composition and wildlife values. A separate inventory of regulatory freshwater wetlands greater than 12.4 acres was carried out, including fairly detailed wetland classification and assessment.

More recently, members of the conservation and planning boards identified and mapped 3,500 acres of town habitats as part of a training program with Hudsonia Ltd. and the DEC Hudson River Estuary Program. The program also resulted in a report describing the habitats that were identified, as well as a series of recommendations to conserve high-quality habitats in Berne. The board members worked together to include the habitat map and conservation recommendations in a 2011 comprehensive plan update.

Over the years, the interaction between the conservation board and planning board has had many positive effects on the community's quality of life and helped to maintain Berne's natural resources. The conservation and planning boards, along with the town board and zoning board of appeals, meet regularly to discuss proposed development projects. To support project review, the conservation board conducts site visits and prepares a written report of findings that they present to the planning board. The conservation board's well-defined relationship with the planning board leads to valuable input and new insights in the land use review process. The natural resources inventories and biodiversity assessment training have helped conservation board members to identify wetland and other sensitive habitats during site plan review and to negotiate design modifications with applicants that preserve intact habitats and the benefits they provide the community.

### Town of Shawangunk Open Space Inventory and Analysis

**Link for download:** [www.shawangunk.org/pdf/enviro/Shawangunk-Open-Space-Analysis.pdf](http://www.shawangunk.org/pdf/enviro/Shawangunk-Open-Space-Analysis.pdf)

**Study area:** Town of Shawangunk, Ulster County

**Date completed:** 2004

**Project goals:** To create an open space inventory and plan to encourage preservation of large areas of open space.

**Study done by:** A team of three graduate students from the Conway School of Landscape Design, one of whom was a town resident, conducted the inventory and analysis. The town's open space committee provided guidance, information, and materials. Minimal costs for the Conway School were covered by the town board.

**Description:** Shawangunk is a rural town of 12,000 residents in Ulster County. *The Shawangunk Open Space Inventory and Analysis* was an outgrowth of the town's comprehensive plan, which was completed in July 2003 and included a recommendation for an open space inventory. The town's identity and heritage are closely tied to agriculture and many significant natural features are shared with adjacent towns, including the Shawangunk Ridge, the Wallkill River, Shawangunk Kill, and the Shawangunk Grasslands National Wildlife Refuge. The community recognized that these open space resources add to quality of life in Shawangunk and require proactive planning to ensure preservation for the future. The inventory project intended to provide the town with a tool for evaluating the need to purchase or otherwise protect available land for public open space use, as well as a tool for working with project sponsors to develop properties in a manner that least disturbs important open space resources.

Using comprehensive planning surveys and information from the open space committee, six open space categories were determined to be vital to the town's future: agricultural land, scenic views, historical sites, recreation land, water quality protection zones, and wildlife habitat. These six categories, and subcategories within them, were inventoried and analyzed in the report. The inventory included a composite layer of each open space category, which can be overlain with each other in various combinations to further explore open space in Shawangunk. The work group felt this technique for processing information served as an easy-to-update, interactive planning tool for open space protection efforts and for guiding careful development practices.

The inventory report includes an in-depth analysis for each of the six open space categories, including overall importance of the particular resource and recommendations for open space protection. Some of the inventory maps were developed using further GIS analyses, including wetlands and floodplains with protective buffer zones; contiguous riparian travel corridors; and unfragmented forest habitat in excess of 150 acres.

The inventory has been used by members of the town's environmental commission to evaluate and document resources for planning board project reviews. One of the inventory authors, a former member of the commission, also completed the 10-month Biodiversity Assessment Training offered by Hudsonia Ltd. and the DEC Hudson River Estuary Program, with a team from the neighboring Town of Gardiner. Her involvement was a catalyst for intermunicipal cooperation on habitat mapping and a joint Estuary Grant received in 2006, which was used to purchase GIS software, train volunteers, and cover costs of consulting biologists. The project resulted in town-wide habitat maps for Shawangunk and Gardiner, which enable the municipalities to easily recognize shared resources as well as have finer-scale habitat data for town planning.

## Town of Ancram Natural Resources Conservation Plan

**Link for download:** <http://townofancram.org/CAC/>

**Study area:** Town of Ancram, Columbia County

**Date completed:** 2014

**Project goals:** To identify and prioritize natural resources of conservation concern in the town and set forth guidelines and recommendations to inform landowner stewardship and municipal land-use policies and practices.

**Study done by:** Ancram Conservation Advisory Council and Hudsonia Ltd. Funding was provided by the Hudson River Valley Greenway, Hudson River Bank and Trust Foundation, and the Town of Ancram.

**Description:** Ancram is a small community on the edge of the Taconic Ridge in Columbia County with a population under 2,000. The town continues to support extensive agricultural lands and natural systems and has attracted a large number of new residents and second homeowners from the New York City metropolitan region. Ancram officials and residents began the process of identifying ecologically significant habitats in their town during the first 10-month Biodiversity Assessment Training offered by Hudsonia Ltd. and the DEC Hudson River Estuary Program in 2001-2002. The training led to the formal establishment of a conservation advisory council (CAC), which has continued biodiversity assessment work through volunteer efforts and with technical assistance from Hudsonia supported by the Estuary Program. The idea to prepare the townwide *Natural Resources Conservation Plan* (NRCP) was born out of the 2010 Town of Ancram Comprehensive Plan, which set forth goals of preserving open space and important scenic views, and developing policies and programs to protect groundwater, watersheds, streams, wetlands, woodlands, ridgelines, and wildlife habitats. The NRCP also complements the findings of the *Ancram Agriculture and Farmland Protection Plan* (2011) and the *Heritage Resources Plan* (2012), and shares many of the goals and recommendations of those documents.

The plan draws upon the CAC's detailed biodiversity assessment study, which has been completed for approximately half of the town's area, in addition to a thorough overview of existing public data for natural resources, including information compiled in a habitat summary report prepared for the town by Estuary Program staff. The plan identifies concrete actions for landowners and local

officials that will help carry out the comprehensive plan goals for resource conservation and identifies conservation tools (including regulatory and non-regulatory measures) and partners to achieve them. The CAC and Hudsonia presented the NRCP at a public meeting that included interactive learning stations where residents and officials were introduced to the plan's detailed maps and learned highlights about a broad array of natural resources. The CAC intends to use the maps to assist the town planning board with project reviews and to continue public education and outreach about resources of concern, including public lectures and an ongoing biodiversity newsletter series.

## New Paltz Open Space Plan: A Framework for Conservation for the Town and Village of New Paltz, New York

**Link for download:** [www.townofnewpaltz.org/building/pages/open-space-plan-2006](http://www.townofnewpaltz.org/building/pages/open-space-plan-2006)

**Study area:** Town and Village of New Paltz, Ulster County

**Date completed:** 2006

**Project goals:** To identify, prioritize, and implement protection of the community's open spaces.

**Study done by:** A joint committee composed of citizens from the Village of New Paltz and the Town of New Paltz as a cooperative intermunicipal effort, aided by several community planning consultants throughout the project, including Allee King Rosen & Fleming (AKRF), Inc. (for inventory services in 2003), Shingebiss Associates (for fiscal/conservation finance research services in 2004), and final assistance from Behan Planning Associates, LLC (for open space planning consulting services and plan report preparation). The Town of New Paltz provided funding, with Village support for the 2004 Open Space Inventory.

**Description:** The Town of New Paltz is a small community in Ulster County, which, combined with the more densely populated Village of New Paltz, has a total population of about 13,500 residents. The town included protection of environmentally-sensitive areas and natural resources as a priority in its comprehensive plan (1995), and to implement that recommendation, formed an open space committee in 2000. In subsequent years, the committee gathered information, including an open space inventory (2004); gathered community input; and generated public interest and involvement through a photo contest and computer screen-saver



Public presentation of the Ancram Natural Resources Conservation Plan. © B. Docktor

that included images from the town. The *New Paltz Open Space Plan* was adopted in 2006 and included an open space vision map with seven defining character areas of the New Paltz landscape, and selection criteria for evaluating potential conservation projects for the town and village. The plan's three key recommendations were to 1) create and implement a local land conservation program that works with willing landowners to conserve valued open space; 2) develop conservation financing to enable the community to purchase open space and conservation easements from willing landowners; and 3) plan for development in New Paltz that respects and conserves open space, by working with developers and landowners through the site planning process when development proposals are put forward.

Shortly after its adoption, a build-out and fiscal analysis were conducted and demonstrated that important places in town were vulnerable. The town successfully passed a \$2 million Clean Water and Open Space Protection Bond in 2006, receiving 63% approval on the measure and marking the first time Ulster County residents authorized the creation of funding for open space conservation. A volunteer-comprised New Paltz Clean Water and Open Space Protection Commission is responsible for reviewing parcels and coordinating protection strategies. Since its formation, several significant parcels with important conservation values have been protected through the actions of the commission.

### Shawangunk Mountains Regional Open Space Plan

**Link for download:** <http://mtnscenicbyway.org/images/openspace-plan.pdf>

**Study area:** Shawangunk Mountains region of Ulster County, including 9 towns and 2 villages: Towns of Crawford, Gardiner, Marletown, Montgomery, New Paltz, Rochester, Rosendale, Shawangunk, and Wawarsing; Village of Ellenville; and Village of New Paltz.

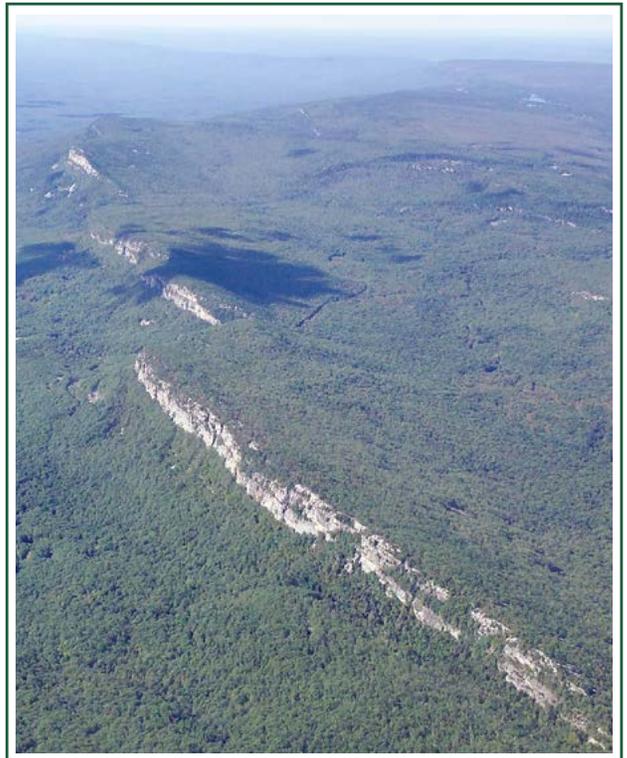
**Date completed:** 2008

**Project goals:** To promote a regional, intermunicipal approach to open space planning to conserve the natural resources and scenic values of the Shawangunk Mountains.

**Study done by:** The 11 municipalities of the Shawangunk Mountains Regional Partnership, with project consulting provided by Behan Planning Associates. Funding was obtained through a combination of sources including the NYS Department of State Quality Communities Program; the Federal Highway Administration's National Scenic Byways Grant Program administered by the NYS Scenic Byways Program of the NYS Department of Transportation; the municipalities of the Shawangunk Mountains Regional Partnership; Mohonk Preserve; and the Shawangunk Ridge Biodiversity Partnership.

**Description:** Nine towns and two villages in the Shawangunk Mountains region began working together in 2000 with the goal of establishing the Shawangunk Mountains Scenic Byway, which was officially designated by New York State in 2006 based on the statewide significance of the scenic, natural, recreational, and historic resources of the region. By recognizing the connections between communities of the northern Shawangunk Mountains, the byway is helping to establish a regional identity. Through an

## SHAWANGUNK MOUNTAINS REGIONAL OPEN SPACE PLAN



Shawangunk Mountains Regional Partnership, December 2008

Once the byway was designated, the partnership decided to implement one of the major recommendations of the *Corridor Management Plan*: to develop the *Shawangunk Mountains Regional Open Space Plan*. The open space plan grew out of the conviction that local economic growth, tourism, and the quality of life depend on the continued preservation of shared regional resources. The partnership applied for and was awarded funding by federal and state sources, and the boards in each of the towns and villages voted to contribute additional funds to the undertaking.

The objectives of the regional open space plan were to augment the various comprehensive and open space plans of the individual towns and villages by contributing a regional dimension, to provide resources that might not be available on a local level, and to engage in projects that could be carried out more efficiently on a regional level. The plan describes the region's rich resources, including the natural communities of the Shawangunks and areas for regional natural area connectivity, as well as the significant waterways, forests, agricultural resources, and scenic views. Strategies for preserving regional open space resources are outlined, including partnerships with land trusts, conservation financing options, and municipal land-use planning and decision-making.

The partnership went on to fulfill one of the strategies outlined in the regional open space plan by developing a *Scenic Resources Guide* for planning boards. The guide provides tools to assess scenic views in open space and to help minimize the impact of potential development during site plan review.

## Wappinger Creek Natural Resource Management Plan

**Link for download:** [www.wappingersfallsny.gov/pdf/Natural%20Resource%20Planning.pdf](http://www.wappingersfallsny.gov/pdf/Natural%20Resource%20Planning.pdf)

**Study area:** Region of Dutchess County drained by the Wappinger Creek, including 11 towns and 2 villages in Dutchess County: Towns of Clinton, Hyde Park, LaGrange, Milan, Pine Plains, Pleasant Valley, Stanford, Fishkill, Poughkeepsie, Wappinger, and Washington; Village of Millbrook; and Village of Wappingers Falls.

**Date completed:** 2000

**Project goals:** To inventory and analyze natural resources, water quality, and pollution sources as the basis for watershed management activities and protection in the Wappinger Creek watershed.

**Study done by:** Dutchess County Environmental Management Council (EMC), Dutchess County Soil and Water Conservation District, Wappinger Creek Watershed Planning Committee, and Dutchess County Water Quality Strategic Committee. Funding provided through an EPA Wetlands Demonstration Grant, NYS-DEC Watershed Planning Grant, Rural New York Grant Program, and Dutchess County.

**Description:** The *Natural Resource Management Plan for the Wappinger Creek Watershed* was developed to assist the 13 watershed communities in planning for the future of their water resources. In order to implement the management plan, the Wappinger Creek Intermunicipal Council (WIC) was formed to facilitate communication and help complete cooperative projects, with the mission of addressing common issues affecting the quality of the watershed. This council primarily consists of municipal officials and their representatives from the 13 municipalities and provides a forum for municipal governments, nonprofit organizations, and concerned citizens to discuss existing conditions, research and management needs, and to identify implementation opportunities within the watershed. This framework has been very successful, and the WIC continues to meet and move forward with coordinated projects.

The management plan includes a comprehensive inventory of natural resources in the watershed derived from existing data sources, followed by results from several detailed water quality monitoring studies and a subwatershed-level analysis of pollution sources. The plan outlines a broad range of strategies for achieving water quality goals and objectives, including best management practices, incentives, and education, as well as recommendations for amending or adopting land use planning or zoning provisions.

Using the natural resources inventory in the management plan, WIC and the Dutchess County EMC, along with various local partners, have been successful in identifying and implementing local streambank restoration projects along Wappinger Creek to reduce sedimentation and improve habitat. Steep slopes along the creek's natural buffer are threatened by erosion. In an effort to address these erosion issues, the intermunicipal council developed a framework for restoring the streambank and provided an avenue for a coordinated volunteer effort to put the restoration plan into action. With technical assistance from the Dutchess County EMC, the two groups developed site-specific restoration designs and settled on a two-phase program to rebuild, strengthen, and re-vegetate the streambank.

## Dutchess County Natural Resources Inventory

**Link for download:** [www.co.dutchess.ny.us/countygov/departments/planning/16138.htm](http://www.co.dutchess.ny.us/countygov/departments/planning/16138.htm)

**Study area:** Dutchess County

**Date completed:** 2010

**Project goals:** To provide a comprehensive understanding of the natural environment for municipalities and landowners that will help inform land-use decisions, guide in the development of policies, identify areas for natural resource conservation and management, and educate residents.

**Study done by:** A collaboration between several agencies and organizations, including Cornell Cooperative Extension Dutchess County's Environment and Energy Program (lead agency), Cary Institute of Ecosystem Studies, Dutchess County Department of Planning and Development, Dutchess County Environmental Management Council (EMC), Dutchess County Office of Computer Information Systems, and the Vassar College Environmental Research Institute. The NRI steering committee provided guidance for the entire project, and collaborated with local experts and scientists to update each chapter of the NRI. Limited funding was provided by Dutchess County.

**Description:** The 2010 *Dutchess County Natural Resources Inventory* is a comprehensive update of a 1985 inventory, containing new information about the county's natural resources, maps created with the most current GIS data, and references to research findings. It provides a snapshot of the current state of natural resources in the county, how they are regulated or classified, and trends and changes seen over time, as well as emerging threats such as climate change. In addition to statewide public datasets, the inventory includes many data sources developed through detailed studies at the county level, such as water quality and aquifer monitoring results and the identification of undeveloped biodiversity blocks. Each chapter includes a discussion of the resource, how it is regulated, trends and changes seen over time, implications for local decision-making, and resources for additional information.

The NRI is a key tool intended to guide the work of EMC members, municipal officials, planning boards and zoning boards of appeals, conservation advisory councils, and watershed organizations. A new chapter titled "Implications for Decision-Making" includes a discussion of how to effectively use the State Environmental Quality Review Act (SEQRA) and other more recent planning initiatives, such as the Dutchess County Greenway Compact, to conserve important natural resources, in addition to applications for the comprehensive planning process and for preparation and review of proposed development plans. Members of the public, students, and teachers can use the NRI as a general source of information about the county, and to enhance their place-based environmental curriculum and teaching.

The inventory's findings were debuted at a conference held at Vassar College and inventory partners made an effort to bring the inventory to the attention of town officials, conservation advisory councils, planning boards and the public. Since completion of the inventory, the EMC has created lesson plans for schools to use the NRI.