CHAPTER: 1

Introduction

Why inventory natural resources?

The Hudson River Valley's shorelines, wetlands, forests, streams, grasslands, and shrublands are not only habitat for abundant fish and wildlife, but also provide many vital benefits to people. These ecosystems help to keep drinking water and air clean, moderate temperature, filter pollutants, absorb floodwaters, and provide for pollination of agricultural crops. They also present opportunities for outdoor recreation and education, and create the scenery and sense of place that is unique to the region.

The Hudson River estuary watershed, which roughly includes the ten counties bordering the tidal river from Albany and Rensselaer counties to Rockland and Westchester, is home to approximately 2.8 million people. From 2000 to 2010, the population of the watershed grew by 125,639 residents, or 4.7%—twice the rate of the state as a whole. And in the preceding decades, land in the Hudson Valley was converted to suburban development three times faster than the population grew, leading to declining density in existing cities and suburbs and making communities vulnerable to the harmful effects of sprawl (Pendall 2003).

Land-use planning is instrumental in balancing future growth and development with protection of natural resources. Although municipalities frequently need to make decisions affecting these resources, they often don't have adequate data available to inform those decisions. Often they find themselves reacting to proposed development rather than planning for future growth, or making decisions on development projects without considering the larger context. This narrow approach to decision-making loses sight of broader-scale issues and goals, such as climate resilience, walkable communities, connected habitats, or watershed management.

By identifying and describing natural resources at the local scale, a natural resources inventory (NRI) provides communities with a strong foundation for proactive planning and informed decision-making. NRIs have value not only to communities in rural settings, but also those in more urban and suburban areas. The process encourages participation in identifying and prioritizing natural resources important to the community, and provides information that will support careful land-use planning and improved resource protection measures. And by incorporating natural resources into every level of decision-making and planning, municipalities can make a meaningful contribution toward preserving the natural heritage of the region, and can ensure that healthy, resilient ecosystems—and the benefits they provide—are available to their communities for future generations.

Tidal marsh. © L. Heady

What is a natural resources inventory (NRI)?

A natural resources inventory (NRI) compiles and describes important, naturally occurring resources within a given locality (e.g., municipality, watershed, or region). Cultural resources, such as historic, scenic, and recreational resources, are often included in an NRI, as well. The inventory has two basic purposes: 1) to provide the building blocks for comprehensive land-use and conservation planning, and 2) to allow natural resource information to be included in local planning and zoning. The scope of the NRI is determined by the community. At its simplest, an NRI is the compilation and description of existing natural resources data. At its most complex, it includes detailed analysis of resources or new data collected specifically for the inventory. An NRI is not a static document. As new and revised data become available, the inventory should be updated to insure its completeness and accuracy.

Until an inventory has been conducted, many communities don't have a clear picture of where their natural (and cultural) resources are located, which resources are significant to the community, and why. The compilation of maps, data tables, and descriptions in an NRI contribute to a better understanding and appreciation of the community's natural resources and provide the foundation for a wide range of planning and conservation applications.

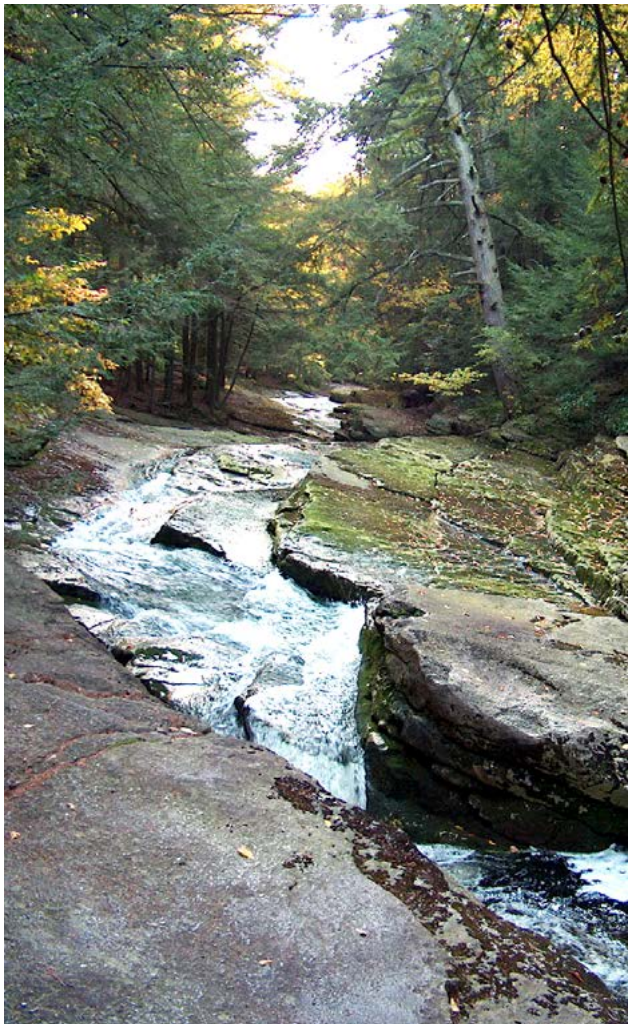
Ideally, an NRI should include the following three components:

Maps: Inventory maps show the location and extent (as known) of existing resources, such as forests, surface and ground waters, and farmland within the chosen study area. They provide a visualization of the patterns of natural and cultural resources and land uses within the study area and its surroundings, and how they relate to each other and to built features such as roads and residential neighborhoods. Inventory maps are useful for a variety of applications, e.g., zoning updates and open space planning (see Chapter 6).

Associated Data and Information Sources: An NRI is more than just a collection of maps. The data that serve as the basis for the inventory can provide specific details about information displayed on the maps (e.g., acreage of specific features like forest patches). Documentation of the data sources used for the inventoried resources should also be included to facilitate future updates and provide a clearer basis for appropriate uses of the inventory. Keep in mind that some data (e.g., the detailed results of water quality assessments) don't lend themselves to display on a map, and are best reported in tabular format. Other data may warrant display in both map and table format (e.g., soil map units are best shown on a map with their corresponding properties listed in a table).

Descriptive Report: A written report is an important element of the NRI. The report should describe the project's goals and methods, provide descriptive summaries of each resource inventoried, and summarize its findings and recommendations.

Chapter 4 provides more detailed information on what to include in an NRI.



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How can a natural resources inventory be used?

The results of an NRI should be available for use by municipal officials, county planning agencies, interested community and watershed groups, developers, and residents. Decision-makers and community stakeholders can use the NRI as a foundation for creating strategies that incorporate natural resource-based planning and prevent the unintended loss of their valued assets. Real estate developers benefit by knowing, before they formulate a proposal, which resources are valued and prioritized by the community. Some ways that an NRI can be used include the following (Chapter 6 provides a more detailed discussion of these applications):

- Develop or update the natural resources section of the municipal comprehensive plan
- Provide information for watershed assessment and planning
- Designate critical environmental areas (CEAs)
- Develop and implement a municipal or regional open space plan
- Amend existing zoning and subdivision regulations
- Evaluate the effects of proposed land use and zoning changes
- Inform environmental review of development proposals
- Document current conditions so changes over time can be assessed.

Rather than being an end in itself, a natural resources inventory is intended to be a reference in many aspects of planning and a valuable tool for achieving some of the goals listed above. While an NRI is useful for municipal-scale planning, it is generally not suitable for site-scale issues and the NRI maps should not be substituted for on-site surveys during project review. However, the NRI may be used as a screening tool during environmental reviews to see how projects fit in the larger context and identify areas where more site-specific assessments may be required.

About this guide

This guide is designed for use by municipal and county officials (e.g., conservation advisory councils and planning boards), conservation organizations, watershed associations, and interested citizens. It may also be useful to professional planners, consultants, and developers. It was written to help municipalities pursue a natural resources inventory by suggesting an approach (Chapter 2); and recommending components to include, explaining why they are important, and providing sources of data and assistance (Chapter 4). In addition to recommending basic inventory components, Chapter 4 provides some suggestions for additional detailed inventory studies. Ultimately, the scope of the inventory project is up to the

community, and may be influenced by a number of factors, including emerging priorities, staff or volunteer capacity, and budget. This guide can be used by both communities embarking on an NRI for the first time, and communities that are updating or expanding an existing NRI.

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Although the emphasis of the guide is on municipal NRIs, the inventory process can be applied to larger areas, such as counties and watersheds. For example, many of the components described in Chapter 4 are included in a watershed characterization or assessment phase when developing a watershed plan (see New York State Department of State's *Watershed Plans Guidebook: Protecting and Restoring Water Quality*).

The use of Geographic Information Systems (GIS) has become more commonplace and provides an efficient, computer-based tool for managing, updating, and combining NRI information that lends itself to a mapped format. It is a recommended approach for compiling inventory maps and the guidebook suggests GIS data sources throughout Chapter 4. Depending on municipal capacity, use of GIS for compiling NRI data may require the assistance of a group that has technical capabilities, such as county agencies or consultants. Chapters 3 and 5 and Appendix C contain information about using GIS and web-based mapping tools for the purpose of developing and analyzing an NRI.

The guidebook also includes suggestions for how to put the inventory to work (Chapter 6) and model language for formal adoption of the NRI (Appendix G), and gives an example of a checklist for resource assessment during subdivision review (Appendix H), inventory maps (Appendix I), and NRI and open space planning projects (Appendix J) from Hudson Valley municipalities. Additional appendices provide lists of resources (Appendices A and B); and information on commonly used maps (Appendix D), biodiversity assessment (Appendix E), and climate resilience (Appendix F).

While the guidebook focuses on the Hudson River Valley, it describes an inventory process that can be applied throughout New York State and in other states where local municipalities play a role in land-use and conservation planning. For any community pursuing an NRI, it is recommended that county and municipal agencies are contacted to determine what local data are available to complement the national, state, and regional maps and data sets described in Chapter 4.