

Mapping Nature from Town to Parcel: A Primer for Local Boards

April 29, 2019
New York Planning Federation Conference

Today's Natural Resource Planning Session:

- Introduction to natural resources inventories (NRIs)
- Guidance and data sources
- Case studies of NRIs and NRI uses
- Online map tools and online map publishing
- Site-level assessments

Photo by Laura Heady





Department of
Environmental
Conservation

Natural Resources Inventories

April 29, 2019

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Hudson River Estuary Program and Cornell University

Creating a Natural Resources Inventory

A Guide for Communities in the Hudson River Estuary Watershed



Cornell University



Department of
Environmental
Conservation

Hudson River Estuary Program
A Program of the New York State
Department of Environmental Conservation

Hudson River Estuary Program

Working to achieve key benefits:

- clean water
- resilient communities
- vital estuary ecosystem
- fish, wildlife, and habitat
- natural scenery
- education, access, recreation, and inspiration



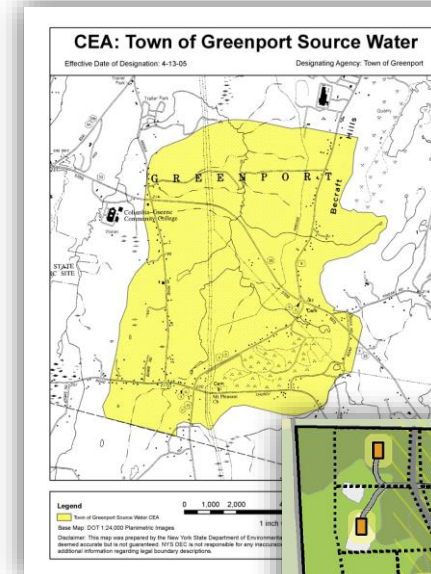
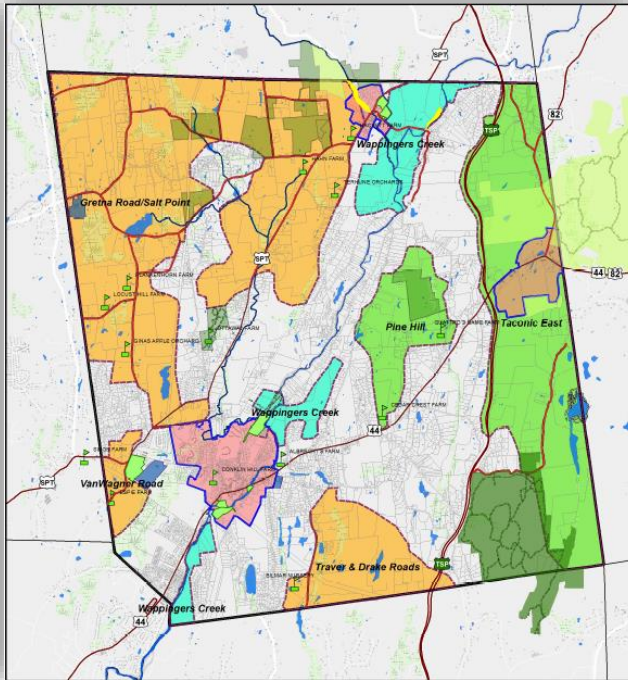
identify what
you have



prioritize



plan, protect,
manage



What is a Natural Resources Inventory (NRI)?

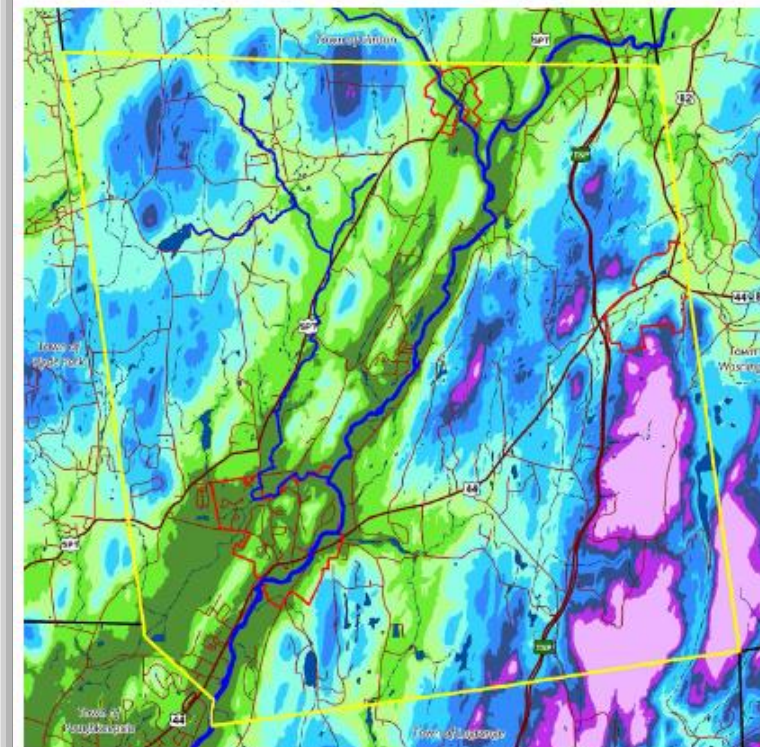
identify what
you have

- a compilation and description of natural resources
- includes maps, associated data, and a report
- primary focus is naturally-occurring resources, but often include scenic, recreation, and historic resources.

APPENDIX I: EXAMPLES OF MAPS FROM A MUNICIPAL NRI

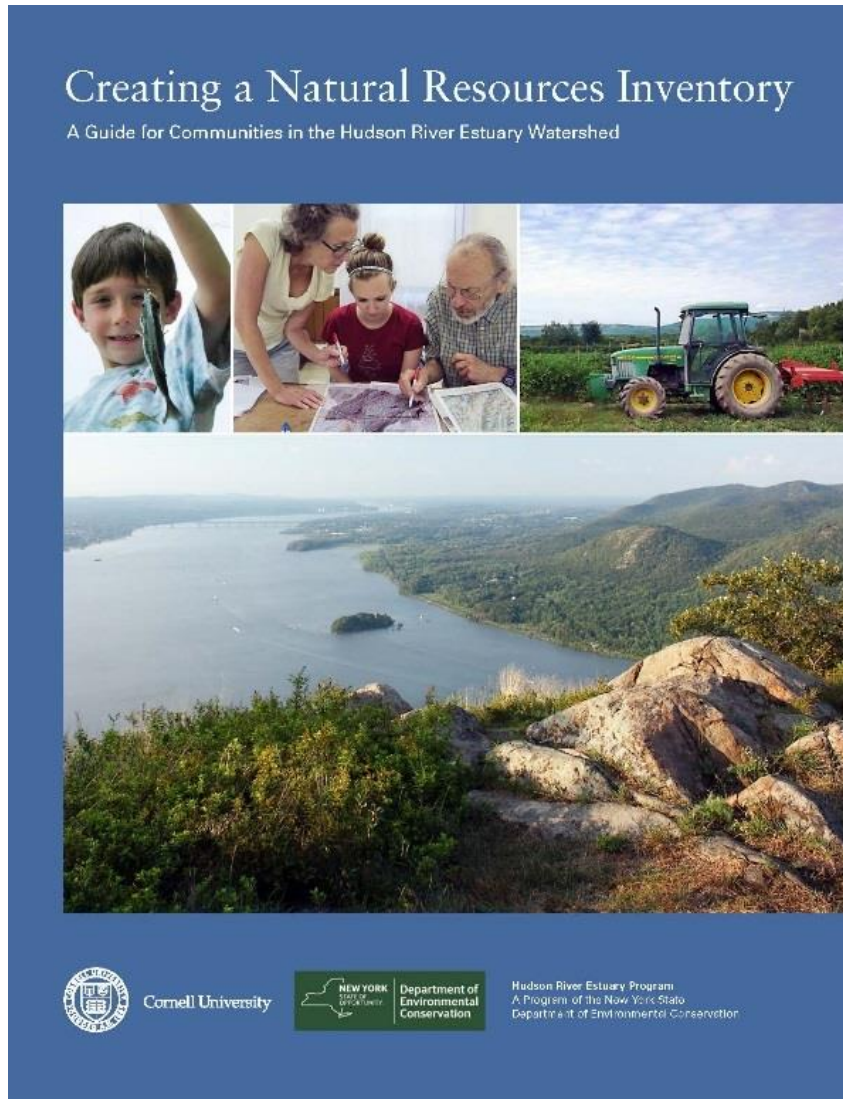
The Town of Pleasant Valley in Dutchess County, NY completed an Open Space and Farmland Plan in 2013. The purpose of the plan is to assist the town with protection of significant open space and farmland resources by providing information on the importance of those resources, offering a guide on voluntary land protection and financing options, and providing short-term and long-term recommendations that will contribute to the protection of the environmental and economic health of the community. The plan includes a townwide inventory of existing natural and cultural resources, and identifies six significant resource areas. The entire plan can be viewed on the town's website at <https://pleasantvalley.ny.gov/resources/reports/Open-Space-and-Farmland-Plan-2013>. The following selection of maps comes from the natural and cultural resources chapter and is used with permission from Taconic Site Design & Landscape Architecture and AKRF.

TOPOGRAPHY

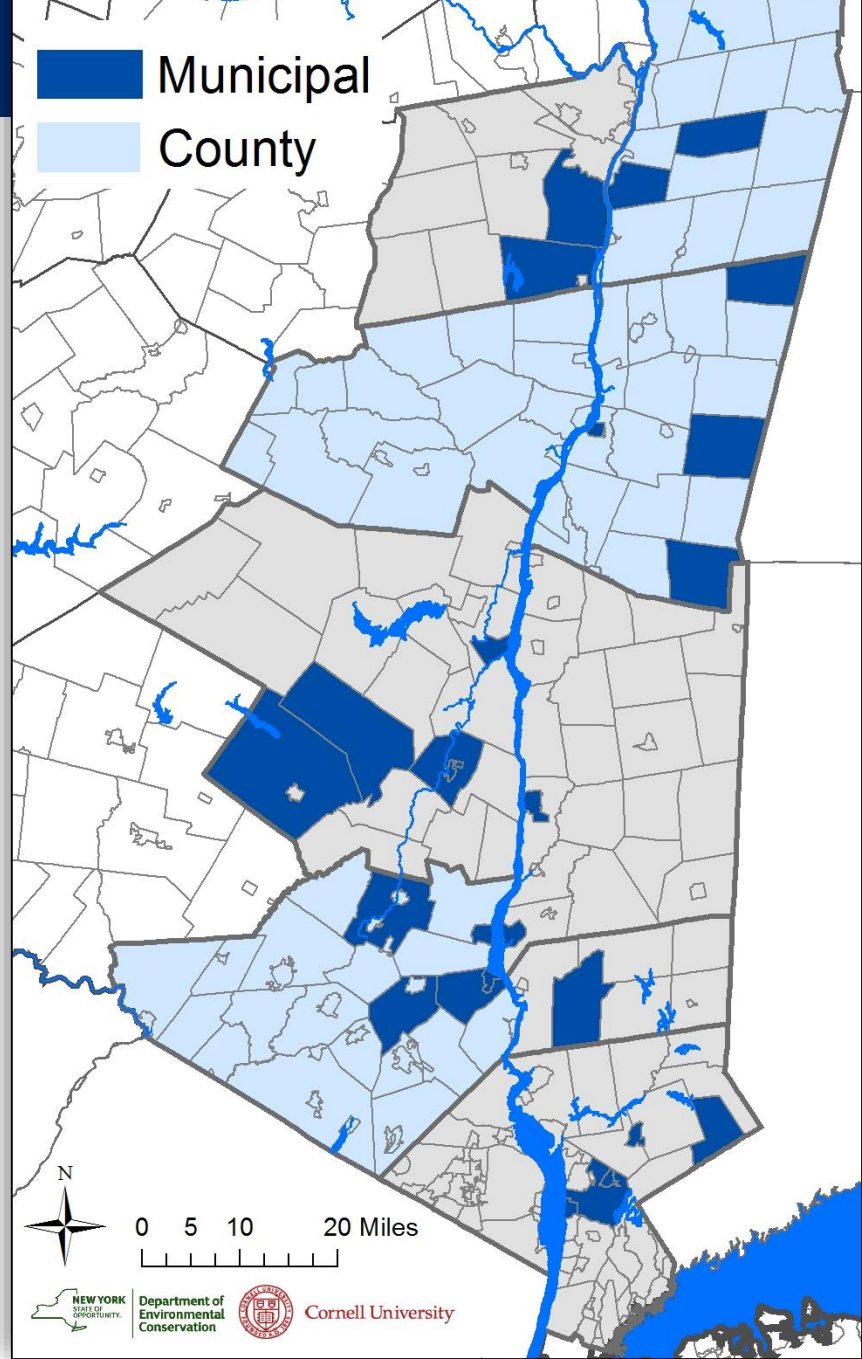


NRI Guidebook available online

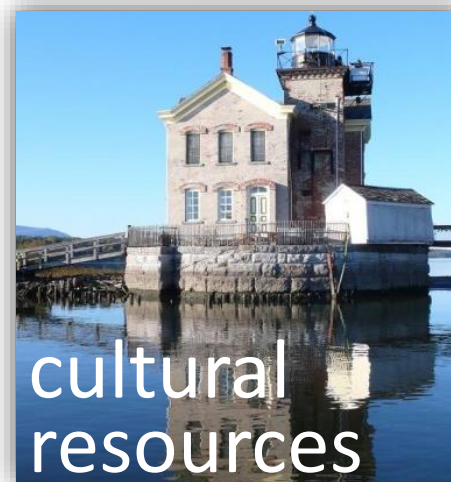
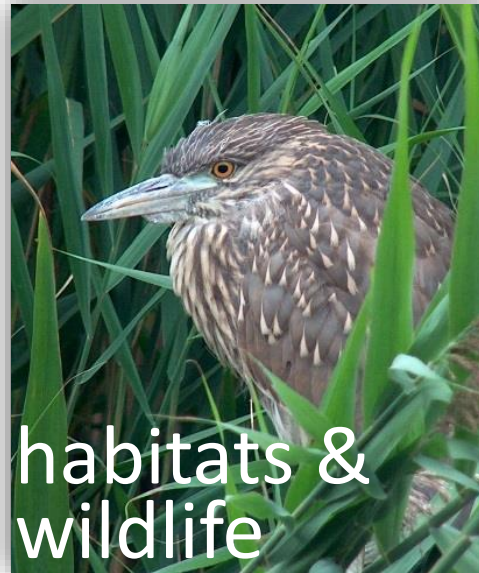
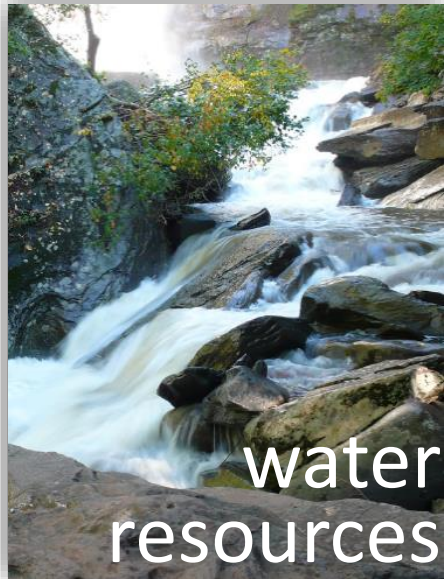
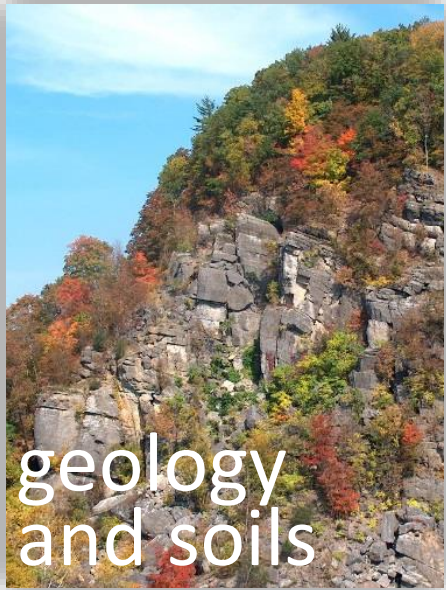
www.dec.ny.gov/lands/100925.html



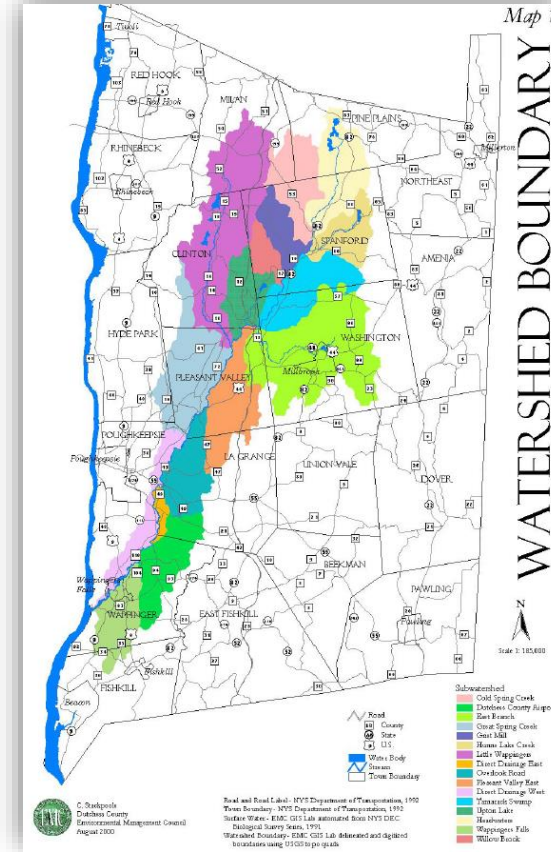
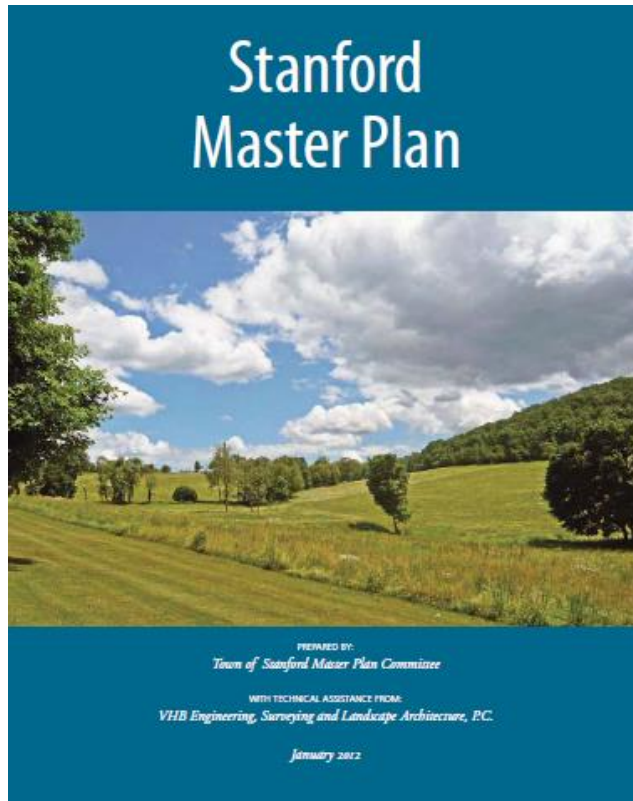
NRI Projects since 2014



What is included in an NRI?



Opportunities to conduct an NRI:



Why inventory natural resources?



Photo by Laura Heady

- educate landowners and developers
- valuable reference for land use planning and decision-making
- keep track of the “big picture”
- foundation for comprehensive plan and zoning updates, open space planning and acquisition

What's at stake?



**natural
resources**

water quality and quantity
flood control
temperature moderation
carbon storage
clean air
human health
recreation and education
scenery
fisheries and forest products
natural pollinators



→ **“ecosystem
services”**



Photo by Laura Heady

Economic Benefits of Open Space:



OFFICE OF THE STATE COMPTROLLER

Thomas P. DiNapoli, State Comptroller

Economic Benefits of Open Space Preservation

March 2010

“In many instances, it is less expensive for a community to maintain open space that naturally maintains water quality, reduces runoff, or controls flooding than to use tax dollars for costly engineered infrastructure projects such as water filtration plants and storm sewers.”



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What's at stake?

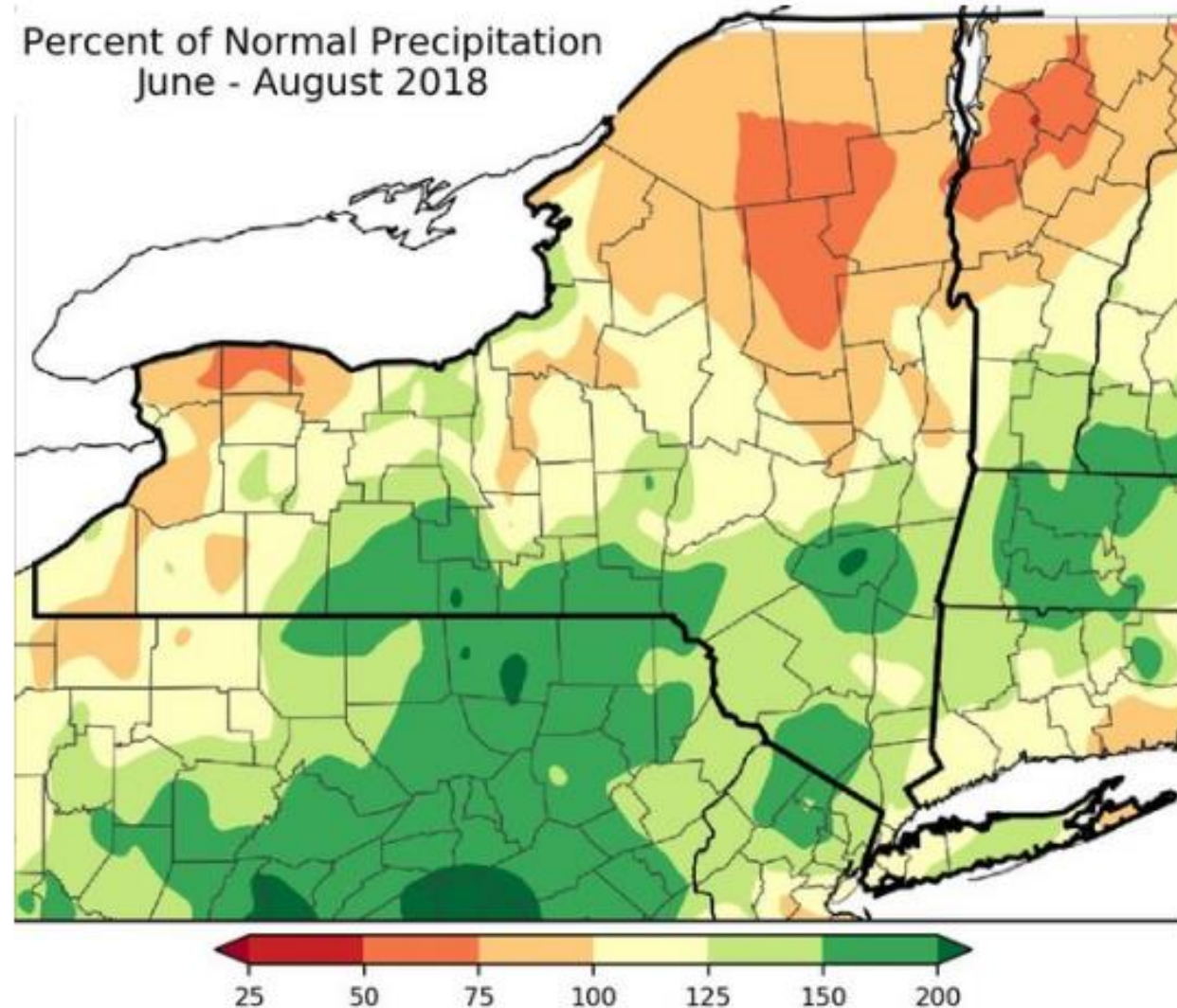
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Resilience to:

- increasing temperatures,
- sea level rise, and
- variability in precipitation.



Photo by L. Heady



Parts of the Southern Tier had nearly double the normal amount of rainfall this summer, and even more this month

These benefits are vulnerable.

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Individual land-use decisions can lead to death by 1000 cuts.



- Outlines an approach to developing an NRI
- Recommends resources to inventory
- Suggests existing data to include and where to find help
- Considers ways to analyze the data
- Presents ideas and examples for putting the inventory to work

www.dec.ny.gov/lands/100925.html

Creating a Natural Resources Inventory

A Guide for Communities in the Hudson River Estuary Watershed



Cornell University

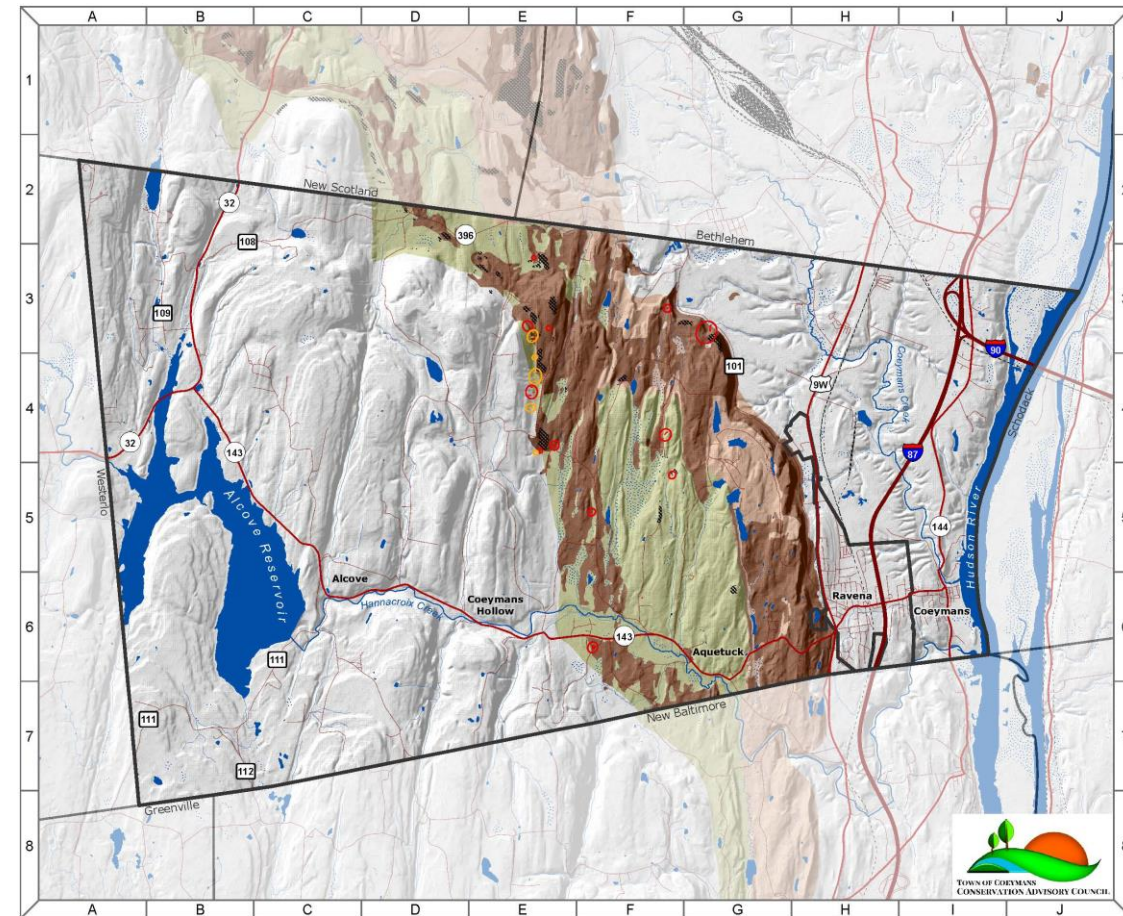
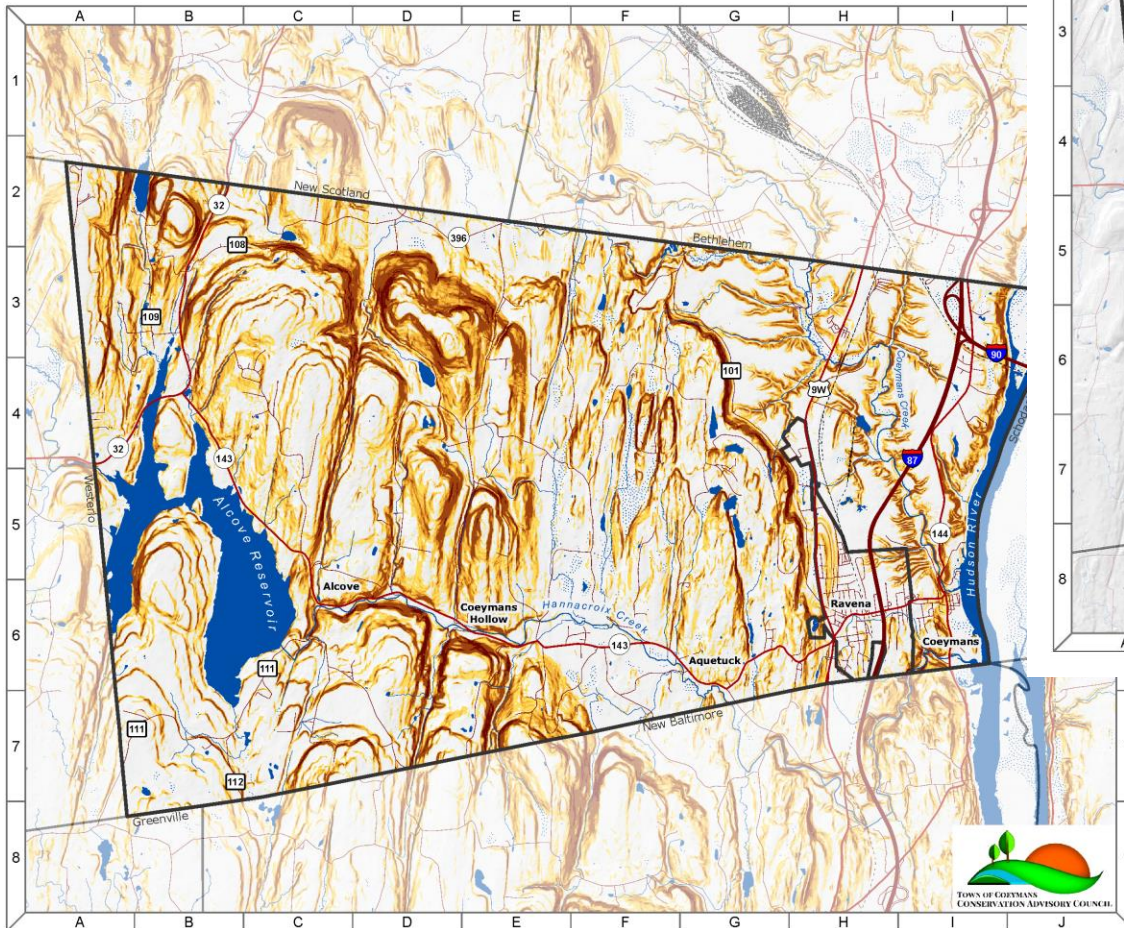


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Examples: Coeymans NRI (draft)

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Steep slopes



Town of Coeymans
Natural Resources Inventory

8. Karst Geology

Map Legend

Geologic Features

- Karst Complexes
- Karst Swallets
- Karst Sinkholes
- Farmington Soils
- Onondaga Limestone and Tinstates Group
- Helderberg Group

Roads

- Interstate
- State/US Highway
- Local Street
- Railroad

Hydrology

- Open Water
- Wetland
- River/Stream
- Municipality

Scale: 1:60,000



Notes: Karst data unavailable outside Albany County.

Data Sources: Farmington Soils and Karst Features: Department of Earth Sciences, The College at Brockport (February 2010). | Onondaga and Helderberg Bedrock: NY State Museum (1999). | Railroads: ESRI North American Detailed Streets (2010). | Railroads: NYS DOT (May 2015). | Towns: NYS GIS Program Office (January 2017). | Elevation: NYS DEC and US Geological Survey (date unknown). | Rivers/Streams: National Hydrography Dataset: NYS DEC and US Geological Survey (March 2017). | Wetlands: US Fish and Wildlife Service and NYS DEC (September 2012). **Notes:** This map is intended for general planning and education purposes and is not a substitute for site-level surveys. It relies upon public data sources that may contain errors or omissions. Town of Coeymans Natural Resources Inventory maps were completed with technical assistance from Cornell University, with funding from the NYS Environmental Protection Fund through the NYS DEC Hudson River Estuary Program. <http://hudson.dnr.cals.cornell.edu>. Map by Andrew Varuzzo, 2017.

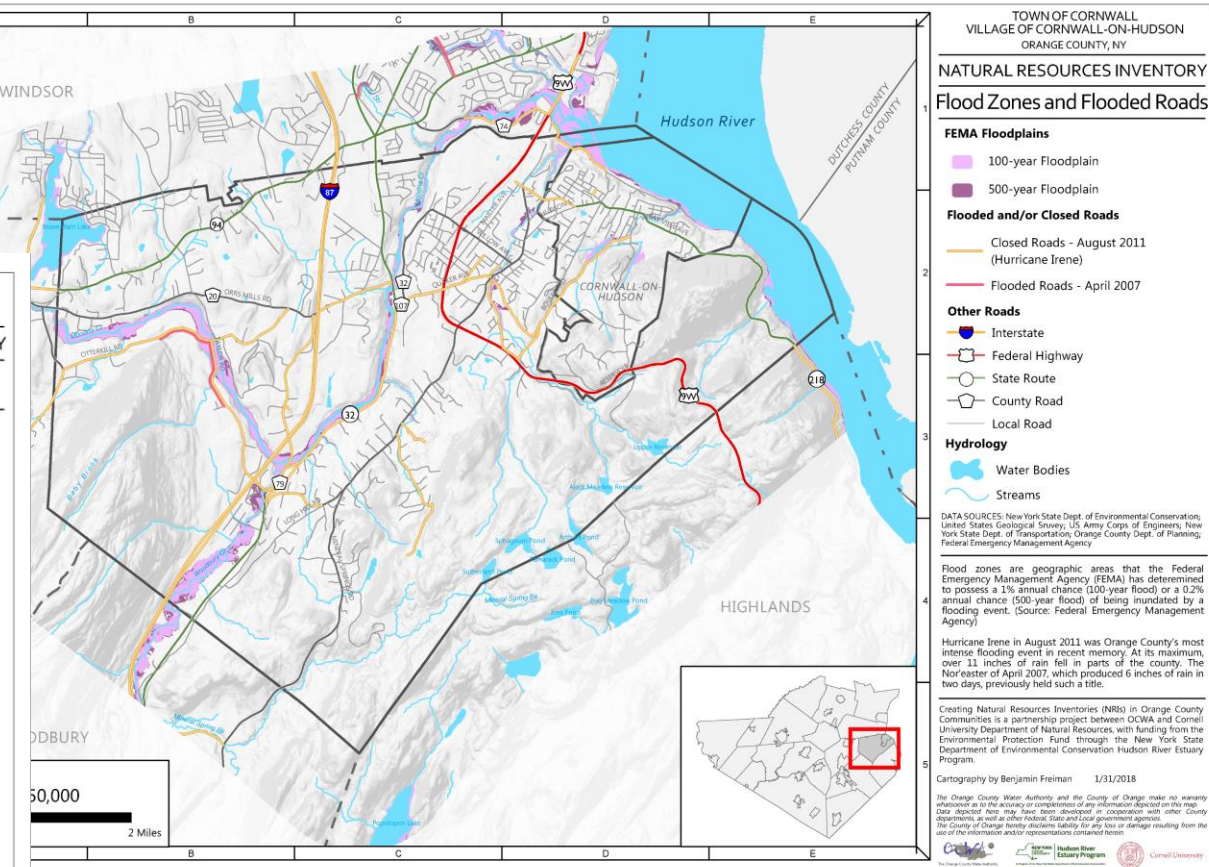
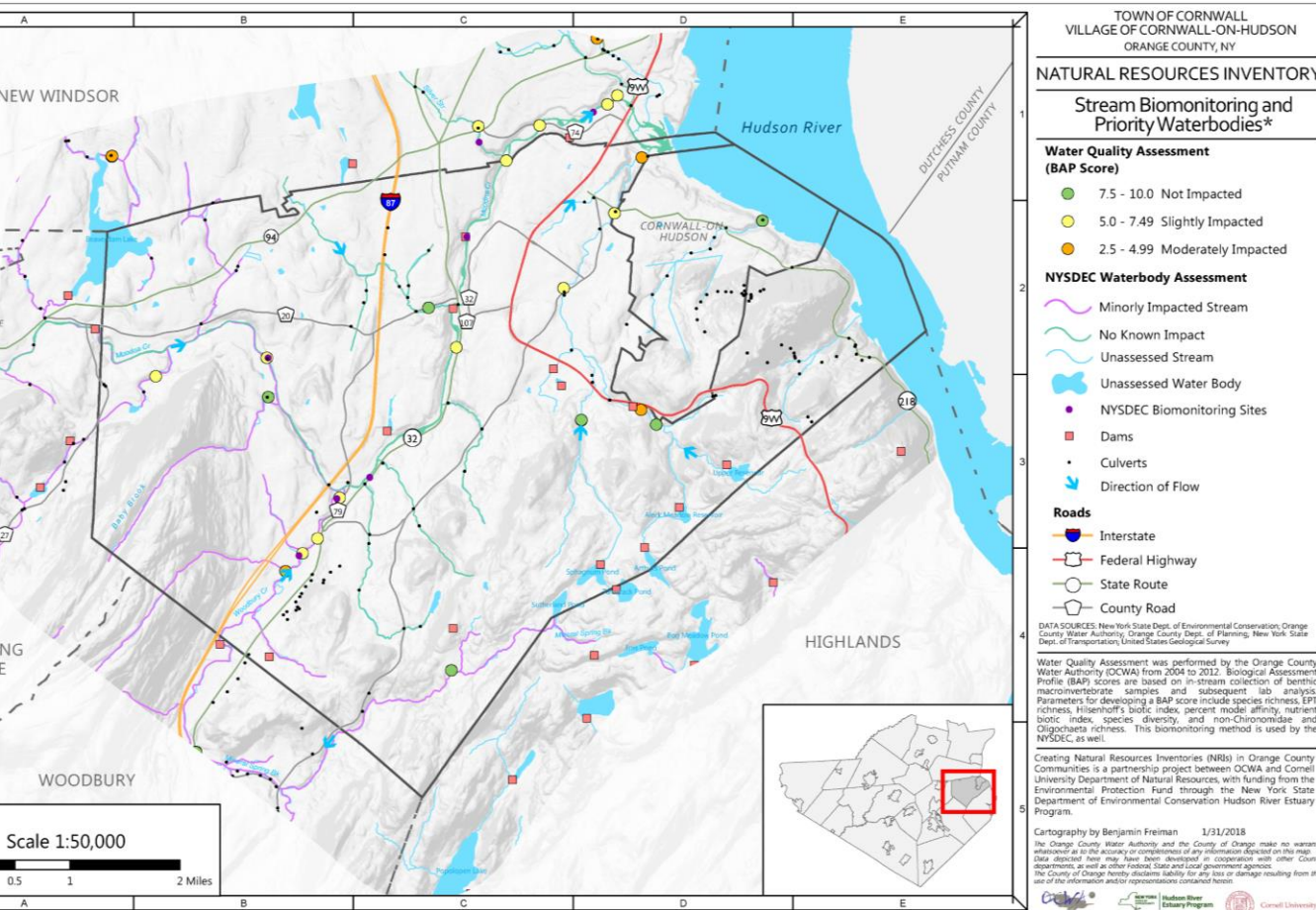
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Karst geology

Examples: Cornwall NRI (draft)

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Waterbody Assessment & Stream Infrastructure



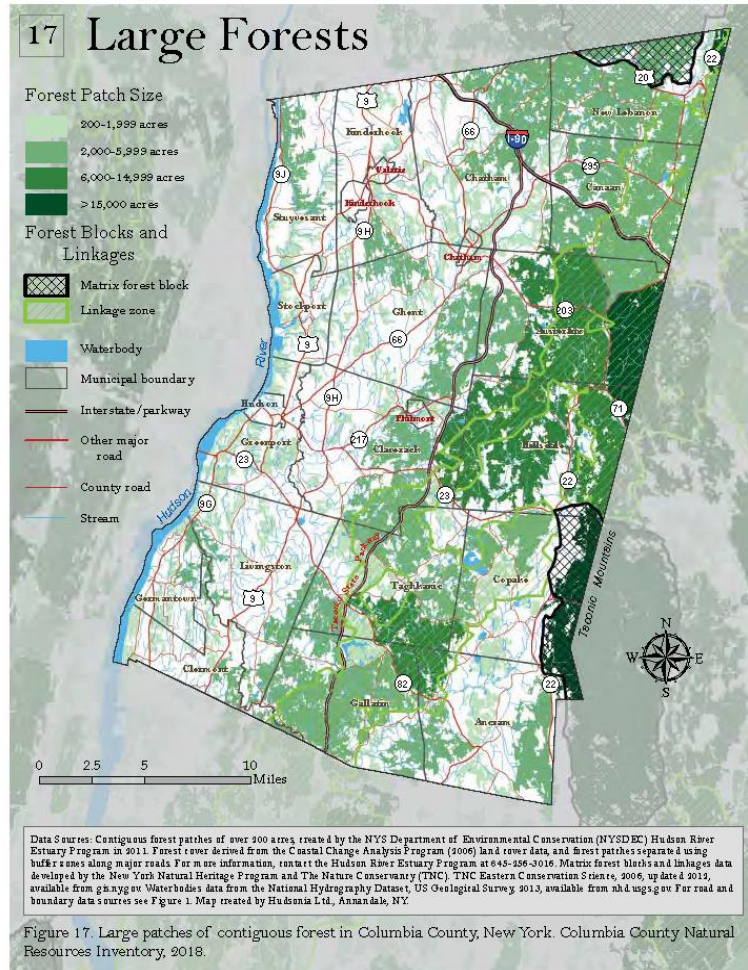
Flood Zones & Flooded Roads

Examples: Columbia County NRI

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Large Forests

Natural Resources



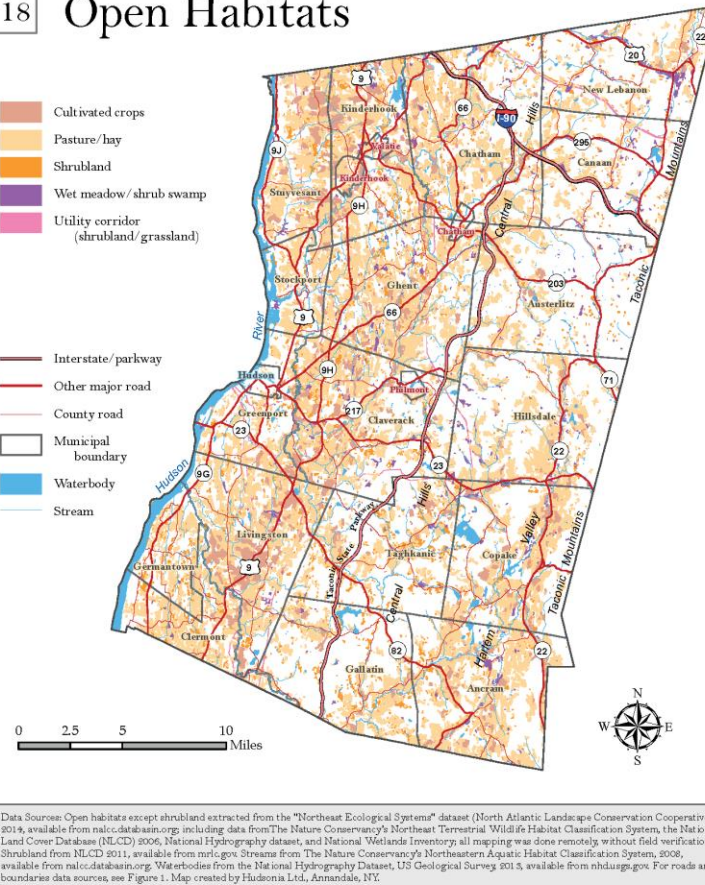
Open Habitats

Columbia County Natural Resources Inventory

18 Open Habitats

- Cultivated crops
- Pasture/hay
- Shrubland
- Wet meadow/shrub swamp
- Utility corridor (shrubland/grassland)

- Interstate/parkway
- Other major road
- County road
- Municipal boundary
- Waterbody
- Stream



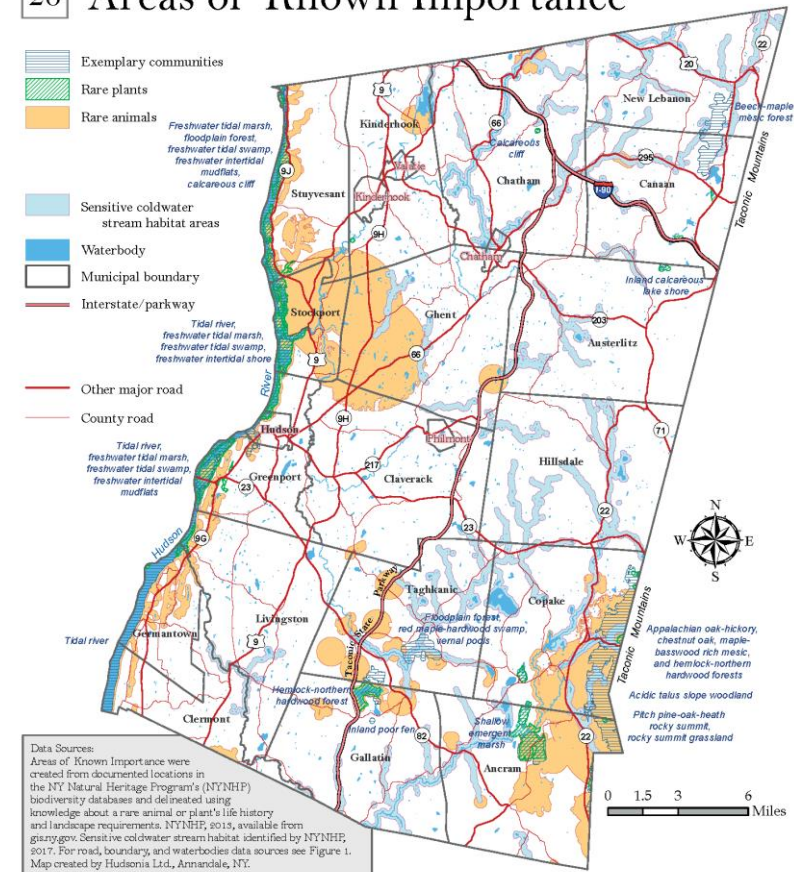
Important Areas

Natural Resources

26 Areas of Known Importance

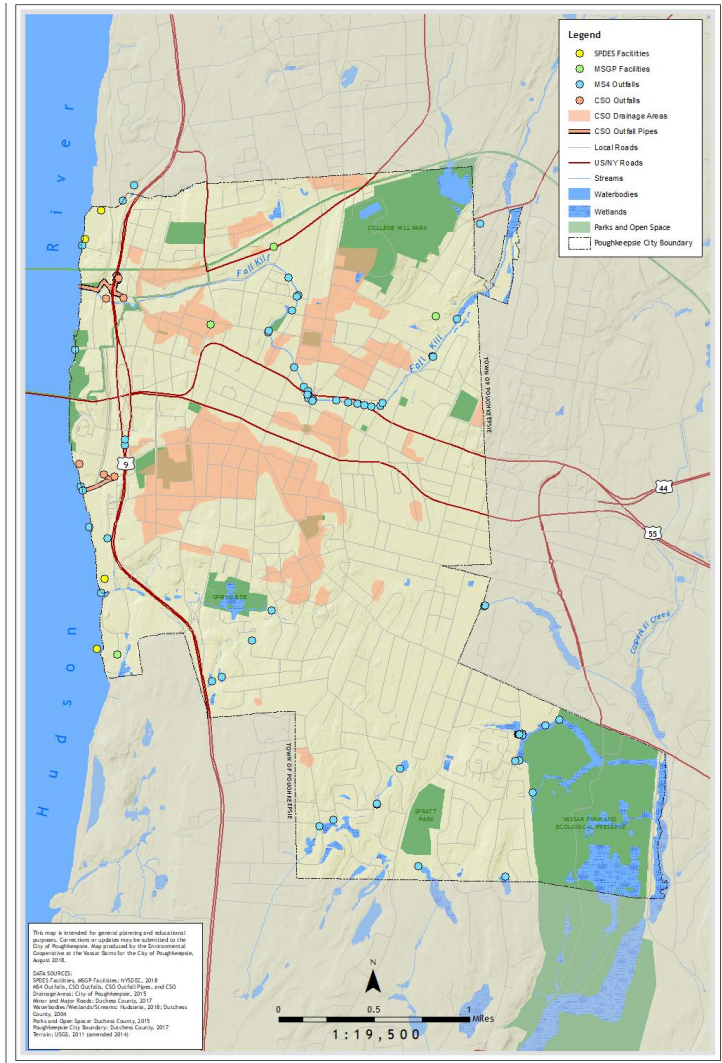
- Exemplary communities
- Rare plants
- Rare animals

- Sensitive coldwater stream habitat areas
- Waterbody
- Municipal boundary
- Interstate/parkway
- Other major road
- County road

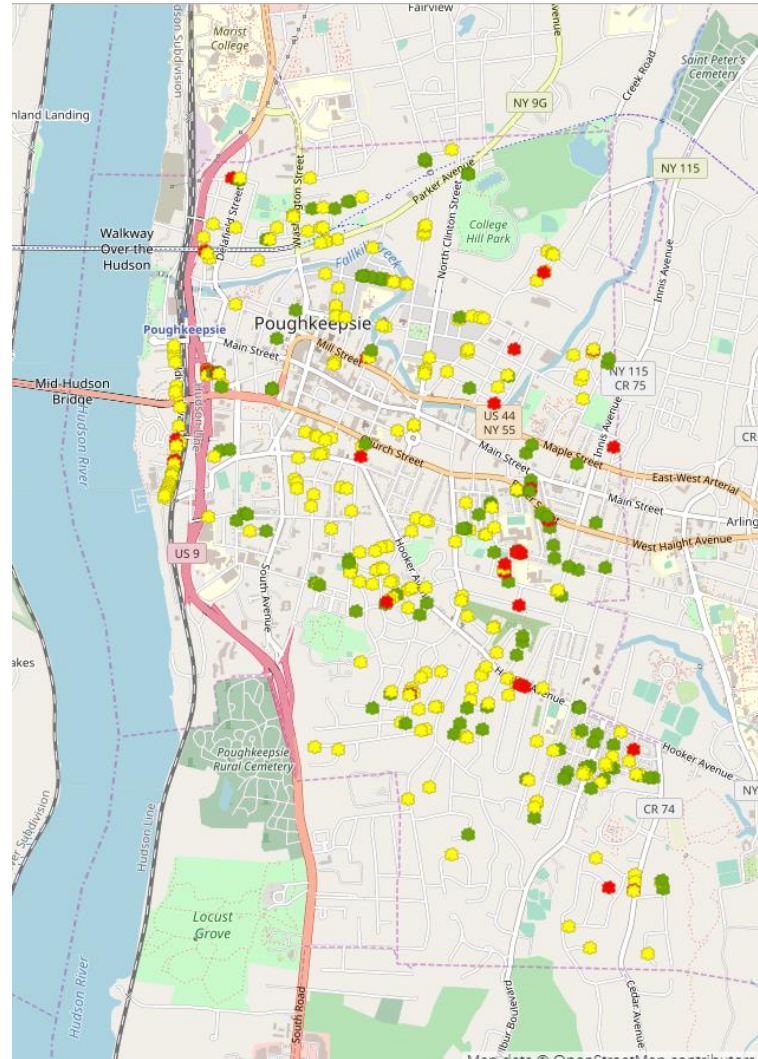


Examples: City of Poughkeepsie NRI (draft)¹⁹

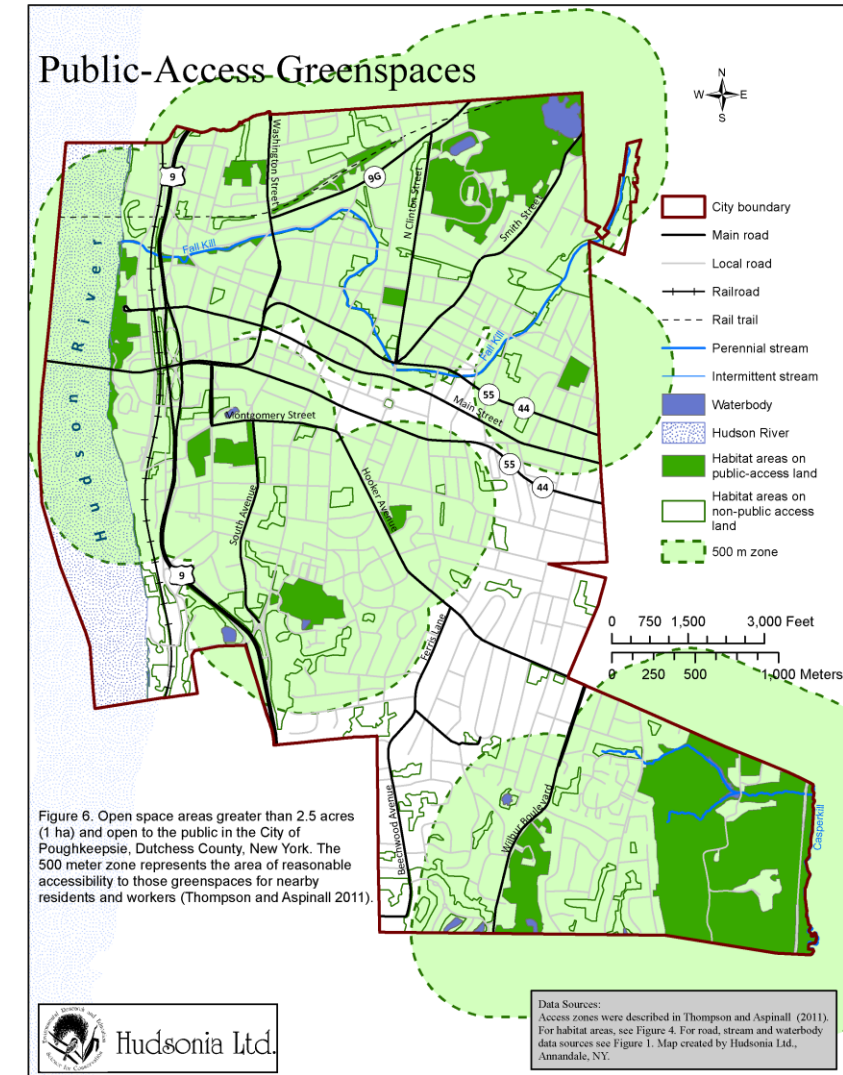
Stormwater Infrastructure



Street Trees



Public Access to Parks

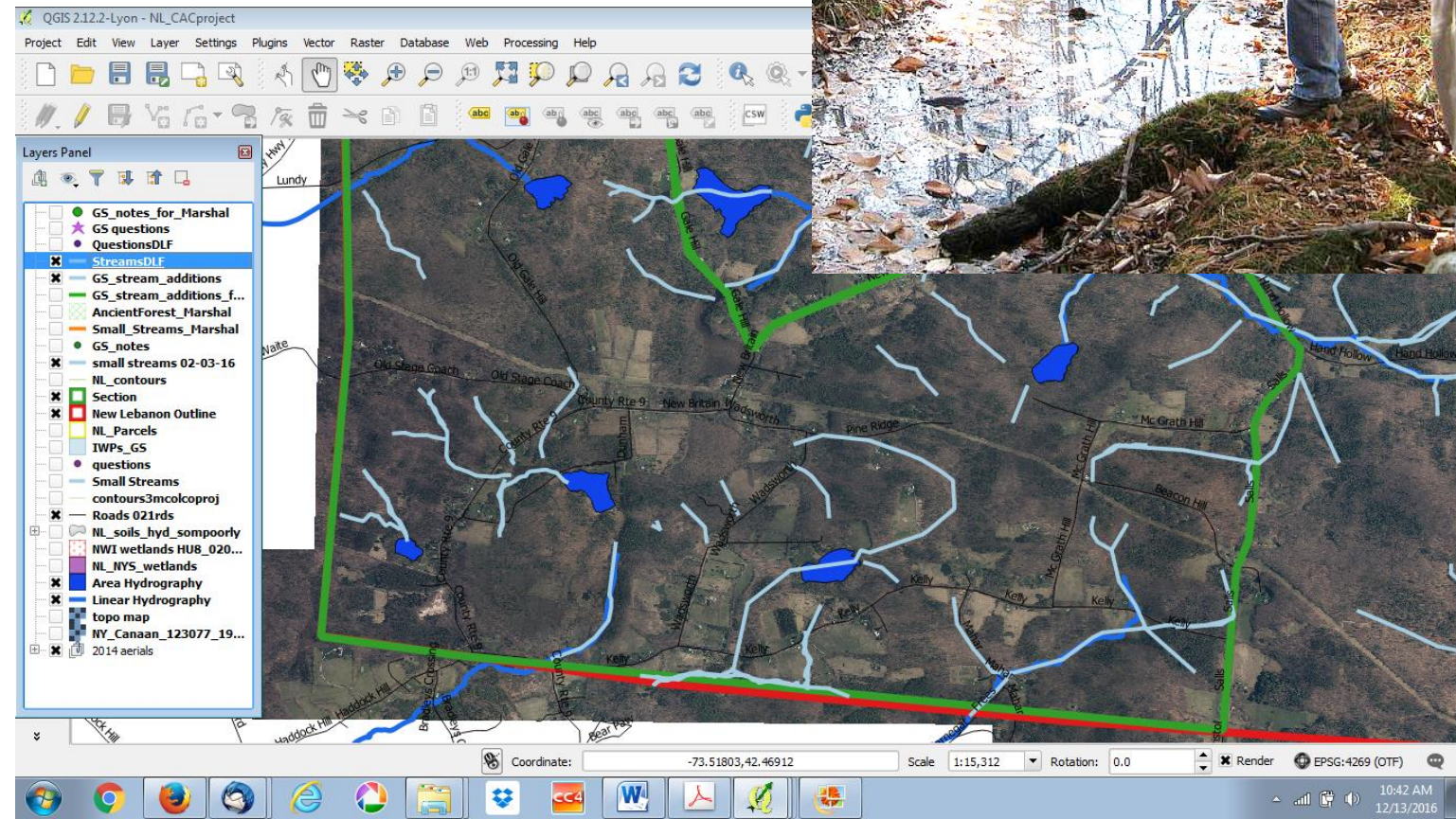


Filling the Gaps: Local Studies

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- Habitat mapping
- “Ancient” forests
- Vernal pools
- Small streams
- Culverts
- Scenic viewpoints
- Historic sites

New Lebanon Natural Resource Conservation Plan (2017)

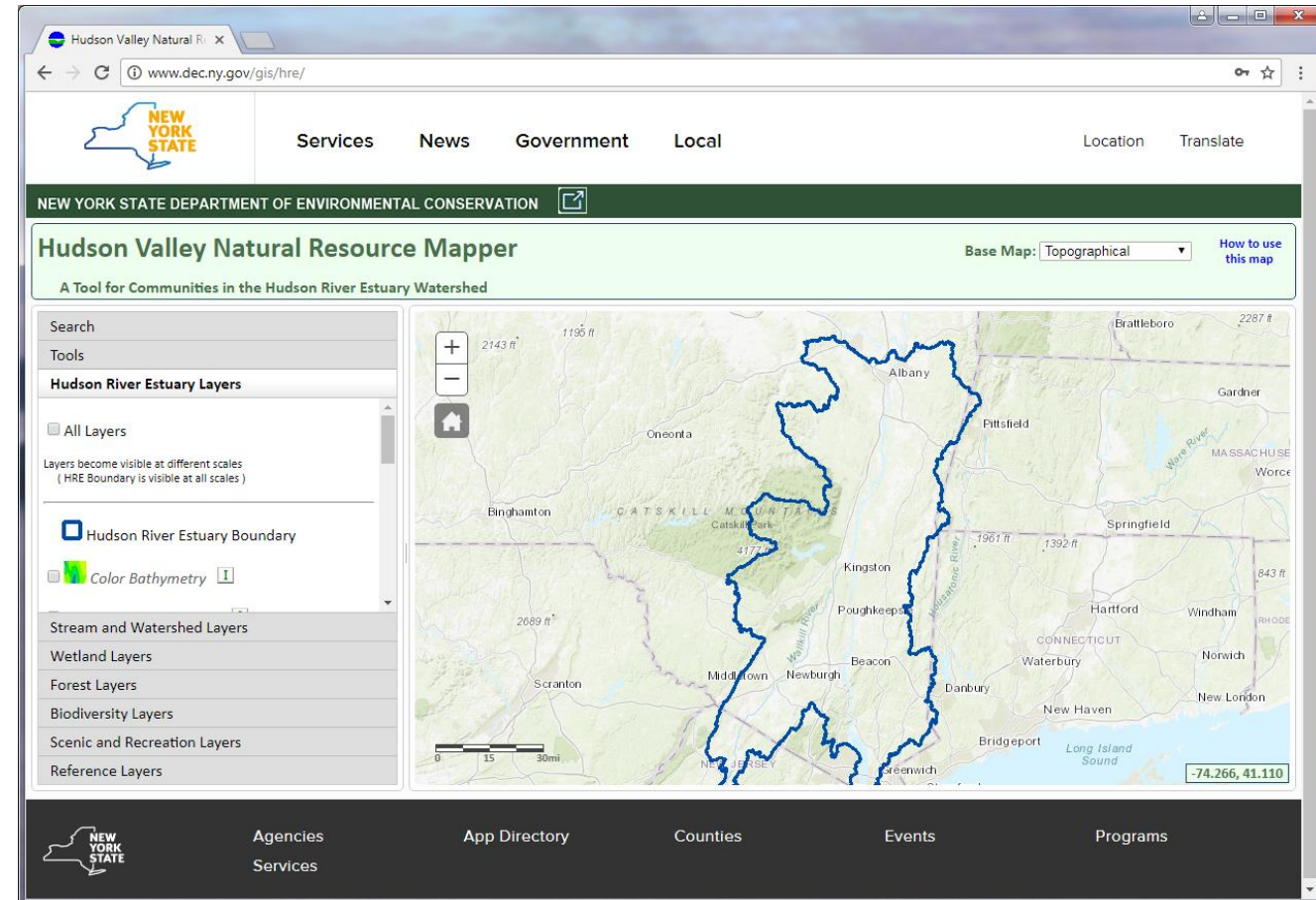


Hudson Valley Natural Resource Mapper ²¹

View and link to 30+ data sets, both regional and statewide:

- Estuary
- Streams and Watersheds
- Wetlands
- Forests
- Biodiversity
- Scenic and Recreation

www.dec.ny.gov/gis/hre

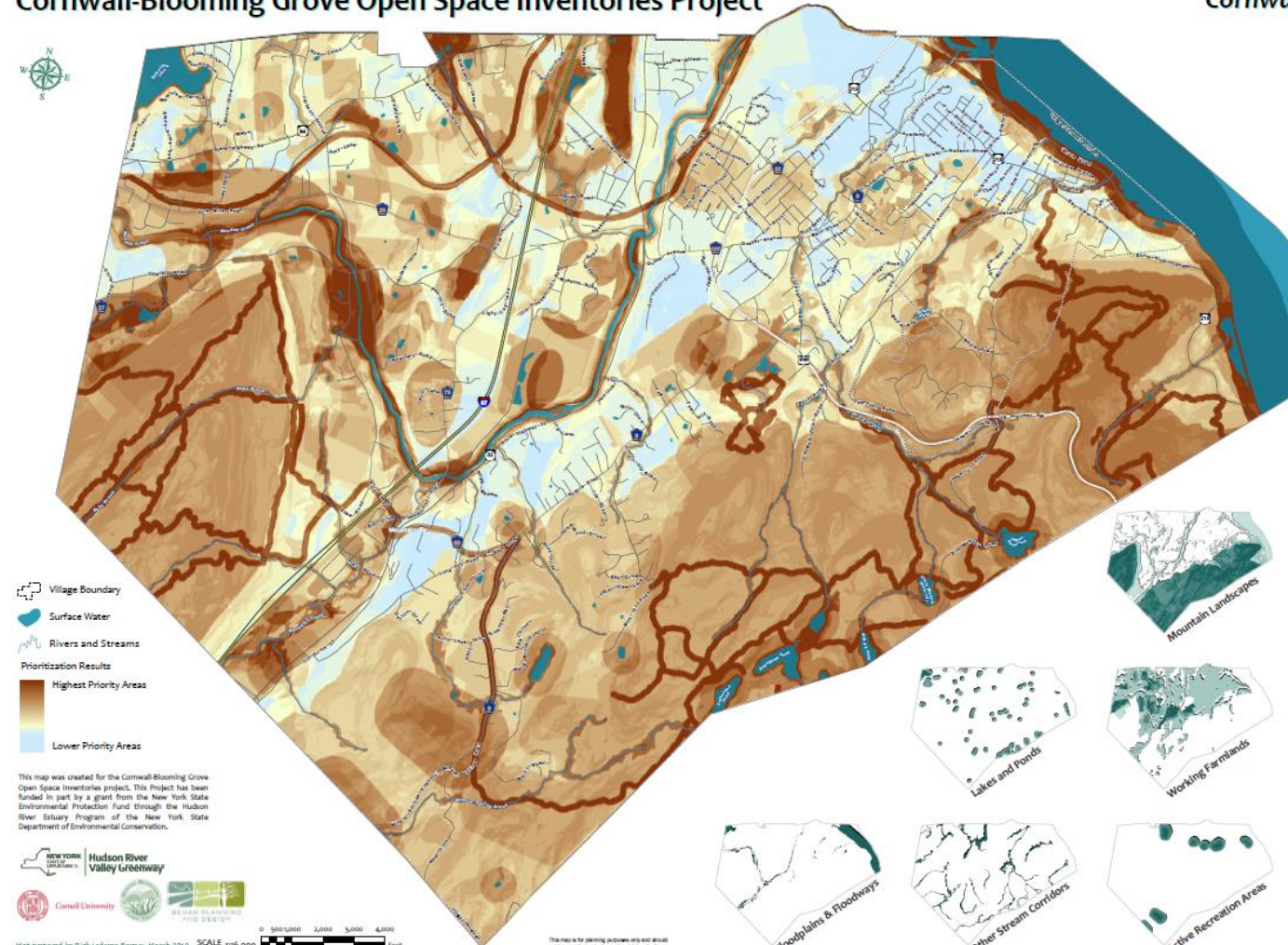


Identify priority conservation areas

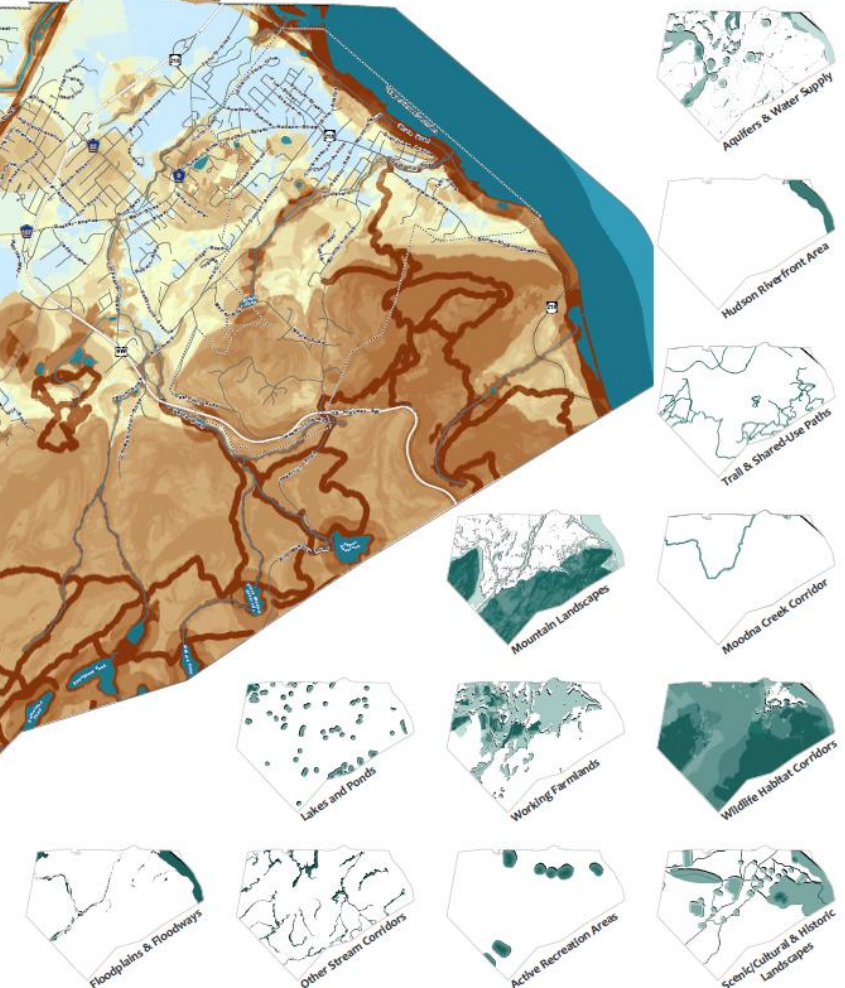
prioritize

Cornwall DRAFT
Priority Areas (2019)

Cornwall-Blooming Grove Open Space Inventories Project



Cornwall Priority Areas



Update Site Plan and Subdivision Checklists

plan, protect,
manage

Example from the Town of Rhinebeck:

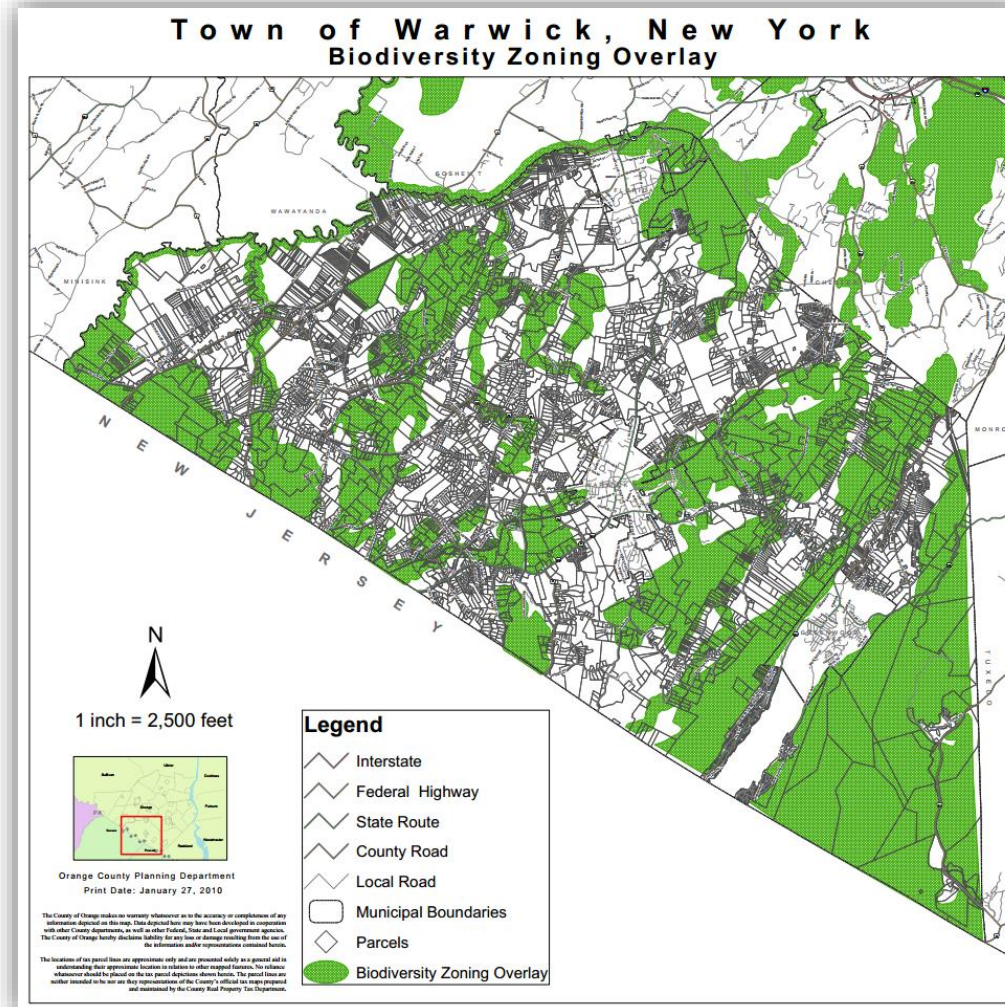
- stream and waterbody buffers?
- significant habitats?
- wildlife corridors?
- active farmland?
- scenic and historic resources?

(see Appendix H, NRI guidebook)

NRI uses: Overlay Zoning

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plan, protect,
manage



Town of Warwick Biodiversity Overlay Zone:
Incorporates a habitat assessment process for major subdivisions, conventional minor subdivisions, and for certain uses requiring site plan approval.

Funding Sources

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- Hudson River Estuary Grants
- Hudson River Valley Greenway Grants
- Climate Smart Communities Grants



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Thank you! Questions?

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