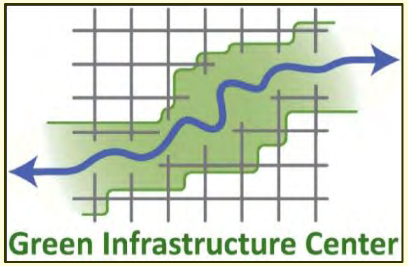
Green Infrastructure Mapping Pilot for Ulster County New York

Slides from Green Infrastructure Center Inc.

www.gicinc.org

Thanks to our funders

Partners:



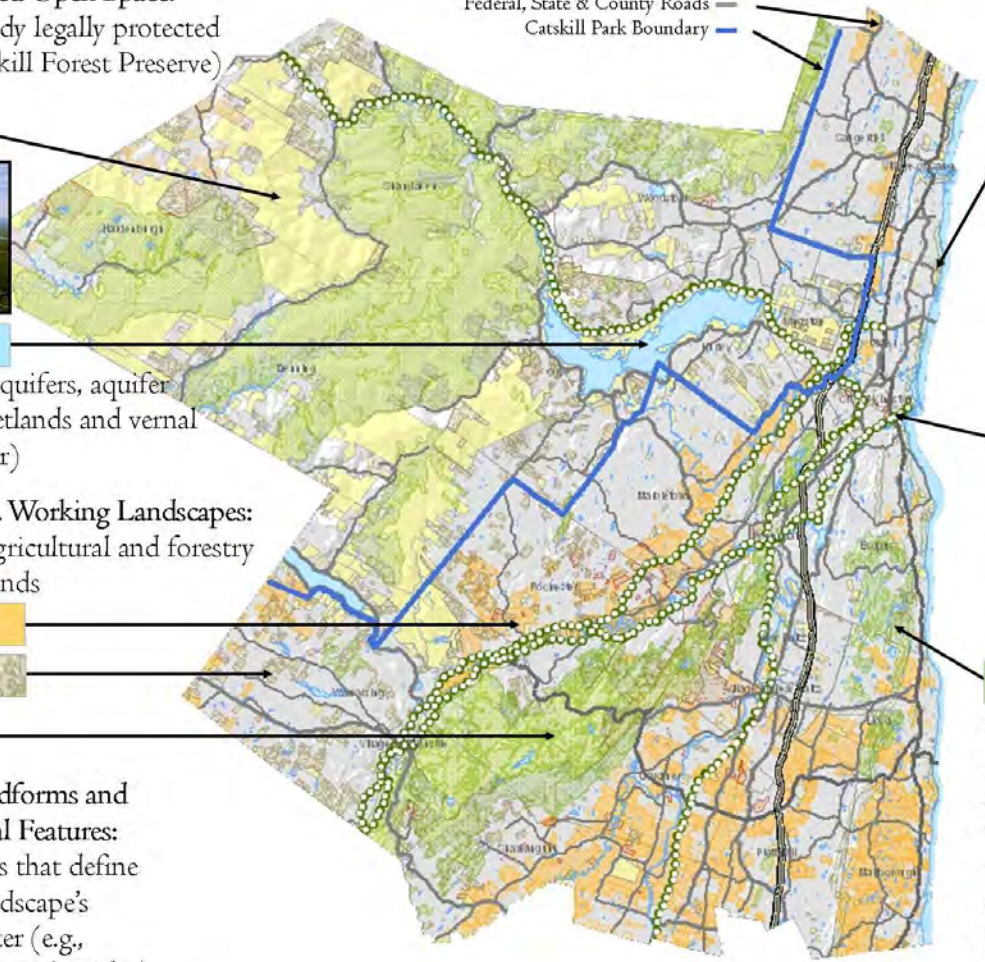
Ulster County Open Space Resources

1. Protected Open Space: areas already legally protected (e.g., Catskill Forest Preserve)

2. Water Resources: surface, ground, watersheds, aquifers, aquifer recharge areas, floodplains, wetlands and vernal pools (e.g., Ashokan Reservoir)

3. Working Landscapes: agricultural and forestry lands

4. Landforms and Natural Features: features that define the landscape's character (e.g., Shawangunk Ridge)



7. Recreation Resources: rural and urban parks, shorelines, fishing and hunting, trails, and tourism sites (e.g., Ulster Landing Park)

6. Cultural and Historic Resources Federal, State and locally designated structures, sites and districts (e.g., Kingston Rondout Waterfront)

5. Ecological Communities: diversity of species and ecosystems, exceptional forest or plant community, unique and wildlife habitats, wetlands, shorelines (e.g., Black Creek)

Vision Statement-

Ulster County's unique resources- its mountains, forests, waterways, and soils- have both been shaped by and help to shape its communities, economies and overall quality of life. In recent years, we realize more than ever the critical connections of our cultural and natural resources to our local and regional environmental and economic sustainability.

This county-scale mapping effort will draw more focused attention to critical resource protection areas, and will do so in a meaningful, visual and accessible manner. Borne of this focused attention are initial steps to address pressing concerns and potential threats to Ulster County's critical resources as well as new recognition of great opportunities inherent in better protecting and understanding our natural assets.

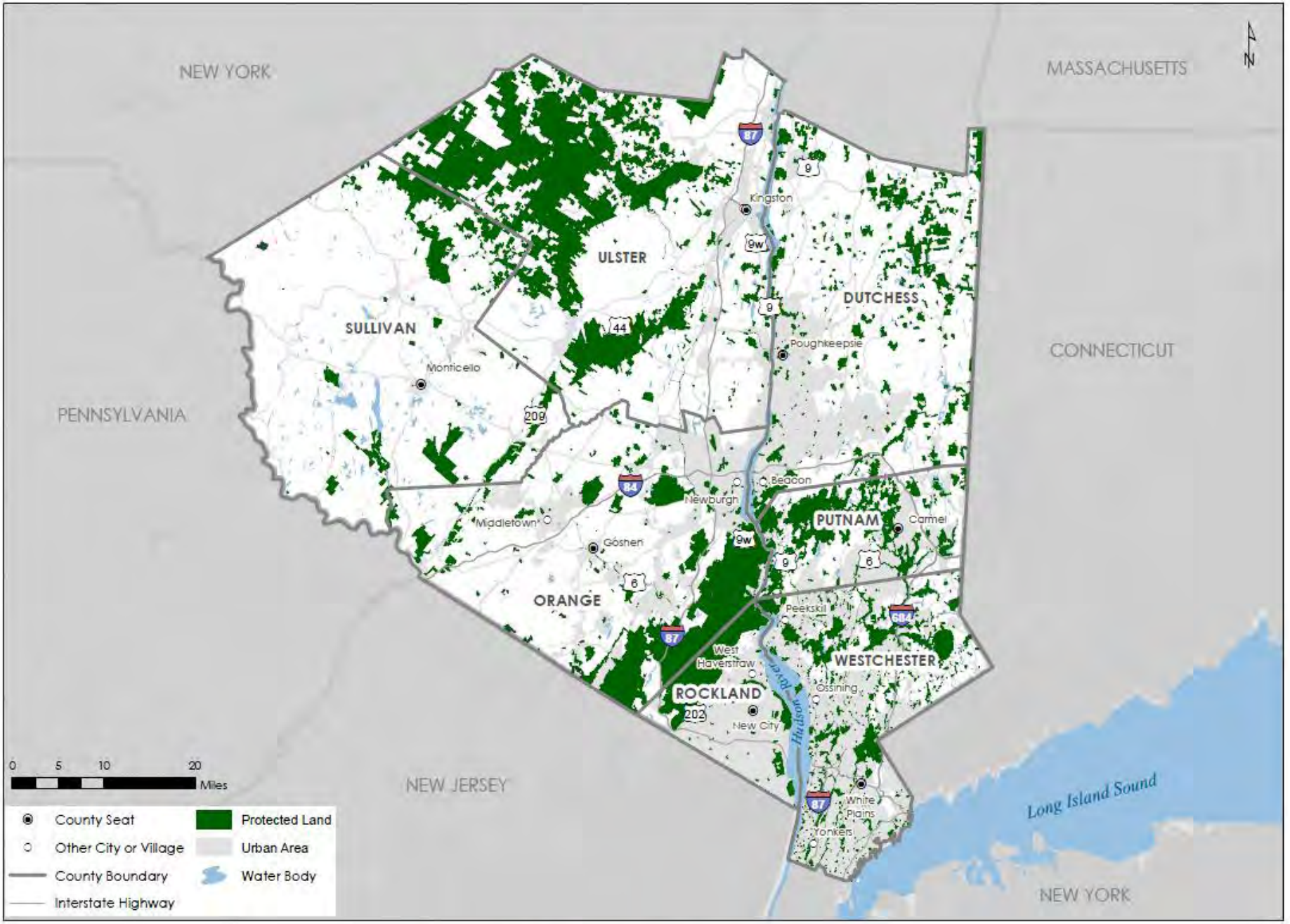


Figure 1.2 Regional Overview, 2010

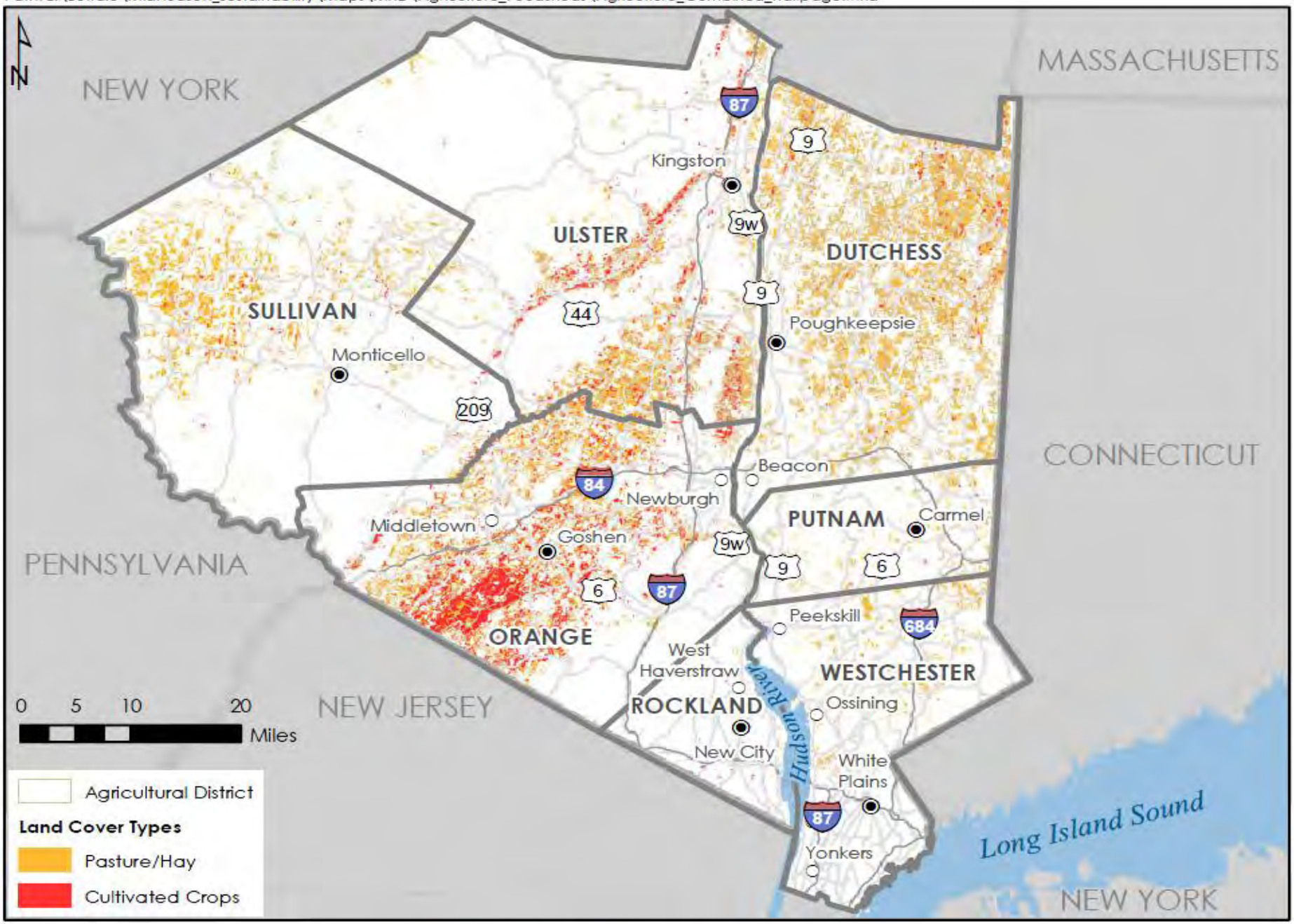
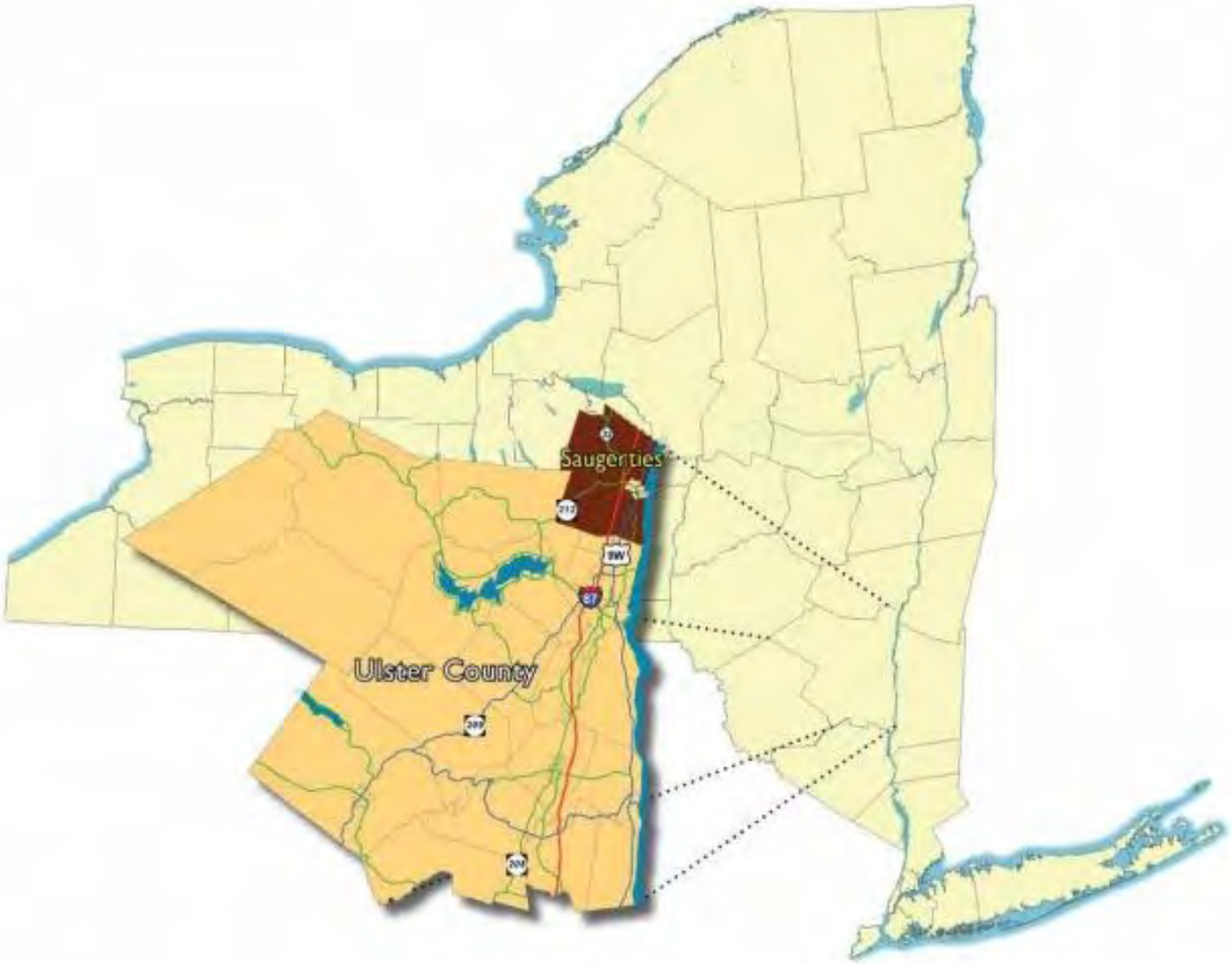


Figure 7.1 Agricultural Land Cover


Saugerties
Ulster County

Town of Saugerties
Open Space Plan
Vision Map

Catskill Mountains
- Large, unbroken forests embedded with lakes, rivers, wetlands and vernal pools
- Headwater streams provide habitat for trout and cold water species
- Preservation of biodiversity and rare species, including the timber rattlesnake
- Maintaining drinking water quality


Blue Mountain Reservoir


Bristol Beach Area

Bristol Beach


Boat launch at Glasco

Legend
- Potential Access points to Esopus Creek
- Historic Points of Interest
- Hamlets
- Potential Saugerties Hudson River Trail
- Potential Esopus Creek Water Trail
- Important Waterways
- Core Farming Areas

Planning Concepts

Bristol Beach Plan
Develop a Master Plan to Increase Access to Bristol Beach and Preserve Historic and Ecological Resources

Hudson River Trail
Develop a continuous trail to provide access to and between public parks, neighborhoods and hamlets, and historic attractions

Esopus Creek Water Trail
Create a series of water access points to provide access to the Esopus Creek for kayaking between Glenerie Falls and the Cantine Dam

Mountain Cloves Scenic Byway Connection
Work with the towns of Hunter and Catskill to develop a Saugerties connection to the Mountain Cloves Scenic Byway

Important Waterways, Watersheds and Aquifers
Sawyerkill, Plattekill, Esopus Creek, Beaver Kill, Kaaterskill
- Biodiversity benefits of riparian and upland habitat
- Water quality
- Flood protection and stormwater recharge
- Recreation and scenic qualities

Core Farming Areas
Bakoven Valley-Saugerties Valley and the Saxton Flats
- Prime soils and areas of agricultural production
- Economic, scenic and environmental benefits to the community
- Local food and agricultural products


Saugerties Farmers Market


The Saxton Flats

Limestone and Shale Ridges
- Scenic views and character of Saugerties
- Unique geology
- Rare animals and plants


Glenerie Falls

Hudson River Corridor
- The historic "landscape that defined America"
- Riverine and estuary habitats
- Freshwater wetlands and freshwater intertidal mudflats
- Tidal area of the mouth of the Esopus
- Hudson River access and recreation opportunities


Where the Esopus Creek Meets the Hudson River

BEHAN PLANNING AND DESIGN

For Conceptual Planning Purposes Only

Green Infrastructure Mapping in Ulster County is an opportunity to

- Link the County to the Region… and beyond
- Build on existing data and efforts at the municipal and area scale
- Inform and further efforts at the municipal and region scale

Many thanks to DEC, EPA and Green Infrastructure Center for this opportunity

This project will be featured in a new guide …

Evaluating and Conserving Green Infrastructure Across the Landscape: A Practitioner's Guide

The Ulster County Pilot is a test case to create a methodology to be featured in the New York chapter of the guide. The Ulster County Pilot project involves using land cover data and environmental monitoring data to determine the highest value blocks of intact habitat.

Infrastructure: What's in a name?

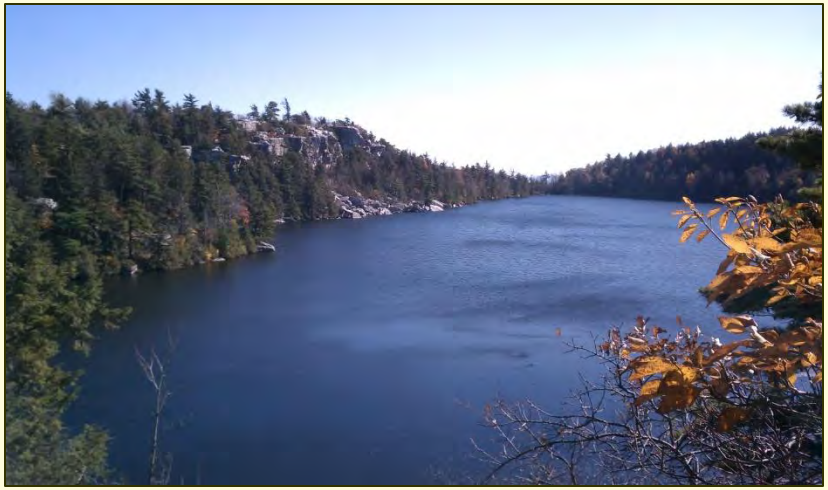
Infrastructure (n): the substructure or underlying foundation...on which the continuance and growth of a community or state depends.

What is Green Infrastructure?

A planimetric map shows a neighborhood's gray infrastructure including buildings and roads (left). Classified high-resolution satellite imagery adds a green infrastructure data layer (trees and other vegetation) (right).
Source: American Forests

Natural Assets are Green Infrastructure

Green infrastructure includes all landscape elements that support our existence.



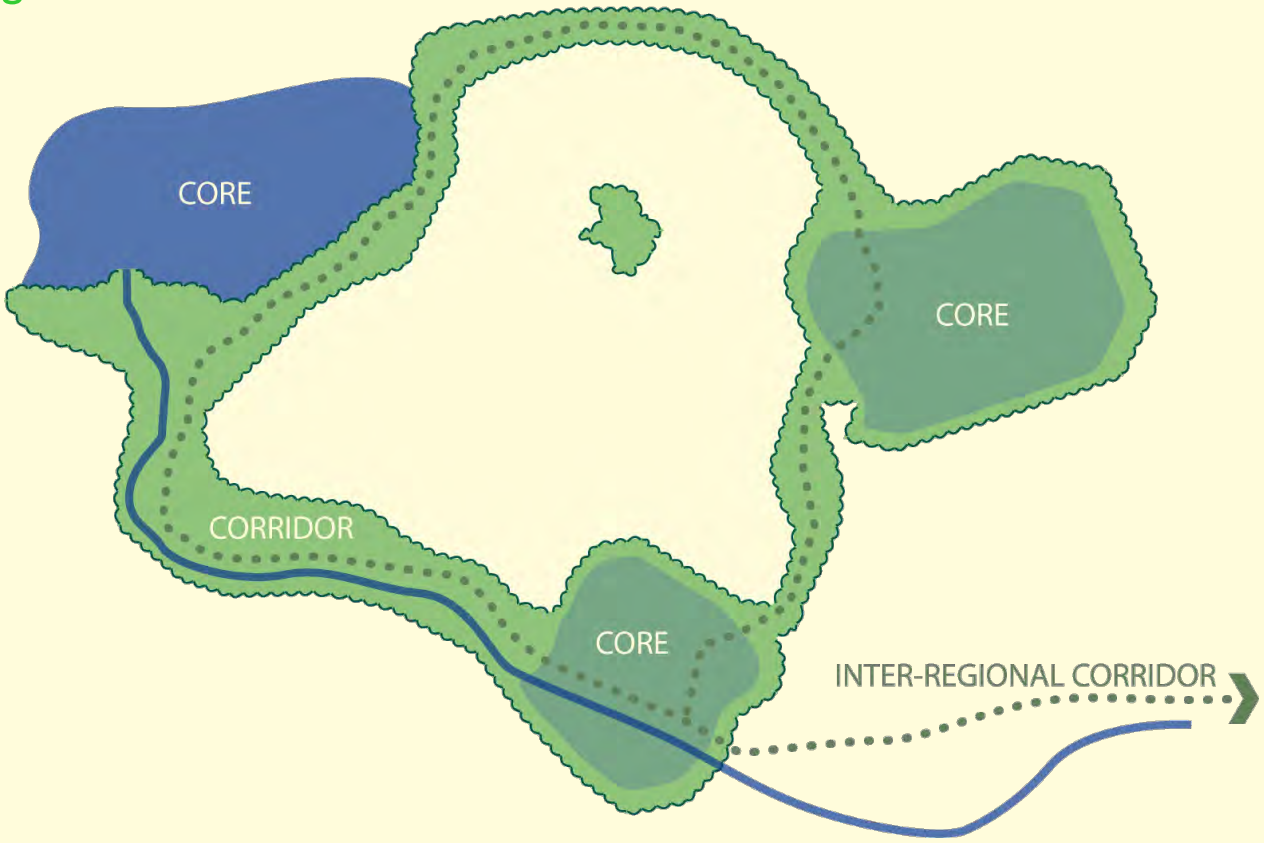
Natural Assets Also Support Cultural Assets

Natural assets support the landscape context for historic and recreation features.

What Is Green Infrastructure Planning?

"Strategically planned and managed networks of natural lands, working landscapes and other open spaces that conserve ecosystem values and functions and provide associated benefits to human populations"

It's about connecting the landscape!



Who can use the corridors? (300 meters is ideal…)

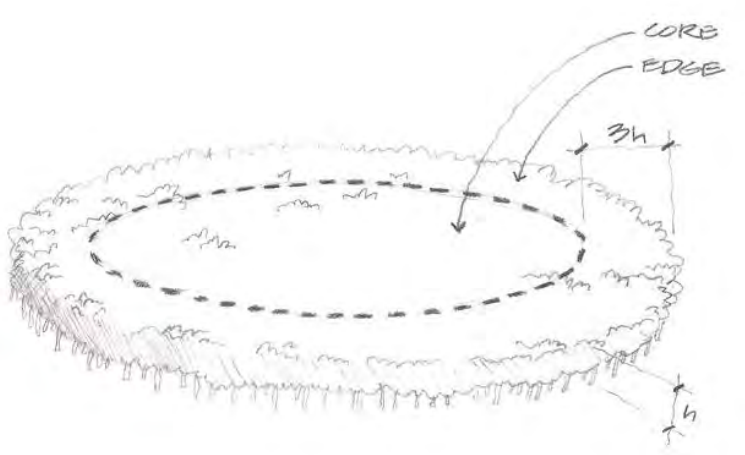
Who prefers interior forest cores?

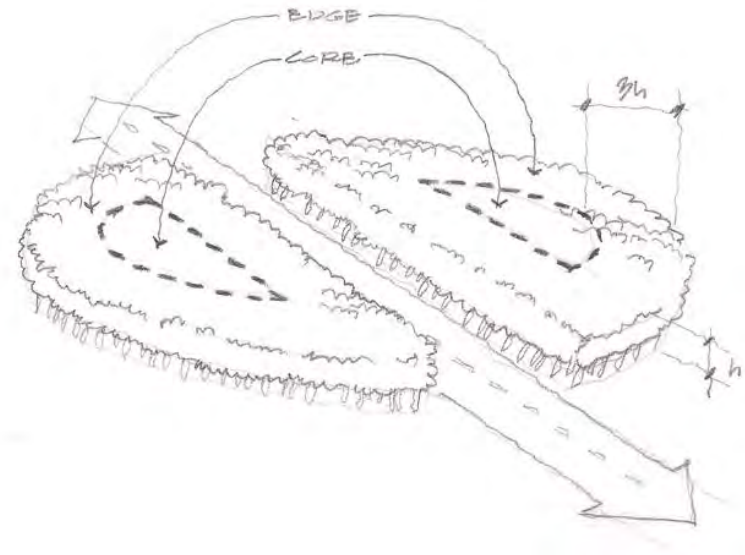
Birds, e.g. cerulean warbler, Scarlet tanager

Mammals, e.g. black bear, bobcat, n. flying squirrel

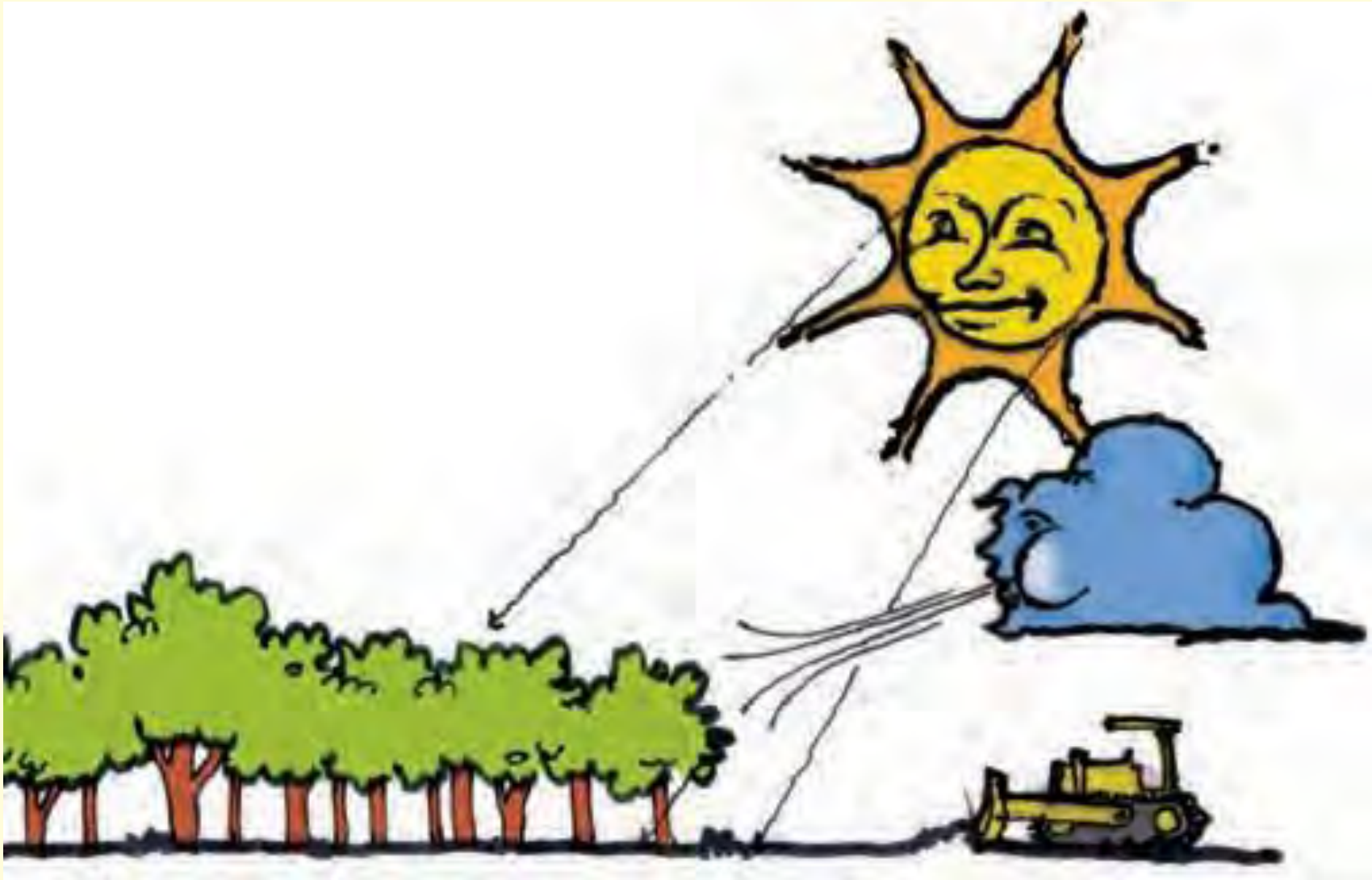
Amphibians, e.g. spotted salamander

Dividing a large core into two smaller cores = less interior

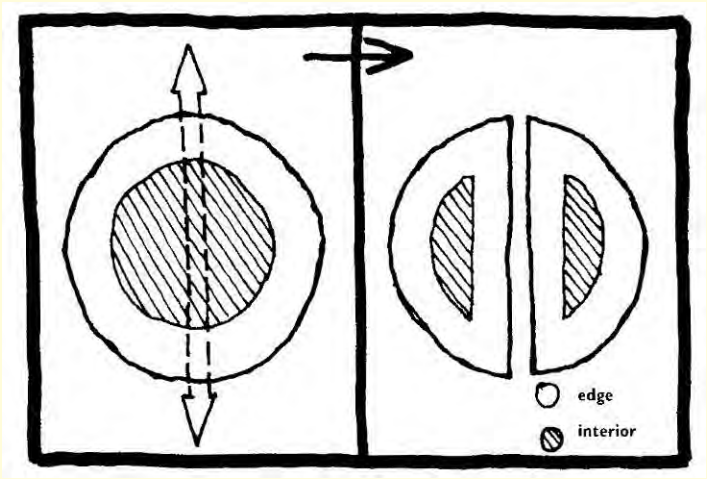




More edge = more impact zones



What kinds of forests will we have? More fragmented, less natives, more invasives...



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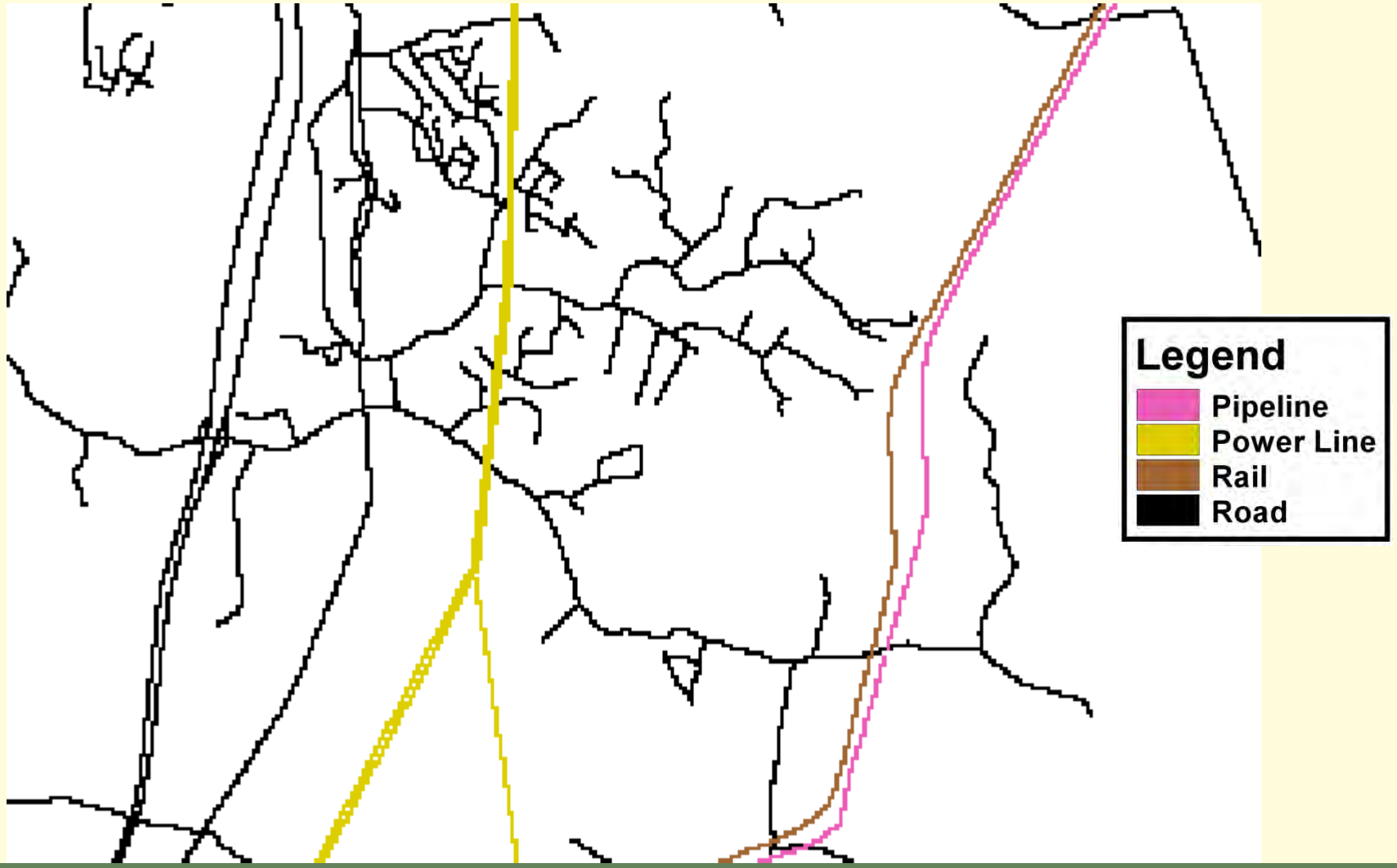
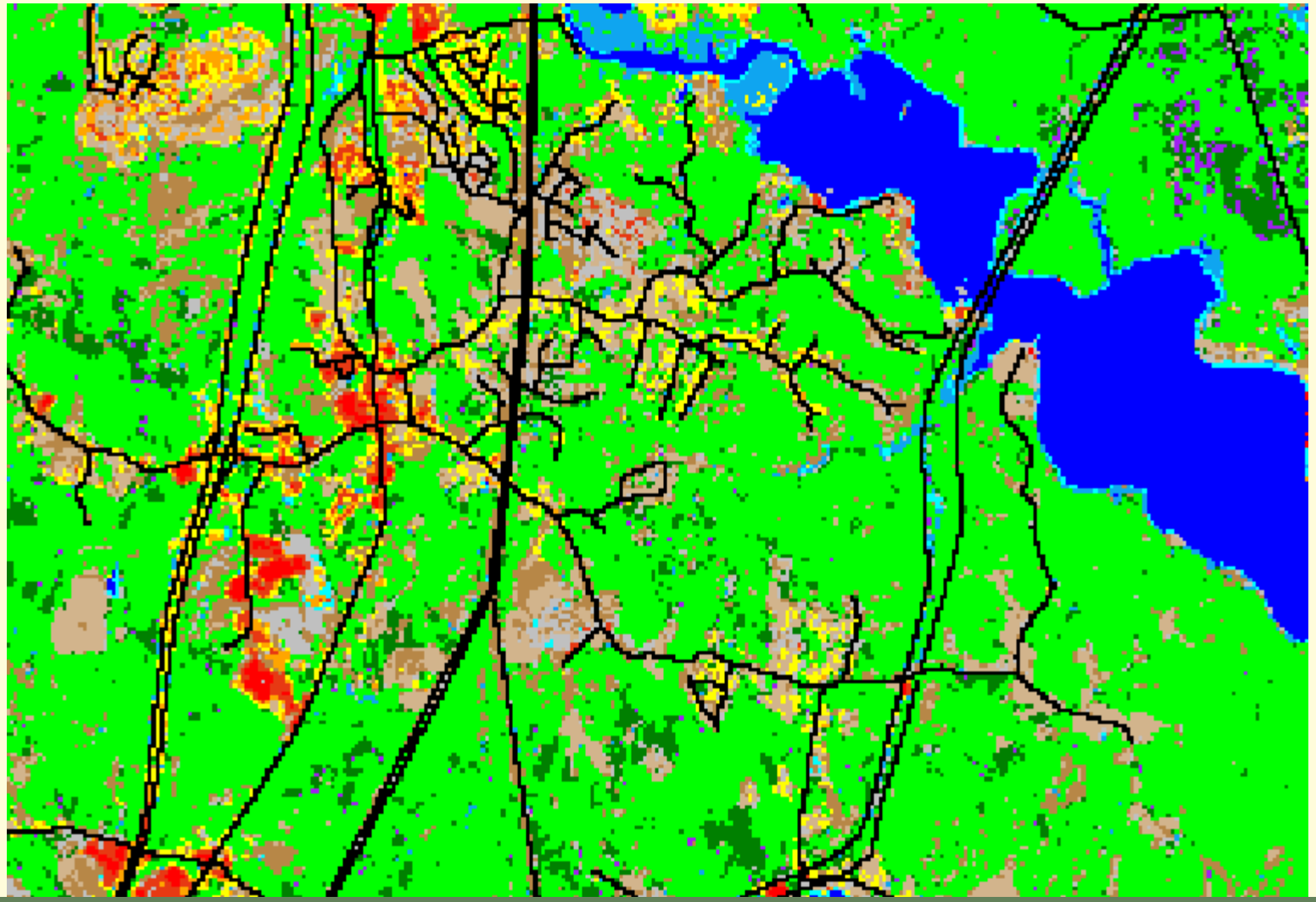
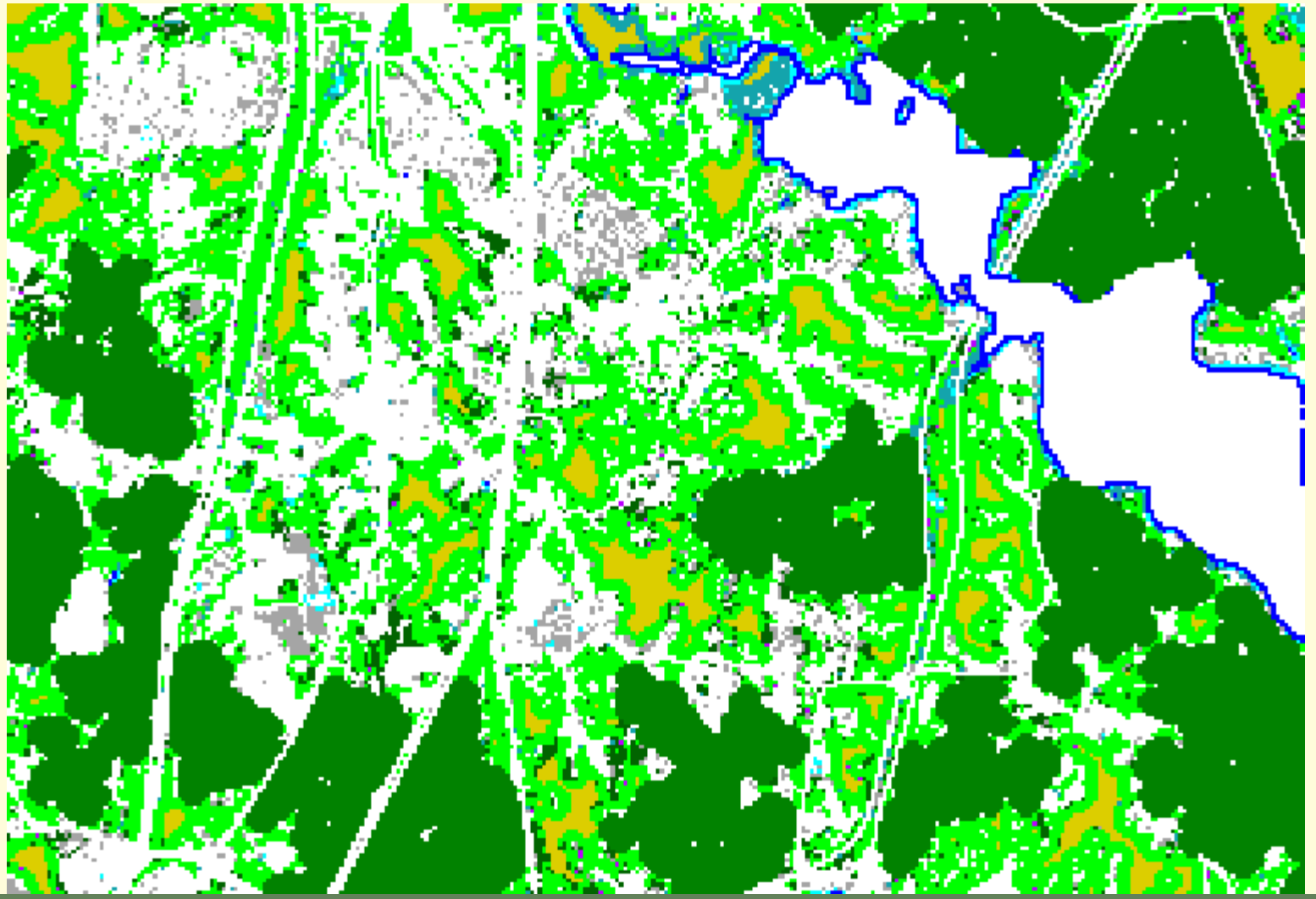
To map large habitat cores we use land cover and overlay fragmenting elements -- What breaks up forests?



Add land cover from satellite imagery

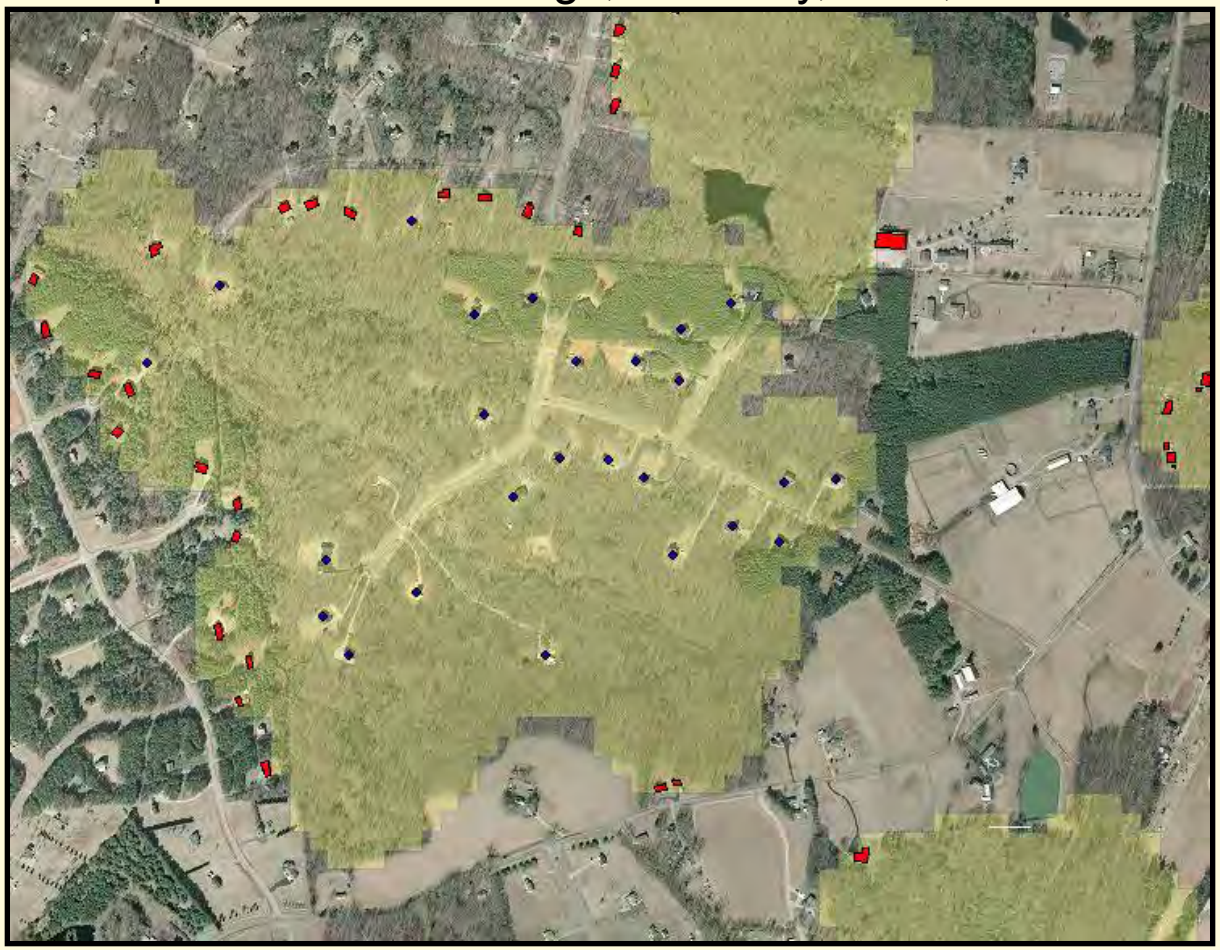


What areas are intact forest?



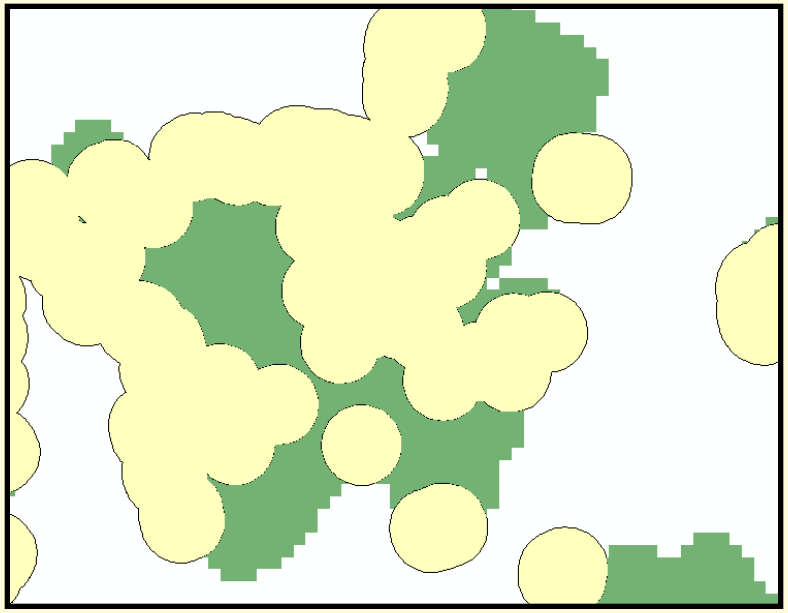
Buildings also break up forests and make edges. These houses were built inside an intact forest.

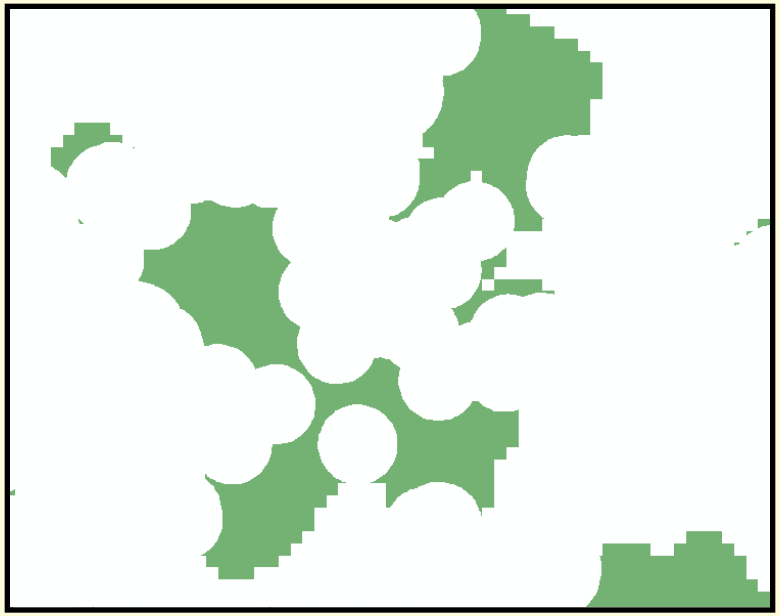
Each has an impact zone = buildings, driveway, lawn, access roads…



If we remove the impact zones (300 foot area) we see what remains of the forest.

Compare the forest with impact zones from development (left) with what remains (right). The forest is no longer intact. There is too much edge area and not enough interior.





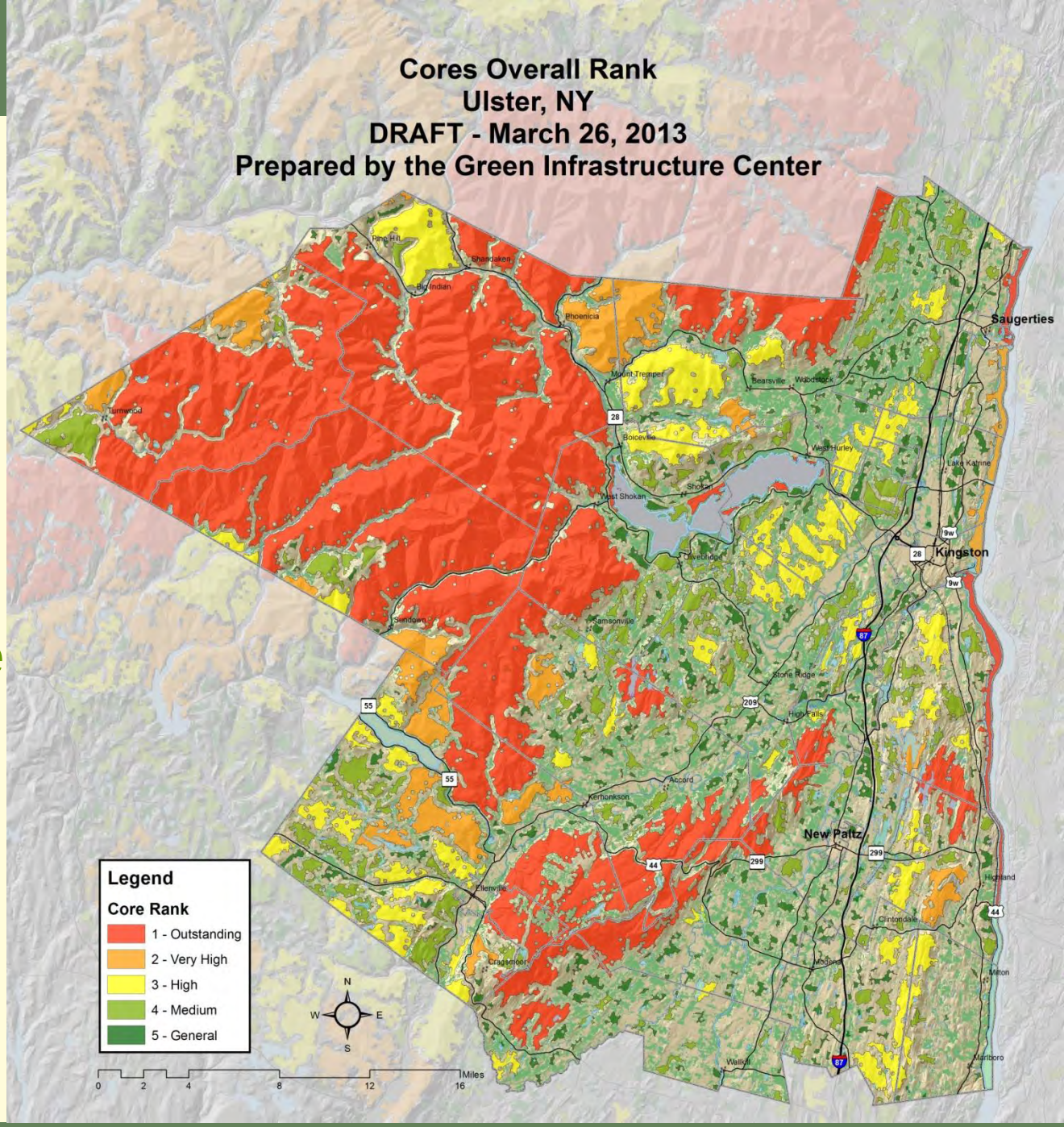
+ Size and shape

+ Rare, threatened and endangered species

+ Water quality, aquatic biodiversity

+water abundance

= **Habitat Core Ranking for Intact Landscape**



What makes these cores so special?

12,758 acres in size

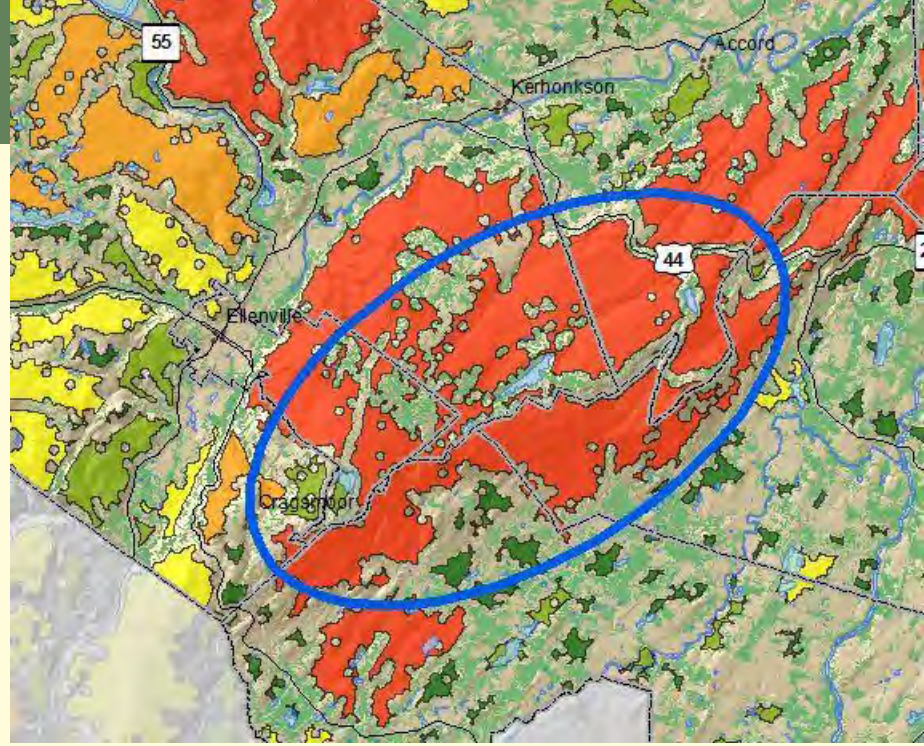
258 acres of interior wetlands

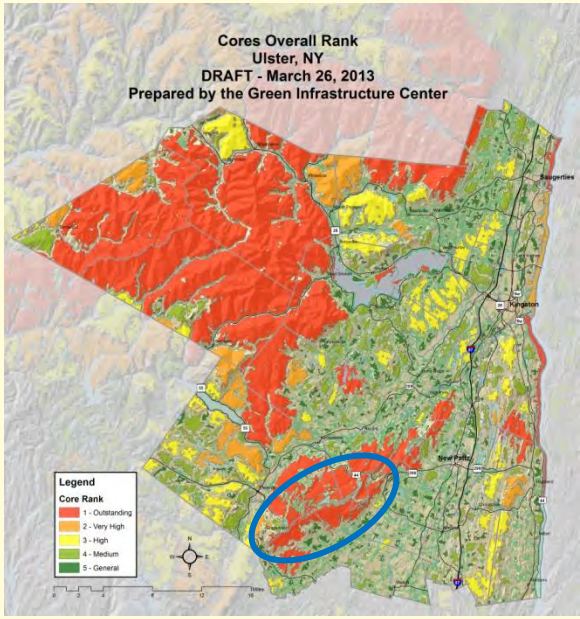
27 Element Occurrences

12 KM of DEC Class A streams

9,880 acres in protection (77%)

11543 acres of significant natural communities (EO)



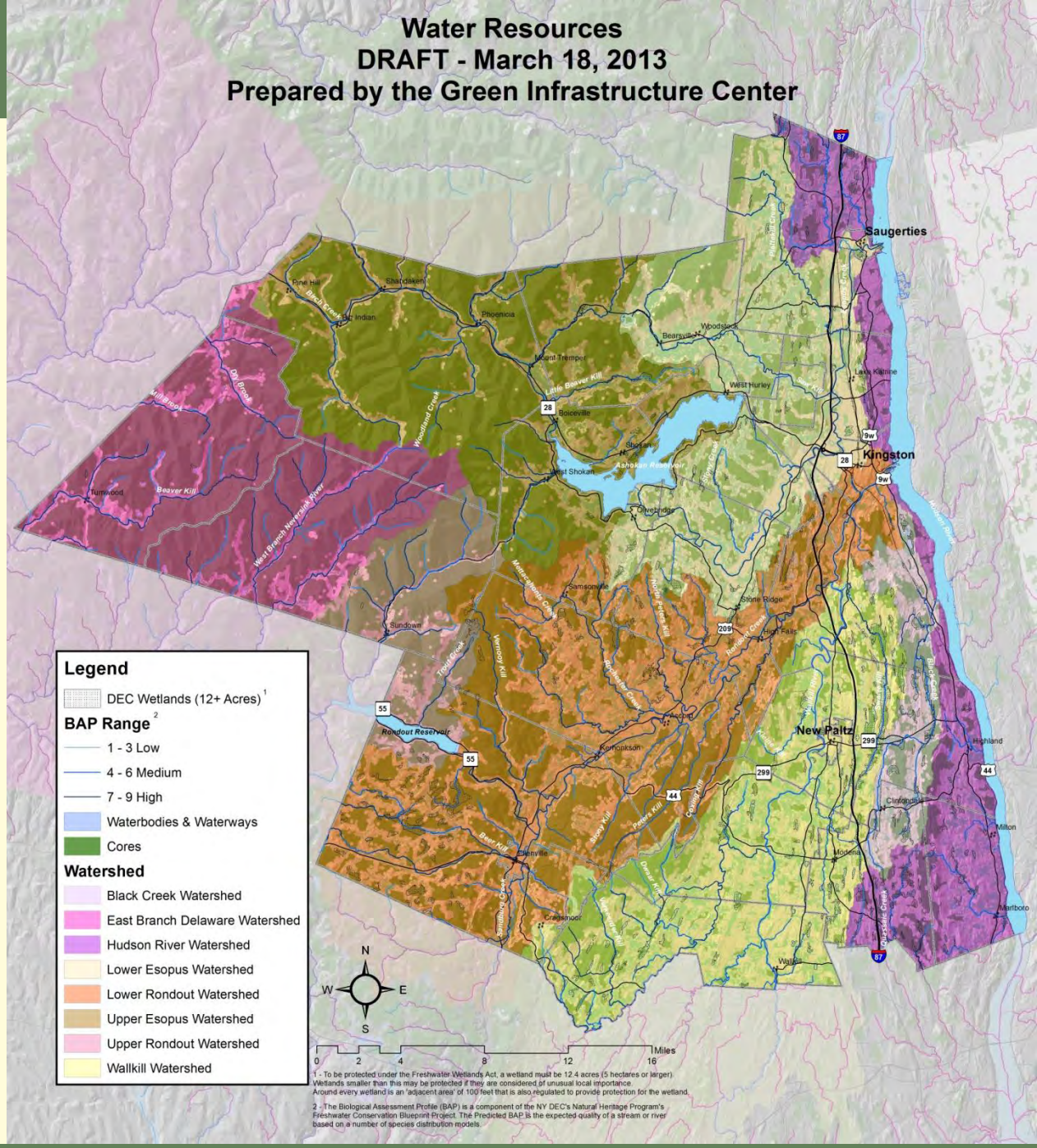


Themed Maps: overlay key landscape features to see relationships and other natural assets

+ Watersheds

+ Water Quality Rankings

= Watersheds with High Quality Waters

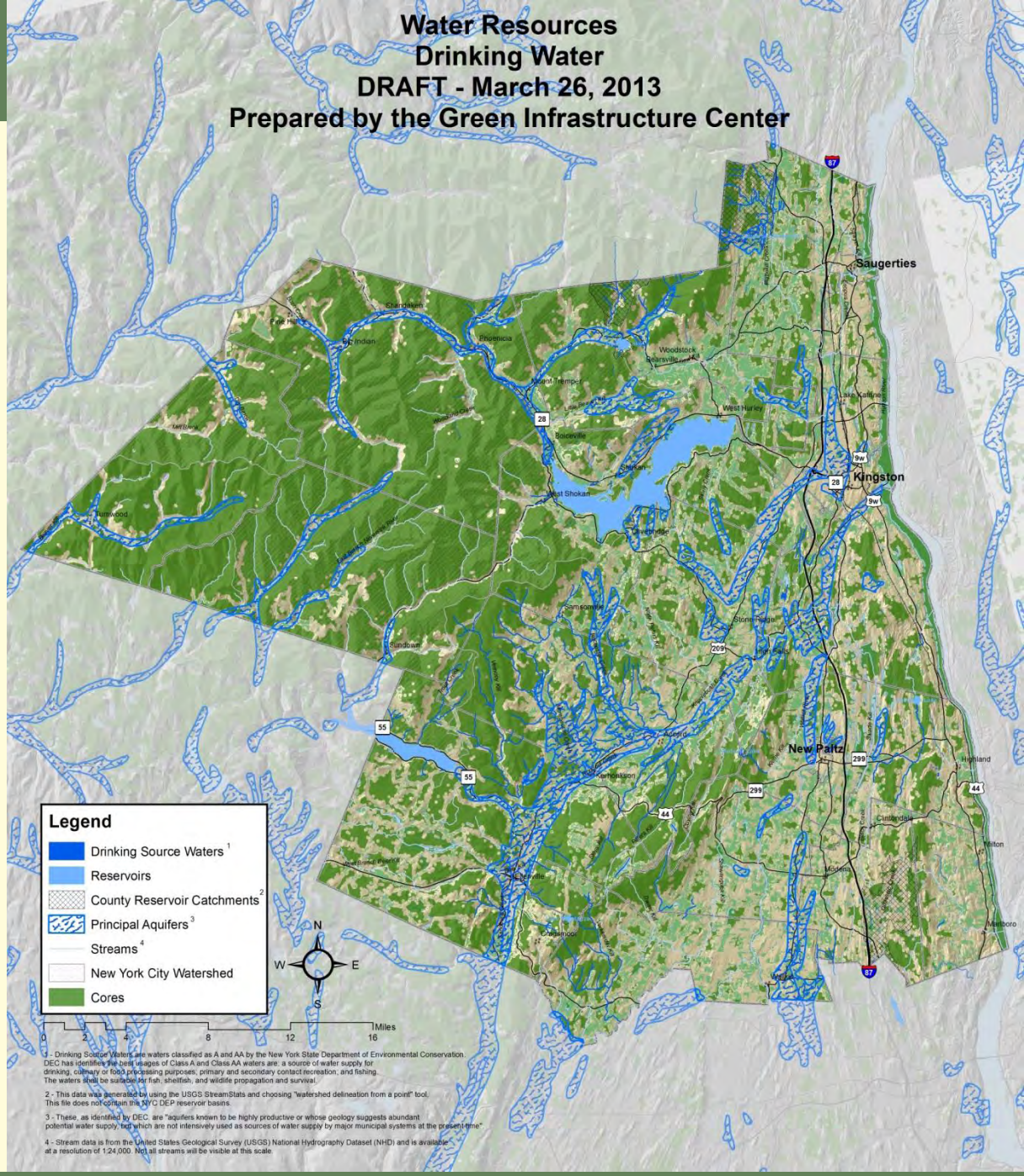


Themed Maps

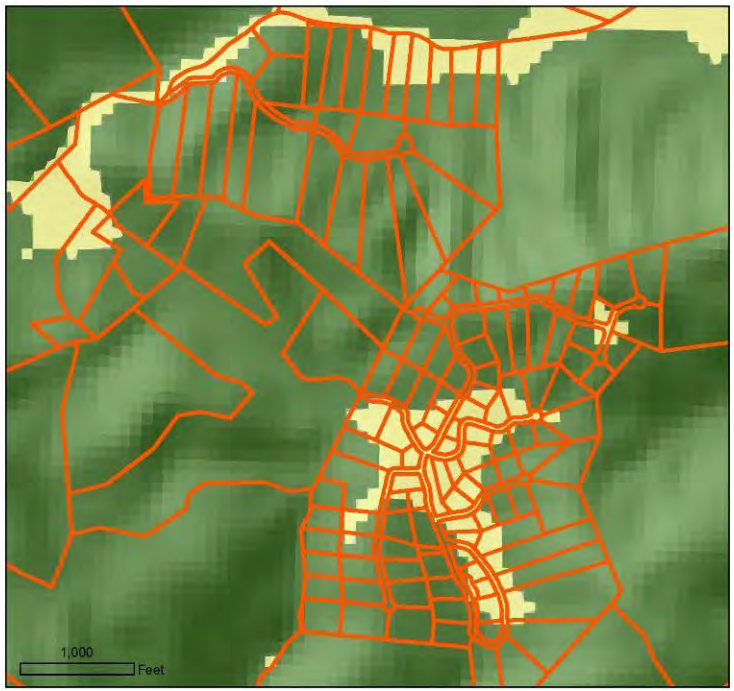
+ Local Reservoirs

+ Aquifers known or likely to be highly productive, but not yet used extensively

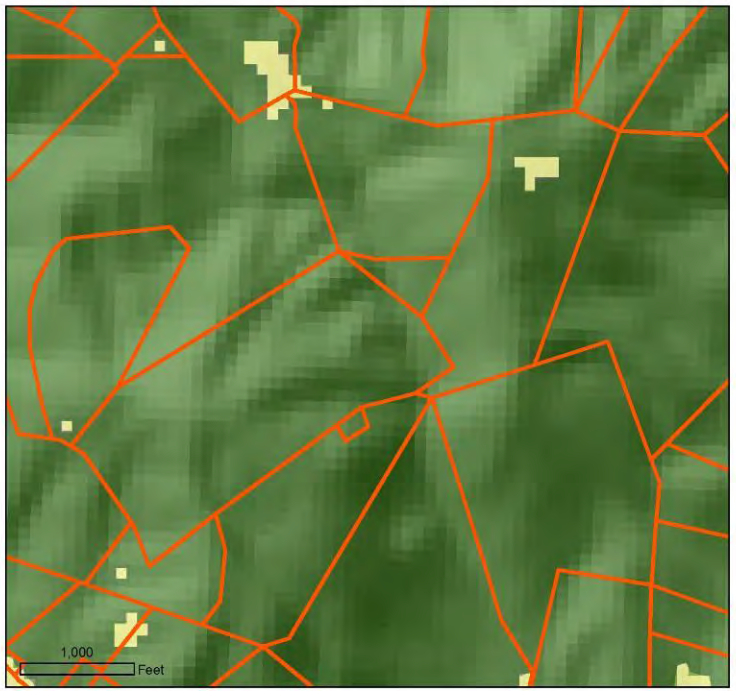
= Drinking Water



Intact Forests = possibility for sustainable timber or wildlife management



Small parcels fragment forest into many owners



Large parcels create contiguous forest blocks

We use local parcel data to determine current and future intactness.

Timber Asset = Contiguous Large Forested Parcels (>50 acres). A wildlife asset = > 100 acres

Which parcels may support forestry?

Themed Maps

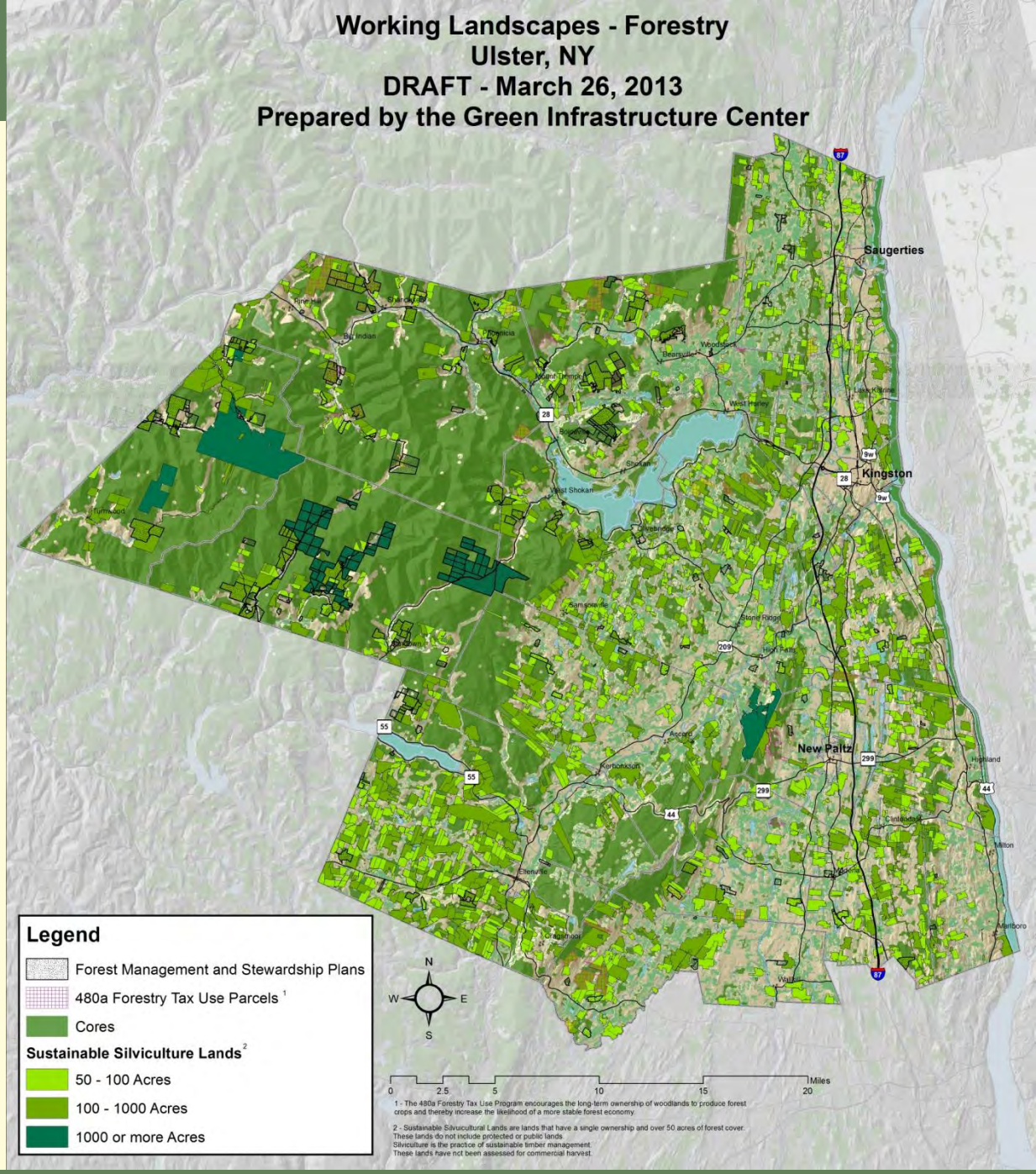
+ Forested Land

+ Land > 50 acres by owner

- Protected reserve lands

- Slopes > 15 %

= Sustainable Forestry Potential



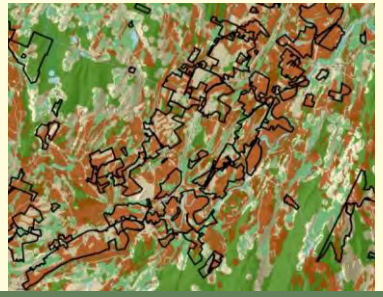
Themed Maps

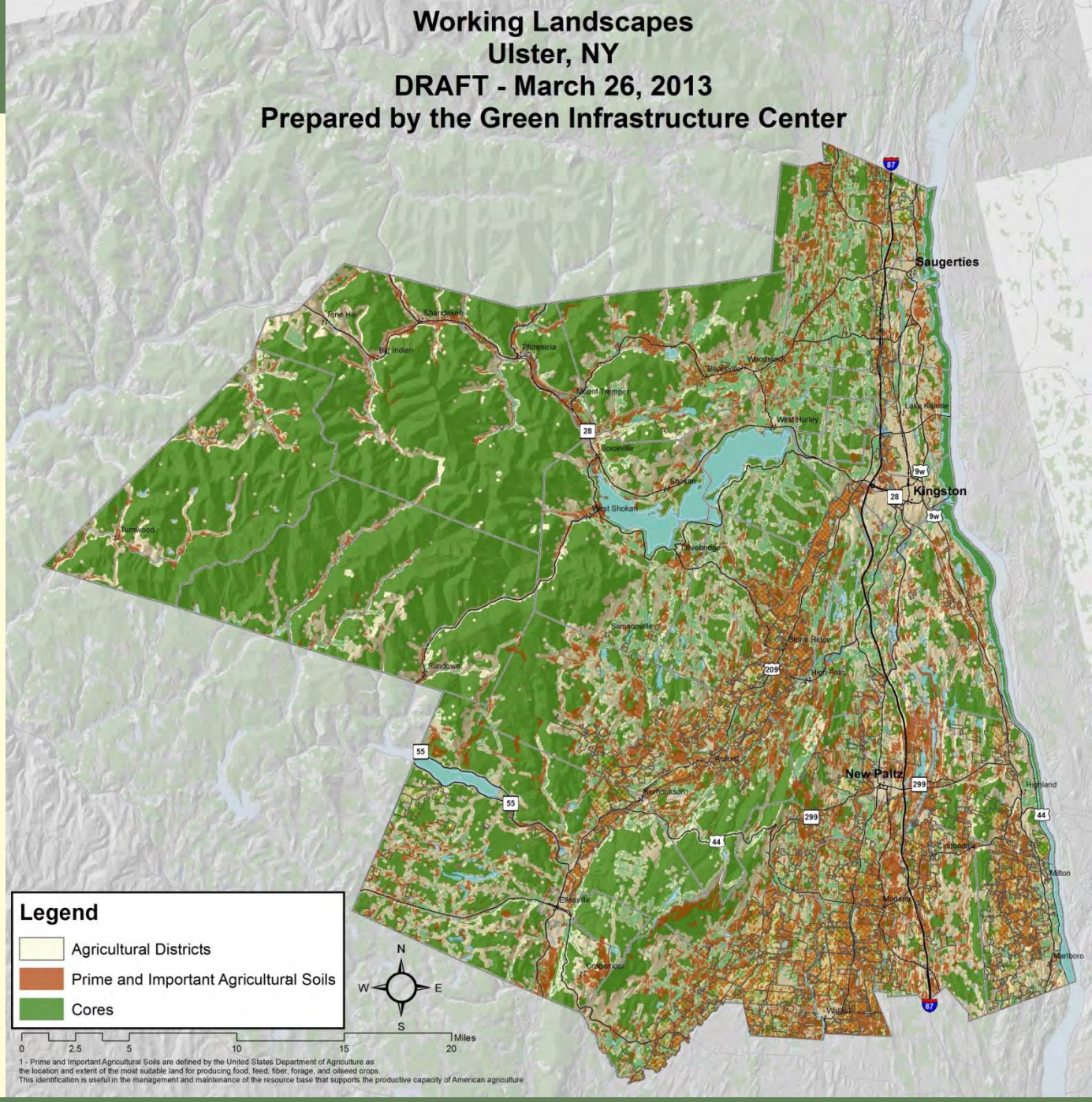
+ Prime (best) agricultural soils

+ Agricultural Districts

- Forested lands

= Agricultural Lands





Themed Maps

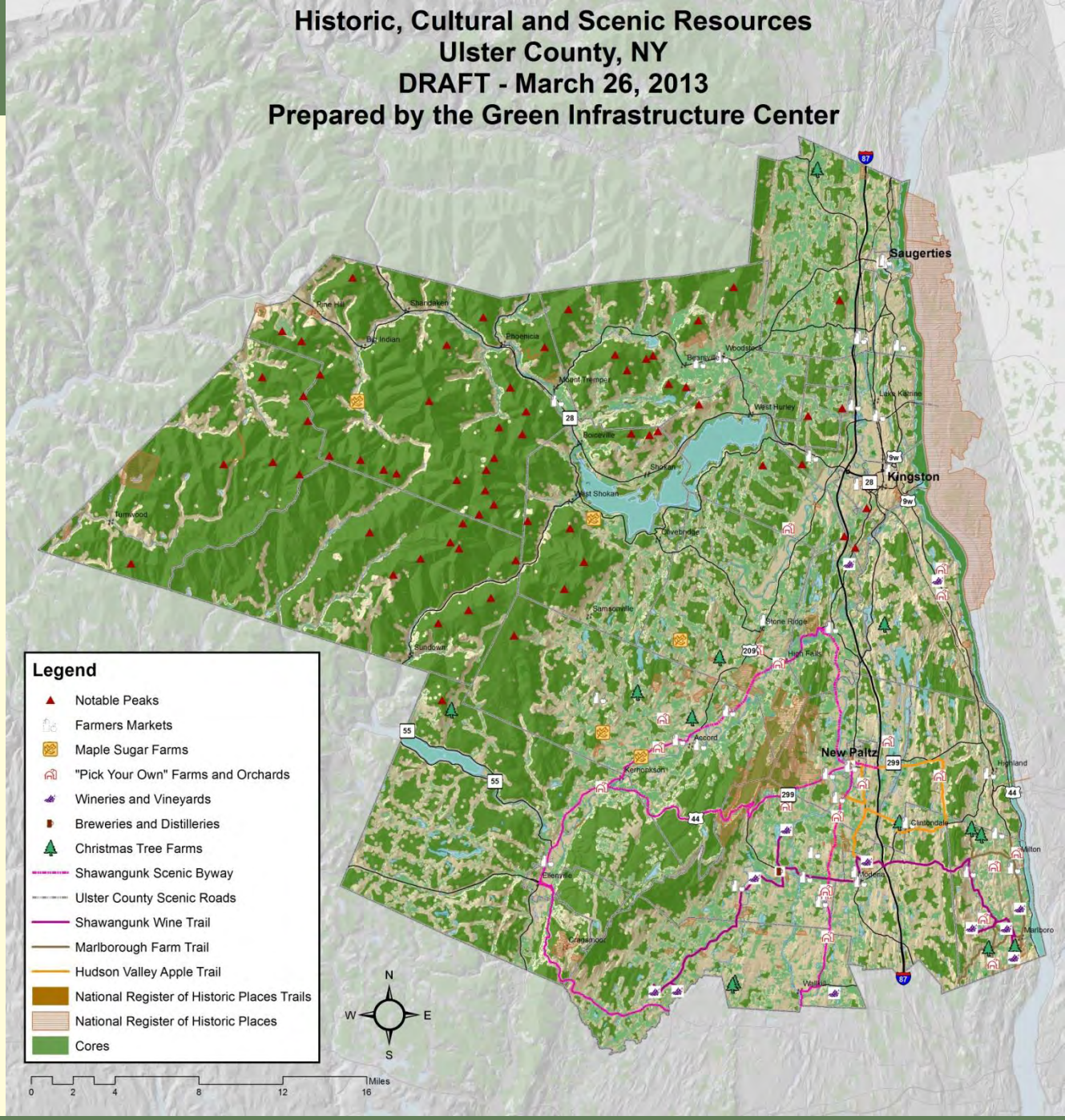
+ Scenic/land based tourism (wineries, apples, maple sugar

+ Scenic routes

+ National Register properties that are landscape dependent

+ Hudson River Viewshed

= Cultural Resources Supported by the Landscape



Themed Maps

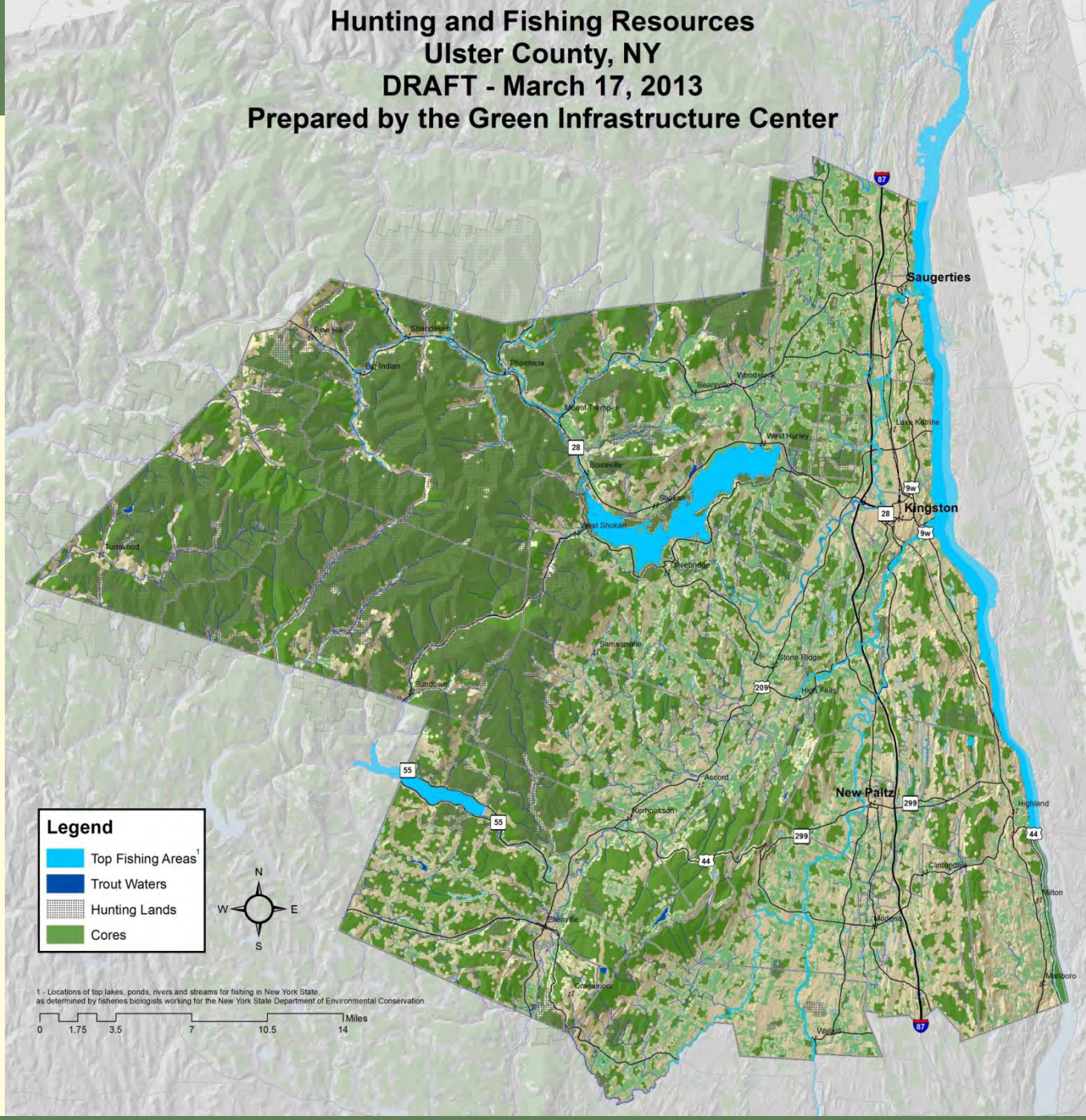
+ Top fishing areas

+ Trout waters

+ State hunting lands/ county hunt clubs

= Hunting and Fishing

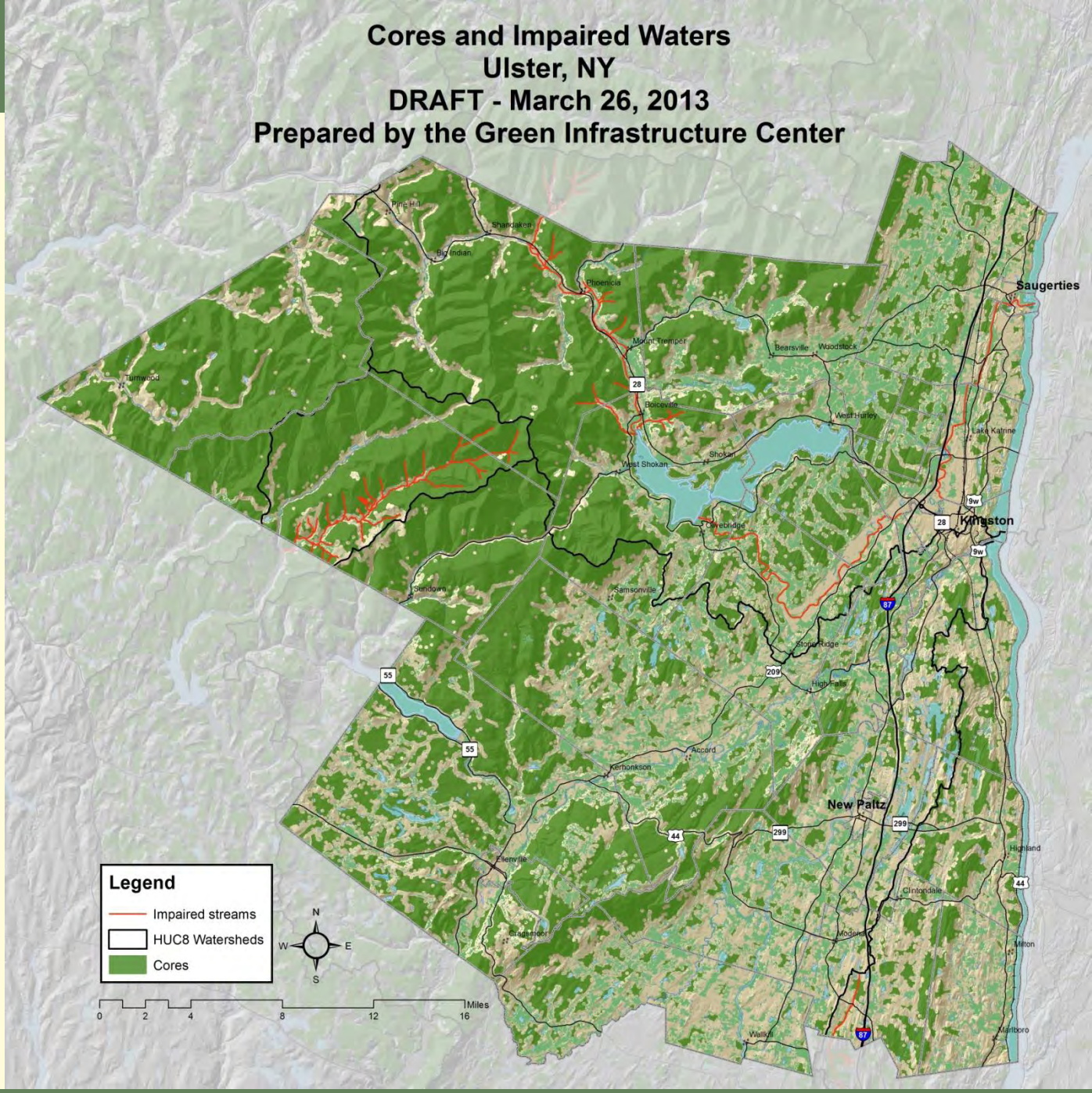
Note: also have REConnect features (hiking, birding, boating) in on-line viewer over this map but can not show in a static map.



Risk Assessment

What assets are most at risk?

Waters deemed impaired by state and EPA

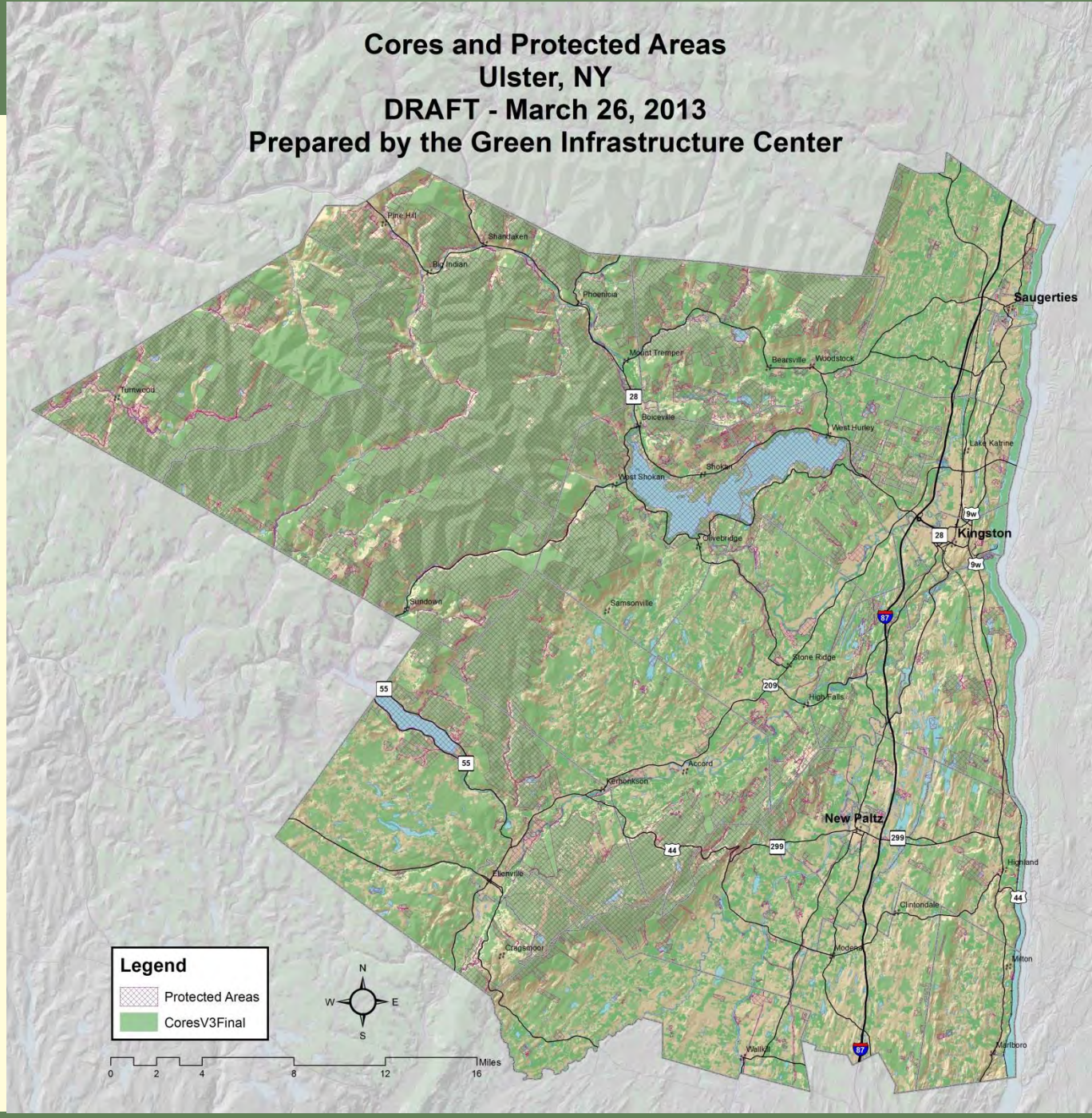


Of the high quality habitat cores, which are protected, which are not?

+ Forest Cores

+ Land under easement, parkland or nature reserve

= **Protected High Quality Cores**



Green Infrastructure Maps Provide Many Benefits

- Conserving working lands such as farms and forests, that contribute to the economy.
- Protecting and preserving water quality and supply.
- Providing cost-effective stormwater management and hazard mitigation.
- Preserving biodiversity and wildlife habitat.
- Improving public health, quality of life and recreation networks.

Clustering = setting buildings closer together to conserve green space

Within a subdivision, clustering can add to open spaces and provide an amenity for wildlife and recreation. But which land is protected and how it is connected are critical.

The problem of clusters that don't look beyond parcel boundaries

Park and Open Space Planning

Where might future parks be located based on population centers, need to protect key habitats or species, opportunities to increase recreation or site interpretation?

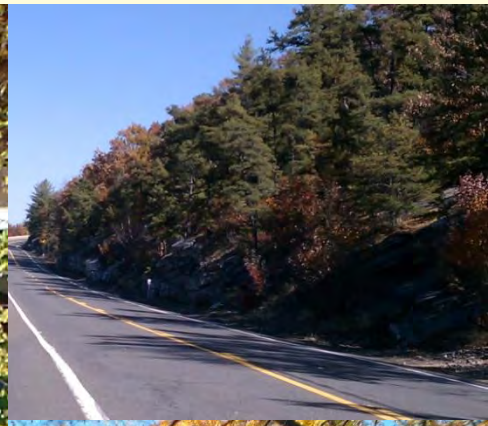
Trees and Water

Estimates for the amount of water a typical street tree can intercept in its crown, range from 760 gallons/tree/year to 4000 gallons/tree/year depending on species.

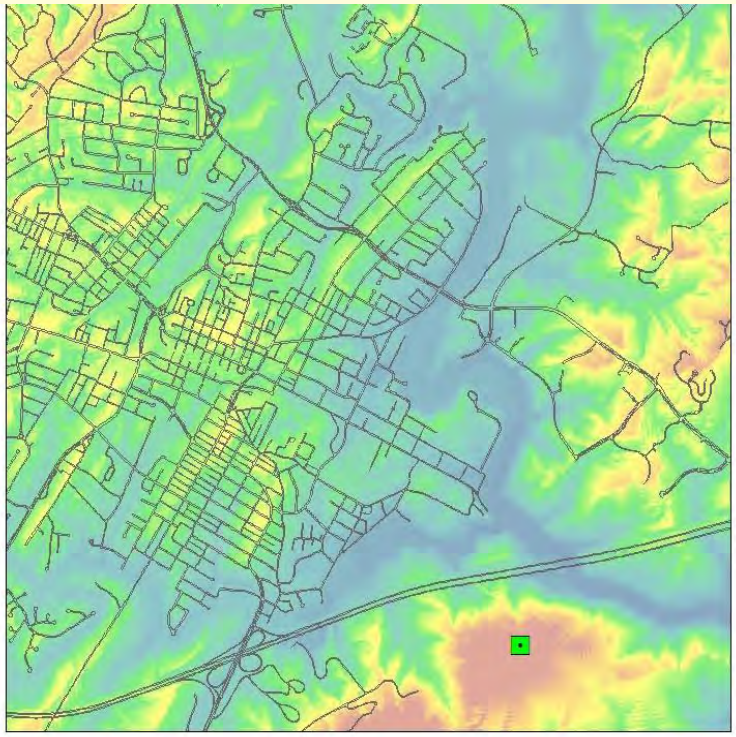
Species Protection in New York

- Eastern Tiger Salamander
- Bog turtles
- Bald Eagle
- Indiana Bat
- Northern Monkshood

Tourism Planning



Viewshed Protection



Site level planning to protect water quality

- Sites designed to protect and enhance buffer for waterways.
- Multiple opportunities for water infiltration.
- Improvements to increase habitats for people, animals, fish.

Smaller scales …

Trees and woodlots

Habitat patches

Streams and wetlands

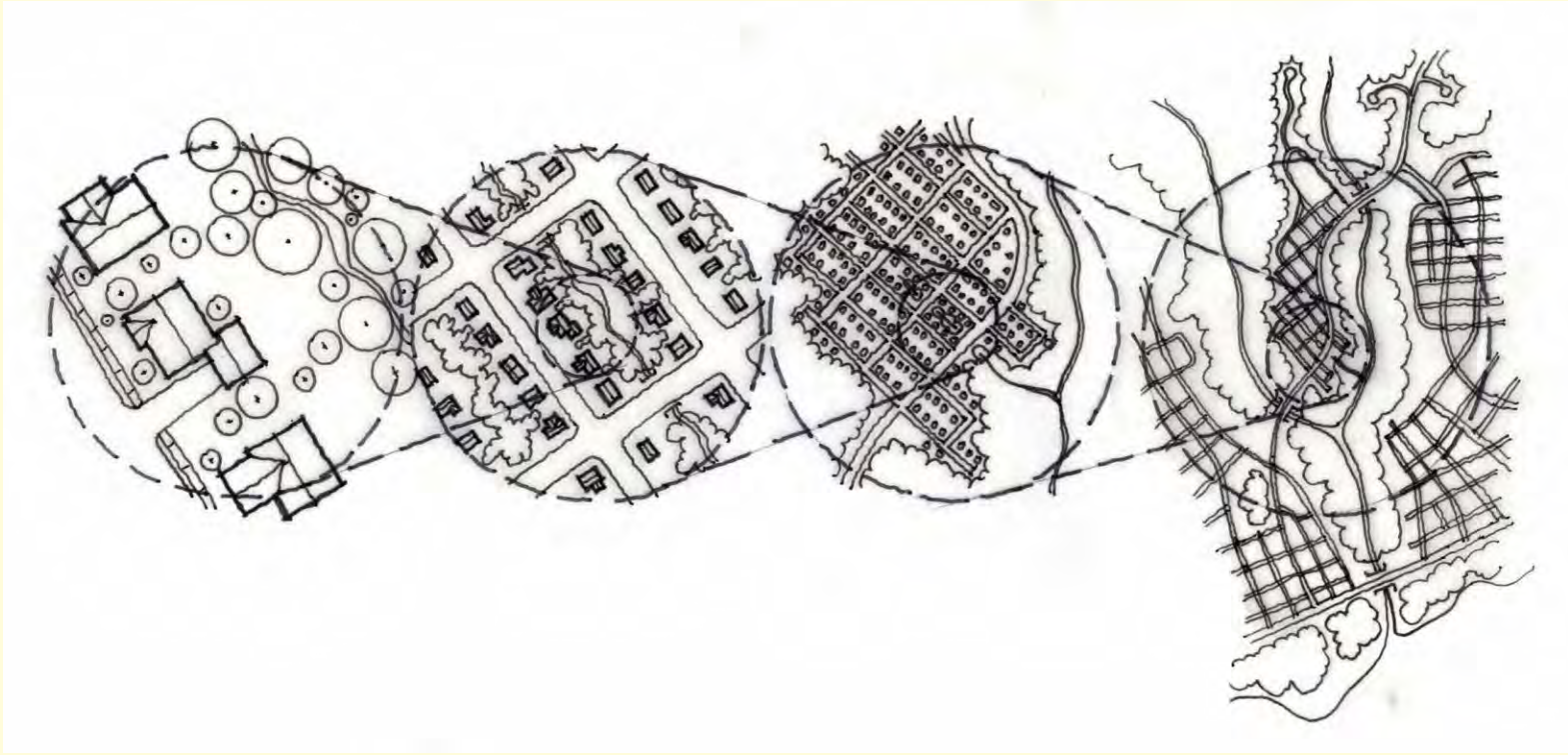
Trails and smaller parks

Local site plans can be connected to the county plan and visa versa …

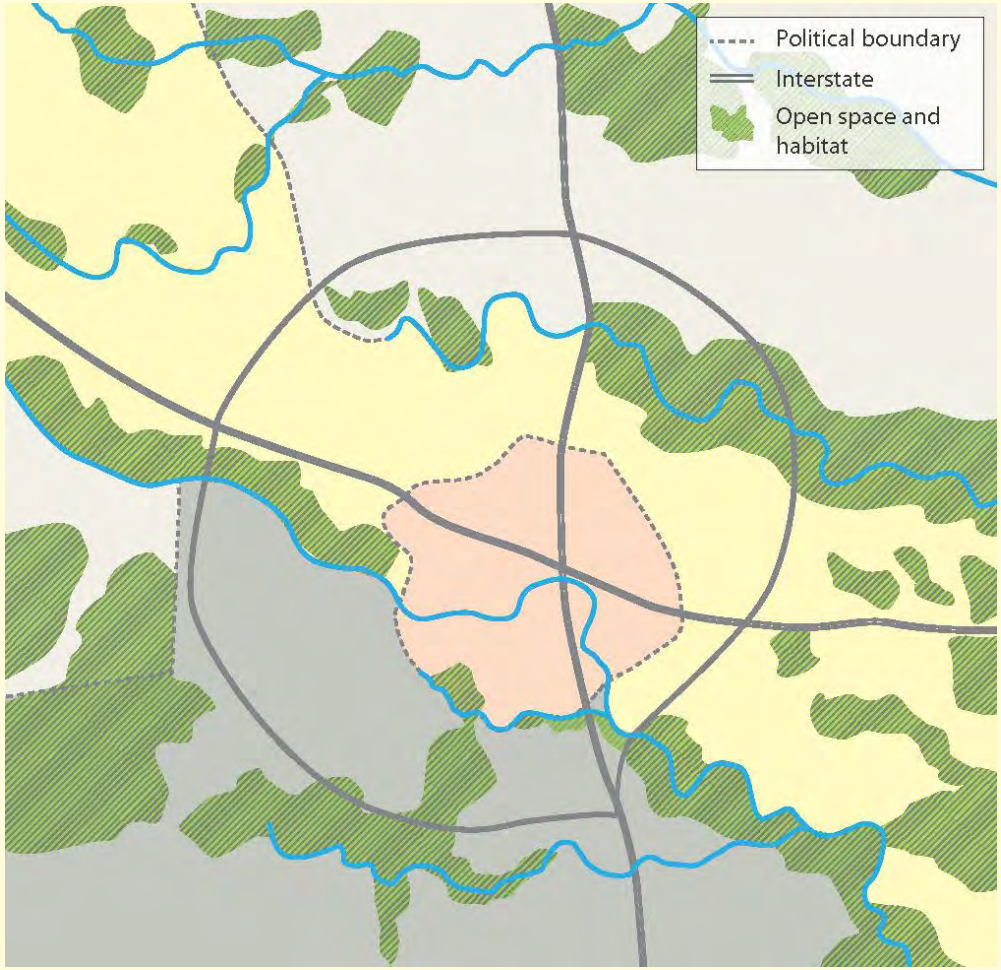
Portion of Town of Marbletown Natural Systems Map by Behan Planning Associates, LLC

Sites can be linked to the county

Sites change focus, but can connect to larger scales. May include restoration.



How can we link regional green infrastructure to local projects?



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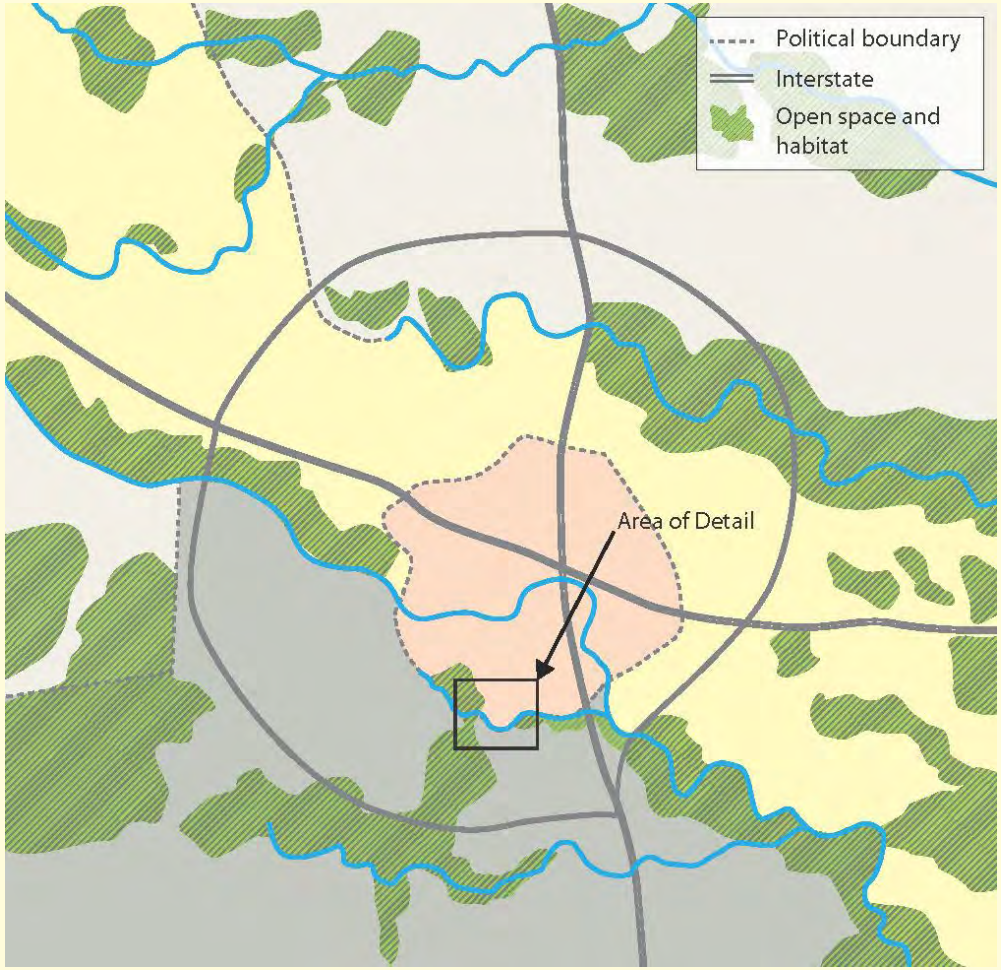

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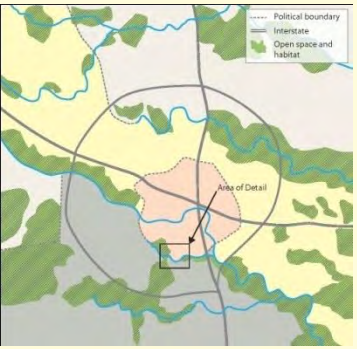
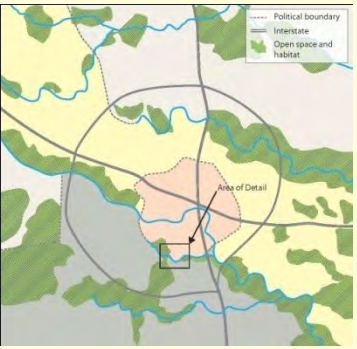
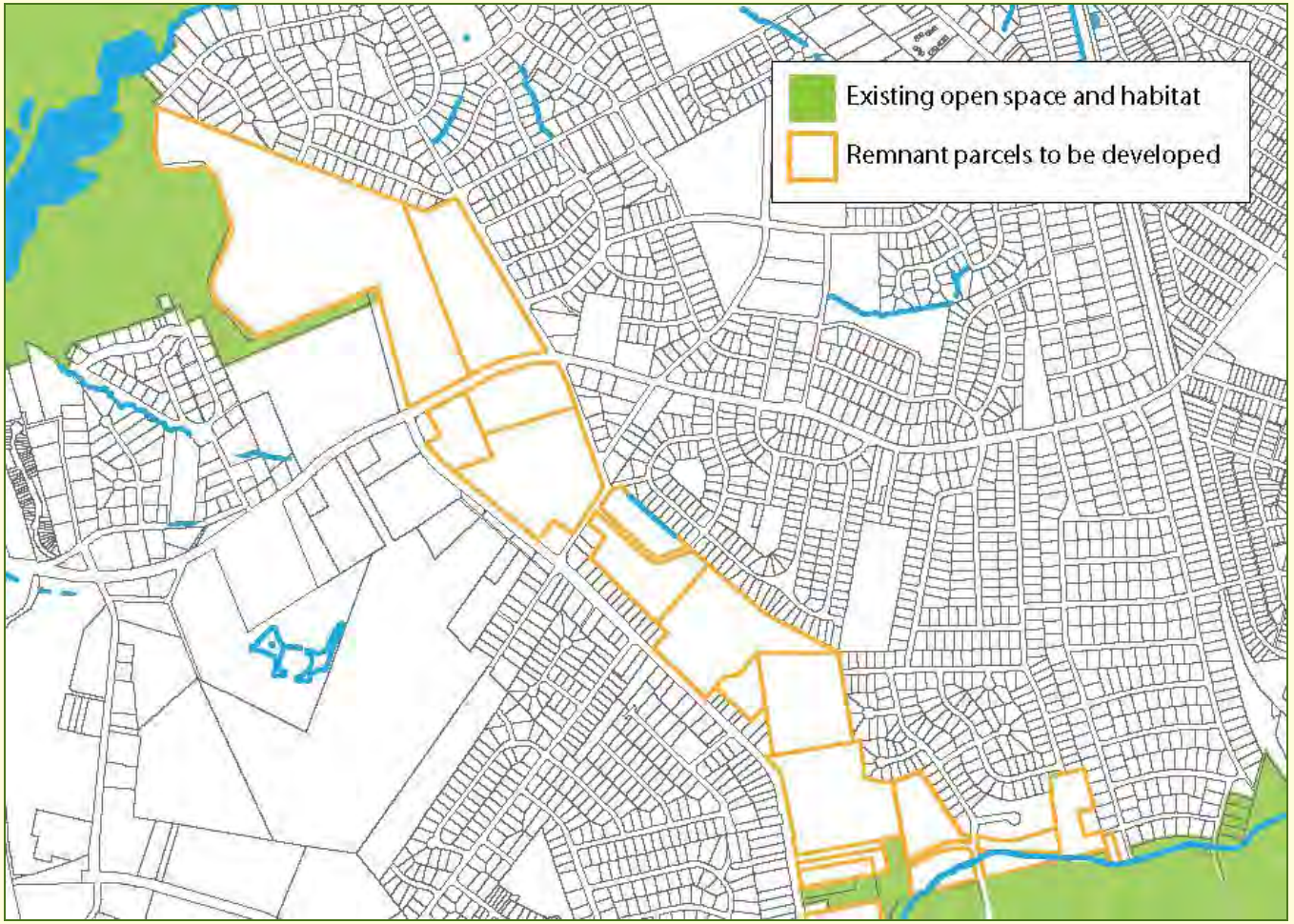


Vacant parcels can provide corridor opportunities to re-green and reconnect the urban landscape.





If each parcel leaves or replants a green strip, they can be connected for form a corridor – urban greenway trails can be created within an urban fabric.

Look for other ways for existing parcels to link to greenways.

What can you do?

✓Plant native species of trees and plants; if in a subdivision, adopt a native plants policy for common areas.

✓ If building a house, seek to avoid setting the home in the middle of undisturbed woodlands and/or leave a passageway of woods for wildlife to cross.

✓If planning a development, seek wooded connections to existing adjacent parcels and avoid cutting off connections. Plant more local native trees to support corridors and prevent too much edge habitat.

✓Work with Ulster County to map connected corridors or find out if priorities exist which your plans can support.

Next …

Visit maps – see your station ticket for where to start!

Ask questions! Make observations!

Visit the favorite places map to tell us what matters most to you in Ulster County!

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Slide show created by the

GIC Inc. under a contract with the Cadmus Group

with review and input by Ulster County

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